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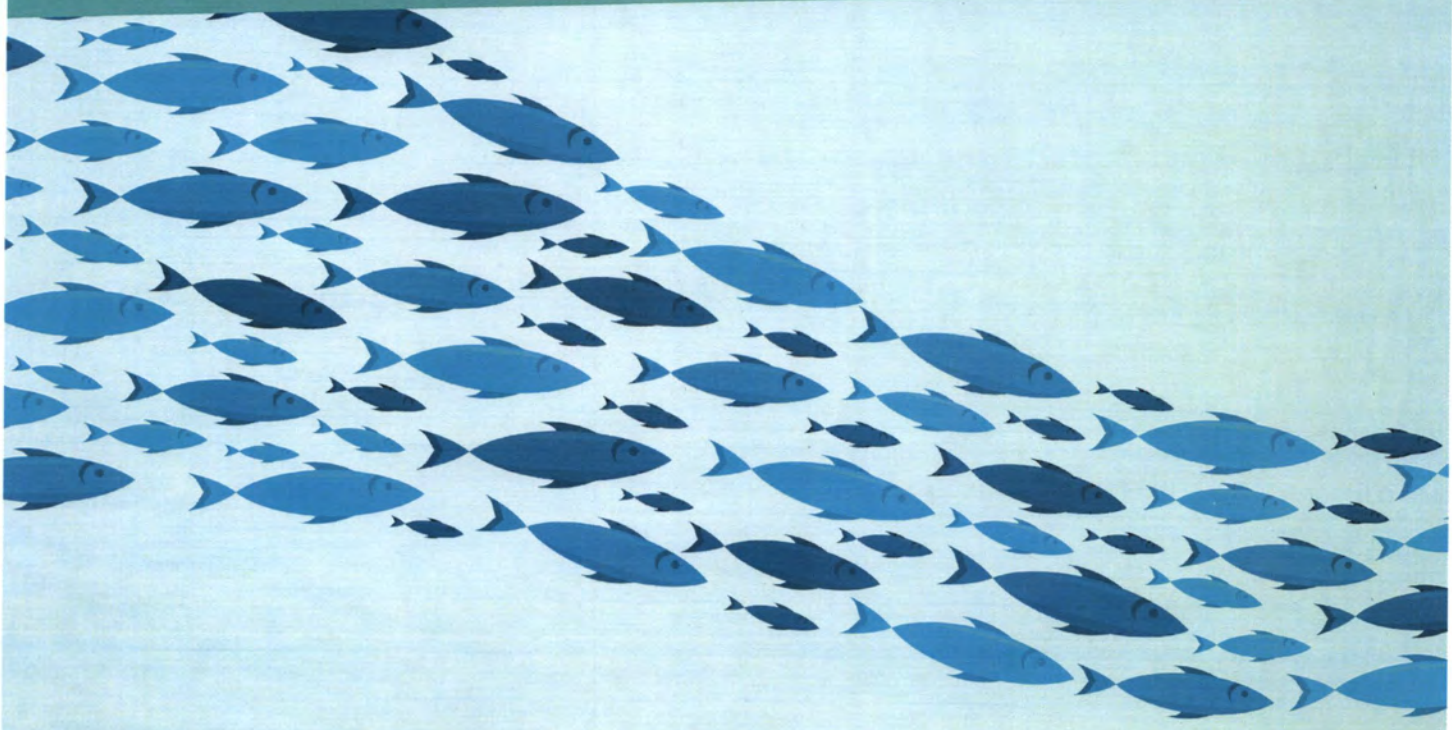
Kingdom of Saudi Arabia المملكة العربية السعودية

رؤية VISION 2030
المملكة العربية السعودية
KINGDOM OF SAUDI ARABIA

السياسات الوطنية لممارسات الاستزراع المائي

National Aquaculture Policies and Practices



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Kingdom of Saudi Arabia

Ministry of Environment, Water and Agriculture
General Directorate of Fisheries

National Aquaculture Policies and Practices

Revision 2, April 2018

Declaration

The Kingdom of Saudi Arabia, by virtue of its location between Arabian Gulf and Red Sea, is blessed with rich coastline fisheries. The demand for seafood varieties for human consumption has grown remarkably in the past few decades all over the world. Due to various reasons, when the 'Capture Fishery Sector" was not able to supply the increasing population; aquaculture has emerged out as a potential alternative industry with its evident benefits to consumers, entrepreneurs and society. The Kingdom of Saudi Arabia recognizes significant socio-economic benefits associated with aquaculture in the region, as it is also the fastest growing food industry in the world.

The history of aquaculture operation in the Kingdom of Saudi Arabia can be traced back from the later years of 1970 and it has proved to be one of the successful industries in the Kingdom.

Diseases have been one of the main obstacles for the sustainability of aquaculture seriously affecting national economies. The Kingdom of Saudi Arabia believes that the approach for aquatic animal health management must be primarily preventive and secondarily corrective. The usage of aquaculture drug shall be minimised and the in case of any drug application, proper monitoring and control measures shall be taken to avoid its adverse effects on nature as well as on human health.

As in the case of all aquaculture countries, maintaining standards of responsible and sustainable culture practice has become a matter of priority for the Kingdom, which paved the way for the compilation of "National Aquaculture Policies and Practices".

The Ministry of Environment, Water and Agriculture hereby approves the stated content of "National Aquaculture Policies and Practices" as the official regulation to be followed in all matters related to aquaculture practices in the Kingdom of Saudi Arabia.

Dr. Ali Mohammad Al Shaikhi

Director General
General Directorate of Fisheries

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PART - 1
GENERAL AQUACULTURE POLICY

Introduction

The Aquaculture operation in Saudi Arabia started in 1978. The initial attempts were made in the fresh water culture operations. Later the seawater aquaculture started and now it is on continuous growth.

The seawater aquaculture potential is very high in view of the long coastline of the Kingdom. The long coastal belt without any domestic sewage, industrial pollution (neither solid nor liquid waste), gives a suitable environment for the growth of the industry. The availability of unexploited stretches of coastal land and possibility of project development without destruction of any mangrove or native flora is an advantage for progress of this industry.

Aquaculture products have good market potential in domestic as well as in international markets. The import of fishery products to the country is a sign of high domestic market demand. Factors such as proximity to European international markets, passage to the Atlantic Ocean through the Suez Canal etc., provides the industry a sharp edge over other aquaculture countries.

This manual of „Aquaculture Policies and Practices" is prepared with an aim to provide a documented basis for the development of sustainable and responsible aquaculture practices in the Kingdom. This will enable the country to plan its aquaculture operations, monitoring methods, evaluation procedures and improvement strategies.

The aquaculture potential of the Kingdom is promising. The responsible utilization of available resources shall definitely result in progressive development of this industry, which will add a good share to the export earning of the country.

In general these policies and procedures shall focus on:

- Improvements in the existing aquaculture operations and practices
- Providing baseline information for the forthcoming aquaculture projects
- Increased national income through export earnings
- Support to the domestic market in providing better aquaculture products for less price
- More employment opportunities for Saudi citizens in the public and private sectors
- Better control on environmental protection
- Adherence to the international aquaculture regulations
- Enhancement of regional cooperation
- Conservation of genetic diversity of the ecosystems
- Control on introduction of non-native aquaculture organisms
- Control on aquaculture drug abuse in the culture operations
- Enhancement of Aquaculture Research and Development in the country
- Pollution control due to aquaculture operation
- Aquatic animal health management
- Aquaculture product safety and traceability
- Socio economic developments

The Saudi Arabian aquaculture industry is in its „take off" phase. The coming decade shall show progress and sustainability, for which this manual shall provide a very strong base for performance.

SECTION 1: INFRASTRUCTURE FACILITIES

Article 1: The Role of General Directorate of Fisheries- Ministry of Environment, Water and Agriculture

The Aquaculture Department (currently administered as General Directorate of Fisheries) was established in 1978 under Ministry of Agriculture (currently Ministry of Environment, Water & Agriculture). This department is responsible for all activities related to aquaculture operations in the Kingdom of Saudi Arabia such as:

1. Set up strategies for sustainable and responsible aquaculture operations (On-land and Offshore)
2. Providing a legal and administrative system for aquaculture operations
3. Renting aquaculture land to the investors through the Ministry of Environment, Water and Agriculture
4. Licensing of aquaculture systems (units/projects)
5. Conducting inspections and audits
6. Providing technical assistance to the industry

7. Providing logistics support to the existing aquaculture projects
8. Giving back-up of R & D support for the aquaculture operation.

Article 2: Legal and administrative frame work

Aim – To maintain and improve an appropriate legal and administrative framework which facilitates the development of responsible and sustainable aquaculture

Procedures – The General Directorate of Fisheries shall design its own legal and administrative structure in order to provide a suitable base for the initiation, implementation and development of various aquaculture activities in the Kingdom.

In this connection the Department shall have its Head Office, Regional Offices, Research Centres equipped with staff, instruments, and other required facilities. There shall be assigned officers, veterinarians, experts and support staff to provide guidance and advices. There shall be officers assigned to conduct regular monitoring, inspections and audits.

Article # 3 Aquaculture Development

Aim – To define the approach of General Directorate of Fisheries in aquaculture development activities in the Kingdom.

Procedures – For aquaculture development in the kingdom, the General Directorate of Fisheries shall:

1. Ensure adoption of responsible aquaculture practices
2. Ensure adoption of sustainable culture methods
3. Ensure adoption of environmentally friendly procedures
4. Ensure adoption of economically viable practices
5. Ensure availability of viable technology for the aquaculture operation
6. Ensure adoption of socially compatible methods

Article 4: Aquaculture Strategies

Aim – To define the scope and objectives of aquaculture strategies and plans

Procedures – The aquaculture strategies and plans shall serve as instrument of reference to maintain a steady growth in aquaculture operations to sustain the benefits for long period. The scope and objectives of aquaculture strategies and plans shall include:

1. Adoption of policies, regulations and procedures for sustainable and responsible aquaculture
2. Periodic review and revision of adopted methods and technology
3. Development, implementation and monitoring of revised strategies

Article 5: Groups of cultivable aquatic organisms

Aim – To group different aquaculture animals.

Procedures – The group of cultivable aquatic organisms (both fresh water and marine water) shall be grouped as follows

1. Fishes, 2. Crustaceans, 3. Molluscs, 4. Seaweeds, 5. Algae and others

Article 6: Aquaculture Zoning

Aim – To position different aquaculture operational areas in to different geographic zones for effective operational control, disease management etc.

Procedures – The aquaculture geographic zoning shall be made as follows

1. Identification of aquaculture geographic zones based on the Provinces of the Kingdom
2. Fourteen zones are identified in the Kingdom as follows:
    i. Al Bahah
    ii. Al Hudud ash Shamaliyah
    iii. Al Jawf
    iv. Al Madinah
    v. Al Qasim
    vi. Al Qurayyat
    vii. Ar Riyadh
    viii. Ash Sharqiyah
    ix. Asir
    x. Hail
    xi. Jizan
    xii. Makkah
    xiii. Najran
    xiv. Tabuk

3. Identification of aquaculture projects and operations on each identified geographic zones
4. Identification of jurisdiction of General Directorate of Fisheries offices in the identified zones
5. Stipulate geographic zonal practices for the aquaculture in terms of culture methods, movement of live animals, etc.

Article 7: Socio-economic developments

Aim - To define the socio-economic development objective of aquaculture operations.

Procedures – The aquaculture development in the Kingdom aims at:

1. Adherence to the Saudization policy of the Kingdom based on the directives of the concerned Ministries

2. Adopting suitable methods to provide a sustainable contribution to the „National Economy" through export earnings

3. Providing more employment opportunities for members of local community

4. Cultural and social uplift of the local community

5. Ensuring the livelihoods of local communities and their access to fishing grounds are not negatively affected by aquaculture operations

SECTION 2: AQUACULTURE POLICIES

Article 1: Environment Protection Policy

The aquaculture operations in the Kingdom shall always ensure protection of the environment from damage. With this objective, the scope of this policy shall include:

1. Protection of mangrove ecosystems

a) New aquaculture units shall not be developed within mangrove ecosystems.

b) If some mangrove must be removed for new aquaculture projects or if some farms are located behind mangroves, a reforestation commitment of no net loss of mangroves shall be initiated.

c) Aquaculture systems which are already in operation will continue ongoing environmental assessments to recognize and mitigate any possible negative impacts on mangrove ecosystems

d) All non-organic and solid waste materials should be disposed of in an environmentally responsible manner, and waste water and sediments shall be discharged in manners not detrimental to mangroves.

e) The aquaculture industry shall work in concert with governments to develop sound regulations to enhance the conservation of mangroves including regulations regarding restoration of mangrove areas when old farms located in former mangroves are decommissioned.

2. Protection of aquatic mammals and terrestrial wild life.

a) The aquaculture entrepreneurs and agencies shall ensure the protection of endangered marine mammals
b) The aquaculture entrepreneurs, units and agencies shall ensure the protection of the terrestrial wild life of the locality.
c) The Aquaculture entrepreneurs, units and agencies shall ensure the protection of migratory birds.
d) The General Directorate of Fisheries shall give guidance and instruction to Aquaculture entrepreneurs, units and agencies on this matter, as and when required.

3. Environmental Impact Assessment (EIA).

a) All aquaculture units/projects which have water spread are of 100 hectors or above, should conduct an Environmental Impact Assessment (EIA) before launching the project.

b) The EIA should address but not restricted to the following factors:

i. Potential impact on bottom dwelling plants and animals
ii. The effect on bed and banks of neighbouring natural water
iii. Effect on natural underground water

iv. Effect on commercial fisheries, recreational fisheries
v. Impact on the local drinking water source and water systems
vi. The risk of species introduction, potential disease out breaks and other related issues.
vii. Impact on water quality as a result of production of metabolic wastes
viii. Effect on mangroves, natural fauna and flora
ix. Pollution and contamination due to other wastes or by-products of aquaculture.
x. Potential for outbreaks of toxic and other deleterious micro-algae
xi. Total effect on the native ecosystem.

4. Base line Environmental Parameter Monitoring

a) All aquaculture units/projects should have the full range of base line data for the following parameters of natural water before the launching of the project

i. Physicochemical parameters such as temperature, dissolved oxygen, BOD, COD, dissolved solids, suspended solids, turbidity, salinity, alkalinity, total ammonia, nitrate, nitrite, silicate etc and other relevant parameters
ii. Microbiological parameters such as Total Aerobic Plate Count and individual bacterial count relevant to the specific operation.
iii. The phycological (algal) profile
iv. Any other parameters relevant to the specific aquaculture operation.

b) Based on the base line data, as described above, the aquaculture unit/project shall conduct yearly comparison study as part of ongoing environmental assessments to evaluate the impact of the aquaculture operation on the natural water system and the report shall be submitted to the General Directorate of Fisheries.

Article 2: Policy on protection of the Interest of International Community

The Kingdom shall respect the interest of international community in considering and adopting the policies, guidelines, procedures and practices prescribed by international community in aquaculture operations. In this connection, the following steps shall be taken:

1. International aquaculture policies, guidelines, procedures and practices shall be referred and compared with the existing fishery regulation system in the Kingdom.

2. Relevant international aquaculture policies, guidelines and procedures shall be adopted with or without modification based on its application and suitability to operation in Saudi Arabia.

3. The Kingdom shall host, participate in international symposiums, conferences etc to get updated about the concepts and suggestion of international community.

4. The Kingdom shall abide with the aquaculture policy requirements of those countries which imports aquaculture product from Saudi Arabia.

5. The Kingdom shall respect and comply with the guidelines of recognized international bodies like FAO, NACA, etc where ever applicable.

Article 3: Regional Cooperation Policy

The Kingdom shall keep its cooperation with neighbouring states in view of sustainable and responsible aquaculture operation. To keep this policy alive, Kingdom shall:

1. Share important information regarding issues pertaining to aquaculture operation such as protection from disease out breaks, choice of species, protection and management of the ecosystem, etc.

2. Keep cordial relationship with all its neighbouring countries on all relevant aquaculture related matters.

3. Host or/and participate in aquaculture conferences across the border.

4. Send and receive delegates across the border for aquaculture related conferences, consortiums etc.

5. Honour requests and suggestion from neighbouring states in matters related to aquaculture operations, wherever necessary.

6. Associate with neighbouring countries for the protection of natural water bodies of Red Sea and Arabian Gulf.

Article 4: Licensing & Monitoring Policy - Aquaculture Units

General Directorate of Fisheries shall plan and conduct monitoring of aquaculture systems in the Kingdom to ensure the adherence to the prescribed rule and regulations through following steps:

1. The proposal for starting aquaculture project shall be entertained only through strict procedures and preconditions which include submission of detailed application, compliance to the National Aquaculture Policies and Procedures, submission of supporting Documents, Evaluation and Scrutiny of the submitted application etc.

2. The License for Aquaculture projects and units shall be granted only though the above said formalities abiding with the rules and regulations stipulated by Royal Decree No. **)9/م(** vide Decision No. 21911 dated 27/3/1409H, Chapter - 7, Aquaculture.

3. The minimum distance between two aquaculture project (land based) should be 3 Km (minimum) away from another such project. In the case of an open sea culture system, the minimum distance between two projects should be 6 Km.

4. There shall be regular audits and inspections in aquaculture units, conducted by the assigned officer of General Directorate of Fisheries.

5. There shall be surprise visits and inspections (without prior notice) in aquaculture units conducted by the assigned officer of General Directorate of Fisheries.

6. The General Directorate of Fisheries shall collect samples (for tests and analysis) from the aquaculture units and shall conduct analysis in approved Laboratories for biological, chemical and physical agents as per stipulation.

Article 5: Biodiversity and Genetic Diversity Conversation Policy

The Aquaculture operations in the Kingdom shall always ensure the conservation of genetic diversity and Biodiversity of the ecosystem. With this objective, the scope of this policy shall include:

1. Necessary steps shall be taken to minimize the harmful effects of introducing non-native species or genetically altered stocks used for aquaculture (The Kingdom shall not advocate for introduction of non-native species unless there is convincing evidence of high potential, measurable advantage and no risk of replacing or endangering native stocks)

2. Necessary steps shall be taken to prevent the chances of significant potential for the spread of such non-native species or genetically altered stocks (if used) into waters under the jurisdiction of other Provinces as well as waters under the jurisdiction of the Province of origin.

3. The Kingdom shall, promote steps to minimize adverse genetic, disease and other effects of escaped aquaculture animals on wild stocks.

Article 6: Policy on Introduction of Non-native Aquatic Organisms

The Kingdom shall seriously consider the possibilities of various disturbances which can happen due the introduction of non-native aquatic organisms to Saudi Arabia and the following control measures shall be taken.

1. The Country shall control the introduction of non-native aquatic organisms though necessary regulations

2. No aquaculture unit or project is permitted to import any aquatic organisms directly from other countries

3. The Country shall permit the introduction of such animals only through the Research Centres of General Directorate of Fisheries

4. The country shall consider the request for introduction of a non-native aquatic animals only after satisfying all factors given below:

    a) Adequate supporting evidence about the commercial advantages of importing such species, when compared with the risk of introduction.
    b) The General Directorate of Fisheries is fully convinced of the need of introducing the new species.
    c) Adequate facility and technical know-how available in the Research Centers of General Directorate of Fisheries for quarantine procedures.
    d) Adequate facilities in the Research Centers of General Directorate of Fisheries for screening all potential pathogens (listed by International Communities including notifiable list of OIE) and any other disease organisms relevant to the specific species at the time of introduction.
    e) Adequate facility in the Research Centers of General Directorate of Fisheries to bring the new species first to the Research Centers, screen for pathogens and grow such species at least for two complete life cycles before permitting for commercial production.
    f) Adequate confidence in the aquaculture unit/project that they will follow the stipulations of General Directorate of Fisheries issued from time to time.

5. The General Directorate of Fisheries shall issue stipulations and regulations about importation, quarantine, and distribution of non-indigenous species based on the precautionary principle.

6. The introduction of non-native species shall be based on Import Risk Analysis (IRA) of specific species imported, covering risks and mitigations of diseases/ infections, environmental conditions reliable information and explicitly consider the potential uncertainties and negative consequences associated with the introduction

7. The new species shall not be introduced without scientific justification

8. In addition to the above stipulations, the code of introduction shall follow International and Regional regulations.

Article 7: Policy on Movement of Live Animals within the country

The Kingdom shall keep control on the movement of aquatic animals within the kingdom between Aquaculture Zones whenever required. The following measures shall be taken in this regard:

1. Since the East and West Coast of Saudi Arabia is distinctly different in its hydrographical and environmental characters, to-and-fro movement of aquatic animals between Easter and Western provinces must follow the same stipulation of introduction of non-native species as described in Article # 5, Policy on Introduction of Non-native Aquatic Organisms

2. The General Directorate of Fisheries shall release movement control alert notice and even ban movement on specific occasions like disease out breaks and serious water contamination, etc.

3. All movement of aquatic animals requires a Health Certificate of Freedom of certain pathogens. The list of pathogens will be determined and updated by the Competent Authority (GDF-MEWA).

4. The frequency of audits and monitoring shall be increased during such period

5. Proper training/advices shall be given to the aquaculture units/Projects during those times.

Article 8: Aquaculture Drug policy

The Kingdom shall control the drug usage in aquaculture operations through General Directorate of Fisheries as follows

1. The General Directorate of Fisheries shall regulate the usage of hazardous chemicals and drugs in the aquaculture operation

2. Specific instructions shall be formulated for specific aquaculture species and products

based on the international regulations, national stipulations, specification of importing country etc.

3. There shall be a general National Residue Control and Monitoring Program for the country with specific stipulation for specific type of products, importing countries etc.

4. Aquaculture units/projects shall be advised to rely on good management to ensure water quality and prevent disease problems. Chemicals should be used only when necessary.

5. Chemical should be used in ponds/cages /pens only after an accurate diagnosis of the situation, and treatments should conform to acceptable protocol.

6. If any aquaculture unit/project prefers to use any specific aquaculture drug, a written request must be submitted to the General Directorate of Fisheries along with details of such drugs (Type, name, place/stage of application, proposed dosage, etc.). The decision to grant approval for the usage of such drugs and withdrawal period shall be under the discretion of General Directorate of Fisheries and in case of approval, the directions given in the approval letter must be strictly followed.

7. Aquaculture drug vendors/shops are not currently operating in the Kingdom. In future, if any vendors are licensed for distribution/sales of aquaculture drugs/substances by the General Directorate of Fisheries, it shall be communicated to all licensed aquaculture units/projects/ establishments.

8. Any specific format or procedures stipulated by the General Directorate of Fisheries for procurement or application of any aquaculture chemical/drug, must be strictly adhered to.

9. The Kingdom shall honour and abide with the relevant international stipulations on aquaculture drug usage.

10. The General Directorate of Fisheries shall develop lists of approved feed additives, drugs, antibiotics, minerals, vitamins and other chemicals and to specify approved uses for each compound and only approved chemicals should be used in culture systems and only for the approved use.

11. Aquaculture units/projects shall follow information on product labels regarding dosage, withdrawal period, proper use, storage, disposal, and other constraints on the use of a chemical including environmental and human safety precautions.

12. An anti-microbial application shall adhere in accordance with the Aquatic Animal Health Code of World Animal Organization (OIE).

13. The aquaculture units/projects shall be instructed not to discharge potentially toxic or bio-accumulative chemicals (if used in hatcheries/nurseries/culture systems) until compounds have naturally decomposed to non-toxic form.

14. HACCP system shall be suggested to minimize the risk of contamination and residue retention in the aquaculture products.

15. The General Directorate of Fisheries shall instruct and ensure proper storage of aquaculture drugs and chemicals. (Storage of therapeutants in a cool place and in a secure manner where they will be inaccessible to unauthorized personnel, children, and animals, and dispose of unused compounds by methods that prevent environmental contamination)

Article 9: Research and Development policy

The Kingdom, shall promote Research and Development in aquaculture operations in view of sustainable and responsible aquaculture operation, introduction of new methods for economic production and better utilization of available recourses etc. the scope of this policy shall include:

1. Association with research institutes
2. Association with Universities and Fisheries agencies
3. Initiation and direct involvement in aquaculture research through Research Centres of General Directorate of Fisheries.
4. Promoting aquaculture R & D activities of private aquaculture units/projects.
5. Host/ Participate in scientific, Research, Industrial Conferences, Consortiums, Seminars etc.

Article 10: Policy on legal Action on violations

The General Directorate of Fisheries shall take necessary disciplinary action in case of violation of the policies and procedures. The type of disciplinary action shall include Warning memos, Penalties, Suspension of operation, and Cancellation of license etc. depending up on the severity of violation, which shall be assessed and enforced by the General Directorate of Fisheries.

Note: Responsibility of Aquaculture entrepreneurs and agencies towards compliance to Aquaculture Policies

Aquaculture units/ projects/entrepreneurs are bound to meet the stipulation of all aquaculture policies stipulated in this section and its amendments by General Directorate of Fisheries thereafter. Any failure or violation shall be viewed under the stipulations of Article # 10 of Aquaculture Policy.

SECTION # 3: RESPONSIBLE AQUACULTURE PRACTICES (CODE OF CONDUCT)

Article 1: Biosecurity

Biosecurity is an key element which plays an essential role in sustainable aquaculture operation. The principles of a good Biosecurity program apply to all systems whether they are land based, flow through, and sea cage systems. The Biosecurity program stipulates the following:

1. External barriers – preventing introduction of the of disease organisms onto and off an aquaculture system by focusing on:

a) Import of live aquatic organisms (species / feeds) shall accompany an Veterinary Health Certificate issued by relevant competent authority of exporting country and approved by GDF-MEWA.
b) Pathogen-free water source at all times for land based farms
c) Total ban on movements of animals infected with poorer health conditions.
d)
e) Restriction on visits to the culture sites.
f) Restriction on access to an aquaculture site i.e. fence around the site, locked doors etc.
g) Strict sanitary measures for any people entering the culture system such as:
    i) protective clothing (washed regularly in hot water and disinfected)
    ii) foot dips and hand hygiene
    iii) cleaning and disinfection program
    iv) pest management control

2. Internal barriers - preventing the spread of disease organisms within a culture system by:

a) Separation of each unit within a facility and isolation of these units from each other.
b) Define sanitary units or areas on each aquaculture site
c) Define sanitary measures (cleaning/disinfection/pest control program) inside each unit/ area.
d) Define sanitary measures on movements between different units or areas i.e. total ban of movements from one area to another
e) Restrict movements of tools and animals
f) Strict sanitary measures for any people entering the culture system such as:
    i) protective clothing (washed regularly in hot water or disinfected)
    ii) foot dips and hand hygiene
    iii) cleaning and disinfection program
    iv) pest management control

Article 2: Influent Management

The Aquaculture operation should take much care of influent management. The influents include any material/item or agents which enter in to the culture system such as natural water used for culture, feed & feed ingredients, aquaculture tools & implements, fertilizers and chemicals, brood-stock, eggs, juveniles/larvae/post larvae (if they are procured from outside) etc.

Entry of all such influents must be strictly monitored and screened for potential contamination. Pre-inspection certificates for chemical purity, pathogens free certificate from approved pathological laboratories, residue test certificates etc. should be obtained wherever necessary.

Strict Quality Control test should be conducted for all incoming agents and materials. Supplier evaluation and Supplier selection should be employed as a tool for influent management.

Article 3: Domestication

In view of the chances of introduction of pathogens from the wild and importation better adaptability to the environment, utilization of domesticated brood-stock should be used for hatchery production.

Selective breeding must be encouraged for improving the performance of aquaculture operation. The mode of domestication must be notified to and supervised under the General Directorate of Fisheries. Aquaculture entrepreneurs are not permitted to perform Genetic Modification or Genetic Manipulation of organisms in any of their operations.

Article 4: General Production Practices

1. Responsible aquaculture operations need to protect or even improve environmental quality and enhance sustainability.
2. Both profitability and environmental sustainability must be targeted at the same time.
3. Aquaculture should only use hatchery larvae rather than wild-caught larvae.
4. Wild Broodstock are allowed only under the supervision of General Directorate of Fisheries in order to develop a domesticated program, but not for commercial use.
5. Native species should be cultured whenever feasible; however, if non-native species are used, The Section 2, Article 6 of this Manual should be followed regarding importation, inspection and quarantine.
6. Healthy juveniles/post-larvae/larvae should be used for stocking after the stress test and tests as required
7. Good water quality should be maintained by keeping proper stocking and feeding rates that do not exceed the carrying capacity of the culture system and by using high quality feeds and good feeding practices.
8. Water exchange should be reduced as much as possible.
9. Fertilizers, liming materials, and all other chemicals should be used in a responsible manner and only as needed.
10. Good animal health management should be used with more emphasis on disease prevention than disease control.
11. Aerators should be positioned whenever needed and operated to minimize erosion and creation of sediment mounds in pond bottoms.
12. Freshwater from wells or natural sources (which are suitable for human consumption) should not be used in grow-out systems to dilute salinity
13. Effluents, sediment, and other wastes should be disposed responsibly.
14. Bottom soils should be evaluated periodically between crops and necessary treatments applied to remediate deterioration in soil conditions that occur during culture.
15. Water inlets and outlets should be screened to prevent entrance of pathogenic carriers and competitors and release of culture species.
16. Predator control methods that do not require destruction of ecologically important species should be used.

Article 5: Aquatic Animal Health Management and Disease Control

In aquaculture operation, many disease problems can be prevented through stress management. Disease treatments should be made only after a clear diagnosis of the causative factors. Spread of disease should be minimized by strict regulation of importations of broodstock and larvae and by isolation and disinfection of affected aquaculture systems.

In order to adopt the principles of good aquaculture and health management, to reduce the incidence of diseases and to protect natural fisheries, the following practices are suggested:

1. The aquaculture agencies, entrepreneurs and research organizations should work with governments to formulate and enforce regulations to include quarantine procedures for importations and exportations of brood-stock, juveniles, post-larvae, larvae etc.
2. Healthy juveniles/post-larvae/larvae should be used for stocking aquaculture systems.
3. Survival of juveniles/post-larvae/larvae should then be optimized by preparing the culture system to ensure adequate availability of natural food, by properly acclimating juveniles/post-larvae/larvae before stocking, and by avoiding stress by using appropriate handling and transportation techniques.
4. Good water quality and bottom soil management should be used.
5. Stocking rates should be adopted to the existing infrastructure.
6. High quality feed and good feeding practices should be used from local sources or from

responsible and well known international sources.

7. Aquaculture health management at hatcheries and culture systems should focus on disease prevention through good nutrition, sound management of culture systems, and overall stress reduction rather than disease treatment.
8. Strong chemical treatments that can stress aquatic animals should not be employed.
9. Animals must be routinely monitored for disease, and a definite diagnosis obtained for any observed health problem.
10. For non-infectious diseases related to site conditions, carry out the best option for disease treatment or for correcting site conditions.
11. For mild infectious diseases with potential to spread within a culture system, quarantine the culture system and carry out the best option for disease treatment.
12. For serious infectious diseases that may occur at aquaculture industry, net harvest remaining animals and disinfect the location without discharging any water.
13. Dispose dead/diseased animals in a sanitary manner to avoid further spread of disease.
14. When disease occurs in a hatchery, culture system etc, avoid transfer of animals, equipment, or water to other hatchery, culture system location etc.
15. Drug, antibiotic, and other chemical treatments should be done in accordance with recommended practices and comply with all national and international regulations.
16. The aquaculture industry should work with governments to develop certification programs for disease diagnosis laboratories and pathologists.
17. Each Province or geographical zone should develop its own pond dry-out (in land based culture system, disinfection and Biosecurity strategy.
18. The aquaculture industry in the Kingdom should work with governmental and international agencies to develop lists of approved feed additives, pre-mixes, drugs, antibiotics, and other chemicals and to specify approved uses for each compound.
19. Aquaculture industry must rely on good management to prevent water quality and disease problems and chemicals should be used only when necessary.
20. Chemical should be used in hatcheries and culture systems only after an accurate diagnosis of the situation, and treatments should conform to acceptable protocol.

Article 6: Feed and Feeding

The aquaculture operation must strive to improve feed quality and feeding with the goal of optimizing the conversion of feed to animal and reducing the amount of waste entering culture systems. This goal can be achieved through the following practices:

1. The feed and feed ingredients should be ensured for its safety and purity.
2. Imported feed must be procured only from a responsible source.
3. Feed ingredients should not contain pesticides, chemical contaminants, microbial toxins, or other adulterating substances.
4. Pellet binders and suitable manufacturing techniques should be used to provide a water-stable feed without affecting performance of health of the stocks.
5. Manufacturing processes should provide adequate vitamin and nutrient concentrations in feed.
6. Feed should be purchased fresh and not stored for more than a season or a culture cycle whichever is less.
7. Feed should be stored in cool, dry areas to prevent mould and other contamination. Do not use contaminated feed.
8. Feed management practices should be implemented to assure the animals consume the maximum amount of supplemental feed and not leave excess amounts decomposing in the aquaculture system attributing to poor water quality.
9. Feeding rates should be determined from standard feed curves and adjusted for animal biomass, appetite, and water conditions. Feed trays can be used to monitor feeding and prevent under- or overfeeding.
10. The most efficient supplemental feeding can be obtained by distributing the feed several times through the day and night, widely distributing it throughout the culture system, either by manual or mechanical distribution or use of feed trays.
11. Appropriate feed curves commensurate with animal biomass and appetite should be utilized on a site specific, species-specific basis and with the recommendation of feed specialists.
12. Medicated feed should be used only if necessary for the control of a specific disease with the permission of General Directorate of Fisheries.
13. Feeding of uncooked organisms (tissue of fish and invertebrates etc) should be discouraged in grow-out, because they can

carry disease and foul the water in the culture system.
14. If any animal body part is used as feed, it should be properly cooked before feeding.
15. Feeds prepared from by-products one species is prohibited to feed the same species. Usage of body (or its part) of one species for preparing feed for the same species or group of animals must be discouraged.
16. Proper records should be kept for daily feed application rates so that feed conversion ratio (FCR) can be assessed. Reductions in FCR through careful feeding will improve production efficiency and reduce waste loads.

Article 7: Water Management System

The Aquaculture units and projects should take into consideration the following factors in view of the effective water management:

1. The source water used from aquaculture operation must be free from chemical pollutants and other potential aquatic pathogens.
2. The water must be checked for its quality before it enters the culture system.
3. Design the water intake system in such a way that the entry of silt and suspended particles to the culture systems are minimized.
4. Usage of approved fertilizers must be minimized to the possible level.
5. The water exchange in the farms must be reduced to the minimum required level.
6. The water quality must be monitored in the aquaculture system during culture operation on a regular basis.
7. The effluent water must be reused for other suitable operations if possible.
8. The effluent water before being released to the natural water body must pass through a sedimentation basin which should comprise of a minimum of 20% of the total area of the culture system.
9. The quality of influent water and effluent water must be compared to measure the impact of aquaculture operation (except pen and cage culture)
10. The effluent water quality must satisfy the national and international standards and regulations.

Article 8: Effluent & Solid Waste Management

The aquaculture industry should promote responsible methods of effluent and solid waste management to protect environment quality and public health. Effluent and solid waste management is a continuous activity, and each aquaculture unit/project should strive to improve waste management procedures and reduce amounts of waste released to the environment. The effluent and solid waste management is an important tool for environmental protection.

In view of an effective control on effluent and solid waste management, the following practices are suggested on a regular basis:

1. Design the whole aquaculture operation in such a way that the quantity of effluents and solid wastes are minimized though proper utilization of primary effluent water and solid wastes by recycling, using for other operations etc through scientifically designed programs and procedures.
2. Reduce erosion through scientifically designed canals and embankments in land based operations
3. Manage and minimize water exchange to the extent feasible.
4. Manage the fertilization in a scientific manner and reduce the amount of fertilizers to the required minimum.
5. Develop and adopt good feeding practices to promote natural primary productivity while minimizing nutrient inputs.
6. Avoid chances of spillage of fuels, feeds, and other products by responsible handling and proper storage to prevent contamination of water.
7. An emergency plan should be made for containing accidental spills.
8. Minimize re-suspension of sediment and prevent excessive water velocities in canals and at effluent outfalls by adjusting the method of draining of ponds (in land based systems).
9. A minimum of 20% of the total water spread area of the farm must be allocated for sedimentation basins (in land based aquaculture systems).
10. Routing of aquaculture effluents through mangrove forest is recommended.
11. Scientific design of effluent outfall must be practiced so that no significant impact of effluents on natural waters occurs beyond the mixing zone.
12. The marine water effluents should not be discharged into freshwater areas or onto agricultural land.

13. Disposal of the eroded sediments must be discarded in an environmentally responsible way, either by placing it back to the original place, using it for earth-fill or any other similar way.
14. Proper sanitary facilities for disposal of human wastes should be provided at all aquaculture locations including hatcheries, grow-out, fish cage feed barges, processing plants, feed mill and other relevant units of aquaculture facilities.
15. Solid wastes such as garbage and other aquaculture wastes should be burned, put in a land fill, or disposed of by other acceptable methods.
16. All areas of aquaculture operation such as culture systems, hatcheries, and processing plants should comply with existing governmental regulations related to effluents and other wastes.
17. Scientifically designed effluent treatment system of required capacity should be installed for all different aquaculture operation including processing plants, hatcheries, culture systems and other areas where ever necessary.
18. The effluent system should be monitored and performance must be evaluated. Necessary modifications should be made based on requirement.

Article 9: Hygiene, Product Safety & Traceability

The aquaculture operation should take extreme care to maintain good hygiene and sanitation standards in all activities. Safety and Traceability of product also should be given high importance in view of consumer health and food hazards. In order to achieve these goals, the following actions are suggested:

1. All waste materials should be disposed of in a sanitary way.
2. There must be a written sanitation and hygiene practice for all aquaculture operation.
3. There should be a documented regular sanitation and hygiene monitoring program throughout all aquaculture units (from Broodstock to Processing plant).
4. Evaluation must be conducted to check the suitability of a site/location for aquaculture, include testing for any chemicals, drugs, and pathogens that might pose a human health risk and are likely to occur at the site.
5. The site/location should be inspected for any previous history of oil spillage, effluent contaminants, continuous usage of pesticides and hazardous drugs etc.
6. Strict control should be ensured to prevent chances of contamination to aquaculture systems from septic runoff from humans or other animals
7. Strict monitoring must be conducted to check any indication of frequent use of pesticides, herbicides, and drugs in the area or neighbourhood where there are possible chances of contamination through rain water runoffs.
8. Feed ingredients and feed should not contain chemical or microbial contaminants.
9. The option of feeding with uncooked organisms or any nutrient source derived from uncooked organisms for Growout, should not be not allowed in view of the possible contamination and sanitation of aquaculture system.
10. The aquaculture industry and individual producers should work with regional governments to prepare lists of pathogens, drugs, and chemical contaminants that pose existing or potential human health concerns and take effective measures to control these risks.
11. The approved chemical products shall be used only based on the labelling instruction along with guidance of qualified aquaculture expert.
12. All operation should give extreme importance to human health risk factors.
13. No hazardous chemical agents or banned drugs should be used in the aquatic system.
14. Hazard Analysis and Critical Control Point (HACCP) System should be implemented to ensure the product safety for all areas of aquaculture operations including hatcheries, grow-out, processing plant and other relevant operations.
15. The aquaculture operation also should include the prerequisite program of HACCP system such as Good Manufacturing Practices (GMP) and Sanitation Standard Operating Procedures (SSOP).
16. Different steps involved in the aquaculture operation should be well identified to provide Traceability and security of the aquaculture products and by-products.
17. The final product must be so identified or provided with identification code which enables the system to identify the source of product even from the brood-stock.
18. If any food additives are used for the processing of aquaculture products, the ingredients must be reflected in the labelling and in accordance with relevant SASO/GSO Standards

Article 10: Voluntary Monitoring and Reporting

The Aquaculture units/projects should adopt and practice a voluntary monitoring system to ensure the sustainability of operation. The following practices are suggested for effective monitoring and reporting procedures.

1. The aquaculture projects/units must have documented monitoring procedures for all activities
2. The self-monitoring system should cover, but not limited to the following areas with respect to different culture methods:
3. Aquaculture water monitoring (physicochemical, microbiological, and phycological)
4. Sediment analysis (Organic carbon, Organic matter, pH)
5. Effluent water analysis (physicochemical, microbiological, and phycological)
6. Animal health analysis (histology, microbiology, molecular biology)
7. Environmental water body analysis (physicochemical, microbiological, and phycological)
8. Post-harvest inspection of the animal (Chemical and Microbiological)
9. Sanitation and Hygiene inspections
10. Final product inspection (Chemical and Microbiological)
11. Predator Listing of specific operation
12. All relevant meteorological parameters should be monitored and data must be reviewed and kept.
13. Any major abnormal observation must be communicated to the General Directorate of Fisheries for information and necessary action.
14. All analysis reports and inspection reports should be singed and verified by qualified technical staff.
15. All documents must be kept for at least two years or till the expiry period of the final product whichever is longer.

Article 11: Third party certification of Aquaculture facility

The aquaculture units/projects should attempt for third party certification for quality and safety standards. The recommended certifications are ISO, SQF, Global Aquaculture Alliance- Best Aquaculture Practices, Global GAP, ASC, etc. The third party certification should be considered as an additional audit for ensuring the effective operation abiding with the procedures.

Article 12: Employee Health, Safety and Welfare

The aquaculture operation must ensure the employee safety and welfare in all areas of operations. The stipulation should abide with the national regulation. The procedures also should respect the international guidelines where ever applicable. The following points are suggested in this regard:

1. The system should respect the Saudization policy of the Kingdom.
2. Preference for employment should be given to the qualified local people.
3. The system should honour and abide with the wage/salaries stipulation of the Kingdom.
4. The system also should follow the labour rules and regulations of the Kingdom
5. The Aquaculture units/projects must provide medical facility for its employees as per the stipulations of the Kingdom.
6. Employees working in different aquaculture operation must be provided with required safety wares, uniforms, equipment and accessories.
7. Safety procedures should apply to the employee accommodation, common utility areas and other common places.
8. Healthy and safe living and working conditions should be provided.
9. Procedures should be established for dealing with illness and accidents, and employers must be responsible for making sure that workers are fully aware of these procedures
10. The aquaculture units/projects should take care of the overall welfare of employee community.

Article 13: Health, Safety and Welfare of local human population

1. Aquaculture operation should protect the local communities from the adverse effects of the operations
2. The aquaculture units/projects must encourage and employ more local workers for the employment.
3. The local workers should be provided with good working conditions and wages commensurate with local pay scales and government stipulations.

4. All practical means should be made to prevent conflicts between local people and workers from outside.
5. Care should be taken that no aquaculture activity causes and damage (health risk, opportunity loss, structural damage, disturbances to society activities etc) to the local community
6. The aquaculture units/project must initiate local welfare activities

Article 14: Association and Cooperation between aquaculture enterprises in the Kingdom

Keeping the common interest of aquaculture development in the Kingdom, aquaculture entrepreneurs in the Kingdom should associate each other for discussion and dialogues, and sharing of important information.

Aquaculture entrepreneurs also should initiate for technical and Trade conferences, Seminars and Training in consultation with the General Directorate of Fisheries, Ministry of Environment, Water and Agriculture.

Article 15: Documentation and Record keeping

1. All aquaculture operation should be supported by a professionally managed documentation system. All data (electronic / printed) must be available for inspections and audits.
2. All generated data and documents and records should be legible and genuine, signed by an authorized person and periodically reviewed.
3. All documents must be kept updated. All operational documents and records shall be made available for verification by Government Bodies as and when required.
4. All documents and reports, which are to be sent to different audit bodies, Government agencies, etc. must be prepared and dispatches as per stipulation.

PART – 2
AQUACULTURE DRUG POLICY

SECTION 1: NATIONAL AQUACULTURE DRUG CONTROL PROGRAM

1. Introduction

Aquaculture is a fast developing and established industry in many countries. It has been considered as an extreme focus sector for development. In recent years, aquaculture has substantially increased to include new species with specific nutritional characteristics.

The aquaculture industry in the Kingdom of Saudi Arabia has its success story since 1978. The improvements in aquaculture have caused a major role in providing jobs, replacing seafood imports and enhancing export opportunities.

Unfortunately, as any other livestock industry, aquaculture industry all around the world is facing serious problems with disease outbreaks, which end up with huge economic losses and environmental issues.

To face the challenges of diseases, antibiotics and other drugs entered in to aquaculture operation. However, irresponsible use of such therapeutic agents ultimately resulted in dangerous health problems in seafood consumers. Since disease in aquaculture operation is a continuing issue, different aquaculture countries are carefully handling the disease management with minimum usage of antibiotics and other drugs.

As part of sustainable aquaculture operation, the Kingdom of Saudi Arabia also gives due importance to aquatic animal health issues.

As a matter of precaution and as part of responsible aquaculture practices, the Kingdom has taken its firm stand on control of drug usage and in the monitoring of drug residues in aquaculture products.

In view of providing guidance in drug usage in aquatic animal health management, the General Directorate of Fisheries provides the stipulation for “National Aquaculture Drug Control Program” focussing on following points.

1. Good Aquaculture Practices shall be advised in all aquaculture operations in order to prevent disease problems.

2. Aquaculture drugs shall be permitted to use only when strictly necessary.

3. The General Directorate of Fisheries shall prevent the usage of hazardous chemicals, drugs and internationally prohibited substances in the aquaculture operation.

4. Specific instructions for drug usage shall be formulated for different aquaculture species based on national and international regulations.

5. Aquaculture drugs shall be used in ponds/cages/pens only after an accurate diagnosis of the situation, and treatments should conform to acceptable protocol.

6. The Kingdom shall honour and abide with the relevant international stipulations on aquaculture drug usage in accordance with relevant EU regulations, OIE Code of Aquatic Animal Health

7. The General Directorate of Fisheries shall develop lists of approved feed additives, drugs, antibiotics, minerals, vitamins and other chemicals and to specify approved uses for each compound and only approved chemicals should be used in culture systems and only for the approved use.

8. Aquaculture units/projects shall be advised to follow information on product labels regarding dosage, withdrawal period, proper use, storage, disposal, and other constraints on the use of a chemical including environmental and human safety precautions.

9. The aquaculture units/projects shall be instructed for safe discharge potentially toxic or bio-accumulative chemicals (if used in hatcheries/nurseries/culture systems) after complete decomposition in to non-toxic form.

10. Implementation of HACCP system shall be suggested to minimize the risk of contamination and residue retention in the aquaculture products.

2. National Regulations

The National Aquaculture Drug Control Program adheres to the following regulations stipulated before.

2.1 Royal Decree No.)9/م(Decision No. 21911, Dated 27/3/1409H, Chapter 7, Aquaculture (Annexure # 5)
2.2 Regulation No. 44419 dated 15/07/1420H

3. Prohibited drugs and permitted drugs for aquaculture

3.1. Prohibited aquaculture drugs/chemicals/pharmacologically active substances

Usage of the following drugs/chemicals/pharmacologically active substances is prohibited in the whole aquaculture system (from hatcheries till harvest): Diethylstilbestrol, Clenbuterol, Chloramphenicol, Nitrofurans (including furazolidone), Sulfonamides, Dimetridazole, Metronidazole, Chloroform, Chlorpromazine, Dapsone, Ronidazole, Malachite Green

3.2. Permitted aquaculture drugs and their tolerance limit

The following aquaculture drugs are permitted to use in aquaculture systems: Oxytetracycline, Erythromycin, Tetracycline and Florfenicol.
If any Shrimp, Fish or other species aquaculture Establishment prefers to use any other aquaculture drug, a written request shall be submitted to the General Directorate of Fisheries along with details of such drugs (Type, name, place/stage of application, veterinary prescription and proposed dosage). The decision to grant approval for the usage of such drugs and withdrawal period shall be under the discretion of General Directorate of Fisheries. In case of approval, the directions given in the approval letter must be strictly followed.

3.3 Tolerance limits for residues of pesticides, heavy metals other substances aquaculture products

The tolerance limits for different substances are described in Annexure # 2 & Annexure # 3

3.4 Permitted fertilizers, manures and disinfectants

All agriculture fertilizers are permitted to use in the aquaculture system also (unless otherwise specified). This includes various types of lime, manures, molasses, micro-nutrients etc. Disinfectants / Sanitizing agents such as Sodium hypochlorite, Calcium hypochlorite, Formalin, Potassium permanganate are permitted for use in aquaculture operation.

3.5 Permitted food preservatives and additives in aquaculture products.

Aquaculture products shall follow the stipulations of Ministry of Environment, Water and Agriculture and Saudi Arabian Standards Organization.

4. Monitoring

Role of General Directorate of Fisheries

General Directorate of Fisheries, Ministry of Environment, Water and Agriculture shall conduct inspection during the regular inspections in the aquaculture establishments to evaluate the aquaculture drug usage. The General Directorate of Fisheries shall collect random samples for analysis

4.2 Role of Establishment – The establishments are directed to collect their samples and analyse by themselves (self-samples) or with the help of a qualified laboratory to ensure the absence of prohibited substances and residues limit of permitted drugs.

Types of samples, sampling methods and securing procedures

Samples shall mainly include aquaculture animal (shrimp, fish, molluscs etc.) samples. Samples from natural water (the source water supply, and rearing water) and Aquaculture feed also shall be considered for analysis. Random representative sample shall be collected in sterile containers, serially numbered and listed. All the samples shall be well protected from any possible contamination and shall be dispatched to the laboratory.

5. Laboratories for test and analysis

Analysis of different parameters shall be conducted in Fish Research Laboratory at Jeddah of Ministry of Environment, Water and Agriculture. Or any another Laboratory approved by the Director General of General Directorate of Fisheries. The self-samples can be analysed in own laboratory or a qualified laboratory suggested by General Directorate of Fisheries.

6. Additional Regulations

General Directorate of Fisheries shall adopt new regulation for or revise existing regulations in order to meet the national and international requirements. If an importing country stipulates specific regulations for products exported from Saudi Arabia, special regulations shall be adopted for establishments which propose to export to such countries.

SECTION 2: NATIONAL RESIDUE CONTROL & MONITORING PROGRAM

For Cultured Shrimps and Fish Products in connection with Export to European Union

1. General Information

1.1 Introduction

In view of the health hazards, consumers expect that food do not contain undesirable residues that can cause risk and damage to their health and life. The food of animal origin is of major concern in this matter especially when they are grown in captivity.

The General Directorate of Fisheries of Ministry of Environment, Water and Agriculture being the responsible government agency for all aquaculture activities in the Kingdom of Saudi Arabia and one of the Executive Bodies involved in the export of cultured shrimp and finfish products to European Union, has worked out the National Residue Control and Monitoring Program for cultured shrimp and finfish products adhering to the council directives 96/23/EC, (EEC) 2377/90, 86/363/EEC.

1.2 Regulations on aquaculture and residue control

1.2.1 Regulation on general aquaculture operations

All the aquaculture farms in the Kingdom of Saudi Arabia are monitored and licenses are issued by the General Directorate of Fisheries of Ministry of Environment, Water and Agriculture. The License for aquaculture farms are being granted based on the feasibility of project site reviewed in terms of water quality, climatic and environmental factors, effluents, species of culture, culture methods and its environmental effects. (Reference: Decision No. 21911, Dated 27/3/1409H, Chapter – 7, Aquaculture)

The aquaculture systems shall be under the strict monitoring of General Directorate of Fisheries. The farm inspection is scheduled four times a year. The inspection shall include facilities such as Hatcheries, Farms, Processing plant and feed mills (whichever is applicable). A responsible senior staff of the Farm/Establishment shall assist the inspection. The audit shall be conducted with the help of audit format. Upon completion of audit, the audit report shall be filled, signed by the auditor and a copy shall be sent to the Farm/Establishment for their file.

1.2.2 Regulation on usage of aquaculture Drugs/Chemicals.

As per regulations stipulated in this program (which prohibits usage of aquaculture drugs/chemicals/pharmacologically active substances given in the Annexure # 1, and the permitted residue limits for other substances are prescribed as per the Annexure # 2) are instructed to be strictly followed.

1.2.3 Regulation on Aquaculture Drug/chemical supply

Since there are no aquaculture drug/chemical vendors/shops operating in the Kingdom (due to very few number of aquaculture farms operating in the Kingdom), regulation on aquaculture vendors or supply is not presently deemed applicable. But when any such operations start, necessary regulations shall be brought forth.

1.3 National Residue Tolerance Limit

1.3.1. Prohibited aquaculture drugs/chemicals/pharmacologically active substances

Usage of several drugs/chemicals/pharmacologically active substances are prohibited in the aquaculture systems (in hatcheries, farms and aquaculture feeds) and shrimp and finfish products which are given in the Annexure # 1.

1.3.2. National Tolerance Limit for Aquaculture drugs

No aquaculture drug is formally approved for use in the aquaculture systems. If the Farms/Establishments prefers to use any aquaculture drugs, (other than those listed in the Annexure # 1), they shall submit a written request (with the type and application details including dosage to the General Directorate of Fisheries for approval of their use. Then the National Tolerance Limit of such substances shall be fixed based on EU directives and/or international regulations whichever is applicable.
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1.3.3. National Tolerance Limits for other substances

Substances, which are covered by National Residue Monitoring Program, other than those listed in Annexure # 1, are described in Annexure # 2.

1. 4. Sampling for National Residue Monitoring

1.4.1 Agencies Responsible for Sample collection

a) General Directorate of Fisheries, Ministry of Environment, Water and Agriculture – Official samples shall be collected from Farm/Establishment by the government auditor of General Directorate of Fisheries of Ministry of Environment, Water and Agriculture.

b) Farm/Establishment – Self-monitoring samples shall be collected by the Farm/Establishment itself

1.4.2 Frequency of sample collection

a) Official Samples - The representative of General Directorate of Fisheries of Ministry of Environment, Water and Agriculture shall collect Official samples during any time without notice in order to ensure that the observations are genuine and reliable. Since only a defined population of animals from approved shrimp and finfish farms, which are under regular monitoring are eligible for export to the EU, (i.e. a split system), the proportion of animals sampled is relative to that defined population and the quantity of products exported shall be considered. The total number of official samples collected during a year shall be at the minimum rate of 1 sample per 100 tons exported to Europe. But the General Directorate of Fisheries will have authority to decide to collect and conduct analysis for more samples and/or for more parameters, than the minimum requirement.

The samples are grouped in to two as given below:

i) *Group A Samples*: One third of the total samples shall be from Natural waters (source sea water and pond water) which is used for animal rearing, shrimps and finfishes from farm and aquaculture feed.

ii) *Group B samples*: Two third of the samples shall be collected from shrimps and from fishes ready to place in market.

b) Self-monitoring samples - Self-monitoring sampling shall be collected every 6 months by the establishment. There is no specific stipulation imposed on the number of samples to be taken in this group (unless otherwise specified by the General Directorate of Fisheries). But it is suggested that based on the result of Official samples, the farm need to design the Self-monitoring program, collect the samples for analysis and the details and results must be communicated to the General Directorate of Fisheries by the end of each Calendar year.

These samples shall not be included in the total number of official samples taken at the rate of 1 sample per 100 tonnes of annual export to EU.

1.4.3 Types of samples, sampling methods and securing procedures

a) Type of samples

i) Natural water – Samples shall be collected from two areas such as water from the source water supply and water from the aquaculture system (ponds, tanks, water system) – These samples shall fall under Group A.

ii) Aquaculture feed -Shrimp feed shall be collected from different batches of feed – These samples shall fall under Group A.

iii) Shrimp and finfish Samples - Samples shall be collected from farm (culture facility) and from Processing Plant (Ready to place in market) – These samples shall fall under Group B.

b) Sample collection method

Random Representative Sampling" shall conduct covering different type of samples mentioned in the above list. The samples shall be serially numbered and listed.

i) Shrimp and finfish samples - The shrimp/finish samples shall be collected in sterile containers or single use polythene (food grade) sample bags.

ii) Water samples - The water samples shall be collected with clean water samplers and secured in clean sterile bottles. The water shall be collected at least one meter below the water surface.

iii) Aquaculture feed samples - The feed samples shall be collected in sterile single use polythene (food grade) sample bags.

c) Sample securing and dispatch

All the samples shall be well sealed and protected from any possible contamination.

The samples shall be secured in clean thermal insulated Plastic boxes or in single use Styrofoam boxes. The sample box shall be sealed with official seal and shall be sent to the Laboratories assigned by the Competent Authority.

The final product lot from which the samples are collected shall be directed to keep aside from sales/export till the sample analysis results are cleared. Reference samples shall be kept in refrigerated condition.

1.5 Laboratories for conducting analysis for Residue Monitoring Program

Analysis of different parameters shall be conducted in laboratories assigned by the Competent Authority as per the „Manual of procedures, Export of Cultured Shrimp and Finfish Products to European Union, Part # 2, Chapter 8, Article 3F (ref : correction/addition list) and Article 6. The list of laboratories approved by the Competent Authority includes the following

i) Saudi Arabian Standards Organization (SASO) Laboratory, Riyadh –SASO laboratory is the National Reference Laboratory which is under the process of ISO 17025 accreditation.
ii) Fish Research and Safety Laboratory, Jeddah Fish Research Center, Ministry of Environment, Water and Aquaculture, at Jeddah, KSA – National Reference Laboratory for analysis of Aquatic Animal Diseases
iii) Saudi Food and Drug Authority (SFDA) Food Lab, Dammam
iv) ARASCO (IDAC) Laboratory, Riyadh – IDAC Lab is the most advanced laboratory in Saudi Arabia with ISO17025 accreditation By SASO.
v) Central Institute of Fisheries Technology (CIFT) Laboraoty, ISO 17025 accredited laboratory, Indian Council of Agricultural Research, Ministy of Agriculture, Cochin, India
vi) LUFA – ITL GmbH,Gutenbergstr.75-77, 24116 Kiel, Germany - ISO 17025 accredited laboratory
vii) TUV SUD South Asia, Bangalore, India, ISO 17025:2005, National Accreditation Board for Laboratories (NABL), India
viii) SGS Gulf Limited, Dubai (UAE), ISO 17025:2005, Dubai Accreditation Agency (DAC)
ix) King Faisal Research Centre Laboratory, Riyadh – This laboratory is the most renowned medical laboratory in the Kingdom of Saudi Arabia. This laboratory shall be considered for analysis only during the emergency.

If any need arises or any unforeseen interruption happens to the analysis, the Competent Authority shall avail services from the following Laboratories for the detection of residues:

i) Eurofins, Europe.
ii) TNO Nutrition and Food Research, The Netherlands

All the above mentioned laboratories are competent to carry out the analysis requirement for National Residue Monitoring Program. Identification of other laboratories (national or international) to conduct tests (if need arises) shall be the responsibility of the Competent Authority. The General Directorate of Fisheries shall abide with any such advice from Competent Authority.

1.6 Measures taken when residues are detected above admissible limits.

Step #1 - When residues are detected above the stipulated limits, the information shall be immediately communicated to (1) Competent Authority (2) Farm/Establishment (3) Other Executive body (SASO) by the General Directorate of Fisheries, Ministry of Environment, Water and Agriculture.

Step # 2 - The lot from which the final product samples were collected and kept aside from sales/export shall be re-sampled with a minimum of double number of samples than that of the previous sampling and analysed for the residue under concern. (Re-sampling of the natural water, shrimp from the growing facility, aquaculture feed etc. shall be samples depending up on the nature of residue detected). In any case, if any such product found already released, those products shall be recalled.

Step # 3 - If the second sampling also reveals the presence of residue in the lot from which the sample was collected, decision shall be taken to reprocess or discard the lot based on the type, nature and level of the residue detected. This operation shall be carried out under the direct supervision of General Directorate

of Fisheries in coordination with the Competent Authority.

Step # 4 - The General Directorate of Fisheries in coordination with Competent Authority shall investigate the reason for such incidents and necessary corrective and preventive measures shall be taken and the Farm/Establishment shall be advised accordingly.

Step # 5 –All information regarding potential incidents (with history, action taken and future plans etc.) shall be communicated to DG SANCO – Health and consumer protection along with the annual summary or earlier, depending upon the nature of the incident.

2. Back Ground Information on Production

2.1 Details of Production and products

2.1.1 Species

i) Shrimps - *Penaeus* Spp., *Fenneropeneaus* Spp.,
ii) Fish - *Seriola* spp., *Chanos* spp., *Lates* Spp., *Acipenser* Spp., *Oreochromis* Spp., Moronidae Spp.,
iii) Sea cucumber - Holothuria Spp.

New species selected for culture shall be included in this list from time to time

2.1.2 Products

The cultured shrimp products - head-on, headless, peeled, deveined, tail-on, butter fly, etc. (New products shall be added to the list from time to time)

The cultured finfish products – Whole fish, Fish fillet, Fish roe (eggs), Minced fish

The cultured Sea cucumber – Whole Sea cucumber

2.1.3 Process type

Shrimp products - Raw (Uncooked), blanched and cooked; Frozen

Finfish products – Raw, Chilled, Smoked, Cooked, Frozen

(New processes shall be added to the list whenever adopted)

2.1.4 Total Figures of Production – The previous year"s shrimp and finfish production (Reference: Official files of General Directorate of Fisheries) shall be included in the Annual report.

2.2. Type of production

The aquaculture follow modified extensive/ Semi intensive/Intensive sustainable culture practice based on the facilities and infrastructure available.

2.3 Product proposed to export to Europe

Any new proposals shall be added to the list as required

3. Scope of Residue Plan

Group of residues covered in this program and details of analysis methods are given in Annexure #3

4. Frequencies and levels of controls

Number of samples taken for each sub group substance shall be decided based on direction from DG SANCO" (Direction communication / information from official web site/ relevant EC directives)

Date:
Riyadh, KSA

Director General,
General Directorate of Fisheries
Ministry of Environment, Water and Agriculture.

Annexure # 1
Table -Substances totally prohibited use in cultured shrimp and finfish products

Sr. No	Specific Parameter
1	Diethylstilbestrol
2	Estradiol
3	Chloramphenicol
4	Nitrofurans (including furazolidone)
5	Dimetridazole
6	Metronidazoles
7	Ronidazole
8	Malachite Green & Leucomalachite Green
9	Crystal violet & Leucocrystal violet

Annexure # 2
Table - Maximum Residue Limits

Sr. No	Specific Parameter	Maximum Residue Limit	
I	B-1Antibacterial substance	Shrimp	Finfish
1	Sulfonamides	100 ppb	100ppb
2	Neomycine	200 ppb	200 ppb
3	Tetracycline	100 ppb	100 ppb
4	Oxytetracycline,	100 ppb	100 ppb
5	Erythromycin	200 ppb	200 ppb
II	B2a- Anthelmintics		
1	Albendazole	100 ppb	100 ppb
2	Fenbendazole	50 ppb	50 ppb
III	B3a. Organochlorine compounds		
1	HCH (α & β)	1 ppm	1 ppm
2	Lindane	0.02 ppm	0.02 ppm
3	DDT (DDD, DDE, DDT)	1 ppm	1 ppm
4	PCB congeners	100 ppb	100 ppb
IV	B3c. Chemical elements (Heavy metals)		
1	Mercury	0.5 ppm	0.1 ppm
2	Cadmium	0.5 ppm	0.05 ppm
3	Lead	0.5 ppm	0.2 ppm
V	B3d. Mycotixines		
1	Aflotoxine	MRL not fixed	MRL not fixed

Annexure # 3
Table - Group of residues covered under the program and details of analysis methods

Group of substance	Compound	Matrix	Analysis Method	Detection Level	Level of action
A1- Stilbenes,	Diethylstilbestrol	Fish Muscle	AOAC-960.61 AOAC-956.10 HPLC Method G. Lunn	0.1 ppm	Prohibited substance
A3 – Steroids	Estradiol	Fish Muscle	HPLC Method G. Lunn	0.1 ppm	Prohibited substance
	Progesterone	Fish Muscle	HPLC Method G. Lunn	0.1 ppm	Not established
A6 – Other compounds	Chloramphenicol	Shrimp/Fish muscle Fish eggs (roe) Shrimp/Fish feed	HPLC Method G. Lunn	0.3 ppb	Prohibited substance
	Nitroimidazoles *i. Dimetridazole ii. Metronidazole iii. Ronidazole iv. Ipronidazole*	Shrimp/Fish muscle Fish eggs (roe) Shrimp/Fish feed	AOAC-970.85	1 ppb	Prohibited substance
			HPLC-Method	1 ppb	Prohibited substance
			HPLC-Method G. Lunn	1 ppb	Prohibited substance
			HPLC-Method G. Lunn	1 ppb	Prohibited substance
	Nitrofurans (including furazolidone)	Shrimp/Fish muscle Fish eggs (roe) Shrimp/Fish feed	AOAC-960.63 & HPLC Method G. Lunn	1 ppb	Prohibited substance
B1-Antibacterial substances	Sulfonamides	Shrimp/Fish muscle Fish eggs (roe) Shrimp/Fish feed	AOAC-993.32	10 ppb	100 ppb
	Neomycine	Shrimp/Fish muscle	HPLC-Method G. Lunn	10 ppb	200 ppb
	Oxytetracycline,	Shrimp/Fish muscle	HPLC-Method G. Lunn	20 ppb	100 ppb
	Erythromycin	Shrimp/Fish muscle	HPLC-Method G. Lunn	20 ppb	200 ppb
	Tetracycline	Shrimp/Fish muscle	HPLC-Method G. Lunn	20 ppb	100 ppb
B2a- Anthelmintics	Albendazole	Shrimp/Fish muscle	HPLC	10 ppb	100 ppb
	Fenbendazole	Shrimp/Fish muscle	HPLC	10 ppb	50 ppb
B3a- Organochlorine compounds including PCBs"	HCH (α & β)	Natural Water Shrimp/Fish muscle	AOAC-970.52	10 ppb	1 ppm
	Lindane	Natural Water Shrimp/Fish muscle	AOAC-970.52	10 ppb	0.02 ppm
	DDT (DDD, DDE, DDT)	Natural Water Shrimp/Fish muscle	AOAC-970.52	10 ppb	1 ppm

Group of substance	Compound	Matrix	Analysis Method	Detection Level	Level of action
	PCB congeners	Natural Water Shrimp/Fish muscle	AOAC-983.21 & AOAC990.07	10 ppb	100 ppb
B3c-Chemical Elements	Mercury	Natural Water Shrimp/Fish muscle Fish eggs (roe)	AOAC-974.14	0.2 ppb	0.5 ppm (shrimp) 1ppm (Fish)*
	Cadmium	Natural Water Shrimp/Fish muscle Fish eggs (roe)	AOAC-999.10	0.1 ppb	0.5 ppm (shrimp) 0.05ppm (Fish)
	Lead	Natural Water Shrimp/Fish muscle Fish eggs (roe)	AOAC-999.10 & AOAC-972.23	2 ppb	0.5 ppm (shrimp) 0.2ppm (Fish)
B3d- Mycotoxines	Aflatoxins	Shrimp/Fish muscle Shrimp/Fish feed	ROMER Method	5 ppb	Not established
B3e- Dyes	Malachite green & Leucomalachilte green	Shrimp/Fish muscle	HPLC Method G. Lunn	2 ppb	Prohibited substance
	Crystal Violet & Leucocrystal violet	Shrimp/Fish muscle	HPLC Method	2 ppb	Prohibited substance
* This Mercury level is applicable for fishes mentioned in 3.3.1.1 of Annexure # 1, EEC/466/2001 including *Acipenser* spp. . For other species the limit is 0.5 ppm					

Annexure # 4 Table: Number of samples taken for each sub group substance

Group of substance	Compound	Number of samples
A1- Stilbenes, Stilbenes derivatives and their salts	Diethylstilbestrol	As described in 1.4.2.a.
A3 – Beta-agonist	Clenbuterol	
A-6 – Other compounds	Chloramphenicol	
	Chloroform	
	Chlorpromazine	
	Dapsone	
	Dimetridazole	
	Metronidazole	
	Nitrofurans (including furazolidone)	
	Ronidazole	
B-1-Antibacterial substances, including sulphonamides, quinolones	Sulfonamides (Sulfamethazine, Sulfathiazole, Sulfadiazine and Sufaquonoxa)	
	Neomycin	
	Oxytetracycline,	
	Erythromycin	
	Tetracycline	
B2a - Antihelmithics	4-Hexylresorcinol	
B3a- Organochlorine compounds including PCBs"	HCB	
	HCH	
	Lindane	
	DDT	
	PCB congeners	
B3c - Chemical Elements	Mercury	
	Cadmium	
	Lead	
	Arsenic	
B3d – Mycotixins	Aflotoxin	
	Ochratoxin	
B3e – Dyes	Malachite green	

Annexure # 5 Decision No. 21911, Dated 27/3/1409H

(Translation)

Executive Board (rule) for Fisheries, Investments and Aquatic Recourse Protection System in Territorial Waters of Kingdom of Saudi Arabia

Chapter - 7
Aquaculture
First Part: Aquaculture Farm License
Article (92)
The Ministry of Environment, Water and Agriculture shall supervise aquaculture projects.

Article (93)
The Ministry shall issue aquaculture project license subject to the evaluation of following conditions, based on the application submitted:

1. Submission of application for establishing aquaculture investment project with details such as Name of investment entity, its field of activity, Areas of investment carries out and detailed historic profile about the investment entity which proposes the project.

2. Submission of three copies of technical and economic feasibility study of the project in Arabic Language.

First: Determination of project site and place:

A- The study should indicate the proposed project's site and place, Suitability for aquaculture operations, Suitability of this site for construction works relevant to the project, provided that there should be a minimum distance of 3 Km from the nearest similar project.

B- The study should include adequate information about suitability of „Water Quality" in the project location.

C- The study should include climatic and environmental aspects of the project construction area.

D- The study should include details of the main infrastructure facilities such as roads, communication, electricity, drinking water, etc.

E- They should specify location of the nearest similar project and distance at which it is located from the project which is the under consideration for approval; in addition to information about potential sources of Water Pollution in the area.

F- Approval of Frontier Forces (Coast Guard) must be included for the site and place in case of coastal projects only.

Second: Species selection for culture:
A- The name should be mentioned in Arabic and Latin for the species proposed for culture. Availability of breeder/larvae/juveniles etc from internal or external sources and cost also must be provided.

B- The study must mention project requirements such as aquaculture feed, feed quality and source, besides growth and Feed Conversion Rate (FCR) of the proposed culture.

Third: Definition of the proposed culture system:

The study shall include detailed overview on the technology that will be used for the following fields:

1- Breeding
2- Fattening or growing
3- Sorting and Grading
4- Nursery
5- Feeding
6- Harvest and Marketing

Fourth: Determination of the project facilities and equipment:

- The study should mention the area of land where the project will be constructed whether on shore, offshore or in sea.

- The study should indicate size of important facilities and equipment required for the project including breeding and nursery, Farming area, Feed processing area, maintenance, cooling, handling area etc. in addition to laboratories/administration/other pertinent equipment.

- The study should indicate the quantity of water pumping, air blowing per hour and the number of pumps used and their productivity in addition to details of emergency equipment like power generators and standby pumps.

- The study should mention the fixed time frame for completion of project construction, the proposed time for production of the first batch of culture, and estimated annual productivity for the first five years of production. The study should also include maximum production capacity per annum.

Fifth: Marketing:

- The study should include detailed information on the way of aquaculture product marketing and the impact of their availability on the already dominating market price during preparation of this study.

Sixth: Determination of project workmen:

- The study should mention the number of workmen needed to operate the project such as technicians, administrators, and workers indicating their qualifications.

Seventh: Financial and Economic analysis:

- The study should enumerate detailed analysis for the project economic feasibility and necessary funding sources.

Eighth: Environmental Effects:

The study should mention precautions and preventive measures to be taken into consideration towards Environmental Protection in the project's area.