EAST AFRICAN COMMUNITY

HARMONIZED SANITARY AND PHYTOSANITARY MEASURES

VOLUME III –SANITARY MEASURES FOR FISH AND FISHERY PRODUCTS

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CONTENTS

LIST OF ACRONYMS

BDC	Biodiversity Convention
BMU	Beach Management Unit
CA	Competent Authority
CIP	Cleaning in Place
DNA	Deoxyribo-Nucleic Acid
EC	European Community
EIA	Environmental Impact Assessment
FAO	Food and Agricultural Organization of the United Nations
GHP	Good Hygiene Practices
GMO	Genetically Modified Organisms
GMP	Good Manufacturing Practice
HACCP	Hazard Analysis Critical Control Point
IG	Inspectors Guide
MRL	Maximum Residual Levels
MSOP	Manual of Standard Operating Procedures
OIE	World Organization for Animal Health
SPS	Sanitary Phytosanitary
WHO	World Health Organization of the United Nations

DEFINITIONS

For the purpose of this Volume, the following terms and definitions including those contained in The OIE Aquatic Animal Health Code are used.

Anaesthesia: partial or complete, local or general induced loss of sensation.

Aquaculture: the farming of *aquatic anima*ls with some sort of intervention in the rearing process to enhance production, such as regular stocking, feeding, protection from predators, etc.

Aquaculture establishment: an establishment in which fish, molluscs or crustaceans for breeding, stocking or marketing are raised or kept.

Aquaculture systems: means all culture devices used as aquafarms. The devices include racks, rafts, ponds, pens and cages.

Aquatic animal products: non-viable aquatic animals and products from aquatic animals.

Aquatic animals: all life stages (including eggs and gametes) of fish, molluscs and crustaceans originating from aquaculture establishments or removed from the wild, for farming purposes, for release into the aquatic environment or for human consumption.

Aquatic animal health status: the status of a country, zone or compartment with respect to an aquatic animal disease, according to the criteria listed in the relevant chapter of the Aquatic Code dealing with the disease.

Aquatic Code: the OIE Aquatic Animal Health Code.

Aquatic Manual: the OIE Manual of Diagnostic Tests for Aquatic Animals.

Batch: the quantity of fish/fishery products obtained under practically identical circumstances.

Basic biosecurity conditions: a set of conditions applying to a particular disease, and a particular zone or country, required to ensure adequate disease security, such as:

(i) the disease, including suspicion of the disease, is compulsorily notifiable to the Competent Authority; and

(ii) an early detection system is in place within the zone or country; and

(iii) import requirements to prevent the introduction of disease into the country or zone, as outlined in the Aquatic Code, are in place.

Berried fish female: fish with eggs.

Biological products: include

(i) biological reagents for use in the *diagnosis* of certain *diseases*;

(ii) sera for use in the prevention and treatment of certain *diseases*;

(iii) inactivated or modified vaccines for use in preventive vaccination against certain *diseases*;

(iv) genetic material of infectious agents; and

(v) endocrine tissues from fish or used in fish.

Bio-terrorism: the use of biological substances as weapons of destruction.

Brood stock: sexually mature fish, molluscs or crustaceans that are used for production of gametes.

Buffer zone: a zone established to protect the health status of aquatic animals in a free country or free zone, from those in a country or zone of a different aquatic animal health status, using measures based on the epidemiology of the disease under consideration to prevent spread of the disease agent into a free country or free zone.

Case: an individual aquatic animal infected by a pathogenic agent, with or without clinical signs.

Case definition: a set of criteria used to distinguish a case animal or an epidemiological unit from a non-case.

Carcinogenic: the substances capable of causing cancer.

Central Bureau: the Permanent Secretariat of the World Organisation for Animal Health (OIE), the headquarters of which are:
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Electronic mail: oie@oie.int
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Certifying official: a person authorized by the Competent Authority to sign health certificates for aquatic animals.

Clean water: Sea and fresh water which is free from microbiological contamination, harmful substances and or toxic marine plankton in such quantities as may affect the health quality of fishery products and which is used under the conditions laid down in this Volume.

Commodity: aquatic animals, aquatic animal products, biological products and pathological material.

Compartment: one or more aquaculture establishments under a common biosecurity management system containing an aquatic animal population with a distinct health status with respect to a specific disease or diseases for which required surveillance and control measures are applied and basic biosecurity conditions are met for the purpose of international trade. Such compartments must be clearly documented by the Competent Authority(ies).

Competent Authority: the Veterinary Services, or other Authority of a Partner State, having the responsibility and competence for ensuring or supervising the implementation of the aquatic animal health measures or other standards in the Aquatic Code.

Container: a transport appliance:

(i) of a permanent type and sufficiently strong to enable repeated use;

(ii) specially constructed to facilitate transport of aquatic animals or aquatic animal products by one or several means of transport;

(iii) provided with fittings that make it easy to manipulate, particularly for trans-shipment from one kind of transport vehicle to another;

(iv) constructed in a watertight way, easy to load and unload and capable of being cleansed and disinfected; and

(v) ensuring safe and optimal transport of aquatic animals.

Contingency plan: a documented work plan designed to ensure that all needed actions, requirements and resources are provided in order to eradicate or bring under control outbreaks of specified diseases of aquatic animals.

Diagnosis: determination of the nature of a disease.

Disease: clinical or non clinical infection with one or more of the aetiological agents of the diseases referred to in the Aquatic Code.

Disease agent: an organism that causes or contributes to the development of a disease referred to in the Aquatic Code.

Disinfectants: chemical compounds capable of destroying pathogenic microorganisms or inhibiting their growth or survival ability.

Disinfection: the application, after thorough cleansing, of procedures intended to destroy the infectious or parasitic agents of diseases of aquatic animals, including zoonoses; this applies to aquaculture establishments (i.e. hatcheries, fish farms, oyster farms, shrimp farms, nurseries, etc.), vehicles, and different equipment/objects that may have been directly or indirectly contaminated.

Commercial scale aqua farm: the culture and produce of aquatic products for business regardless of the magnitude of the farm.

Competent Authority: the government institution with mandate for regulating and enforcing Sanitary and Phytosanitary measures.

Contingency plan: a documented work plan designed to ensure that all needed actions, requirements and resources are provided in order to eradicate or bring under control outbreaks of specified diseases of aquatic animals.

Culch: structures used to collect molluscs seed/spat from the wild.

Disease: clinical or non-clinical infection with one or more of the aetiological agents of the diseases listed in the Aquatic Code as established by the OIE.
Disease agent: an organism that causes or contributes to the development of a disease.

Disinfectants: chemical compounds capable of destroying pathogenic microorganisms or inhibiting their growth or survival ability.

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Disinfection: the application, after thorough cleansing, of procedures intended to destroy the infectious or parasitic agents of diseases of aquatic animals, including zoonoses.

Emerging disease: a newly recognized serious disease, the cause of which may or may not yet be established that has the potential to be spread within and between populations.

*Enclosur*es: aqua farm enclosed on all sides by netting or other materials that prevent cultured organisms from escaping.

Environmental Impact Assessment: a formal process used to predict the environmental consequences of any development project by ensuring that foreseen problems are addressed at an early stage in the project planning and design.

Epidemic: a disease outbreak affecting certain human or animal populations.

Epizootic: a disease outbreak affecting certain animal populations.

Eviscerated fish: fish from which internal organs have been removed excluding the brain and gills.

Fallowing: for disease management purposes, an operation where an aquaculture establishment is emptied of aquatic animals susceptible to a disease of concern or known to be capable of transferring the disease agent, and, where feasible, of the carrying water.

Feed: any material (single or multiple), whether processed, semi-processed or raw that is intended to be fed directly to aquatic animals.

Feed additives: any ingredient intentionally added in micro-amounts not normally consumed as feed by itself, whether or not it has nutritional value, which affects the characteristics of feed or animal products. This excludes veterinary drugs.

Feed ingredient: a component, part or constituent of any combination or mixture making up a feed, including feed additives, whether or not it has a nutritional value in the animal's diet.

Fish: a vertebrate fish alive or dead and any part of it and it includes the young and eggs.

Fishery product: any product where fish is the primary component, not include the use of fish products as minor ingredients in other processed foods or feeds.

Fish processing establishment: any premise where fishery products are prepared, processed, chilled, frozen, packaged or stored. Auction and wholesale markets in which only display and sale by wholesale takes place are not deemed to be establishments.

Fish seed: juveniles of fish, crustaceans and molluscs.

Gametes: the sperm or unfertilised eggs of aquatic animals that are held or transported separately prior to fertilisation.

Genetically Modified Organisms: organisms whose genetic structure has been altered by incorporating a gene that will express a desirable trait, often termed gene splicing.

Good laboratory practices: practices considered acceptable in the daily management of a laboratory.

Good manufacturing practice: practices that are considered acceptable or recommended during the handling, processing, storage and distribution of fish and fisheries products.

Gravid female: a ripe female fish carrying eggs in the belly.

Hatcheries: aquaculture establishments raising aquatic animals from fertilised eggs.

Hazard: a biological, chemical or physical agent in, or condition of, food or feed with the potential to cause adverse health effect and/or harm to a consumer.

Hazard Analysis Critical Control Point (HACCP): a food safety management system which is used to control or eliminate potential hazards associated with food production processes.

Hazard Identification: the qualitative and/or quantitative valuation of the nature of the adverse effects associated with biological, chemical and physical agents which may be present in food/feed.

Horizontal transmission: the infection of one animal by contact with another animal or its infectious material that is not from mother to offspring.

Hypophysation: an artificial method of breeding fish.

Incidence: the number of new outbreaks of disease within a specified period of time in a defined aquatic animal population.

Incubation period: the period that elapses between the introduction of a disease agent into an aquatic animal population and the occurrence of the first clinical signs of the disease.

Infective period: the longest period during which an affected aquatic animal can be a source of infection.

Inspection: the official control carried out by the Competent Authority to guarantee compliance with the SPS measures.

Notification: the procedure by which the confirmation of a disease/hazard is conveyed to and by the authorities.

Organoleptic evaluation: the use of human sensory organs to assess quality.

Outbreak of disease: an occurrence of disease in an aquatic animal population.

Pandemic: an outbreak of an infectious disease that affects people or animals over an extensive geographical area.

Pen: culture facilities fixed on its position used to raise aquatic organisms.

Ponds: culture facilities which are set up by the removal of earth material from the surface with an average depth of one metre deep used to capture water for raising aquatic organism.

Post larvae: juveniles of fish.

Potable water – Means water that meets requirements for drinking water for human consumption.

Prevalence: the total number of infected aquatic animals expressed as a percentage of the total number of aquatic animals in a given aquatic animal population at one specific time.

Quality Assurance system: activities, procedures and methods put in place to ensure the production of safe and quality fish and fishery products.

Quarantine: maintaining a group of aquatic animals in isolation with no direct or indirect contact with other aquatic animals, in order to undergo observation for a specified length of time and, if appropriate, testing and treatment, including proper treatment of the effluent waters.

Raft: a hanging system made of hanging ropes tied on horizontal wooden frame fixed on the sea bottom used to culture molluscs, and seaweed.

Risk: the likelihood of the occurrence and the likely magnitude of the hazard and economic consequences of an adverse event or effect to animal or human health.

Risk analysis: means the complete process composed of hazard identification, risk assessment, risk management and risk communication.

Risk assessment: a scientifically based process consisting of hazard identification, hazard characterization, exposure assessment and risk characterization.

Risk characterization: the estimation of the incidence and severity of the adverse effects likely to occur in a population or environmental compartments due to actual or predicted exposure to a substance. This may include risk estimation, i.e. quantification of that likely hood. It serves as a summary and description of the results of a risk analysis for a risk manager or the public and other interested parties.

Seaweeds: marine plants with no true roots stem or branches. They have thalloid body shapes and the whole body is able to take nutrients from the surrounding sea water.

Seedlings: seaweed cuttings from the main plant that are used to propagate seaweed.

Spats: seeds/juveniles used to establish fish farm.

Sanitary measure: a measure, such as those described in various Chapters of the Aquatic Code, destined to protect aquatic animal or human health or life within the territory of the OIE Member from risks arising from the entry, establishment and/or spread of a hazard.

Stake method: method is used in marine ecosystem to culture seaweed in the inter-tidal zone.

Tanks: culture facilities made up of appropriate materials used to raise aquatic organisms.

Thinning: a process of selecting spat from the catch to provide chances for acquiring the desired growth.

Tie-tie: a 1 micro-millimetre nylon rope used to tie the seaweed seedlings onto a 4 micro-millimetre rope.

Traceability: the ability to trace, follow and identify uniquely a product unit or batch through all stages of production, processing and distribution.

Vertical transmission: the transmission of a pathogen from a parent aquatic animal to its progeny.

Withdrawal period: the duration of time between the last dose given to the animal and the time when the level of residues in the tissues or products falls below the MRL.

Zoonosis: any disease or infection which is naturally transmissible from animals to humans.

EAST AFRICAN COMMUNITY (EAC) SANITARY MEASURES FOR FISH AND FISHERY PRODUCTS

PREAMBLE

The EAC recognizes the need for ensuring rational development of the agricultural sector and increased production to ensure food security and free trade in agricultural products within the Community and with other trading partners. This will be achieved by adopting harmonized phytosanitary measures in pursuance of Articles 105 to 108 of the EAC Treaty for the Establishment of the East African Community and Article 38 (1) (c) of the Protocol on the Establishment of the East African Community Customs Union which are consistent with World Trade Organization Agreement on Application of Sanitary and Phytosanitary Measures (WTO-SPS Agreement), International Plant Protection Convention (IPPC), Codex Alimentarius Commission (CAC), World Organization for Animal Health (OIE), and other relevant agreements.

The provisions contained in this document shall be referred to as the ***East African Community (EAC) Sanitary Measures for Fish and Fishery Products***. They are part of 3 Volumes of the EAC Harmonized Sanitary and Phytosanitary Measures which include:

Volume I: ***Phytosanitary Measures***

Volume II: ***Sanitary Measures for mammals, birds and bees***

Volume III: ***Sanitary Measures for Fish and Fishery Products***

These Sanitary Measures for Fish and Fishery Products are prepared to protect aquatic animal or human health or life within the territory of the EAC Partner States from risks arising from the entry, establishment and/or spread of a hazard in accordance to Chapter 18 Article 108 of the Treaty for the Establishment of the East African Community and the OIE Aquatic Animal Health Code. Their use will be implemented through specific Standard Operating Procedures (SOPs) benchmarked on OIE and Codex standards; and relevant fishery legislations of Partner States.

1.0 OBJECTIVES

The specific objectives of these Sanitary Measures for Fish and Fishery Products are to enhance trade on fish and fishery products within the EAC and beyond, through implementation of the following common and harmonized:

1.1 Inspection and certification procedures;

1.2 Regulation of importation, research, development and use of Living Modified Organisms (LMOs)/products of modern biotechnology;

1.3 Policies, legislation and regulations for management of fish and fishery products;

1.4 Safe movements of fish and fishery products;

1.5 Systems for surveillance of aquatic animal disease, according to the criteria listed in the relevant chapters of the Aquatic Code dealing with the diseases;

1.6 Import and export conditions; and

1.7 Framework for design and management of quarantine facilities.

2. HARMONIZED SANITARY MEASURES FOR FISH TRADE

2.1 Notifications

2.1.1 Requirements for notification

a) All Partner States of the East African Community shall make immediate notification of fish disease outbreaks and other fish and fishery products and public health hazards in their territories to each other by the quickest means available in the spirit of transparency and to the OIE Central Bureau.

b) Notifications shall also be made for capture fish disease outbreaks. The notification sent to the Partner States of EAC and to the OIE shall include:

(i) The name of suspected disease,

(ii) Date of initial outbreaks

(iii) The location of the outbreak (District and Grid Reference)

(iv) Mode of transmission of the disease (Agent – Host – Environment relationship)

(v) Fish disease, disease agent prevention and control measure being undertaken, including quarantine restrictions to limit fish and fishery products movement.

(vi) The laboratories where confirmation of fish disease and disease agent was done.

c) Partner States shall advise each other on progress in managing the outbreak including the time the problem is resolved.

2.2 Diseases to be notified

2.2.1 EAC Partner states shall adopt the criteria for listing and notifying fish diseases in accordance with OIE Aquatic Animal Health Code.

2.3 Requirements for Aquatic animal health surveillance

2.3.1 Partner States shall have harmonized procedures for carrying out fish health surveillance for the purpose of demonstrating absence of diseases, identifying events requiring notification and determining the occurrence or distribution of endemic diseases including changes to their incidence or prevalence.

2.3.2 Requirements for surveillance

a) Hatcheries shall be regularly inspected in order to ensure compliance with the requirements of hygiene and disease control.

b) Hatcheries shall be inspected regularly once a month and it shall entail hygiene and disease security of the premises, the brood stock , environment, buildings, equipments, records keeping and general management for effective disease control;

c) The brood stock shall be monitored for freedom from specified fish diseases.

d) The Veterinary Authority shall test the brood stock for infectious diseases

2.3.3 Requirements for risk analysis

Partner States shall have harmonized and transparent procedures for carrying out risk analysis with the objective of assessing disease risks associated with importation of fish and fishery products, fish genetic material, aquatic feed stuff, biological products and pathological material.

2.4 Requirements for the Competent Authority

2.4.1 Each Partner State shall designate a Competent Government Authority to be responsible for the supervision and implementation of fish health and welfare measures, international veterinary certification and other standards and recommendations in the Aquatic code in the whole territory.

2.4.2 The other functions of the Competent Authority shall be:

a) to control aquaculture and capture fisheries activities such as fish harvesting, fish landing, handling, transportation, processing, storage and marketing;
b) to approve and license aquaculture and fish processing establishments and their operations including factory sea vessels;
c) to carry out inspections and audits of aquaculture systems, fish processing plants, sea factory vessels, fish markets and gazetted fish landing sites to ascertain compliance with national standards for fish and fishery products.(EAC comment on use of EAC Standard or national standard);
d) to certify post harvested fish and fishery products including live fish for local and export market;
e) to lay down, review and enforce laws and regulations, code of practice and any legal provisions for compliance;
f) to specify conditions for the placing on the market of fish and fishery products both local, exports and imports;
g) to designate fish inspectors and determine their in-service training needs for capacity building;
h) to identify appropriate testing laboratories and designate them in collaboration with the responsible National standards body;
i) to monitor aquaculture establishments, fishing activities, fishing grounds and other critical areas for pollution contaminants e.g. heavy metals, trace elements, pesticide residues and microbes;
j) Liaise with fisheries Research institutes with respect to activities pertaining to the safety and quality of fish and fishery products;
k) overall responsible body for all fisheries management matters; and

l) to perform such other functions as may be necessary or expedient for the protection and conservation of the fisheries resources; aquaculture development and quality assurance of fish and fishery products in accordance with the national regulations.

2.5 Requirements for disinfection

2.5.1 Partner States shall apply harmonized disinfection procedures for fish disease management. Disinfection procedures shall be part of a disinfection programme designed for a specific purpose.

2.5.2 Disinfection shall be used in biosecurity programmes to eradicate or exclude specific diseases from aquaculture establishments, as well as a routine sanitary measure to reduce disease incidence within aquaculture establishments.

2.5.3 Disinfection of installations, equipment and transport units shall be carried out using procedures that prevent the contamination of water and other aquatic animal populations with infectious material.

2.5.4 Measures shall be developed to protect personnel, aquatic animals and the environment against the use of disinfectants.

2.6 Requirements for contingency planning

2.6.1 Partner States shall apply harmonized contingency plans to mitigate potential disease threats to aquaculture and wild fish stocks.

2.6.1 The contingency plan shall include among others, legal provisions for its implementation, establishment of specified crisis centres, information on staff required to undertake control measures, their responsibilities, and instructions on the chain of command and on actions to be taken.

2.6.2 Partner States shall include in the contingency plan, established national laboratories having the necessary facilities for diagnostic work on aquatic animal diseases.

2.6.3 Contingency plans shall include establishment of necessary training programmes to ensure that skills in field, administrative and diagnostic procedures are maintained.

2.7 Requirements for fallowing

2.7.1 Partner States shall implement harmonised fallowing practices as a regular disease management measure in aquaculture.

2.7.2 In the establishment or restoration of a disease free zone, Partner states shall establish a legal framework for the implementation of fallowing procedures in aquaculture establishments. The Legal provisions shall include:

a) defining the disease circumstances when fallowing or synchronised fallowing is required;
b) defining mechanisms based on risk assessment where individual disease-specific measures shall be determined, including disinfection and the length of the fallowing period prior to the re-introduction of susceptible species;
c) following permission by the Competent Authority to restock with susceptible species, defining a period of surveillance and diagnosis to verify freedom from the specified disease.

2.7.3 Fallowing of a farm shall start immediately after:

a) removal of all susceptible species of aquatic animals for the disease of concern; and
b) removal of all species capable of acting as carriers of the disease of concern; and
c) if appropriate, removal of other species; and
d) removal of water in which infected stocks have been held, where feasible; and
e) equipment and other materials contaminated or otherwise capable of harbouring infection have either been removed or subjected to disinfection to standards approved by the Competent Authority.

2.7.4 The length of the statutory fallowing period shall be based on scientific evidence of the likelihood of a disease agent remaining infective outside its aquaculture host(s) in the local environment, at a level likely to cause an unacceptable risk of re-infection of the aquaculture establishment.

2.7.5 Account shall be taken of the extent of the disease outbreak, local availability of alternative hosts, the survival and infectivity characteristics of the disease agent and the local climatologically, geographical and hydrographical factors.

2.7.6 In addition, the level of risk to the local aquaculture industry and wider aquatic resources may be included. A scientifically based risk assessment approach should be used to determine the length of the fallowing period.

2.7.7 Fallowing procedures shall include a detailed set of instructions for disinfection of aquaculture establishments prior to fallowing.

2.7.8 No aquaculture establishment that has been under compulsory fallowing shall be restocked until the fallowing period has been completed and permission from the Competent Authority has been received. When restocking, care shall be taken not to use stocks of aquatic animals that will compromise the objectives of the fallowing procedure.

2.7.9 All farms subjected to compulsory fallowing shall have a period of high level official surveillance after susceptible species have been restocked. The duration and intensity of the surveillance shall be appropriate for the disease of concern and local conditions.

2.8. Requirements for control of aquatic animal feeds and feed ingredients

2.8.1 The Partner States Competent Authorities shall set and enforce regulatory requirements for ensuring safety of aquatic animal feeds and feed ingredients, and the use of veterinary drugs.

2.8.2 Competent Authorities in Partner States shall require that a consignment of imported aquatic feeds and feed ingredients is accompanied by an international aquatic animal health certificate issued by the Competent Authority of the exporting country.

2.9 Requirements for certification

2.9.1 Partner States Competent Authorities shall base their import requirements on the OIE standards to maximize harmonization of the aquatic animal health aspects of regional and international trade.

2.9.2 Partner States shall apply harmonized procedures for ensuring professional integrity of the certifying officials.

2.9.3 Partner States may develop procedures for use and security of electronic certification.

2.10 Requirement for Aquatic animal health measures applicable before and at departure

2.10.1 Partner States Competent Authorities shall apply harmonized procedures for authorizing the exportation from their territories of live aquatic animals and aquatic animal products that are correctly identified and inspected.

2.11 Requirement for aquatic animals applicable during transit

2.11.1 Partner States Competent Authorities shall apply harmonized procedures for transit of aquatic animals

2.12 Requirement for frontier posts

2.12.1 Partner States shall designate and equip frontier posts for:

a) detecting and isolating aquatic animal populations affected with or suspected of being affected with a disease;
b) carrying out disinfection of vehicles used to transport aquatic animals and aquatic animal products;
c) making clinical examinations and obtaining specimens of material for diagnostic purposes from live aquatic animals or carcasses of aquatic animals affected or suspected of being affected with a disease, and obtaining specimens of aquatic animal products suspected of contamination.
d) The designated frontier posts shall be provided with equipment for the sterilisation or incineration of any material dangerous to aquatic animal health.

2.12.2 Currently, the designated frontier posts in EAC are:

Burundi

Designated frontier posts:	Bujumbura International Airport, Bujumbura Port, Rumonge Port, Gatumba Port
Other Designated posts:	Gasenyi, Upper Kanyaru, Ruhwa, Nyazalace harbour, Kobero and Lower Kanyaru

Kenya

Designated frontier ports:	Mombasa Harbour, Moi International , Shimoni, Lokichoggio, Moyale, Mandera, Jomo Kenyatta International Airport and Eldoret International Airport.
Other designated posts:	Lungalunga, Taveta, Oloitoktok, Namanga, Nyamutiru, Isebania, Kopanga, Muhuru Bay, Kisumu Pier, Usenge, Sio Port, Busia, Malaba, Luakhakha, Suam.

Rwanda:

Designated frontier posts:	Kigali International Airport, Rusizi/Kamembe, Rusizi/Bugarama, Gisenyi/small barrier and Gisenyi/Corniche.
Other designated posts:	Rusumo, Kagitumba, Gatuna, Kanyaru, Nemba and Cyanika.

United Republic of Tanzania:

Designated frontier posts:	Julius Nyerere International Airport, Dar es Salaam Harbour, Tanga Harbour, Mtwara

	International Airport, Mtwara harbour, Kilimanjaro International Airport, Mwanza International Airport, Zanzibar International Airport and Zanzibar Harbour, Kigoma Harbour, Itungi and Tunduma.
Other designated posts:	Sirari, Taveta, Namanga, Holili, Mbamba bay, Kasumulu, Rusumo, Kasesya, Kirando, Ikola, Bagamoyo and Pangani.

Uganda:

Designated frontier posts:	Entebbe International Airport, Bunagana, Ishasha River, Ntoronko, Vurra, Madi Opei, Lamuru, Mpondwe,
Other designated posts:	Mirama Hills, Katuna, Cyanika, Kaya, Kikagati, Malaba, Busia, Luakhakha, Suam, Mutukula, Port Bell and Attiak.

2.13 Prohibited marine species

2.13.1 The following families of marine fish shall not be placed on the market: *Tetradontidae*, *Molidae*, *Diodontidae*, *Canthigasteridae;* and fishery products commonly containing biotoxins of marine origin.

3. SANTARY MEASURES FOR AQUACULTURE

3.1 Requirements for Environmental Impact Assessment

Partner States shall require that all aquaculture practices on commercial scales shall, before being undertaken, require an Environmental Impact Assessment (EIA) by the relevant authority.

3.2 Requirements for site selection

3.2.1 Partner States shall require that all aquaculture establishments shall be located in such a way that they are free from potential sources of contaminants (physical, biological or chemical) to reduce the risk of contamination. The soils shall be impervious to water to avoid the ingress of possible pollutants.

3.2.2 Before building a land-based aquaculture facility Partner States shall require that a survey and sample analysis of the soil shall be conducted to determine the concentration of micro-contaminants which are of importance for the safety of live fish and end products, specifically heavy metals, pesticide residues and microbial organisms.

3.3 Requirements for water quality

Partner States shall apply the following harmonized measures for the quality of water used for aquaculture.

3.3.1 Water used for aquaculture shall be clear and free from toxic algae and other pollutants e.g. physical, biological and chemical.

3.3.2 Physical, chemical parameters and nutrients of water for aquaculture shall be within acceptable range for the cultured species.

3.3.3 Phytoplankton shall be monitored regularly to ascertain the toxic producing toxic strains for exclusion at an early stage.

3.3.4 Upstream and marine water sources shall be free from industrial effluent, petroleum products, agricultural chemical leaches and domestic sewage

3.3.5 Flow of water in and out of the aquaculture facility shall be controlled for maintaining ideal survival conditions.

3.3.6. Water, sediment and fish samples from aquaculture systems shall be collected regularly for physical, biological and chemical analysis. Concentrations shall be within the national and international standards.

3.4 Requirements for genetic materials

Partner States shall apply the following harmonized measures for new genetic materials intended for aquaculture.

3.4.1 All new genetic materials intended for aquaculture shall conform to the National Bio-security Guidelines and they shall not be released into aquatic system without permission from the relevant Competent Authorities

3.4.2 Living Modified Organism that is a product of aquatic research shall be under quarantine and shall only be released from quarantine with the written consent of the relevant Competent Authorities

3.4.3 Genetic Modified Organisms (GMOs) of fish species shall only be allowed to be imported if they fulfil requirements in Protocols and Conventions of Biodiversity (BDC)/FAO/WHO.

3.4.4 Import/export of genetic materials from genetic data bank shall be allowed if a person intending to export/import is in possession of import/export certificate/permit from the Competent Authority.

3.4.5 Hybridisation of species shall be regulated by the Competent Authority.

3.4.6 Referral laboratory shall be identified by Competent Authority to measure the extent of DNA's engineering and manipulation of the imported GMOs to be used in aquaculture systems.

3.5 Requirements for fish seed production

Partner States shall apply the following harmonized measures for fish seed production.

3.5.1 Fish seeds shall be produced by approved institutions and farms with adequate technology and reliable production facilities.

3.5.2 The brood stock used shall be of known superior genetic quality to confer to progeny the genetic make up for resistance to diseases and harsh environmental conditions.

3.5.3 The origin of gametes or replacement stock shall be from known and certified fish breeders.

3.5.4 The brood stocks used shall be of a proper breed and drawn from a known source devoid of parasites, diseases and malformations.

3.5.5 The brood fish shall be well maintained and managed appropriately to prevent disease outbreaks

3.5.6 Sorting and grading of fish seed shall not compromise health and quality.

3.5.7 The fish seeds produced shall be certified as determined by the Competent Authority before being marketed.

3.5.8 Breeding procedures shall be perfected to avoid contamination particularly in the hatchery.

3.5.9 The fish seed production facilities shall be regularly inspected by the Competent Authority to ensure the laid down sanitary and hygienic procedures for breeding, hatching, nursing and for holding brood stock are complied with.

3.5.10 The personnel involved in fish seed production shall be skilled in fish breeding and seed handling to prevent injuries and disease to brood stock and fingerlings.

3.5.11 The fish seed production facilities shall be clean, have clear designated areas for: holding brood stock breeding, hatching, preparation of live food, nursing, holding young fish to provide suitable survival conditions.

3.5.12 The harvest gear and methods for eggs, fry, fingerlings or brood stock shall not inflict or cause any injuries or contaminate them.

3.5.13 Records of all productions, stocking, growth performance, health, harvests and movements by dates shall be maintained for traceability purposes.

3.6 Requirements for stocking

Partner States shall apply the following harmonized measures for fish stocking.

3.6.1 Fingerlings for stocking shall be of size that can survive in the culture system and meet any other specified requirements before being released.

3.6.2 Fingerlings shall be transported in facilities with adequate survival conditions.

3. 7 Requirements for feed formulation, production, storage and feeding

Partner States shall apply the following harmonized measures for feed production.

3.7.3 The feed shall contain all the nutrients in the proportions required for optimum growth by the target fish and easily digested. Ingredients known to contain toxins and oxidants shall be avoided for inclusion.

3.7.2 Slaughterhouse waste and offal from mammalian food animals may only be used as fish feed after proper treatment.

3.7.3 Manufacturers of the compound fish feeds shall prior to placement on the market provide on the product label details of the composition, granular and pellet size, manufacture and expiry date, origin and contact address.

3.7.4 If fish feed is stored at the aquaculture facility it shall be kept in a properly constructed well-ventilated facility, and protected from the entry of vermin

3.7.5 Veterinary therapeutic products and medicinal premixes for inclusion in fish feeds shall not be applied to fish unless they are approved for use by CA

3.7.6 Samples of fish feed shall be analysed to determine the food value.

3.7.7 Feeding methods shall ensure that all individual fish have sufficient access to the feeds supplied and wastage avoided.

3.7.8 Fish feeds shall be used before the expiry date.

3.8 Aquaculture management practices

Partner States shall apply the following harmonized measures for aquaculture management.

3.8.1 The aquaculture systems shall be constructed in such a manner as to ensure the safety and quality of the live fish and fishery products.

3.8.2 The management of aquaculture systems shall before constructing, reconstructing or adapting a new technology submit to the competent authorities for approval, a plan of the establishment, a list of the activities to be carried out.

3.8.3 The following records of aquaculture systems shall be kept: Date of culture system construction, number of fingerlings, stocking rate, feeds, treatments and time and anticipated harvest time.

3.8.4 Where possible weeds, rubbish and debris shall be removed from the vicinity of an aquaculture establishment before stocking.

3.8.5 Ponds shall be conditioned with lime and left for a period of at least two weeks before filling and stocking to regulate pH, minimize parasitic infection and improve pond fertility.

3.8.6 The disinfectants applied to the aquaculture systems shall be approved and applied in accordance to the CA and manufacturer's instructions.

3.8.7 At least once after every production cycle the facility shall be drained, allowed to dry out and re-conditioned with lime

3.8.8 Fallowing shall be carried out as a regular diseases management measure.

3.8.9 Human waste shall not be used as pond fertilizer unless properly treated.

3.8.10 Pig manure shall be used only if it is:

a) added with an equal weight of lime during pond conditioning;
b) adequately composited to eliminate trematode eggs; and
c) derived from enclosed animals living adjacent to the pond as part of an integrated culture system, and those animals are treated regularly with antihelminthics and are free of zoonotic diseases.

3.8.11 The surroundings of aquaculture establishments shall be kept clean to avoid harbourage of vermin and vectors which could introduce diseases to the aquaculture systems.

3.8.12 Fences shall be constructed around the fishponds for security purposes, vermin and predator control as well as control of diseases.

3.8.13 The health of the fish shall be monitored regularly for symptoms of disease or parasitic/fungal infection.

3.8.14 Aquaculture system shall have adequate facilities for quarantine purposes e.g. ponds, tanks, etc.

3.8.15 Sanitary facilities shall be located at appropriate distance and downstream from where fish are held to ensure that there is no risk of contamination of the aquaculture system.

3.8.16 Harvesting gears used in aquaculture shall not be used for capture in open waters and shall not be shared between/among farms or group of farms.

3.9 Requirements for chemical residues

Partner States shall apply harmonized measures for ensuring that use of hormones (both synthetic and biological), vaccines or any other chemicals, drugs shall be in line with all rules governing their use in order to prevent their abuse.

3.10 Requirements for sanitation and hygiene

Partner States shall apply the following harmonized measures for sanitation and hygiene in aquaculture establishments

3.10.1 Requirements for personal hygiene

a) All personnel working at an aquaculture facility shall maintain a reasonable standard of personal hygiene and shall take all necessary precautions to prevent cross-contamination.

b) Cuts or wounds on hands and forearms shall be covered with suitable water-proof dressing.

c) Persons suffering from infected wounds and infectious diseases such as helminthic parasitic infection, diarrhoea, boils and other skin infections, shall not be permitted to work in a aquaculture system

d) Personnel who work in aquaculture system shall, on their appointment and in a six months intervals be medically examined for infectious and parasitic diseases. Health records of every person shall be kept at the facility and shall be available to the Competent Authority on request.

3.10.2 Requirements for cleaning and disinfection

a) A written cleaning and disinfection schedule shall be in place to ensure that all parts of the aquaculture system facilities and equipment therein are cleaned appropriately and regularly.
b) A person shall be designated to be responsible for implementation of the cleaning and disinfection schedule.
c) Cleaning and disinfection schedule shall be made available for inspection by an inspector at all times.
d) Aquaculture personnel shall be trained in risk analysis and food safety management.
e) The management of an aquaculture system shall provide sanitary facilities for the people working in the establishment

3.11 Requirements for fish health and disease control

Fish may become infected with disease via vertical or horizontal transmission and Partner States shall apply the following harmonized measures for fish health and disease control.

3.11.1 Management of aquaculture establishment shall:

a) not carry out production that compromises health, safety, quality and wholesomeness of fish;
b) take precautionary measures to prevent disease outbreaks and have evaluated contingency control procedures should a disease outbreak occur;
c) dispose of waste and chemicals in a manner that does not constitute a hazard to human health and the environment;
d) co-operate with those involved in fish health research and management;
e) avoid conditions that are stressful to the fish such as rough handling and transportation;
f) seek diagnostic services from a veterinarian if a disease condition is suspected; and

g) report outbreak of any notifiable diseases on the farm or in the neighbouring aquaculture establishment(s).

3.11.2 Items, organisms or the deleterious substances fatal to fish health shall not be introduced into aquaculture system.

3.11.3 Aquaculture systems shall be established independently to prevent transmission of waterborne diseases. Managers of aquaculture establishments have the responsibility to minimise the risk of the spread of diseases beyond their premises into the ecosystem where wild fish and other farms may be affected.

3.11.4 Thorough examination and selection of brood stocks in a hatchery establishment shall be done to eliminate fish with diseases and deformities.

3.11.5 Aquaculture system shall have facilities for safe handling and disposal of viral, fungal and bacterial infected /diseased fish.

3.11.6 Needles and syringes used in aquaculture system for blood sampling, vaccination and artificial breeding shall be sterilized against viruses, bacteria, protozoa and fungi and used by skilled personnel or preferably incinerated.

3.11.7 Control of fish diseases in fish culture using drugs shall be carried out only by qualified fish disease specialists designated by Competent Authority.

3.11.8 Drugs or chemicals used for the treatment of fish diseases and parasites shall only be applied under prescription by competent persons. Only drugs licensed or approved by Competent Authority shall be used.

3.11.9 Drugs shall be used according to the manufacturer's instructions.

3.11.10 Each individual dose and administration of drugs shall be recorded in a special book kept at the facility for that purpose, specifying date and nature of treatment, identification of fish and duration of withdrawal period.

3.11.11 Fish which are diseased and are being treated with drugs, chemicals or vaccines shall be kept separate from those which are not being treated, and be easily identified.

3.11.12 Any dead or dying fish shall promptly be removed from the growing area, in a way that does not affect the health of the remaining stock and that of the workers.

3.11.13 The disposal of dead fish shall be done in a way that prevents possible spread of disease.

3.11.14 Every aquaculture establishment shall have a demarcated area for proper disposal of diseased and or dead fish.

3.12 Harvesting and withdrawal period

Partner States shall apply the following harmonized measures for harvesting and withdrawal period.

3.12.1 Treated fish shall not be harvested before the end of the withdrawal period.

3.12.2 The farmer shall keep records of the species of fish to which drugs have been administered, the drugs and their withdrawal periods under different conditions as established by the supplier.

3.12.3 The veterinary drug residue in the harvested fish shall not exceed the specified maximum residue limit established by the relevant authority.

3.12.4 The buyer of fish treated with veterinary drugs and sold live for on-growing before the end of the withdrawal period shall be informed in writing by the seller and shall then observe the withdrawal period.

3.12.5 All fish shall be starved sufficiently before slaughter so as to induce a completely empty digestive system.

3.12.6 Fish shall be stunned immediately after harvesting from the holding facility and then iced.

3.13 Requirements for marketing

Partner States shall apply the following harmonized measures for marketing of fish and fishery products.

3.13.1 Processed products

a) The processor of fish consigned for placement in the market for human consumption shall declare to the Competent Authority in writing that either –

i. no veterinary drugs have been applied or
ii. if they have been applied, that minimum withdrawal periods have been observed for the named drugs.

b) Persons receiving fish culture products for subsequent placing on the market shall undertake their internal controls system in accordance with the Comprehensive Quality Assurance for fish culture products to ensure that:-

i. they do not accept production batches to which undeclared drug treatments have been administered;
ii. where veterinary drugs have been applied, minimum withdrawal periods have been observed and maximum residue limits are not exceeded; and
iii. no prohibited substances are present.

3.13.2 Marketing of live fish.

a) Fish to be placed on the market or transported alive shall at all times, be kept under ideal survival conditions (Oxygen, temperature, pH)
b) Live fish shall be transported in constructed containers, well aerated and previously cleaned and disinfected

c) Competent Authority shall regulate import and export of live fish for purpose as means of traceability and controlling trans-boundary disease transmission

d) The competent Authority may refuse to issue permission for transfer of any fish if the fish to be transferred present danger of:
   i. genetic contamination of native or existing gene pools through hybridization;
   ii. degradation of native species through the influx of exotic genes that are inferior by means of hybridization or hypothetically by gene transfer; and
   iii. loss of native species or change of species composition through competition, predation and habitat degradation.

3.14 Requirements for traceability

Partner States shall apply the following harmonized procedures for traceability.

3.14.1 General requirements

a) The traceability system shall be designed to protect the health of the consumers (safety, quality and bio-security) and ensure fair practices in the fish trade (prevention of fraudulent practices and deception)
b) Traceability shall consist of a mechanism of the recall of unsafe products once defective elements have been detected
c) Traceability shall embody the post marketing monitoring aspects related to food safety (storage temperature at retail posts and actual consumption)
d) Establishments shall design and regularly verify their own traceability systems
e) Traceability for aquaculture fisheries shall cover all stages of production, processing and distribution
f) All establishments shall have an information system which records and stores data about a batch of a product

3.14.2 Traceability of raw materials

a) Harvesting shall be one pond system for easy traceability of the material and during transportation from the farm to the factory the product shall be accompanied by a certificate of conformance issued by the Competent Authority.

b) A label shall be placed on each container/truck carrying the product to the factory including but not limited to the following:-

i. nature of the product;
ii. species name (common and scientific name);
iii. Pond number;
iv. date and time of harvest;
v. product grades;
vi. transportation vehicle or vessel registration number; and
vii. Quantity

c) On arrival at the factory the Quality Assurance personnel shall take the following initiatives:-

i. Records of delivery (Total amount in Kgs, pond number, temperature time of arrival, state of freshness, date and species)
ii. A unique batch identification system shall be used to facilitate complete traceability of the end product.

d) Where the identity of the incoming raw material is not evident beyond question, the identity of each consignment shall be checked to verify its characteristic attributes.

c) The batch identification system for the raw material shall be used in the establishment throughout the process, on all documentation to guarantee traceability of product.

d) The establishments shall include in their purchase and shipping contracts a requirement that suppliers and transporters practice appropriate bio-security measures

e) Sufficient documentation of any batch of finished product shall be correlated with the deliveries of raw materials used in manufacturing and with the corresponding laboratory records.

3.15 Requirements for supplier/farm audits

Partner States shall apply the following harmonized procedures for suppliers and farm audits.

3.15.1 A visit schedule for supplier audits shall be organised taking into consideration the degree of risk of the raw material, the quantity purchased and the reputation of the supplier.

3.15.2 Audits shall be carried out by a suitably qualified and experienced member of the Quality Assurance team in accordance with the terms of reference. A programme of corrective actions shall be outlined.

3.15.3 Formally documented reports of the audit findings shall be kept for a minimum of two years depending on the shelf life of the raw material and the end product in which it will be an ingredient.

3.15.4 The audit shall give evidence of the frequency and scope of checks carried out by the supplier.

3.16 Requirements for aquaculture records

Partner States shall apply harmonized procedures to ensure that records shall be kept of each aquaculture system for reference including treatment regimes, feeding methods and quantities of feeds, pond fertilizers and analytical results. The records shall be kept for a period of one year after harvest.

4. SANTARY MEASURES FOR SEAWEED FARMING, HARVESTING, PROCESSING AND STORAGE

4.1 Requirements for seaweed farming

Partner States shall apply the following harmonized measures for seaweed farming.

4.1.1 Any person intending to establish a seaweed farm shall have permit for that purpose from the Competent Authority.

4.1.2 Seaweed farming shall be practiced in a clear, clean sandy or rock area in the inter-tidal zone and shall not block navigation.

4.1.3 When harvested, seaweed shall be dried on racks; and be stored in moist rooms which are well ventilated.

4.1.4 Every seaweed farmer shall ensure that the seeds are not infested from the source.

4.1.5 Every seaweed farmer shall have a log book for record purposes.

4.2 Requirements for site selection

4.2.1 Partner States shall require that all sea weed farming areas shall be free from pollution caused by floods, rivers, and such other sources of water pollution that would be detrimental to the growth of seaweeds.

4.2.2 The temperature of the seawater shall be between 27°C and 30°C and the salinity maintained at 30 to 34 parts per thousand.

4.2.3 To prevent destruction and/or disturbance of seaweeds by tidal waves and strong winds they shall be grown in sheltered areas where coral reefs or islands act as barriers during low tide.

4.2.4 Sea weed farms shall be located in areas with adequate nutrient rich water in-flows of moderate velocity of 20 to 40 meters per minute.

4.2.5 The sea bottom shall be a stable substratum like rocky shores.

4.2.6 The depth of water at lowest tide mark shall be 1½ to 3 feet deep (45 to 90 cm) and at least 7 feet (210 cm) at the highest tide mark.

4.2.7 Seaweeds shall not be over exposed to sunlight and wind during low tide. It should have enough sunlight penetration during high tide.

4.2.8 Sea weed farming trials shall be done in a designated area.

4.3 Requirements for clearing, transportation, seedling preparation and planting

4.3.1 Partner States shall require that the area for sea weed farming shall be cleared of undesirable species of sea weed, predators, big stones, corals and other extraneous materials.

4.3.2 Sea weed seedlings shall be of a variety that has been proven to grow fast in the target area.

4.3.3. During transportation, Sea weed seedlings shall not be excessively handled, exposed to direct heat and wind.

4.3.4 The container that is used to transport seaweeds shall be adequately ventilated and the packing shall preclude damage due to overstuffing.

4.3.5 Sea weed seedlings shall not be kept off sea water for a period longer than 12 hours as they could die due to lack of food.

4.3.6 The desired variety of Sea weed seedlings shall be selected from the nearest source to avoid high mortality during transportation to seedling beds in preparation for planting.

4.3.7 The seedlings shall be placed on the seedling bed and planted immediately to reduce mortality.

4.3.8 Sea weed seedlings shall not come into contact with fresh water, rain or any other liquid other than sea water.

4.3.9 A farm house with a section for drying seaweeds shall be provided.

4.4 Requirements for maintenance of the seaweed area

Partner States shall apply the following harmonized requirements for maintaining a seaweed area.

4.4.1 Inspection of the Seaweed farm shall be done daily.

4.4.2 The Sea weed farm shall be cleaned daily, to remove dirt that clings to the seaweeds, falling branches of old seaweeds and sea weed predators.

4.5 Requirements for seaweed harvesting and drying

Partner States shall apply the following harmonized requirements for seaweed harvesting and drying.

4.5.1 Seaweeds shall be harvested from between 2 ½ to 3 months.

4.5.2 Stainless steel knives shall be used to harvest seaweeds.

4.5.3 Seaweeds shall be harvested and transported to the farm house drying station using appropriate baskets/containers.

4.5.4 Harvested sea weeds shall be dried under direct sunlight to an acceptable dryness (moisture content of 20 – 30%).

4.6 Requirements for seaweed packaging and storage

Partner States shall apply the following harmonized requirements for seaweed packaging and storage.

4.6.1 Fresh seaweeds intended for the local market shall be rinsed in clean sea water to remove mud and dirt and sorted to remove extraneous material.

4.6.2 Containers used for packaging fresh seaweeds shall be designed and constructed to prevent damage.

4.6.3 Dried seaweeds shall be stored off the floor, under cool and dry conditions for not more than four weeks to prevent moisture uptake.

5. SANTARY MEASURES FOR CRUSTACEANS, CEPHALOPODS AND BIVALVE MOLLUSCS

5.1 Requirements for keeping live cephalopods, crustaceans and bivalve molluscs

Partner States shall apply the following harmonized requirements for keeping live cephalopods, crustaceans and bivalve molluscs.

5.1.1 An establishment keeping live cephalopods and crustaceans shall be approved by the Competent Authority. Such establishment shall not be located in an area which is close to objectionable odours, smoke, dust and other contaminants or be subject to flooding by ordinary high tides or run-off from surrounding areas.

5.1.2 An establishment keeping live cephalopods, bivalve molluscs and crustaceans shall have appropriate fittings and provide the best survival conditions.

5.1.3 The establishment shall be so designed and maintained as to prevent contamination by any type of water, fumes, dirt and ingress by vermin.

5.1.4 If treatment of fresh or sea water is necessary, the process shall be authorized and the separation between the fresh or sea water intake point and the waste water outlets, shall be adequate to preclude contamination.

5.1.5 Live shellfish, shall remain alive up to the time of packing, wrapping and transport to the market.

5.1.6 Records relating to the raw materials including the type of live fish, cephalopods and crustaceans, area of origin, supplier, quantity, microbial content and water quality shall be kept.

5.1.7 A comprehensive Quality Assurance System based on HACCP principles and Risk Assessment shall be implemented.

5.1.8 Shellfish and shellfish products shall be appropriately labelled.

5.1.9 Operation of the purification system shall allow live bivalve molluscs to remain alive in suitable conditions after purification for wrapping, storage and transport before being placed on the market.

5.1.10 The quantity of live bivalve molluscs to be purified shall not exceed the capacity of the purification centre and shall be continuously purified for a period sufficient to allow the microbiological standards to be met; the purification centre shall take account of the data relating to the raw materials.

5.1.11 Where a purification tank of several batches of molluscs is used, they shall be of the same species and come from the same production area or different areas conforming to the same health conditions and the length of the treatment shall be based on the time required by the batch needing the longest period of purification.

5.1.12 Containers used to hold live bivalve molluscs in purification systems shall have a construction which allows sea water to flow through, the depth of layers of live bivalve molluscs shall not impede the opening of shells during purification.

5.1.13 Conditioning of purification tanks shall not cause any contamination of the product.

5.1.14 Crustaceans, fin fish or any other marine species shall not be kept in a live bivalve molluscs purification tank.

5.2 Requirements for cooked crustacean and molluscan shellfish products

5.2.1 Potable water or clean sea water shall be used for the cooking of crustaceans and molluscan shellfish.

5.2.2 Cooking shall be followed by rapid cooling. If no other method of preservation is used, cooling shall continue until the temperature approaching that of melting ice is reached.

5.2.3 Shelling or shucking of cooked products shall be carried out under hygienic conditions to avoid contamination of the product.

5.2.4 After shelling or shucking, cooked products shall immediately be frozen or kept chilled at a temperature which precludes the growth of pathogens, and shall be packaged and stored in appropriate conditions.

6. SANTARY MEASURES FOR CAPTURE FISHERIES

6.1 Requirements for fishers

Partner States shall apply the following harmonized requirements to be followed by fishers.

6.1.1 Fishers shall engage in fishing practices only if they have a valid fishing license /permit from the Competent Authority.

6.1.2 Fishers shall have basic knowledge of hygiene, fish handling and preservation.

6.1.3 Fishers shall be aware of emerging fisheries conservation, management and environmental concerns.

6.1.4 Fishers shall have to comply with safety and quality requirements in accordance with the laws.

6.2 Requirements for fishing vessels

6.2.1 Fishing vessels shall be designed and constructed in a manner, which protects fish against damage and contamination, facilitates rapid and efficient handling, eases cleaning and disinfection.

6.2.2 Vessels shall be designed and constructed to prevent contamination of fish with bilge water, sewage, smoke, fuel, oil residue or other objectionable substances.

6.2.3 Fish shall be protected from physical damage, exposure to high temperatures and drying effects of the sun and wind.

6.2.4 Fish contact surfaces shall be smooth and corrosion – resistant.

6.2.5 Fishing vessels shall have appropriately designed and constructed fish holds. Wooden fish holds and dividing boards shall be lined with suitable impervious corrosion resistant materials, which are easy to clean and disinfect. If painted, the paint shall be durable and non-toxic.

6.2.6 Sharp corners or projections shall not be allowed in the fish hold.

6.2.7 Fish holds shall be used exclusively for holding fish and shall be clean and sanitary.

6.2.8 Storage of fuel, cleaning and sanitizing agents shall be organized in such a manner as to prevent contamination of fish contact surfaces.

6.2.9 Where bait is carried it shall be held in a special container to prevent contamination of the catch.

6.3 Requirements for equipment and utensils

6.3.1 All fish handling and storage equipment used on board fishing vessels shall be designed to facilitate efficient handling of fish, suitable for easy cleaning and shall prevent contamination of the catch.

6.4 Hygienic operating requirements

6.4.1 Parts of fishing gear, which come in contact with fish, shall be free of dead fish and organic material after each haul. All gear shall be thoroughly cleaned after each fishing trip.

6.4.2 When cleaning and hosing operations are carried out while the vessel is moored, potable and or clean water shall be used to prevent objectionable contamination. The hold and all equipment shall be cleaned with a suitable cleaning agent immediately after the catch is landed.

6.4.3 Precautions shall be taken to ensure that human waste and other wastes from the fishing vessel are disposed off in such a manner as not to constitute a public health or environmental hazard.

6.4.4 Effective measures shall be taken to protect the fishing vessel against pests, rodents, birds and other vermin.

6.4.5 Dogs, cats, and other animals shall be excluded from areas of the vessel where fish is received, handled and stored.

6.5 Requirements for handling the catch on board

6.5.1 The duration of a fishing trip shall be determined by the facilities available on the vessel for handling and keeping the catch well chilled.

6.5.2 Handling the catch shall begin as soon as it comes on board. Any fish unsuitable for human consumption on account of low sensory quality shall be removed from the catch and kept separate.

6.5.3 Line caught fish shall whenever practicable, be stunned as soon as they are taken on board the vessel to avoid possible bruising and exhaustion.

6.5.4 Fish shall be placed rapidly in ice and shall be stored in such a manner that the temperature does not rise. The ratio of ice to fish shall be 1:1.

6.5.5 Fish shall be surrounded by adequate quantities of finely divided ice to give close contact with fish. The ice used shall be made from potable water.

6.6. Requirement for Unloading the catch

6.6.1 Unloading the catch shall be carried out in a careful manner and without delay.

6.6.2 At the conclusion of each fishing trip, all unused ice shall be discarded before cleaning begins.

6.6.3 Fish shall not be damaged and/or contaminated during unloading through use of hooks, shovels, and forks.

6.6.4 Care shall be taken to ensure that fish is not damaged or contaminated during sorting, weighing and transfer to containers.

6.7 Requirements for gears and methods

6.7.1 Gears and methods shall comply with the existing national laws.

6.7.2 Fishers shall ensure minimum damage to fish while removing from a gear.

6.7.3 Gears shall not be transferred from one water body to another without the express approval of the Competent Authorities.

6.7.4 Gears shall preclude contamination of fish and the environment.

6.8 Requirements for fishing grounds

6.8.1 Fishers shall avoid fishing in areas where the Competent Authorities have quarantined as being environmental threat to fish and safety of consumers.

6.8.2 Fishing shall not be conducted during closed seasons and in areas that have been closed for conservation purposes.

6.8.3 Fishing shall not be conducted in areas designated as the main navigational corridors.

6.9 Requirements for harvest areas for bivalve molluscs, cephalopods and crustaceans

6.9.1 Bivalve molluscs and crustacean (shellfish) for human consumption shall be harvested from areas designated by the Competent Authority.

6.9.2 Live shellfish shall be harvested from clean sea water which is not affected by industrial or other waste water from other contamination sources such as toxic substances and pathogenic bacteria.

6.9.3 The gathering of shellfish for human consumption shall be prohibited from any area in which the product is found to contain more than the maximum permitted number of coliform bacteria.

6.9.4 Shell fish for human consumption shall not be gathered from areas that have been proscribed by the Competent Authority as containing marine biotoxins.

6.10 Requirements for certificates of origin for bivalve molluscs

6.10.1 The transfer of any consignment of bivalve molluscs between persons shall be done subject to possession of certificate of origin issued by the Competent Authority.

6.10.2 The fisherman and any person to whom the consignment is transferred shall keep an original of the certificate of origin for a period of twelve months from the date of the issue and transfer thereof.

6.11 Requirements for landing sites/beaches

6.11.1 Fish shall be landed only on designated landing sites/beaches.

6.11.2 Landing sites shall be established with the consent of the Competent Authority.

6.11.3 The Competent Authority shall provide operational guidelines for approved and established landing sites / beaches.

6.11.4 Fish handling shall be carried out in such a manner as to avoid damaging or bruising the fish flesh.

6.11.5 Transfer of fish from fishing vessels to weighing sheds shall be done as fast as possible to minimise temperature abuse.

6.11.6 The trays/crates used for transferring fish from the boat to a landing facility shall be made of washable and non-corrosive material.

6.11.7 The operatives shall wear approved working uniforms.

6.11.8 Fish shall be iced immediately after weighing at a ratio of 1:1 ice to fish.

6.11.9 Landing sites shall be fenced off from other activities and a gate installed at the main entrance.

6.11.10 Landing sites shall have good, adequate and demarcated sanitary facilities.

6.11.11 Smoking, spitting, eating, drinking, sleeping, washing of personal effects including laundry, fish processing and trespassing shall not be allowed within the fenced area of the landing site.

6.11.12 Vehicles, fishing boats and engines shall not be repaired or serviced within the fenced area of the landing site.

6.11. 13 Off loading and loading of engines, fuel, passengers and any cargo except fish shall not be allowed within the fenced landing site.

6.11.14 Beach Management Units (BMU) shall enforce compliance with basic hygienic and sanitary requirements.

6.11.15 Only calibrated and approved weighing scales shall be used for weighing fish.

6.11.16 Where possible space for expansion should be provided.

6.11.17 An office for fisheries management purposes shall be provided.

6.11.18 Appropriate and adequate hygienic fish handling facilities shall be provided.

6.11.19 Landing facility (barge/jetty) shall be designed in a manner that facilitates the safe landing and handling of fish. In addition, ease movement of personnel and equipment.

6.12 Requirements for transport vessels and trucks

6.12.1 Where ice is used to chill fish and fishery products, adequate drainage shall be provided in vessels / trucks to ensure that water from melted ice does not stay in contact with the products

6.12.2 A fish container shall have an insulated box body, with non-corrosive, food grade internal wall linings and always maintained in hygienic manner.

6.12.3 All fish transport vessel/truck containers shall have well sealed doors to maintain temperature of fish at $\leq +5^{o}C$ and avoid contamination from outside. The containers shall be marked “Fish” or drawn on all sides of the container and of sizes of at least 30 cms.
The temperature of frozen product shall not exceed $-15\ ^{o}C$ during transportation

6.12.4 Containers used to carry fish shall not carry other products.

6.12.5 Once ice is used, it shall not be reused.

6.12.6 Containers used to transport live fish shall be completely segregated from those carrying post mortem raw fish.

6.12.7 Fish handling shall be carried out in such a manner as to avoid damaging or bruising fish flesh.

6.12.8 Every carrier vehicle/vessel shall be certified by an authorized officer.

6.12.9 Vessels used for transportation of fish and fishery products shall be of adequate size and shall have sections or containers specifically designed for storage of fish or fish products to avoid contamination.

6.12.10 Areas where fish is stored on board shall not contain objects or products liable to transmit harmful properties or abnormal characteristics to the fish.

6.12.11 Fish on board, shall be kept in such a manner as to avoid direct sunlight

6.12.12 The trucks shall have specific external areas for keeping spare tyres and excess fuel. Likewise vessels shall have separate compartments for keeping excess fuel, gears and other wares.

6.12.13 Washing of trucks shall be done in approved bays using potable water and disinfectant.

6.12.14 Fish transport trucks and boats shall strictly be for fish only.

7. SANITARY MEASURES FOR ARTISANAL FISH PROCESSING

7.1 General requirements

7.1.1 Raw material for artisanal processing shall be wholesome, free from contaminants and chilled with ice made from potable water.

7.1.2 Fish processing shall not be carried out from a facility where the presence of potentially harmful substances could compromise quality and safety of the product.

7.1.3 Approved preservatives and additives shall be used during the processing and storage of fish and fishery products.

7.1.4 The working environment shall be kept in sanitary conditions all the time to prevent possible cross contamination.

7.1.5 Pesticides shall not be used for fish preservation.

7.1.6 Fish processing facilities and equipment shall be cleaned regularly and maintained in a good state of repair.

7.1.7 Waste matter from fish processing operations shall be hygienically disposed off to avoid environmental pollution and creation of breeding grounds for pests that can eventually infest the fishery products.

7.2 Requirements for salting

7.2.1 Salting operations shall take place in a designated area adequately separated from the area where other operations are carried out.

7.2.2 Salt used in the treatment of fishery products shall be clean, of food grade quality and stored in such a way as to preclude contamination. It shall not be re-used.

7.2.3 Any container used for salting or brining shall be constructed from material that precludes contamination during the salting or brining process

7.3 Requirements for smoking

7.3.1 Smoking shall be carried out in separate premise or a special place equipped, if necessary, with a ventilation system to prevent the smoke and heat from affecting other premises or places where fishery products are prepared, processed or stored.

7.3.2 Materials used to produce smoke shall be stored away from the place of smoking and shall be used in such a way that they do not contaminate the fishery products.

7.3.3 Wood or materials that have been painted, vanished, glued or undergone any chemical preservation treatment shall not be used as a source of smoke for smoking fish.

7.3.4 Wood or materials known to be poisonous or which may have carcinogenic effects shall not be used for smoking fish

7.3.5 Soot shall not be allowed to accumulate on the interior of the smoking kiln to avoid contamination of the product being smoked

7.4 Requirements for sun-drying

7.4.1 Fish shall be sun dried on raised and slanted platform.

7.4.2 During sun-drying fish shall be protected from vermin and contaminants such as birds droppings, rust, animal droppings, dust and any other extraneous material.

7.5 Requirements for frying

7.5.1 Frying temperature shall be between 180^{o}C and 200^{o}C.

7.5.2 Darkened or tarred oil shall not be used for frying the fish

7.5.3 The ready-to-eat fried fish shall be handled, packaged, served or stored under hygienic and sanitary conditions.

7.6 Requirements for fermentation

7.6.1 Preparation of fish for fermentation shall be carried out on a raised sanitary facility

7.6.2 The fermenting process should where necessary be controlled by salting or any other appropriate preservative before fermentation to minimise proliferation of pathogenic micro-organisms.

7.6.3 Drying of fermented fishery products shall be carried out under sanitary conditions to avoid contamination with micro-organisms and extraneous material

7.6.4 Fermented fishery products shall be carefully and hygienically handled, packaged and stored.

8. SANITARY MEASURES FOR INDUSTRIAL FISH PROCESSING

8.1 Requirements for product separation

8.1.1 The flow of raw materials, work in progress, finished product, personnel and equipment through the factory shall be as linear (one way) as possible to reduce the probability of cross contamination

8.1.2 Where practical, key process operations shall be done in separate rooms, segregating the early dirty part of the process from the later clean stages.

8.1.3 Storage of unprocessed fish and packaging materials shall be segregated to avoid cross contamination and, shall be separated from the product in production areas.

8.1.4 There shall be complete physical separation of the high and low risk areas in terms of raw materials, products and personnel. This includes facilities to change clothing on entering the different processing areas. Different colour codes for different processes shall be demonstrable.

8.2 Requirements for drainage

8.2.1 The capacity of the drains shall be sufficient to cope with the maximum volume of effluent.

8.2.2 The floors shall be adequately drained with the slope of the floors carefully designed to ensure that waste water flows into drainage channels. Stagnant pools of wastewater shall not be allowed in processing area.

8.2.3 Only drainage channels that are half round in section with both the drains and gullies covered with removable and easy to clean grids shall be allowed in a processing establishment.

8.2.4 The flow of the drains shall be from clean to dirty areas to avoid contamination of the clean environment.

8.2.5 Positioning of machinery in relation to access to drains shall not compromise regular cleaning.

8.2.6 Adequate debris traps shall be fitted on all drains and manholes covered properly, greased, sealed and frequently inspected.

8.2.7 Drainage entry and exit points in processing establishments shall be pest proofed.

8.2.8 Damaged drains shall be repaired as quickly as possible to prevent blockages or accumulation of debris.

8.2.9 All effluent shall be ducted into the wastewater disposal system.

8.3 Hygienic requirements at entrance point

8.3.1 All operatives shall enter the processing establishment through a specific entrance; to a designated changing area where showering, hand washing and toilet facilities shall be available, and where outer garments shall be exchanged for work wear.

8.3.2 At the entrances to processing areas, personnel shall be guided to hand wash stations using appropriate means e.g. use of guardrails, guardrail supervisor.

8.3. 3 Hand-washing facilities shall be suitably plumbed directly to drains.

8.3.4 To reduce the risk of cross contamination, foot dips of adequate size, capacity and containing the recommended concentrations of disinfectant shall be provided at all entry points to processing areas and at transfer points between dirty and clean areas. Transfer of operatives across these boundaries shall be limited.

8.4 Requirements for placement of equipment

8.4.1 All machinery shall be positioned to give easy access to all parts and surfaces for cleaning. Equipment shall be at least 50cm from adjacent walls.

8.4.2 Equipment shall be designed and laid out to minimize any possible contamination from external sources.

8.4.3 All frameworks in and around equipment shall be in tubular sections to minimize accumulation of debris and to facilitate cleaning and reduce the risk of infestation e.g. with maggots, moulds and ants.

8.4.4 Machinery mounted on the floor shall be installed on a foundation of easily cleanable, non-absorbent material.

8.5 Requirements for floors

8.5.1 Floors shall be designed to withstand the rigours of production processes.

8.5.2 Floors shall be in good condition and shall be laid using material impervious to moisture and grease, with an even, easily cleaned surface, which is free from cracks, pitting and open joints.

8.5.3 The floor surface shall be resistant to chemicals and food materials to which it may be exposed and safe to walk on when wet, dry or greasy i.e. non-slip surface.

8.5.4 Floors shall be kept clean and free from the accumulation of water or other spillage, especially in corners and areas hidden by equipment and other materials.

8.5.5 Wall and floor junctions shall be coved to facilitate cleaning

8.5.6 Damaged floors shall be repaired as quickly as possible with materials compatible with the original flooring and in a permanent fashion.

8.5.7 Where mezzanine floors are adopted, they shall be completely sealed and include sidewalls of adequate height. Drainage within these floors shall be completely self-contained and there shall be no risk of contamination of machinery or products sited below.

8.5.8 Any stairways to or from mezzanine floors or gangways over production lines shall be sealed and include side walls to prevent product contamination

8.6 Requirements for walls, doors and windows

8.6.1 All interior walls in rooms where open food is stored or processed shall be in good condition and finished with a hygienic, easy to clean surface, which does not pose a foreign body hazard. Corners and joints between cladding sheets shall be sealed with a suitable impervious sealant.

8.6.2 Walls and wall surfaces shall be free from shelves and other protruding attachments wherever possible to avoid any horizontal surface, which could act as a dust trap, or impromptu shelf space.

8.6.3 All wall-ceiling junctions and other junctions shall be coved or sealed to facilitate cleaning Only food grade paint shall be used on the walls.

8.6.4 All signs of deterioration and damage shall be dealt with immediately and the repairs shall be compatible with the original finish.

8.6.5 Where notices are required, they shall not be nailed, pinned or taped to walls; instead self-adhesive notices or food grade painted notices shall be used in production areas.

8.6.6 In vulnerable areas, the walls shall be protected by guardrails.

8.6.7 Services (wires, pipes) shall be sealed into any walls through which they pass and where fabricated walls are used, services shall be sealed onto them. Where temporary walls are constructed, they shall give adequate protection against contamination and they shall not present a hazard to the process or the product e.g. electrical fittings and plumbing.

8.6.8 All external-opening doors shall be kept closed. Where frequent use makes this impractical then either automatic door, rubber swing doors, plastic strip curtaining or air curtains shall be provided to prevent bird and insect ingress. Where plastic strip curtains are used they shall be properly maintained and cleaned.

8.6.9 All doors to production areas shall be self-closing to maintain the necessary atmospheric conditions. They shall be close fitting on all sides and the doorframes and corners shall be given protection against damage. They shall be durable and easy to clean.

8.6.10 All windows shall be kept closed and those that have to be opened shall have vermin proof screens.

8.6.11 All exterior windows shall be clear, complete and properly fixed to prevent insect ingress. Frames shall not be of wooden or corrosive material.

8.6.12 Broken or cracked windows shall be replaced immediately before production recommences.

8.6.13 Use of glass in processing establishments shall not be allowed.

8.6.14 Windowsills and ledges shall be sloping to discourage placement of tools and objects and to prevent dust accumulation.

8.7 Requirements for ceiling and lights

8.7.1 In any room where open food is stored or processed, the condition of the ceiling shall be smooth, easy to clean and in good state of repair. It shall not pose a foreign body hazard to the area below. The condition of the ceiling and lights in the cold room, chill room and ice store shall be adequately maintained.

8.7.2 All junctions between walls and ceilings shall be sealed and impermeable to facilitate cleaning. Eaves and ridges shall be sealed to prevent access to vermin
Where painted surfaces are unavoidable, both these and underlying surfaces shall be sound and free from flaking, and repainted as necessary with a food grade paint.

8.7.3 Girders and overhead framework shall be regularly maintained and cleaned, where possible these shall be of circular cross section to aid maintenance and to prevent a build up of dust and debris.

8.7.4 Throughout production and inspection areas, good artificial lighting shall be provided. Fluorescent strip lights and any other form of lighting shall be protected by shatterproof diffusers or sleeve covers to avoid contamination of product with glass.

8.7.5 Natural daylight shall be used in inspection areas, otherwise adequate lighting shall be provided for operations.

8.7.6 Where special lighting conditions are required, for example on inspection belts, lighting of the correct colour and intensity shall be provided.

8.7.7 All light units shall be kept clean, and bulb replacement or any other maintenance programme carried out when production is not in process.

8.7.8 Skylights shall be designed to prevent access by pests, and shall not be directly above any exposed raw material or finished product. If movement of production lines results in them being placed below skylights, then a canopy shall be provided to protect the product and to screen the light.

8.7.9 Condensation on ceilings and walls shall be avoided and where possible, anterooms shall be provided.

8.9 Requirements for ventilation

8.9.1 Adequate temperature, humidity and dust control shall be provided in all areas.

8.9.2 In steamy atmospheres, extraction fans shall be provided to give adequate ventilation and minimize condensation.

8.9.3 In dry areas, dust extractors shall be installed where necessary. These units shall be regularly inspected and maintained to ensure that they are functional and that they are not clogged

8.9.4 Frying or other fume producing processes shall be provided with adequate extractor facilities, trapped to prevent condensate falling back into the process.

8.9.5 Condensate from extraction systems and from evaporators shall be plumbed direct to drains, and the collection system sanitised daily.

8.9.6 Both ventilation systems and extraction systems shall be kept clean to avoid introducing contaminants and corrosion into the process environment.

8.10 Requirements for overhead structures

8.10.1 Structures and services (pipes and wires) running below the ceiling shall be kept to a minimum and shall be regularly cleaned and redundant fittings removed.

8.10.2 All overhead surfaces and objects shall be maintained in good condition.
Steam lines shall be adequately ducted and checked for carry over chemicals.

8.10.3 Hoses shall be kept in clean and hygienic condition. Wall-mounted-reels shall be fitted for storage and shall always be kept off the floor.

8.10.4 Steam hoses shall not come in contact with the product. If live steam heating is required, the hose shall be fitted with a stainless extension tube.
8.10.4 Regular audits of service lines shall be carried out.

9. SANITARY MEASURES FOR STORAGE FACILITIES

9.1 Requirements for chill and cold storage

9.1.1 Sufficient chill and frozen storage shall be available for products requiring temperature control. The refrigeration and freezing capacity shall be adequate to maintain fish temperature at $\leq$-18^{0}C in cold storage, between –1 to +2^0 C in chill store and between -2 to -5^o C for super chilled products. Chilled or frozen products shall not be kept under ambient temperatures.

9.1.2 Temperature recording devices shall be easy to consult; the sensor shall be placed in the warmest part of the cold store. The operating temperature (range) shall be indicated and temperatures monitored daily and recorded.

9.1.3 Detrimental storage temperatures, which may affect the raw materials shelf life, appearance and organoleptic properties, shall be avoided

9.1.4 Instrumentation used to monitor the internal conditions of storage areas shall be regularly checked and calibrated, to ensure that they are working accurately. These devices shall be easy to consult.

9.2 Requirements for use of offsite facilities

9.2.1 Where the manufacturer commissions the services of (or contracts to) off-site facilities e.g. airport cold room, for storage purposes, which are directly related to the handling of products, it shall be certified to be capable of providing the service(s) and audited regularly.

9.2.2 Where raw materials, work in progress materials, finished product, equipment or packaging are stored off site, the responsibility of the off site facility shall be clearly identified and adhered to and audits conducted regularly.

9.2.3 The same principles apply to the hygienic control and housekeeping of off-site facilities, as in-house facilities. There shall be access around all stored items to effectively implement cleaning, pest control and maintenance. In cases where temperature control and humidity are important to the product, storage layout shall be well controlled to ensure good ventilation.

9.2.4 The manufacturer shall make provision to audit the off site storage facility prior to commencing the contract, and at regular intervals thereafter. Formalized reports of the audit inspections shall be forwarded to the off site facility with any recommendations for corrective action and a photocopy kept by the manufacturer in an in-house file. This also applies to vehicles used.

9.3 Segregation and storage disciplines

9.3.1 All materials shall be stored off the floor on clean pallets at least 20cm off the floor and 50cm away from the wall to facilitate adequate cleaning, pest control and product ventilation.

9.3.2 Stacking of pallets of raw materials or finished product shall be controlled to prevent the risk of damage and/or cross contamination through infestation by pests product leakage, spillage and tainting (particularly sacked product).

9.3.3 Incoming materials, work in progress and finished product shall be clearly coded, labelled and dated and stored in separate designated areas of the factory.

9.3.4 Incompatible materials shall be completely segregated e.g. aromatic cleaning materials, all cleaning equipment, incoming fish and finished products etc, to prevent the risk of cross contamination.

9.3.5 Packaging materials shall be stored in a separate area that is dust free and pest proofed.

9.3.6 Non-food grade chemicals such as cleaning compounds and agricultural chemicals shall be stored in separate, secure areas, together with their associated application equipmeTo prevent abuse and bio terrorism, the management of the establishments shall immediately investigate missing stocks of any hazardous chemicals or other irregularities

9.3.7 The quality manager shall conduct verification (i.e approval status, type, amount, and container), of chemicals brought on site, and ensure safe use and storage in compliance with relevant legislation.

9.3.8 Where non-food chemicals are decanted into containers for use, the containers shall be clearly and distinctly labelled. If possible, they should be colour coded and dedicated to that sole use. Old or redundant food ingredient containers are strictly forbidden for this purpose

9.3.9 Effective storage operations shall be designed to ensure that the raw material is protected from undesirable deterioration and remains in a clean, safe and wholesome state up until it is used.

9.3.10 All raw materials shall be stored under correct conditions of temperature, lighting and ventilation dependent on their nature and substance.

9.3.11 Where controlled temperature, controlled humidity or filtration is required for the raw material, suitable control, monitoring and recording system shall be in place; these shall be regularly calibrated.

9.3.12 Storage areas shall be suitably managed and maintained to ensure effective cleaning and pest control.

9.3.13 Management controls shall ensure that: -

i. all products are easily accessible for load assembly;
ii. aisles are kept clear and products stored in designated areas;
iii. movement around the storage area is unimpeded;
iv. products are released or used in proper stock rotation;
v. there is maximum utilisation of the available space; and
vi. suspect product is identified and remedial measures taken.

9.3.14 Stock rotation of raw materials shall be strictly controlled to ensure that each product is used within its storage life and those with the shortest shelf life are used first.

9.3.15 Wherever possible, raw materials shall be issued for use by a nominated and trained storekeeper, who should document the batch code, quantity and date of issue.

9.3.16 To guarantee that the freshness of perishable foods is retained, stocks shall be kept down to a minimum level to satisfy production requirements.

9.4 Separation of finished goods

9.4.1 Packed finished product shall be checked and approved by the Quality Assurance department prior to releasing to the finished goods storage facility. The goods shall be clearly labelled.

9.4.2 Approved batches of finished product shall be stored in separate areas, under the appropriate conditions of temperature and as approved in the finished product specification.

9.4.3 Intermediate storage shall be provided where delays in the process are unavoidable

9.4.4 Defective batches of finished product, which do not meet the required specification, shall be quarantined, labelled clearly and held in a specific area pending investigation, to avoid their accidental use.

9.4.5 The establishment shall demonstrate a strict regime on quarantined stock, which, is either to be reworked, or disposed off.

9.4.6 If a batch of approved finished product is temporarily stored unlabelled, to be labelled and coded at a later date, extreme care shall be taken in guaranteeing its exact identity.

9.5 Requirements for segregation of damaged and returned goods

9.5.1 Batches of finished product which, have been recalled or returned, shall be so identified and physically segregated, preferably in an entirely different storage facility.

9.5.2 Damaged goods shall be stored in a designated area of the warehouse as they occur or are discovered. Extreme care shall be taken not to expose other products within the storage facility to contamination or infestation.

9.5.3 Where disposal of damaged goods is necessary, all labelling shall be removed, even for products going to staff sales, to prevent the products re-entry into the distribution chain.

9.5.4 Effective management procedures to safeguard against suspect, returned or damaged finished product being accidentally dispatched, shall be implemented

9.5.5 Where damaged product is accepted onto a vehicle also carrying “sound” product, it shall be clearly labelled, kept separate and handled in a manner which will eliminate the risk of contamination or infestation to other products on the vehicle.

9.5.6 The establishment shall have a formalised procedure to deal with the consequences of accidents or damage during storage and distribution. e.g. the rescue or condemnation of goods damaged in a road traffic accident.

9.6 Tainting risks

9.6.1 Materials which may present a taint risk to other products such as label adhesives, cleaning chemicals, alcohol based sanitizers shall be stored separately.

9.7 Management of tainted products

9.7.1 Tainted products shall be identified and segregated.

9.7.2 Tainted products shall be disposed off appropriately

9.7.5 The source of the taints shall be identified and appropriate corrective measures taken

10. SANITARY MEASURES FOR LOADING AREAS AND DISTRIBUTION FACILITIES

10.1 Requirements for loading areas

10.1.1 All loading areas shall be sealed and proofed against pests and birds to prevent contamination of product packaging during the loading operation.

10.1.2 In the case of chilled or frozen products, where temperature control is a critical factor in food preservation, loading and off loading of delivery vehicles shall take place through sealed docks, from a temperature-controlled environment.

10.1.3 All loading areas shall be kept clean, tidy and well maintained to discourage pest ingress.

10.1.4 Forklift trucks used within storage and loading areas shall be battery driven to prevent fume contamination.

10.2 Requirements for goods removal from loading docks

10.2.1 Both incoming raw materials and outgoing finished product shall be swiftly handled at the loading bay to avoid temperature increase where relevant and to minimize the risk of contamination of outer packaging from external sources.

10.3 Requirements for distribution facilities

10.3.1 The authorities shall certify all distribution facilities

10.3.2 Vehicles used for the primary distribution of chilled or frozen fish shall be capable of maintaining the specified temperature ranges.

10.3.3 Temperatures at the point of dispatch and during transit, shall be monitored and recorded and shall be within predetermined limits.

10.3.4 Prior to loading, all delivery facilities shall be internally inspected to ensure that they are clean, free from moisture, foreign objects and pests.

10.3.5 Delivery of raw materials (raw fish) and finished products shall always be enclosed to prevent contamination from external sources. By-products shall also be adequately protected from external contamination during delivery.

10.3.6 The personnel in charge of transport facilities shall comply with relevant aspects of the GMP requirements during transport, at the factory and at the depot or store.

10.3.7 The load shall be evenly distributed and shall ride satisfactorily in the vehicle. Where applicable, finished product shall be securely palletised on clean pallets of sound construction, or racked to minimize any damage during transit.

10.3.8 Where the services of a contract distribution establishment are commissioned, their transport facilities and administrative procedures shall be audited and deemed acceptable prior to a contractual agreement being made. Where necessary the Competent Authority may delegate this function to another competent audit body.

10.3.9 The floor of the transport facility shall be corrugated, in case of pre-packed products, to allow easy airflow.

10.3.10 The temperature of the by-products shall be maintained between 0 to + 5^0 C from the time they are separated from the raw material until they are delivered to the next processing stage,

11. TRACEABILITY REQUIREMENTS FOR CRUSTACEANS, CEPHALOPODS , BIVALVE MOLLUSCS AND CAPTURE FISHERY

11.1 General

11.1.1 The traceability system shall be established to protect the health of the consumers and ensure fair practices in the fish trade

11.1.2 Traceability shall consist of a mechanism of the recall of unsafe products once defective elements have been detected

11.1.3 Traceability shall embody the post marketing monitoring aspects related to food safety

11.1.4 Establishments shall design and regularly verify their own traceability systems

11.1.5 All establishments shall have an information system which records and stores data about a batch of a product

11.2 Requirements for traceability of raw materials (fish)

11.2.1 All incoming raw materials shall have:-

i) Records of delivery (Batch number of supplier, date, species);

ii) Date coding, labelling and indication of shelf life;

iii) A unique batch identification system to facilitate good stock rotation and complete traceability in the end product; and

iv) Source of raw material, denomination of origin, intermediate parts and processing history.

11.2.2 Where the identity of the incoming raw material is not evident beyond question, the identity of each consignment shall be checked to verify its characteristic attributes.

11.2.3 The batch identification system for the raw material shall be used in the establishment throughout the process, on all documentation to guarantee traceability of product.

11.2.4 The establishments shall use only known, secure, licensed or permitted sources for all ingredients, packaging materials, labels and check for signs of tampering or counterfeiting

11.2.5 The establishments shall include in their purchase and shipping contracts a requirement that suppliers and transporters practice appropriate bio-security measures where applicable.

11.3 Ingredients traceability

11.3.1 All ingredients including packaging used in production shall have a raw material batch code, to identify them in storage and processing.

11.3.2 Ingredients shall be transported within the factory premises in such a way that their identities are not lost.

11.3.3 There shall be a formalized procedure for the issue of food ingredients from stores indicating the amount issued, batch code and date of issue. Where the addition of batch quantities of ingredients to a batch is carried out manually by an operator, the addition of each ingredient to the batch shall be recorded at the time of manufacturing, to minimize the risk of accidental omission and to ensure traceability of ingredients.

11.3.4 Where the process involves a “resting” stage or delay with work in progress/part processed materials, they shall be given a reference code.

11.3.5 Sufficient documentation of any batch of finished product shall be correlated with the individual deliveries of raw materials used in manufacturing and with the corresponding laboratory records.

11.4 Supplier audits

11.4.1 A visit schedule for supplier audits shall be organised taking into consideration the hazard banding (degree of risk) of the raw material, the quantity purchased and the reputation of the supplier.

11.4.2 Audits shall be carried out by a suitably qualified and experienced member of the Quality Assurance team in accordance with the terms of reference. A programme of corrective actions shall be outlined with appropriate time frames/individual responsible.

11.4.3 Formally documented reports of the audit findings shall be kept for a minimum of two years depending on the shelf life of the raw material and the end product in which it will be an ingredient.

11.4.4 The audit shall give evidence of the frequency and scope of checks carried out by the supplier. Organoleptic tests records shall be kept.

11.4.5 A current list of approved suppliers shall be available detailing the contractual specifications and audit records.

11.5 Certificates of conformance

11.5.1 Raw materials supplied from a geographical location that is difficult to audit on a regular basis shall be accompanied by a certificate of conformance. The certificate shall confirm that the material is within the agreed purchasing specification for both physical and safety parameters and is ready for use. Where necessary, cross-reference testing may be conducted.

12. SANITARY MEASURES FOR PROCESS EQUIPMENT/MACHINERY

12.1 Equipment condition and layout

12.1.1 The design and layout of the factory and equipment shall ensure the efficient production of safe products and allow access for adequate cleaning and pest control.

12.1.2 The management of the establishment shall hold all staff accountable and alert against acts of tampering with both product and equipment as a safeguard against bio-terrorism

12.1.3 Food processing equipment and test equipment shall be properly designed for its purpose. Freezing and chilling equipment shall be of sufficient capacity to cool or freeze product quickly to prevent bacterial growth or adverse quality.

12.1.4 Food processing equipment shall be easy to dismantle for cleaning and inspection purposes.

12.1.5 Designated pedestrian gangways shall be available to ease personnel and equipment movement and to avert possible accidents.

12.1.6 All process equipment and machinery shall be maintained in good condition. Temporary repairs or modifications shall not be permitted.

12.1.7 Metal surfaces if not stainless steel shall be kept in good condition, free from rust, flaking paint or other loose surface covering.

12.1.8 The design of pumps and their materials of construction shall be suitable for their purpose and easy to dismantle for ease of cleaning and inspection.

12.1.9 All connecting pipe work shall be of sterilizable quality and shall be made up in sections, which can be easily dismantled for effective cleaning. Where flexible pipe work is used it shall be fitted with stainless steel connections secured by means of “Jubilee clips”. All connections shall be removed at agreed intervals (dependent on product) to remove any trapped debris.

12.1.10 Any pipe lagging (insulation) shall be in good condition, coated with an impervious, easily cleaned surface, to minimize the foreign body risk.

12.1.11 Agitator motors, their mounting frames and oil trays, shall be kept free of rust and flaking paint.

12.1.12 Conveyor belts, which come in contact with foodstuffs, their guides and side plates shall be constructed of hygienic materials and shall be free from fraying, de-lamination or any other type of damage. Belt guides shall also be easily removed for cleaning.

12.1.13 Pallets for internal use shall be manufactured from plastic or non-corroding metal. Wooden pallets shall only be allowed in dry stores.

12.1.14 All equipment surfaces in contact with food shall be inert to the food being handled under the conditions of use. The use of stainless steel is preferred for food equipment surfaces.

12.1.15 All food equipment surfaces shall be smooth, impervious, easily cleaned and drained.

12.1.16 Faced chipboard finishes shall not be acceptable on preparation tables.

12.1.17 Food grade lubricants shall be used on conveyors and equipment where potential contact with food occurs.

12.1.18 Where continuous cleaning of conveyors is practised provision shall be made to remove cleaning solutions prior to contact with food materials.

12.2 Glass handling procedures, register and inspection

12.2.1 Glass is strictly prohibited in food production and storage areas unless it is the primary packaging medium.

12.2.2 The establishment establishment shall have a formalized, glass safety policy and written procedure for glass handling, register, control and inspection when glass containers, sample bottles, parasite inspection boxes are brought into the production area.

12.3 Maintenance programme

12.3.1 All equipment shall have a written maintenance and overhaul programme, which is adequate for the process and the usage of the machine.

12.3.2 Process equipment shall be itemized in an inventory and where possible numbered by production line, to ensure that the routine maintenance programme is controlled and exercised according to the agreed time-scale.

12.3.3 Equipment shall be maintained in a good state of repair. Running repairs using string wire, cardboard or other temporary materials shall not be permitted for safety and contamination reasons.

12.4 Safety guards

12.4.1 Safety guards shall be accessible for thorough cleaning or removed to facilitate thorough cleaning of equipment e.g. handsaws, during production breaks and at the end of production. The machinery shall then be inspected by Quality Assurance personnel prior to re-assembly by maintenance engineers.

13. PERSONNEL REQUIREMENTS

13.1 Staff training programme

13.1.1 All employees shall be informed in writing of their legal obligations and on personal hygiene prior to commencing work, with periodic updates as necessary..

13.1.2 All personnel shall be appropriately trained in food hygiene disciplines for the job they do and in compliance with the National food safety laws.

13.1.3 On job training shall be given to staff in order that they fully understand their responsibilities and the need to follow written instructions and procedures

13.1.4 All Production and Quality Assurance personnel shall be fully trained in the principles of food safety Management for comprehension of tasks assigned to them.

All other personnel, including engineers, service and cleaning staff whose duties take them into the factory shall receive appropriate training and adopt the same protective clothing regime as other operators

13.1.5 When off site personnel are brought into the plant, they shall be shown the correct code of practice for personal hygiene and taken through it. Picture based guides providing key hygiene instructions shall be made available to overcome language problems.

13.1.6 Training records shall be kept on each individual member of staff and the effectiveness of training monitored to confirm that designated procedures are being followed.

13.1.7 In the event of termination of employment, due consideration shall be given to potential risk to the product and demonstrations of other operatives. Having earlier defined the employee's legal obligations, any appropriate precaution shall be taken as necessary.

13.2 Personal effects

13.2.1 All persons in open food areas, , shall wear suitable hair retaining wear which are comfortable and of generous size.

13.2.2 Hairgrips or metal clips to hold headgear in position shall not be allowed.

13.2.3 Personnel working in, or entering fish processing or packing areas shall not wear jewellery.

13.2.4 Personal effects such as bags and outer clothing shall not be kept in production areas.

13.2.5 Nail varnish and perfume shall not be worn since they present risk of potential foreign body or taint to the fish product

13.2.6 The management shall enforce and abide by personal hygiene requirements.

13.3 State of protective wear

13.3.1 All fish handling operatives and persons who enter production areas for any reason, shall be provided with clean protective clothing which shall be worn at all times.

13.3.2 Protective clothing shall be free of loose fastenings, such as buttons, and top pockets. Any internal pockets provided in the garment shall be at hip level. When deciding which style to adopt, attention shall be given to how staff will dress and undress.

13.3.3 Boiler suits/overalls shall not be used in fish production areas since during the changing regime, a large proportion falls onto the floor creating a potential contamination risk.

13.3.4 Items of personal clothing (such as body-warmers) shall not be worn over protective clothing and undergarments shall not protrude below sleeves and cuffs.

13.3.5 Protective footwear shall be provided along with a suitable facility to clean it.

13.3.6 Protective clothing and designated footwear meant for online processing shall not be worn by staff outside the processing establishment.

13.3.7 Where earplugs or earmuffs are provided because of production noise levels, all such issued items shall be accounted for at the end of each shift.

13.3.8 An adequate supply of laundered protective clothing shall be available, and high laundry standards maintained. Fraying edges and tears shall be professionally repaired, or the garment replaced.

13.3.9 Staff shall wear suitable clean working clothes and headgear.

13.3.10 Colour coding of protective work wear is essential to identify operatives and ensure correct changing regimes.

13.3.11 Where the services of a contract laundry are engaged, their premises shall be audited to ensure that standards are acceptable, and that cross contamination of cleaned protective clothing is not possible. Adequate separation of fish handlers' protective clothing from other contracts (e.g. hospitals or pharmaceutical industries) shall be in place.

13.3.12 The transfer of protective clothing from laundry to food premises by distribution vehicles shall be done hygienically. ‘Shrouding’ of high-risk overalls in plastic film sleeves is very advantageous to ensure clean handling practices prior to use.

13.4 Hand washing and disinfection

13.4.1 Provision shall be made to ensure that hands are kept clean, washed and disinfected at frequent intervals using a non-perfumed bactericidal liquid soap or non perfumed barrier creams or alcohol based skin sanitizers. Hands shall be thoroughly dried; nails kept short and well manicured and cleaned using a nailbrush.

13.4.2 Hands shall be washed and disinfected: -

i. Immediately before putting on protective clothing, particularly important in the case of high-risk personnel.
ii. Immediately before commencing work, or entering production areas.
iii. After handling debris, refuse or food waste.
iv. If they become soiled or visibly contaminated.
v. After visiting the toilet.
vi. After blowing the nose or touching the mouth.

13.4.3 Sufficient hand-wash and disinfection stations shall be provided in toilet areas and at each entrance to the production area.

13.4.4 To ensure good hand washing disciplines, operatives shall be channelled past the hand-wash stations by the use of guardrails or other appropriate measures.

13.4.5 Similar hand washing facilities shall be provided at designated places within the food processing area to encourage good personal hygiene disciplines.

13.4.6 Only “hands free” knee, foot or electronically operated sink/wash basin units with a good supply of potable running water shall be supplied. Hand operated taps and ceramic sinks shall be avoided because of their potential contamination risk.

13.4.7 Adequate drying facilities shall be provided, in the form of disposable paper towels or any other hygienic drying facility.

13.4.8 Open bins or foot operated lidded bins shall be provided at all hand-wash and disinfection facilities.

13.4.9 Hand-wash and disinfection sinks and drying facilities shall not be used for utensil or general cleaning purposes.

13.4.10 Notices reminding staff of the hand washing and disinfection requirements shall be posted in each toilet, hand wash sinks and by the urinal area, in break/canteen areas and on every entrance door to the production areas.

13.4.11 The effectiveness of the hand washing and disinfection disciplines shall be monitored by the random implementation of hand swabs or contact plates.

13.4.12 Where it is establishment policy to adopt the use of disposable colour coded gloves, in production areas, these gloves shall be treated as a 'second skin', and regularly washed disinfected and changed. If they become damaged or torn, they shall be removed because of the potential foreign body hazard.

13.5 Employee health requirements

13.5.1 All fish processing establishment employees both full time and part time shall complete a medical questionnaire and undergo medical examination prior to employment.

13.5.2 Persons directly involved in food processing or packing shall be healthy fit and capable of discharging their duties effectively.

13.5.3 Persons suffering from any infectious illness (particularly gastro-intestinal disorders, vomiting, diarrhoea; skin infections, nasal or ear disorders etc) shall not be permitted to work in contact with food or to come in contact with other food handlers.

13.5.4 Any person suffering from infectious illness shall be declared medically fit by a doctor before being allowed to return to work. Full records shall be kept for each individual case.

13.5.5 On returning from holidays either locally or abroad (particularly higher risk countries); all employees shall report any food poisoning symptoms they have had during their holiday and shall be medically screened by a doctor prior to returning to work. Screening shall include testing for pathogens.

13.5.6 The establishment management of the establishment shall ensure that all employees undertake bi-annual medical examinations.

13.5.7 Person(s) having untreated sores, cuts or bruises shall not be allowed to work in contact with foods. All such injuries shall be reported and suitably treated (by a trained nurse or first-aid personnel).

13.5.8 All cuts, abrasions and sores on the hands shall be covered with a consipocously coloured water proof plaster and the hand covered with a disposable glove.,. Such persons shall not work on open food.

13.5.9 Should there be a contagious disease outbreak in the neighbourhood where the factory is situated, a mandatory medical examination shall be a condition on all factory workers irrespective of whether they have undergone bi-annual checks or not.

13.6 Screening for personnel and visitors

13.6.1 The management of the establishment shall screen new employees and conduct work reference checks on all employees including random criminal background checks.

13.6.2 All visitors to the establishment shall be registered and adequately screened.

13.6.3 If the information provided gives cause for alarm, then following further investigation, access to the factory shall be declined, and an alternative appointment made.

13.7 Medical facilities

13.7.1 The establishment shall provide the services of a fully trained nurse or first aid personnel and a medical room with adequate equipment for the first aid treatment of illness or injury.

13.7.2 First aid equipment shall be secured and issued only by trained staff.

13.7.3 All treatments shall be fully recorded in the medical record book provided, with the patient's name, date, disease and the medical supplies issued.

13.8 Control of smoking, food and drink

13.8.1 Smoking and the use of tobacco shall only be allowed in properly designated areas. Smoking accessories e.g. smoking pipes, cigarette holders shall not be carried in pockets in production areas. Facilities for the disposal of smoking materials shall be provided at exits from smoking areas.

13.8.2 Eating and drinking shall only be allowed in properly designated areas. Eating sweets, chewing gum or foodstuffs shall be strictly forbidden from all production areas and toilet facilities.

13.8.3 Operatives shall not be allowed to take their breaks or meals outside the building, without first removing their protective clothing.

13.8.4 Hands shall be washed before and after eating.

13.8.5 Where drinking is permitted, a drinking fountain is the preferred source of supply, as it is easily controlled, clean and tidy.

13.9 Staff facilities

13.9.1 Adequate lockers shall be provided for all personnel for the safe storage of personal effects.. Lockers shall be made of materials that are non-corrosive, easy to clean and disinfect, and designed with a sloping top to discourage use as a shelf and prevent dust accumulation.

13.9.2 Foods and drinks shall be served in designated areas within the premises.

13.9.3 Canteen facilities, particularly the food preparation areas shall be of good design, have adequate storage and chilling facilities and be well managed and maintained by appropriate staff.

13.9.4 Automatic drink dispensers are acceptable, provided that they are suitably located, adequately cleaned and maintained. Disposal facilities or non-breakable empty drinking containers shall be provided. Plastic cups shall not be taken away from the vicinity of the drinks dispenser after use.

13.9.5 Rest areas shall be kept in good decorative order, properly maintained and cleaned, and shall provide adequate seating facilities to meet the maximum usage.

13.9.6 At all times all operatives shall remove protective clothing before entering the canteens and rest room facilities.

13.9.7 Canteen and rest room areas shall have preventive pest control systems consistent with those adopted in other areas of the establishment

13.9.8 Separate male and female toilets shall be provided which are adequate for the number of employees on site and complies at least with the minimum requirements of the National law.

13.9.9 In high-risk processes or sensitive environments, separate ablution facilities may be required for different groups of operatives. Operatives shall remove their protective clothing prior to entering the toilet.

13.9.10 All toilets shall be adequately lit, ventilated and separated from production areas by an ante-room supplied with hand washing and sanitizing facilities.

13.9.11 Toilet/changing rooms shall be of good hygienic design and construction. Toilets shall be equipped with effective water flushing system and the floors, walls, ceiling and sanitary equipment shall be smooth and easy to clean and in good decorative order.

13.9.12 Adequate and well equipped changing facilities with such items as boot stands, cloth hooks or hangers and curtains for privacy, shall be provided for operatives to facilitate changing into protective clothing prior to entering the processing areas and shall be maintained to hygienic standard and exercise pest control measures.

13.9.13 Separate storage shall be provided for outdoor clothes and footwear and the storage of protective clothing to prevent the risk of cross contamination.

13.9.14 Changing facilities shall not be used for eating, drinking or smoking.

14. FISH HANDLING PRACTICES

14.1 Use of colour coded equipment

14.1.1 Equipment used in different areas of the factory shall be colour coded, to designate different sections and prevent the risk of cross contamination.

14.1.2 Each department shall have an inventory of all colour-coded equipment, which is checked daily and any damaged or broken items replaced.

14.1.3 Each department shall be supplied with sufficient colour coded equipment to eliminate the need to "borrow" items from other areas, even on a temporary basis.

14.2 Control of product containers

14.2.1 Containers used to hold fish, whether for raw materials, work in progress or finished product, shall be clean and in good condition to prevent the risk of contamination.

14.2.2 All containers shall offer adequate protection from external sources of contamination. If they are not lidded an alternative method of covering the product shall be available

14.2.3 All fish containers shall be held off the floor by the use of plastic pallets to prevent contamination from the floor and to allow access for "clean as you go" in the event of product spillages'.

14.2.4 Fish containers shall not be stored against walls because of potential foreign body risk, damage to the wall and access for cleaning.

14.2.5 All raw materials shall be stored in containers, which provide adequate protection from cross contamination, damage or adverse weather conditions during transit.

14.2.6 Prior to unloading, each delivery of raw materials (including the pallets) shall be visually inspected for signs of damage, infestation or other defects. Where appropriate any additional checks shall be carried out to ensure that the condition of the raw materials is sound.

14.2.7 Containers shall be in good state of repair, construction and design, non-corrosive and easily cleanable and disinfected. Fish containers shall be designed to allow easy drainage to ensure fish does not stay in contact with melt water.

14.3 Contamination control

14.3.1 Gutting, heading and thawing shall be conducted hygienically. Gutted and headed fish shall be immediately washed with potable water. The viscera and other undesirable parts of the fish shall be quickly separated from the product to prevent contamination. The thawing process shall also be controlled and the melt water drained efficiently to prevent contamination.

14.3.2 The filleting process shall be conducted in a manner that reduces risk of bacterial growth. Fillets or steaks shall be refrigerated or iced immediately.

14.4 Waste disposal

14.4.1 The external facility for the disposal of waste shall be located away from production areas, preferably in its own enclosure to minimize the danger of pest infestation or other hazards affecting the factory.

14.4.2 Internal waste collection systems shall be clearly identified and be used specifically for that purpose. Containers similar to those used for food, ingredients or packaging are not acceptable for waste collection.

14.4.3 A designated operative shall be responsible for maintaining the waste control system and ensuring that collection containers and handling systems are kept clean.

14.4.4 If the waste facility is not enclosed, disposal receptacles with close fitting lids shall be provided, and the lids kept shut when not in use.

14.4.5 The waste disposal vessels shall be sited on proper hard standing with adequate drainage, and access for cleaning and pest control.

14.4.6 Any waste disposal facility enclosed within the main production building shall be adequately screened from food processing areas.

14.4.7 All waste materials shall be removed as often as possible and shall not be allowed to accumulate in any production or service area within the factory. Wastewater shall also be adequately and hygienically disposed off through a defined effluent treatment system.

14.4.8 Different types of solid waste, namely food and non-food debris shall be handled separately and held in easily identifiable enclosed containers.

14.4.9 Food waste shall be disposed off on a daily basis, and provision made to dispose off non-food waste at least twice a week.

14.4.10 All areas and waste receptacles for containing waste materials shall be kept clean and tidy at all times, spillage cleaned up immediately, and disinfected according to the cleaning schedule.

14.4.11 Waste disposal and effluent treatment shall be monitored. The production process shall be audited to minimize waste and to ensure that accidental loss of raw materials, process aids, product or other items does not threaten the product or result in pollution.

14.4.12 On-site treatment of effluent shall be carried out away in an area sited from the main processing buildings and safely without generating offensive odours.

14.4.13 Disposal of plant effluent shall comply with the requirements of relevant National laws.

14.5 Control of foreign objects

14.5.1 All employees on site shall be fully conversant with the establishmentestablishment policy on product safety and protection, particularly foreign object risks and adhere to it at all times.

14.5.2 Product protection shall be effected by the use of on line equipment, such as magnets, sieves, metal detectors and other appropriate techniques and process design features.

14.5.3 Sieves and filters shall be cleaned on a regular basis, a minimum of once per production shift and checked at agreed intervals to ensure that there are no signs of deterioration and cleaned off to remove foreign matter.

14.5.4 Where magnets are used, they shall be checked and cleaned on daily basis to control the accumulation of metal objects.

14.5.5 No glass may be taken into any production area unless authorized All glass breakages shall be cleared up immediately according to the “glass breakage procedure”.

14.5.6 Engineering maintenance work and repair shall not be carried out while production is in progress. Maintenance on adjacent non-functional lines can take place, provided that the process operation is adequately screened.

14.5.7 When repairs are effected, the area shall be thoroughly cleaned prior to restart of production, particularly after on-line repairs. Additionally, after redecoration or refurbishment, the production area shall be properly ventilated before being brought into use to prevent the risk of product taint.

14.5.8 The use of pens and writing equipment in production areas shall be strictly controlled on a need basis. Pencils, pins, staple and pen tops, which present a considerable foreign body hazard, shall not be permitted.

14.5.9 Rejected product shall be examined and discarded and the source of any foreign body identified where possible and steps taken to eliminate the problem.

14.5.10 All storage, blending and process containers shall be fitted with close fitting covers.

14.5.11 Agitator motors shall be fitted with oil catch trays, which cannot overflow into the storage or blending vessel. Controls shall be exercised to prevent excessive leakage of lubricant.

14.5.12 Any liquid discharge from the process shall be ducted direct to drain, using taps in the line to prevent siphoning or backward flow.

14.5.13 Where there is a probability of liquid spillage, splashing or overflow on a line, the equipment shall be fitted with a catch tray, which will channel the offending liquids directly to the nearest drain.

14.5.14 Equipment shall only be used for its intended purpose and shall not serve as shelving or storage, or as a food preparation surface, because of the potential foreign body risk.

14.5.15 An inventory of all machine change parts shall be kept and maintenance staff shall observe all precautions while working on equipment and services: -

i. All screws, nuts, bolts, washers, etc. shall be checked and securely fastened.
ii. All tools shall be accounted for and all spare parts or fittings removed from the area.
iii. All equipment and surrounding area shall be cleaned and sanitized prior to recommencing production.
iv. The machine operator shall also check that all machine parts are securely in place and all necessary guards are fitted.

14.6 Between batch cleaning procedures

14.6.1 Special provision shall be made to interrupt the production of fresh chilled, high-risk products for cleaning and disinfecting at least every three hours.

14.6.2 “Clean as you go” principles shall be adopted, but when the levels of food debris and soilage begin to present a threat to the product, the line shall be stopped.

14.6.3 All products shall be removed from the line to facilitate cleaning and prevent contamination risk, particularly where alcohol based sterilised wipes and sprays are used.

14.7 Sterilisation of surfaces and equipment

14.7.1 Following the clean down at the end of the production shift, complete sterilisation of the surfaces and equipment may be necessary. This may take the form of steam sterilisation or chemical sterilisation by fogging the environment with an appropriate solution of terminal sanitizer.

14.7.2 Where fogging methods are used, the area shall be cleared of all personnel, the fogging equipment controlled on a timer and the correct percentage dilution of chemicals atomized to completely saturate the environment.

15. QUALITY ASSURANCE

15.1 Risk analysis

15.1.1 The Competent Authorities shall put in place risk analysis process for the effective control of foodborne illness and the process shall consist of risk assessment, risk management and risk communication

15.1.2 The Competent Authorities shall institute a process, distinct from risk assessment, of weighing policy alternatives, in consultation with all interested parties, considering risk assessment and other factors relevant for the health protection of consumers and for the promotion of fair trade practices, and, if needed, selecting appropriate prevention and control options.

15.2 Comprehensive quality assurance

15.2.1 The establishment shall have a comprehensive Quality Assurance System and Hazard Analysis and Critical Control points (HACCP) based on risk analysis to ensure the consistent production of safe products, which are compliant with the agreed specifications.

15.2.2 A system of HACCP shall be established and all appropriate process flow charts and documentation to go with it shall be available.

15.2.3 There shall be evidence that the HACCP system is regularly reviewed and that problems highlighted as a result of internal audits are addressed accordingly.

15.2.4 Where product development programme introduces a new type of product, with different manufacturing parameters, the HACCP system shall be reviewed and approved prior to product launch.

15.2.5 The establishment shall have sufficient properly trained personnel to maintain agreed quality standards, with clearly defined responsibilities covering all aspects of the operations.

15.2.6 The Quality Assurance department shall be operational at all times when production is in progress, even if only skeleton staff is required.

15.2.7 Where an establishment has suspicion, credible evidence or information indicating that a consignment has been deliberately adulterated with intent to cause harm to consumers, such a consignment shall be detained or recalled and the Competent Authorities immediately informed

15.2.8 Establishments shall develop clearly documented well-rehearsed product recall plans, with crisis management teams that can quickly assess the scope of potential problems and contain them

15.2.9 The Quality Assurance department shall be independent from the production and purchasing functions, although they shall liaise with each other to achieve the required product specifications.

15.2.10 Adequate resources and facilities e.g. offices and laboratories shall be made available for the Quality Assurance department to fulfil its tasks.

15.2.11 Where chemical, physical, microbiological and sensory analysis of raw materials and finished product is required, appropriate facilities shall be provided which are physically separated from each other and the production area. Provision shall be made for storage of samples.

15.2.12 The establishment shall have a Quality Assurance Manual, detailing the type and frequency of checks carried out and the documentation records to be filed.

15.2.13 The results of the checks, together with any corrective actions taken in response to adverse results shall be legibly documented and held for a minimum period of one year or longer dependent on the product's shelf life or as required by legislation.

15.2.14 All Quality Management Systems shall take consideration of HACCP, all relevant legislation and good manufacturing practice.

15.2.15 Establishments shall put in place measures to guard against deliberate adulteration of fish and fishery products with lethal substances intended to cause adverse health consequences or death to humans or animals

15.3 Authority of quality assurance department

15.3.1 The Quality Assurance department shall have the authority to accept or reject raw materials, packaging materials, work in progress and finished product against an agreed specification.

15.3.2 The Quality Assurance department shall have the authority to stop production where Good Manufacturing Practices are not being exercised, and the product is at risk or non-conforming to specifications

15.3.3 In the event of a line stoppage by the Quality Assurance department, the reasons for it shall be explained to production department and management. The appropriate corrective action shall be agreed upon and implemented prior to restarting the line.

15.4 Specifications for finished products

15.4.1 All products manufactured on site shall conform to a written specification, which has been agreed between the manufacturer and the customer, signed and dated.

15.4.2 Details within a product specification shall not be altered without prior consent from the customer. All amendments shall be signed and dated.

15.4.3 All products shall be manufactured according to the specification. Suspected or non-conforming raw material, part processed or finished products shall be clearly identified and dealt with accordingly.

15.4.4 All products shall be labelled to an agreed code and the label shall meet the specification of the customer and the requirements of the CA.

15.4.5 Thawed products that are destined to be sold shall be clearly labelled.

15.5 Inspection and control procedures for dry product/ingredients

A system of inspection to detect foreign materials in dry raw materials shall be put in place.

15.5.1 Particular attention shall be given to the examination for pest infestation, both past and present, and the corrective action required for each situation.

15.5.2 Dry ingredients shall be sieved or dissolved following physical inspection, using a correct mesh sized sieve, which shall be kept clean, and in good condition.

15.5.3 All dry material shall be passed through a metal detector to eliminate any foreign objectionable matter.

15.6 Microbiological monitoring and testing

15.6.1 The microbiological testing regime and resources required will ultimately depend on the nature of the product to be tested (e.g. degree of risk, shelf life and composition).

15.6.2 Where microbiological laboratory facilities are provided on site, they shall be physically separated from production, good laboratory practice shall be evident, and also:

i. Measures shall be taken to ensure that the risk of cross contamination from laboratory areas to production is eliminated;
ii. Access shall be restricted to "authorized" personnel only;
iii. Protective clothing worn in microbiological laboratories shall not be worn in production areas;
iv. Provision shall be made for the safe storage and disposal of laboratory waste (both microbiological and chemical) in accordance with existing legislation;
v. Testing for pathogens in in-house laboratories is not recommended; and
vi. Stringent precautions shall be exercised when sampling to avoid any contamination risks, which would otherwise result in an inaccurate test.

15.6.3 Laboratory personnel shall be competently trained to undertake the analysis, interpret the results and flag up problems when they arise. Reference standards for microbial limits shall be defined.

15.6.4 There shall be daily communication between the microbiological laboratory and Quality Assurance department, through designated staff, to ensure that corrective action is taken in response to out of specification results.

15.6.5 All laboratory methods adopted shall be written up, including an assessment of the hazard of each chemical used and relevant instruction to contain any hazard.

15.6.6 All laboratory equipment and instruments shall be clean, well maintained, serviced and calibrated at regular intervals.

15.6.7 Where external laboratories are used, the premises shall be audited prior to commencement of the contract, to ensure that they too comply with points 15.6.1 to 15.6.6 above.

15.6.8 The microbiological standard of raw materials shall be detailed in the purchasing specification and where on site facilities for microbiological analysis are available, they shall be completely segregated from processing areas.

15.6.9 All raw materials, according to their origin and substance shall be subjected to a degree of microbiological control by examination in line with the agreed specification. Raw materials, which will be incorporated into the finished product without further heat processing e.g. salt, ice, shall comply with standard microbiological specifications.

15.6.10 If ingredients are not delivered with an establishment positive release note, detailing the microbiological analysis for that batch code, bacteriological sampling shall be carried out at the point of delivery.

15.6.11 Suppliers of ingredients shall provide regular test results, which are based on rapid indicative testing methods at an agreed frequency.

15.6.12 A fully qualified, experienced and competent technician, who is fully conversant with sampling techniques, shall undertake all microbiological analysis.

15.7 Requirements for water

15.7.1 All water used in a fish-processing establishment shall be potable or clean sea water.

15.7.2 The potable water shall comply with National standards for drinking water and be regularly monitored.

15.7.3 The establishment shall ensure security of water source, storage and distribution systems

15.8 Parasite inspection procedures

15.8.1 Incoming fish shall be sampled and checked for parasites according to EAC/SPS Vol III/MSOP. Examination on a representative sample of fish for parasites shall be conducted by qualified persons and entail:

i. remote/visual inspection of whole and eviscerated fish;
ii. hands-on physical examination;
iii. taking of samples for confirmatory tests where necessary; and
iv. candling of fillets

15.8.2 Cold smoked fish or raw fish sold for direct human consumption shall be subjected to freezing treatment below -20^0C. The processor shall verify that the freezing treatment has been applied by recording the appropriate batch code details and maintaining temperature records.

15.8.3 Processors shall provide records of batches, which identify them as being frozen because of parasites or after parasite removal to ensure traceability and transparency.

15.9 Vehicle temperature checks and condition

15.9.1 Vehicles or vessels transporting fish shall have adequate drainage facilities and the internal surfaces shall be smooth, easy to clean and disinfect. The vehicles shall be included within the formal cleaning schedule.

15.9.2 For chilled iced fish, before off loading a designated person shall check the internal temperature of the fish. Dispatched frozen or chilled product shall be maintained at correct temperature and monitored at the point of exit prior to release.. External temperature recording devices shall be on trucks delivering to the port of exit. The internal condition of delivery vehicles shall be inspected prior to unloading deliveries or loading finished product.

15.9.3 Where, for whatever reason, the Quality Assurance department rejects a vehicle, the reasons for rejection shall be recorded, dated, signed and appropriate corrective action taken. Where contract distribution companies are used, this will be communicated accordingly.

16. PEST/VERMIN PREVENTION AND CONTROL

16.1 General arrangements

16.1.1 The establishment shall either contract the services of an approved pest control organisation, or shall have trained on site personnel, for the regular inspection and treatment of premises to deter and destroy Vermin. A member of staff shall always accompany an outside contractor on his visit.

16.1.2 It is recommended that pest control companies shall provide a minimum of four visits per year at regular intervals, with personnel on 24-hour call out. Where problems are evident, daily revisiting shall be specified until the area is clear.

16.1.3 Safe and hygienic disposal of vermin is required after capture or fumigation. Documented procedures are therefore needed from the contractor and the establishment

16.2 Pest control records

16.2.1 Detailed records of the pest control inspections shall be kept in the on-site Report Book.

16.2.2 A member of the management team shall ensure that all recommendations made in the report are acted upon within an agreed time scale.

16.2.3 The internal bait stations shall be sited by the pest control officer. An accurate site map showing where stations are located shall be compiled and held in the Report Book.

16.2.4 Each bait station shall be adequately labelled and the bait boxes clearly date marked at each site inspection.

16.3 Baiting requirements and monitoring systems

16.3.1 Whilst it is not possible to bait food production areas where open food is handled, all ancillary areas shall be covered.

16.3.2 Wherever practicable, baits shall be fatty or waxy based substrates placed on/in back break or cage traps. The internal rodent bait shall be tamper resistant . All rodenticides shall be stored safely in a designated secure area.

16.3.3 External bait stations shall be “tamper free” clearly marked, resistant and situated around the external area of the factory site.

16.3.4 Where stored products are considered at risk of insect infestation, appropriate treatment shall be included in the control programme, and fumigation applied as required. Pheromone traps shall be used wherever there is a risk of insect infestation.

16.3.5 External doors, windows and skylights shall be close fitting, no gaps and where necessary be fitted with bristle strips.

16.3.6 Where doors are opened during normal production hours, suitable barriers shall be fitted to prevent pest ingress. This may include fly screens where necessary, which shall be kept clean.

16.3.7 Open drains shall be fitted with a grill or mesh covering and shall be in a good state of repair and maintenance.

16.3.8 Airbricks shall be fitted with a suitable fine mesh cover.

16.3.9 The external fabrication of food premises shall be constructed and maintained so that there are no entry points for pests.

16.3.10 Birds shall be excluded from all production and storage areas by closing off or screening all apertures in the eaves of the roof or the roof itself. Additionally, canopies shall be vermin proofed to prevent birds roosting.

16.3.11 Where birds are already present on the site they and their nests shall be removed in concert with the relevant national laws.

16.3.12 Domestic animals shall be excluded from the factory environment. Staff shall never feed or encourage stray animals to come on site, and all factory doors and other entrances shall remain closed. Pets shall not be used for pest control purposes.

16.4 Insectocutors

16.4.1 All production and ambient storage areas shall be protected by insectocutors devices and these shall be sited in areas of minimum light intensity, but shall not be sited directly above food handling areas. Each unit shall be fitted with a suitable catch tray, which shall be regularly inspected and emptied when necessary.

16.4.2 The units shall be constantly switched on even after production has ended and the premises vacated. The ultra violet tubes on these units shall be replaced at regular intervals or more frequently if necessary.

16.5 Perimeter control and good house keeping

16.5.1 There shall be a clear fenced perimeter zone, which shall be free from accumulation of rubbish, packaging materials, raw materials, pallets and redundant equipment, so as to avoid harbourage and proliferation of pests.

16.5.2 The exterior finish of factory buildings shall be maintained in good condition. In general, vegetation shall not be allowed to grow around the immediate perimeter or near walls and roofs. All gutters and exterior drains shall be kept clean and functional. Pallets, plastic trays, or other materials shall not be stored against the factory walls, to prevent pest harbourage.

16.5.3 There shall be adequate facilities for the disposal of rubbish and general factory debris located at a significant distance from production areas. Rubbish bins, skips or other containers shall be totally enclosed and regularly emptied to prevent over spill. Good housekeeping here is essential, as spillages will encourage the presence of birds, insects, rodents and other scavengers.

16.5.4 Floor debris shall be removed by designated hygiene operatives rather than on line process workers who run the risk of contaminating product.

16.5.5 To avoid congestion, packaging materials brought into the process area shall be kept to a minimum for that day's production and shall be neatly stored and adequately protected.

16.5.6 Infestation shall be controlled by maintaining good housekeeping standards i.e. controlling accumulation of food and packaging debris, keeping passages clear and unlittered, removing redundant equipment and materials from the manufacturing area and ensuring good stock rotation.

16.6 Incoming materials checks and segregation

16.6.1 All incoming raw materials whether food ingredients, packaging or equipment, shall be thoroughly checked on arrival at the site for pest infestation. If the materials show evidence of damage on the outer packaging, product seal, pallet wrapping or to the pallet itself, they shall be quarantined and further investigation carried out.

16.6.2 In the event that pest infestation is found on incoming materials, they shall be labelled 'reject', isolated from the factory, the pest control contractor called immediately and the infestation treated before it spreads.

16.7 Approval of baits and pesticides

16.7.1 Pest control documentation shall be clear, concise and legible. It shall be kept up to date and regularly reviewed by the quality assurance department.

16.7.2 Documentation relating to the safety and application of approved baits and pesticides shall be available, usually in the form of a data sheet. Information relating to the Control of Hazardous Substances to health shall be readily accessible in either the pest control record book or a separate named document.

16.7.3 All documentation/records detailing the safe use and application of these pesticides requires the signature or identification of the checker, to ensure accountability.

17. REQUIREMENTS FOR CLEANING SYSTEMS

17.1 Cleaning schedules

17.1.1 Clearly written, and formalised cleaning procedures and schedules shall be available for every department within the establishment.

17.1.2 The cleaning schedules shall stipulate the frequency and method of cleaning and disinfecting agents that are to be used for all plant, equipment and surroundings. These methods shall be designed to ensure that fish is not contaminated during processing

17.1.3 For establishments employing different ethnic groups in significant numbers, the cleaning procedures shall also be explained in a language that is understandable to the workers. This may be achieved through using photographs / diagrams.

17.2 Detergents and disinfectants

17.2.1 All cleaning and disinfection agents used on site shall be food grade materials, approved by the Competent Authority and supplied by a reputable establishment.

17.2.2 They shall not be perfumed because of the risk of product taint and shall not pose a threat in terms of residual toxin.

17.2.3 All cleaning and disinfection agents shall be stored safely in a designated, secure area, off the production floor.

17.2.4 They shall only be used in accordance with the manufacturer’s instructions and their use kept to an absolute minimum when production is in progress.

17.2.5 Such cleaning and disinfection agents shall be clearly identified with the appropriate health and safety symbols and full product description.

17.2.6 The responsibility for dispensing cleaning and disinfecting agents shall be with designated personnel and their usage monitored to ensure that the correct, safe percentage dilution is being used.

17.2.7 Containers and implements for the preparation and dispensing of sanitising agents shall be kept under the control of designated persons.

17.2.8 Protective goggles; gloves and overshoes shall be available to all persons handling cleaning chemicals on site and the use of them regularly reinforced by management.

17.2.9 An up-to-date list shall be available for all cleaning and disinfecting agents used on the premises and all operatives and first aid personnel aware of their chemical content in the event of an accident.

17.3 Cleaning and disinfection of equipment

17.3.1 Plastic or metal handled equipment shall be used in production areas and correct hanging storage provided. All brooms and hand brushes shall be maintained in good condition, free from deterioration and soiling. Brushes shall have coloured, easily detectable, synthetic bristles, which cannot easily become detached or break away through continuous use. Wood shall not be used for stocks and handles in production areas.

17.3.2 All cleaning implements shall be discarded before they become a foreign body risk e.g. when badly worn out.

17.3.3 Cleaning clothes shall not be allowed in establishment because of the potential microbiological and foreign body contamination risk.

17.3.4 Scouring pads shall only be used if simple brushing is inadequate. In such cases the pads shall be colour coded, only used in conjunction with the daily sanitation procedure and renewed before any signs of deterioration. Scouring pads present a definite foreign body risk and shall be accounted for after use. Steel wool shall not be acceptable

17.3.5 The facilities shall be adequately supplied with potable running water, and a detergent dosing system where appropriate. Provision shall be made for soaking, cleaning and rinsing.

17.3.6 An adequate number of tanks suitable for the immersion of loose pieces of equipment shall be available for cleaning purposes. The tanks shall have either a supply of hot water or cold water and steam, and shall be located in designated sanitation areas, which are separate from production.

17.3.7 The use of pressure hoses in production areas shall be limited to specific times when open food is not in process to avoid spreading or cross contamination by aerosols. Preferably use low-pressure hoses or alternative cleaning methods.

17.3.8 The use of compressed air hoses to blow down shall be avoided. Vacuum systems are preferred.

17.3.9 Proper provision shall be made for the correct, neat storage of hosepipes and other cleaning utensils off the floor to prevent contamination.

17.3.10 Where “clean in place” (CIP) systems are adopted and are computer programmed , , the equipment shall be regularly calibrated, the programme checked and the detergent dilutions independently analysed.

17.3.11 All equipment and facilities used for cleaning shall be cleaned and sanitized at the end of cleaning operations.

17.4 Cleaning of utensils

17.4.1 Separate facilities shall be provided for utensil washing and for general purpose cleaning. These shall be appropriately identified and assigned.

17.4.2 All utensil-washing areas shall be physically separated from the production area where this operation is to be completed during production periods.

17.4.3 Designated storage space shall be provided to allow for the complete segregation of clean and dirty utensils.

17.4.4 Cleaned utensils shall be stored in a clean and well-maintained storage area, which allows for good drainage and drying. The utensils shall be stacked in such a manner as to prevent recontamination and accidents.

17.4.5 The area shall be adequately ventilated with extraction canopies, if necessary, to prevent mould growth.

17.5 Training of cleaners

17.5.1 Cleaning operatives shall be adequately trained, so that they fully understand: -

i. The cleaning schedules.
ii. Chemicals listed and safety precautions required.
iii. The need for protective clothing.
iv. The appropriate dilutions of cleaning agents.
v. The need to remove food products from the line during “clean as you go” procedures.
vi. The personal hygiene standards expected of them.
vii. The use and care of cleaning equipment.

17.6 Supervision and monitoring of cleaning

17.6.1 Cleaning operation shall be supervised whether cleaning is carried out by a separate team on a different shift or by the operators themselves at the end of the shift.

17.6.2 Checklists shall be available for each department to ensure that every single piece of equipment used has been appropriately cleaned and accounted for. The checklist shall be signed by the supervisor in charge after verification.

17.6.3 The cleaning supervisor shall have an inventory of all cleaning equipment within the department, which is checked daily and any damaged/broken cleaning utensils replaced immediately. The cleaning supervisor shall cross check the percentage dilution of cleaning agents dispensed from the dosing equipment or manually diluted, and take corrective action.

17.7 Visual checks and bacteriological swabs

17.7.1 If the cleaning regime is sufficient to remove the soil, there shall be no visible food debris on the equipment surface at the end of the cleaning cycle.

17.7.2 Visual inspection of the equipment shall reveal clean and smooth surfaces free of "gritty" or greasy substances.

17.7.3 Bacteriological swabs shall be taken to verify the effectiveness of the cleaning programme, but if the results of analysis indicate non conformity, corrective action shall be instituted. .

17.7.4 Where long distances of pipe work are involved in CIP operations, they shall be broken down into sections for examination and swabs taken at the joint seal.

18. MANAGEMENT CONTROL

18.1 Management commitment

18.1.1 The establishment shall have a food safety and hygiene policy statement, which may be positioned at strategic points throughout the establishment.

18.1.2 The establishment's quality policy and management commitment to it, shall be demonstrated at the highest level. The main board of directors whether executive or non-executive shall be geared to the quality management system exhibited through their own job description or responsibility.

18.1.3 The management of establishment shall institute surveillance regimes to check potential hiding places with the view to eliminate intentional hazardous contaminants

18.1.4 Involvement in the production environment shall take the form of regular factory tours, communication with 'on line' operatives, review/discussion meetings with senior managers and motivation of staff by encouragement and reward.

18.1.5 The board of directors shall be fully conversant with the principles of good manufacturing practice and have a comprehensive awareness of food hygiene.

18.1.6 Regular meetings to review and update all levels of management of the establishment's activities and progress shall be held.

18.1.7 Communication to all production levels and involvement of all operatives when corrective action is required is essential to ensure consistent quality products.

18.2 Internal audits

18.2.1 Internal auditing shall be carried out to identify strengths and weaknesses in the operating system of an establishment.

18.2.2 Managers shall not be allowed to audit their own departments to ensure objectivity.

18.2.3 The audit and review of the production process shall ensure the safe, and legal production of products to an agreed specification and shall be part of the ongoing, specific responsibility of all management.

18.2.4 All reports issued as a result of, , an internal audit, hygiene surveys, line stoppage or customer complaint shall include a programme of corrective action within an agreed time frame.

18.2.5 According to the priority of the corrective action in relation to product safety, lead times shall be given and named managers listed in the corrective action programme.

18.2.6 It is essential that a specific manager is designated to undertake the task of checking that all corrective actions have been completed on time by the appropriate personnel.

18.2.7 The response to audits shall be committed and pro-active and corrective actions sought in the form of agreed changes or improvements shall be completed within in the agreed time frame.

18.3 Hygiene management

The hygiene management shall be the responsibility of the quality assurance department.

18.3.1 Hygiene management shall be a controlled, organised system, effectively completing a daily programme of duties, which have been prioritised in liaison with the departmental production management.

18.3.2 Supervisors specifically responsible for the areas such as hygiene shall be adequately trained and qualified. They shall possess organizational skills and report directly to a senior manager.

18.3.3 Compatible with the size and type of establishment, a hygiene team shall be available to cover all departments whether on a split shift or single shift system.

18.3.4 The hygiene team shall be appropriately trained in the use of cleaning chemicals, dispensing equipment, cleaning schedules and safety precautions.

18.3.5 It is recommended that all hygiene staff shall undertake basic hygiene training, matching their level of responsibility.

18.3.6 Management at all levels shall demonstrate a commitment to producing safe and legal products of the specified quality. Specialist expertise shall be available in all departments to achieve this.

18.3.7 Departmental managers' responsibilities, with regard to hygiene and quality shall be clearly defined and understood. They shall be fully conversant with the principles of good manufacturing practice and be able to demonstrate and communicate them to their staff.

18.3.8 Key management and supervisory positions shall have designated deputies to cover for absence and ensure that the standards are maintained.

18.3.9 It is recommended that all production supervisors / junior managers shall be trained to at least a basic food hygiene qualification. Senior and middle production management shall have advanced food hygiene qualification.

18.4 Definition of responsibility

18.4.1 A major responsibility of managers is to ensure compliance with all appropriate legislation.

18.4.2 It is recommended that personnel at all levels throughout the organisation shall have a job description, which explains their duties and responsibilities. Management levels require a more detailed job description, which includes their specific tasks, reporting procedures and any specific safety requirements.

18.4.3 Persons allocated responsible positions shall have sufficient authority to discharge their responsibilities effectively. In particular, the Quality Assurance Manager shall have the authority to accept or reject raw materials, packaging materials or finished product that are out of specification.

18.4.4 The Production Manager and Quality Assurance Manager shall be two different persons, who are responsible to their direct senior. They shall not be responsible to each other, but shall collaborate to achieve the agreed quality specification.

19. DOMESTIC DISTRIBUTION AND MARKETING OF FISH AND FISHERY PRODUCTS

19.1 Conditions for distribution of fresh fish

19.1.1 Fresh fish shall be transported in covered containers to prevent damage, exposure to direct sunshine and contamination.

19.1.2 Mobile fresh fish traders shall use containers that are vermin proof, non-corrosive, easy to clean and disinfect.

19.1.3 Ice used for chilling fish shall be made from potable water and subsequently handled in a hygienic manner.

19.1.4 Passengers and/or other cargo shall not be allowed to sit on fish aboard a transport facility

19.1.5 Fish products displayed for sale shall be wholesome, and free from objectionable matter.

19.2 Conditions for market facilities for fresh fish

19.2.1 All fresh fish shall be sold from designated areas located away from sources of contamination

19.2.2 Equipment and working surfaces used for preparing fish in the market stall shall be non-corrosive, easy to clean and disinfect.

19.2.3 Potable water shall be used to wash fish, contact surfaces and equipment.

19.2.4 All the working surfaces, display counters and equipment shall be cleaned, sanitized and stored appropriately at the end of each operation.

19.2.5 All waste from fish handling shall be contained in sealed refuse container.

19.2.6 Where ice is used, the resultant melt water shall be ducted into appropriate drains.

19.2.7 All display surfaces shall be made of non-porous, corrosion resistant material that is easy to clean and disinfect.

19.2.8 The display counter shall be constructed with a slope to facilitate drainage.

19.2.9 Fish shall be displayed on raised platforms and where possible ice shall be used.

19.2.10 Transparent display counters shall be made from non-breakable materials.

19.2.11 If a temperature controlled display counter is used, the temperature of the fish shall be maintained at less than or equal to five degrees Celsius ($\leq +5^{\circ}C$).

19.2.12 Hand washing facilities shall be provided at all fish market stalls.

19.3 Hygiene conditions for fish handlers

19.3.1 Fish handlers in the market shall undergo medical check up bi-annually.

19.3.2 Fish handlers shall wear clean light coloured protective wear.

19.3.3 Fish handlers shall strictly adhere to Good Hygiene Practices (GHP) and avoid spitting, sneezing, unguarded coughs, smoking, chewing and eating

19.3.4 Fish handlers shall wash their hands immediately after visiting the toilets and whenever they resume work after break.

19.4 Conditions for storage of fresh fish

19.4.1 Where possible chill storage facilities shall be provided to cater for surplus fish and maintained in accordance with Good Cold Storage Practices.

19.4.2 The management of the storage facility shall provide suitable handling facilities to ensure proper storage and labelling of stored fish.

19.4.3 The storage facility shall be maintained in good state of repair and cleanliness

19.4.4 The storage facility shall be vermin proof.

19.5 Conditions for distribution of cured fish products

19.5.1 Cured fish shall be transported in well-aerated containers that are vermin proof, non-corrosive, easy to clean and disinfect.

19.5.2 All cured fish shall be stored in a clean well ventilated, vermin proof storage

19.5.3 Heavy objects shall not be placed on top of cured fish during transportation to prevent damage and fragmentation

19.5.4 Cured fish shall not be washed with water to remove contaminants. Appropriate equipment shall be used to remove adhering contaminants.

19.5.5 Cured fish shall not be adulterated with chemicals harmful to human life

19.5.6 Cured fish infested with insects and/or attacked with moulds or any other contaminant shall not be placed on the market.

19.5.7 Cured fish shall not be thrown, tossed, dragged or displayed for sale on the ground

19.6 Conditions for market facilities for cured fish

19.6.1 Cured fish shall be sold from designated areas located away from sources of contamination

19.6.2 Working surfaces used for displaying cured fish in the market stall shall be non-corrosive, easy to clean and disinfect.

19.6.3 Potable water shall be used to clean contact surfaces.

19.6.4 Working surfaces and display counters shall be cleaned, sanitized and stored appropriately at the end of each working day.

19.6.5 Waste from fish handling shall be contained in sealed refuse container and discarded appropriately.

19.6.6 Display surfaces shall be made of non-porous, non-corrosive easy to clean and disinfect material

19.6.7 The display counter shall be constructed with a slope to facilitate drainage.

19.6.8 Fish shall be displayed on raised platforms. Transparent display counters shall be made from non-breakable material

19.6.9 Hand washing facilities shall be provided at all fish market stalls.

19.7 Conditions for storage of cured fish

19.7.1 The management of the storage facility shall provide suitable handling facilities to ensure proper storage and labelling of stored fish.

19.7.2 The storage facility shall be maintained in good state of repair and cleanliness

19.7.3 The storage shall be vermin proof, properly ventilated, dust-proof, cool and dry.

19.7.4 Fish packages shall be placed on pallets

19.7.5 Stacks of stored fish shall be arranged in a manner that facilitates free movement of fish handlers, allows air circulation and prevents damage