

# Saudi Arabian Code for Responsible Aquaculture Practices

## The SAMAQ Certification and Labelling scheme



وزارة البيئة والمياه والزراعة  
Ministry of Environment Water & Agriculture  
Kingdom of Saudi Arabia المملكة العربية السعودية



## Contents

<b>I.</b>	<b>Preface .....</b>	<b>3</b>
	• Objectives of the Code .....	4
<b>II.</b>	<b>The Saudi Arabian Code for Responsible Aquaculture Practices .....</b>	<b>6</b>
1.	Principles of the Code .....	6
	• Overview	6
	• Responsibilities of Saudi aquaculture producers .....	8
	• Duties of Saudi aquaculture producers .....	8
	• Guiding Principles of the Code of Conduct .....	10
2.	The role of Saudi Aquaculture Society (SAS) .....	12
	• The Saudi Aquaculture Society (SAS) .....	12
	• SAS's role in certification and labelling national aquaculture products .....	15
<b>III.</b>	<b>National Certification and Labelling of Aquaculture Products .....</b>	<b>16</b>
1.	Aquaculture Product Certification .....	16
	• Memorandum of Understanding between ADMEWA and SAS and GAA .....	18
2.	The SAMAQ national aquaculture certification and labelling program .....	19
	• The GAA/BAP –SAMAQ complementing relationship .....	22
<b>IV.</b>	<b>SAMAQ Guidelines and Standards .....</b>	<b>24</b>
1.	Property Rights & Regulatory Compliance .....	24
2.	Worker's Health & Safety .....	25
3.	Environmental Protection and Conservation .....	26
	• Feed, Fishmeal and Fish Oil Conservation .....	27
	• Stocking Sources and GMOs .....	28
	• Control of Escapes .....	30
	• Storage, Disposal of Farm Supplies and Wastes .....	32



4.	Health and Welfare of Cultured Organisms .....	35
5.	Biosecurity .....	37
6.	Food safety and Quality .....	40
•	Chemical and Drug Management .....	40
•	Microbial Sanitation & Hygiene .....	43
•	Harvest & Transport .....	44
7.	Record Keeping and Traceability .....	45
<b>V.</b>	<b>SAMAQ Certification; Eligibility, Procedure and Usage Rules .....</b>	<b>47</b>
1.	Eligibility .....	47
2.	SAMAQ Application & Certification Process .....	48
3.	SAMAQ Logo Usage Rules .....	50
<b>Annex 1 :</b>	<b>SAMAQ Certificate of Compliance.....</b>	<b>53</b>
<b>Annex 2 :</b>	<b>SAMAQ Application and Audit Form .....</b>	<b>55</b>



## I. Preface

Aquaculture has become an important production activity throughout the world and, as such, should assume the responsibilities of its status. Aquaculture provides nutritious food to the consumer and its operators should plan, manage and maintain their activities to the standards expected.

For the Kingdom of Saudi Arabia, aquaculture is a major component of the country's strategy to diversify its economy and provide investment and employment opportunities to its people. Under this prism, all Saudi aquaculture industry stakeholders (aquaculture producers, government, research and academic institutions etc) are aligned with the country's Vision 2030 plan and are working towards attaining the mid and long term targets set .

**The primary goal of this *Code for Responsible Aquaculture Practices* is to promote the responsible and sustainable development of the Saudi aquaculture industry, in the aim of assuring the high quality of its products, while respecting environmental and societal considerations and meeting contemporary consumers' food safety requirements.**

The current Code has taken into account international recommendations, and codes for responsible aquaculture practices, such as:

- The provisions for responsible aquaculture development contained in the FAO Code of Conduct for Responsible Fisheries, which was adopted by the 28th Session of the conference of the Food and Agriculture Organization of the United Nations (1995).
- The FAO Technical Guidelines for Responsible Fisheries No. 5: Aquaculture Development (FAO Fisheries Department -1997).
- The FEAP Code of conduct for European Aquaculture (Federation of European Aquaculture Producers –Brussels (2014)

However, while the previously stated international recommendations and codes have been taken into account, the current Code is being **primarily based on the standards and guidelines required by the GAA/BAP<sup>1</sup>** farm certification standards. The Code focuses on the areas considered as most important for the sustainable operation and further development of the sector and has thus selected the most relevant criteria from the GAA/BAP farm standard as audit points for the subsequent SAMAQ certification.

- **Objectives of the Code**

The current *Code for Responsible Aquaculture Practices* is designed to meet four clear objectives:

1. Firstly, a robust, well-constructed and closely observed National Code of Conduct plays an important part in helping to achieve balanced and proportionate regulation of the industry's activities, without overwhelming preoccupation with regulatory detail or bureaucracy.
2. Secondly, the Code establishes a high minimum standard of practice for every participating aquaculture producer and provides a framework for industry development through continuous improvement, which reflects the Saudi industry's desire to remain at the forefront of responsible aquaculture practices.
3. Thirdly, through its adoption, the Code provides assurance to all stakeholders, consumers and the general public that Saudi aquaculture is a highly responsible operating food sector, producing a range of products for which the people of the Kingdom of Saudi Arabia can be justifiably proud of.
4. Ultimately, through the certification of the industry via a program based on the Saudi Code of Responsible Aquaculture Practices guidelines and standards, and the

---

<sup>1</sup> Global Aquaculture Alliance / Best Aquaculture Practices certification  
<https://www.bapcertification.org/about/>

subsequent labelling of its products under the SAMAQ logo, marketing and promotional actions can be developed for increasing the awareness on the industry's products to its potential customers and consumers.

It should be noted that this Code addresses only those areas that the Aquaculture Department of the Ministry of Environment, Water and Agriculture (ADMEWA) and the Saudi Aquaculture Society (SAS) consider to be the most important as regards responsible practices for the sustainable operation and further development of the sector, as well as for safeguarding – and assuring- the quality and safety of the products of the sector.

As previously noted, the **current Code is primarily based on the international standards and guidelines required by the GAA/BAP farm certification standards.**

The successful audit of an aquaculture facility under the principles, guidelines and standards set in the *Code for Responsible Aquaculture Practices* provide the facility with a certificate of compliance by ADMEWA and SAS (see Annex 1) that entitle it to market its products under the national SAMAQ logo.

## II. The Saudi Arabian Code for Responsible Aquaculture Practices

### 1. Principles of the Code

#### • Overview

Aquaculture has an important role to play in bridging the gap between the supply and demand of affordable, nutritious food of high quality.

Food of aquatic origin (fish, crustaceans, mollusks etc) is an excellent source of protein and it also provides a broad range of important nutrients for human consumers. Such food is digestible and tasty, and oily fish in particular contains highly nutritional and health preserving components such as the omega-3 fatty acids that cannot be supplied by other foods.

The production of food of aquatic origin for human consumption through aquaculture is currently a very efficient and sophisticated process. Aquatic organisms are highly efficient converters of food into flesh; they are cold-blooded, so they do not require lots of energy to maintain a high body temperature; and they are 'neutrally buoyant', so do not have to expend much energy in maintaining position and in moving through the water. Aquaculture is thus one of the most natural ways of producing food and has become essential in addressing people's needs for global food security.

Aquaculture already provides almost half of the seafood (food of aquatic origin) consumed globally and has grown faster than any other form of food production. With production from wild fish stocks levelling off, global population increasing, aquaculture will be required to supply an additional 50 million tons of food per year by 2030.

Since water (fresh water) is a scarce resource in Saudi Arabia, aquaculture operators in the country should work together with other water users to assure equitable use of the resource and mutual understanding. At the same time however, the water supply

should be of sufficient quality and quantity to ensure the well-being of the organisms under culture.

**In general, aquaculture operators should apply the best available technology, international knowledge, experience and operating procedures to optimize both the farm husbandry and the interactions of the farm with the adjacent natural environment.**

Similarly, aquaculture operators must be also aware of the social contribution required of their professional activities and assure their integration in local community development and planning. Operations must be based on technology and equipment that ensure the safety of the employees. This includes establishing routines for handling materials and chemicals to avoid health hazards to workers. Thus the national aquaculture sector acknowledges its responsibility towards local society by providing a safe and stable workplace. In this respect, training appropriate to the responsibilities of those engaged in aquaculture must be an integral part of all operations.

Aquaculture projects throughout the Kingdom of Saudi Arabia provide significant economic benefits in the regions where they are located, many of which are remote and relatively disadvantaged. Collectively, all aquaculture operators should cooperate to ensure the short and long-term balance between market supply and demand, so as to deliver economic stability to their companies.

**As a Code of Conduct, this document serves to establish guiding principles for those facilities in the Kingdom of Saudi Arabia which are farming aquatic animals for human consumption.**

**Accordingly it serves as the official standard setting document for the certification and labelling of national aquaculture products, produced under highly responsible aquaculture practices.**



- **Responsibilities of Saudi aquaculture producers**

The Code does not seek to distinguish neither between the species nor the types, or scale, of on-growing farms that are encountered within the Saudi aquaculture sector. Its purpose is to establish a common base, through effective self-regulation, for sectorial responsibility within society and demonstrate the considerations of the production sector towards the various species it rears, the environment, the society and ultimately the consumer. Going beyond simple compliance to the national regulatory framework, and based on guidelines used by the GAA/BAP respective certification standards, the Code sets out the responsibilities of Saudi aquaculture producers in:

1. handling the cultured aquatic organisms in a way that promotes their health and welfare;
2. managing the marine, coastal and terrestrial environments in which they operate in a responsible and sustainable manner; and
3. producing safe, and of high quality, food for human consumption.

- **Duties of Saudi aquaculture producers**

Implicit within the responsibilities described in the previous section are duties in relation to:

- ✓ Planning, developing and managing aquaculture sites in a manner that ensures the economic, social and environmental sustainability of the operation;
- ✓ Engagement with relevant stakeholders in the development and implementation of future policies and practices to enhance the achievement of economic, environmental and social sustainability of the Saudi aquaculture sector;
- ✓ Operating aquaculture farms in a manner that ensures the highest standards of health and welfare for the cultured aquatic organisms;
- ✓ Being good neighbors to other stakeholders who share the freshwater and marine environment resources.



- ✓ Co-operating with, and participating in, appropriate research, technological development and training activities focused on enhancement of the economic, social and environmental sustainability of aquaculture in the Kingdom.

The current Code also seeks to assist the national aquaculture sector in realizing the following:

1. Aquaculture producers, government, regulators and other stakeholders should work together to ensure that Saudi Arabia produces its share of the growing world market for aquaculture products;
2. Aquaculture producers, government, regulators, investors and other stakeholders should work together to promote growth in production, recognising the needs for sustainable aquaculture production and security in human food supply;
3. Aquaculture producers should be aware of their role and responsibility in the aquatic-food chain, which includes manufacturers, processors, transporters, retailers and consumers;
4. In order to facilitate informed and constructive dialogue between aquaculture producers, government and other stakeholders, all Saudi Aquaculture Producers are encouraged to attain membership in the Saudi Aquaculture Society, the national representative organisation of the industry;
5. Individual aquaculture producers should take responsibility in the overall public perception of the industry in Saudi Arabia and beyond;
6. Aquaculture Producers should foster positive relationships with communities and other stakeholders.

**The prime goal of the aquaculture producers operating in the Kingdom of Saudi Arabia is to produce safe and nutritious products of the highest quality for the Kingdom's people primarily and for exports secondarily.**





Aquaculture is a controlled process that allows the farmer to grow and harvest aquatic organisms, which are of consistently good quality, having the following characteristics:

- ✓ A healthy fish, shrimp or other aquatic organism that has been reared in the best possible conditions
- ✓ A protein source of high dietetic quality
- ✓ A nutritious source of food
- ✓ Continuous supply and availability throughout the year
- ✓ A consistently fresh product
- ✓ A product with good taste and flavor

Aquaculture producers operating in the KSA shall contribute actively towards the balanced and sustainable development of the industry at national level. They shall make their best efforts to assure the transparent development of the activity to the benefit of the consumer.

#### • Guiding Principles of the Code of Conduct

The *Saudi Arabian Code for Responsible Aquaculture Practices* addresses the obligation of the aquaculture producer to the cultured organism, the environment and the consumer.

Under this prism, individuals, co-operatives and companies that engage in aquaculture production activities, singularly and collectively shall abide to the following Guiding Principles:





## Guiding Principles of the *Saudi Arabian Code for Responsible Aquaculture Practices*

1. *Shall consult and collaborate with Saudi national and regional authorities for the development and implementation of policies, practices and regulations. These policies should assist the achievement of environmental, economic and social sustainability of the aquaculture production sector.*
2. *Shall consult and co-operate with other aquaculture producers and sectoral suppliers for the development and agreement of common standards and objectives.*
3. *Shall plan and locate aquaculture facilities in sites whose characteristics are compatible with long term sustainable operations and with acceptable ecological effects, particularly avoiding unnecessary degradation of mangroves, coral reefs and other environmentally sensitive habitats.*
4. *Shall design and operate aquaculture facilities in a manner that conserves water resources, including underground sources of fresh water.*
5. *Shall design and operate aquaculture facilities in a manner that minimizes the effects of effluents on surface and ground water quality and sustains good environmental quality and ecological diversity.*
6. *Shall respect the considerations for welfare that apply to the species being raised.*
7. *Shall abide to and follow the relevant national Manual of Biosecurity and Standard Operating Procedures and shall take all reasonable measures necessary to avoid disease outbreaks and implement regulated containment procedures should a disease outbreak occur.*
8. *Shall strive for continuous improvements in feed use and shall use therapeutic agents only when needed and in accordance with the appropriate legislation and the principles of best practice.*
9. *Shall dispose of waste and chemicals in a manner that does not constitute a hazard to human health and the environment and in accordance with the appropriate legislation.*
10. *Shall co-operate with those involved in research, technological development and training activities that seek to improve the social and environmental compatibility of aquaculture.*
11. *Shall implement improvements in technology and in management where such advances are economically possible and can assist the sustainability of the activity and improve the social and environmental compatibility of aquaculture.*
12. *Shall make the best efforts to produce products of the highest quality at all stages of the aquaculture process.*



## 2. The role of Saudi Aquaculture Society (SAS)

- **The Saudi Aquaculture Society (SAS)**

The SAUDI AQUACULTURE SOCIETY (SAS) is an independent organization, formed by Saudi Cabinet Decree number 73 on 14.03.1434 AH, corresponding to 06.02.2013 AD.



SAS represents the aquaculture industry in Saudi Arabia, and operates under the supervision of the Ministry of Environment, Water and Agriculture.

### Vision and Mission

SAS's **Vision** is to contribute to the development of a sustainable and competitive global aquaculture industry in the Kingdom of Saudi Arabia, capable of providing safe and high quality products with competitive prices and produced by environmentally responsible procedures and generating a profitable return on investment.

Accordingly, its **Mission** is to enhance the role of sustainable aquaculture industry as one of the main elements in the development of the Kingdom of Saudi Arabia, and to contribute substantially to the national economy and employment, as well as to create investment opportunities by adopting environmentally sound methods consistent with the nation's regulation in force.

### Objectives

In achieving its mission, SAS aims to promote the aquaculture industry and its products and to do whatever necessary to develop this sector. Thus, its objective has been divided into short-term objectives (1-3 years) and long-term objectives (4-10 years).



Its short-term objectives are summarized below:

1. Work side by side with the Deputy Ministry of Fisheries Affairs to develop the necessary plans, regulations and legislations which ensure the growth and success of the aquaculture industry in the Kingdom.
2. Work with the stakeholders to establish an aquaculture industry to achieve the SAS's vision in accordance with its mission.
3. Undertake studies, consultations, services and business transactions to secure growing sources of income to enable SAS achieve its objectives.
4. Work to establish internal and external strategic partnerships that would contribute to the achievement of its objectives.

Accordingly, the long-term objectives are:

1. Promote self-capacity building to ensure that SAS will be a scientific, technical and economic reference in aquaculture industry in the Kingdom.
2. Work with the stakeholders to promote the industry so that the Kingdom will become one of the most advanced countries in the area of aquaculture industry within the coming 15 years.
3. Establish business entities and enter into appropriate investments with third parties in order to develop its financial resources.





### SAS Leadership

The Board of Directors (BOD) of the Saudi Aquaculture Society consists of ten (10) key members elected by the General Assembly by secret vote.

The duration of membership of the Board of Directors is three years, subject to renewal.

Under the guidance and supervision of the BoD, SAS works together with the Deputy Ministry of Fisheries Affairs to achieve the following tasks:

- a) Participate in the preparations of the requirements and standards necessary to be applied to the aquaculture industry and its products.
- b) Study the rules, regulations and standards related to the aquaculture industry and recommend any amendments on them.
- c) Propose mechanisms for surveillance and inspection.
- d) Recommend granting licenses and permits, amend or withdraw them.
- e) Propose areas of research and studies related to aquaculture and its products and their marketing.
- f) Study the constraints facing the aquaculture industry and recommend whatever feasible to facilitate the industry affairs.
- g) Hold conferences, symposia and exhibitions on the aquaculture industry and participate in them, both inside and outside the Kingdom.
- h) Represent members of SAS with the official bodies and with professional scientific and business institutions inside and outside of the KSA.
- i) Grant a logo stating that the facility is applying appropriate aquaculture production standards, according to the international guidelines, standards and norms.



- **SAS's role in certification and labelling national aquaculture products**

The Saudi Aquaculture Society (SAS), under the guidance of the Aquaculture Department of the Ministry of Environment, Water and Agriculture (ADMEWA) of KSA, developed the current *Code for Responsible Aquaculture Practices* and its detailed principles, guidelines and standards.

The Code serves as the official standard setting document for the SAMAQ product certification and labelling program.

SAS's trained staff act as external, second-party auditors for the aquaculture units wishing to enroll to the SAMAQ program. SAS's auditors, visit and audit the interested aquaculture unit upon request (application) and check for compliance to the guidelines and standards of the Code.

The successful audit of the facility provides it with a Certificate of Compliance (CoC), and entitles its company to market its products under the national SAMAQ logo.



### III. National Certification and Labelling of Aquaculture Products

#### 1. Aquaculture Product Certification

Certification and labelling is a market-based instrument aiming to direct consumer’s purchasing behavior towards product attributes other than price. When properly selected and promoted, certification and labelling can be used as a tool which directly answers the concerns of potential customers/ consumers.

There are a number of incentives for aquaculture producers to become certified. The certification label provides an easy recognizable signal to consumers that a product meets a certain level of performance, as defined by the standard. This can improve public perception towards products in areas where customers (wholesalers, retailers, HoReCa etc) and consumers have low level of awareness about the intrinsic product attributes of farmed aquatic food.



Figure 1: The upside of Certification and Labelling.

Certification and labelling in general provide a strong communication tool to reinforce the purchasing decision of consumers and customers. It can also be used as a means to encourage the improvement/ modernization of investment, to provide incentive for

improved quality control practices while at the same time clarifies the responsibilities of the administration responsible for the development of the sector.

There are many certification schemes present on the global, highly competitive market for aquatic food products. Among this great variety of certification schemes, the Best Aquaculture Practices (BAP) certification scheme, developed by the Global Aquaculture Alliance (GAA), is recognized as one of the most credible and internationally acclaimed standards.

Best Aquaculture Practices (BAP) is the world's most comprehensive third-party aquaculture certification program. It address environmental and social responsibility, animal welfare, food-safety and traceability issues. In practice, BAP certification defines the most important elements of responsible aquaculture and provides quantitative, science-based guidelines by which to evaluate adherence to those practices. BAP certification is administered by the Global Aquaculture Alliance (GAA), a nonprofit organization dedicated to advocacy, education and leadership in responsible aquaculture.

#### **BAP**

*Best Aquaculture Practices (BAP) is an international set of farm-raised seafood certification standards developed by Global Aquaculture Alliance (GAA), the world's leading standards-setting organization for aquaculture seafood. It is the most comprehensive third-party certification system for aquaculture facilities, addressing every key element of responsible aquaculture, including environmental responsibility, social responsibility, food safety, animal welfare, and traceability*

#### **GAA**

*Global Aquaculture Alliance (GAA) is an international, non-profit trade association dedicated to advancing responsible aquaculture. Established in 1997 by 59 aquaculture sector stakeholders from the Americas, Europe, Asia and Africa as a non-profit association whose mission is to further promote environmentally responsible aquaculture in order to meet world food needs. Moreover, GAA serves on request as a resource to the U.S. Food and Drug Administration, U.S. State Department and as a Food and Agriculture Organization of the United Nations Liaison.*



- **Memorandum of Understanding between ADMEWA and SAS and GAA**

SAS and ADMEWA have long acknowledged that aquaculture can be greatly expanded in Saudi Arabia, but only if it is done in a sustainable and responsible manner. In this respect, on January 2016, the Saudi Aquaculture Society (SAS) and the Aquaculture Department of the Ministry of Agriculture, Water and Environment (ADMEWA) signed a memorandum of understanding (MoU) with the Global Aquaculture Alliance (GAA).

As part of that MoU, all existing Saudi Arabia processing plants, on-growing farms, hatcheries and feed mills will be required to attain BAP certification.

**Moreover, BAP certification will be a condition of licensing aquaculture facilities by ADMEWA.**



## 2. The SAMAQ national aquaculture certification and labelling program

SAMAQ is the Saudi national aquaculture product certification and labelling scheme. It is based on internationally acknowledged responsible aquaculture practices and aims to facilitate the promotion of KSA’s aquaculture products to the local (and regional) markets.

The rationale behind the development of this program is that **all national aquaculture products should be marketed with a specific label indicating local origin and assuring of freshness and product safety.**

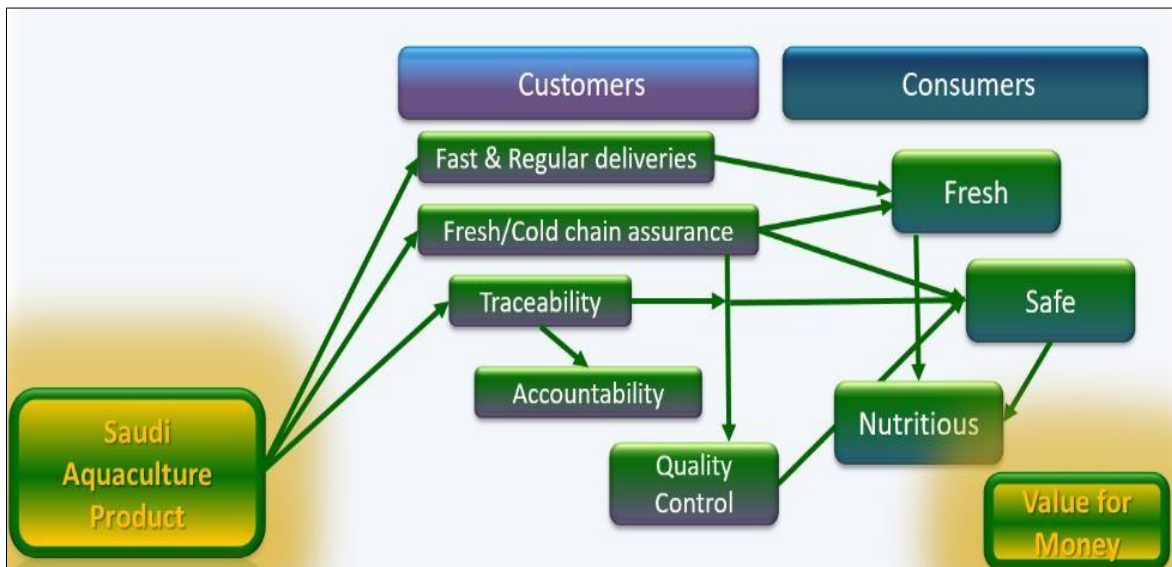


Figure 2: Intrinsic attributes of Saudi Aquaculture Products

Product certification, by definition, refers to the confirmation of certain attributes of a product in relation to a document with a pre-specified set of rules, guidelines etc, serving as a ‘standard’. This document, must be approved by a recognized organization or entity, that provides, for common and repeated use, rules, guidelines or characteristics for products or related processes and production methods. This document may also include or deal exclusively with terminology, symbols, packaging,

marking or labelling requirements as they apply to a product, process or production method.

Within this concept, the Saudi Aquaculture Society (SAS), under the guidance of the Aquaculture Department of the Ministry of Environment, Water and Agriculture (ADMEWA) of KSA, developed the current *Code for Responsible Aquaculture Practices* and its detailed principles, guidelines and standards.

The current Code is primarily based on the internationally acknowledged standards and guidelines required by the GAA/BAP farm certification standards, having selected the ones that are considered to be the most important as regards responsible practices for the sustainable operation and further development of the sector, as well as for assuring the quality and safety of the national aquaculture products. **This Code is therefore considered as the ‘standard’ for the audit of the aquaculture companies operating in the KSA, and their certification under the SAMAQ programme.**

**SAMAQ is a second-party product certification program, whereas compliance to the Codes’ Guidelines and Standards is ensured through external audits performed by trained staff of the Saudi Aquaculture Society.**

Therefore, the successful audit of an aquaculture facility under the standards set in this Code for Responsible Conduct, by SAS’s trained audit staff, provide the facility with a Certificate of Compliance (Annex 1), and **entitle it to market its products under the national SAMAQ logo.**

The goal of the certification of a Saudi aquaculture facility, and the subsequent labelling of its products under the SAMAQ program, is to provide tool for:

- Differentiating the Saudi aquaculture products on the retailers’ bench,
- Promoting the intrinsic advantageous attributes of these products,
- Building consumer awareness actions around the message:

**“ WE ARE LOCAL, FRESH & SAFE ”**



In addition to building legitimacy in the public eye, certification of the national aquaculture products through SAMAQ can provide producers with access to certain retailers and/or retailers and buyers that require compliance with a minimum performance. As demand grows for sustainable products of high and assured quality, the requirement for labelled seafood shifts the burden of assessment and proof from suppliers and retailers to producers.



Figure3: The SAMAQ logo

In a nutshell, the benefits of the SAMAQ certification program are :

- ✓ The SAMAQ label acts as an important means to guide consumers to products that conform to the *Saudi Arabian Code for Responsible Aquaculture Practices*.
- ✓ Through the SAMAQ label, local aquaculture products gain customers' satisfaction and trust.
- ✓ The SAMAQ label acts as a marketing tool for BOTH the local producers as well as the local retailers.
- ✓ The program incentivizes Saudi aquaculture producers to qualify for internationally acknowledged quality awards (GAA/BAP).
- ✓ The program promotes the reputation and name of Saudi aquaculture producers locally and regionally.
- ✓ The program provides support to the national economy, by increasing the competitiveness of Saudi products in the local and regional market, thus reducing the country's trade deficit on seafood products.



- **The GAA/BAP –SAMAQ complementing relationship**

The national SAMAQ certification program is directly linked to ADMEWA's guidelines for certification of **ALL the national aquaculture facilities under the GAA/BAP program by 2020 the latest.**

The SAMAQ program takes into account these guidelines and is designed and developed around the operating facilities' GAA/BAP certification process.

More specifically, the SAMAQ guidelines and standards (as described in detail in Chapter III) are a selection of the most critical GAA/BAP points for sustainable operation and for assuring the quality and safety of the products.

While via GAA/BAP certification the Saudi products of aquaculture will receive international market recognition, in the process of doing so the producing companies will benchmark their operations with highly acknowledged production standards and operation practices

In turn, via SAMAQ certification, and accordingly through SAMAQ product labelling, the products of the Saudi Aquaculture industry will acquire a differentiating characteristic on the retailers' bench.

Using the SAMAQ logo the industry will be able to market the intrinsic advantageous attributes of its products (local production, freshness, product safety, nutritional value etc) and build respective consumer and promotional awareness actions in the national and regional (GCC) markets.

**GAA/BAP certification is the basic pre-requisite for SAMAQ certification.** However, since ADMEWA's guidelines are for GAA/BAP certification to be achieved by all operating facilities by 2020 at the latest, until that time, facilities with no valid GAA/BAP certificate can be considered eligible for SAMAQ certification provided that they are listed in the iBAP programme.







Figures 4, 5 & 6 The GAA/BAP – SAMAQ complementing relationship



## IV. SAMAQ Guidelines and Standards

The following SAMAQ Guidelines and Standards have been based on the *GAA/BAP Certification Standards and Guidelines of Finfish and Crustacean Farms*<sup>2</sup>. They have been carefully selected on the basis of promoting responsible practices for the sustainable operation and further development of the sector in KSA, as well as for safeguarding – and assuring- the quality and safety of the products of the sector.

### 1. Property Rights & Regulatory Compliance

The farm operator shall comply with local and national laws and environmental regulations, and provide current documentation that demonstrates legal rights for land use, water use, construction, operation and waste disposal.

#### Standards

*1.1: Current documents shall be available to prove legal land and water use by the farm.*

*(BAP point 1.1)*

*1.2: Current documents shall be available to prove all business and operating licenses have been acquired. (BAP point 1.2)*

*1.3: Current documents shall be available to prove compliance with applicable environmental regulations for construction and operation. (BAP point 1.3)*

<sup>2</sup> <http://bap.gaalliance.org/wp-content/uploads/sites/2/2015/02/Finfish-Crustacean-Farm-Standard-Issue-2-Revision-3-16-November-201... pdf>



## 2. Worker's Health & Safety

Since working on an aquaculture farm work can be potentially dangerous due to manual errors in the use of machinery, the risks of drowning and electrocution, and the use of hazardous materials, farm operators shall comply with national labor laws to assure adequate worker safety.

Safety equipment such as goggles, gloves, hard hats, life jackets and ear protection, shall be provided when appropriate. Machinery shall have protective guards or covers where appropriate, and electrical devices shall be correctly and safely wired.

Both local and foreign workers may be employed at farms.

Workers shall have easy access to safe drinking water. Living quarters (where applicable) shall be well ventilated and have adequate shower and toilet facilities. Trash and garbage shall not accumulate in living, food preparation or dining areas.

### Standards

2.1 : *Safe drinking water shall be readily available to employees. If meals are provided, they shall be wholesome and commensurate with local eating customs. (BAP point 3.20)*

2.2 : *Running water, toilets and hand-washing facilities shall be readily available to employees. (BAP point 3.21)*

2.3 : *In the event of accidents or emergencies, the company shall provide basic medical care, including access to or communication with medical authorities. Additionally, first aid kits shall be readily available to employees, and any expired content shall be replaced. (BAP point 3.22)*

2.4 : *Protective gear and equipment in good working order shall be provided for employees (e.g., eye protection for welding, gloves for shop work, boots for wet areas). Auditor to verify deployment. (BAP point 3.23)*





### 3. Environmental Protection and Conservation

The practice of aquaculture requires water and therefore aquaculture producers have to accept that the activity has an impact on this resource and be committed to preserving it and conserving it. Unnecessary water use must be avoided.

In general, all aquaculture farms should be designed, developed and managed with a view to the equitable and efficient use of resources. Aquaculture producers shall use only those sites that are compatible with:

1. Long-term sustainable operations,
2. Acceptable ecological effects.

Best efforts should be made for aquaculture to integrate harmoniously with the surroundings of the site.

However, aquaculture remains a man-made activity, and inherent to this is some impact. It is to the interest of the aquaculture producer to minimize this impact and keep the farming environment as close to its natural state as possible.

Since, only a portion of the nutrients added to aquaculture facilities in order to increase production is converted to animal tissue, the remainder becomes waste that can cause increased concentrations of nutrients, organic matter and suspended solids in and around culture systems.

Land-based farms discharge effluents during water exchange or when grow-out units are cleaned or drained for harvest. Such effluents can contain nitrogen, phosphorus, suspended solids and organic matter at greater than ambient concentrations.

The substances in effluents can contribute to eutrophication, sedimentation and high oxygen demand in receiving water. Effluents with low dissolved-oxygen concentrations or high pH can negatively affect aquatic organisms in receiving water bodies.

Accordingly, marine cage farms have the potential to cause environmental harm due to sediment accumulation under farms. The causes include settlement of faeces and





uneaten food, detachment of fouling debris from nets or sloughing of antifouling materials.

- **Feed, Fishmeal and Fish Oil Conservation**

Correct feed and feeding practices reduce wastage, assuring better water quality, good health and farm performance. Therefore, feeds should be properly composed and manufactured and, where possible, labelled and providing the correct granular or pellet sizes for the size of the cultured organism. Excessive feeding should be avoided since this can result in feed wastage that may cause water quality deterioration.

The majority of feeds manufactured for use in aquaculture contain fishmeal and fish oil as protein and lipid sources. Although fishmeal and fish oil are renewable resources derived primarily from small fish that are not generally utilized for direct human consumption, there are limits to the amounts of these products the world's oceans can supply.

The SAMAQ program, therefore, supports the use of protein feed ingredients derived from terrestrial sources, as well as fishmeal and fish oil produced from fish processing and fishery by-products. Fishery-based ingredients from wild sources should come from responsibly managed fisheries and no IUU (Illegal, Unreported & Unregulated) fisheries.

In addition, by improving the efficiency with which feed is converted into fish/shrimp biomass, farmers can lessen the amount of fishmeal and fish oil used. More efficient feed conversion also has a direct beneficial impact on water quality and limits the release of excess nutrients in the environment.

Aquaculture feeds are typically manufactured at commercial facilities and delivered to farms. Farmers shall obtain feed from suppliers that provide reliable information on the crude protein and fishmeal and fish oil content in the feeds. Farmers shall record the characteristics of all feeds used, the total amounts of each feed used each year and the total annual fish/shrimp production.





### Feed-Conversion Ratio

The feed-conversion ratio is a measure of the amount of feed needed to produce a unit weight of the culture species. Farms shall calculate and record FCR yearly using the following equation:

$$\text{Feed-conversion ratio} = \text{Annual feed use (MT)} \div \text{Net fish harvested (MT)}$$

The feed-conversion ratio is also known as the economic FCR. Note that economic FCR is very sensitive to survival rate, rising sharply if the survival rate drops significantly. For precise calculation, the total weight of stocked juveniles is subtracted from the total weight of the harvested fish/shrimp.

#### Standards

3.1 : The farm shall maintain accurate records of daily feed inputs. (BAP point 6.2)

3.2 : The farm shall record the characteristics of all feeds used, the total amounts of each feed used each year and the total annual crustacean or fish production. (BAP point 9.20 )

3.3 : The farm shall calculate and record a yearly feed-conversion ratio for completed crops. (BAP point 9.3)

- **Stocking Sources and GMOs**

Juveniles from the wild shall not be stocked. Certified farms shall comply with governmental regulations regarding the use of native and non-native species, and genetically modified aquaculture species.

Genetically modified organisms (GMOs or transgenic organisms) are defined as organisms that have been genetically modified by artificial transfer of genetic material from another species. Sterile or sex-reversed organisms and their offspring, and organisms created by hybridization and polyploidy are not GMOs.



SAS does not endorse the use of genetically modified aquatic organisms in aquaculture since it is concerned about the maintenance of the natural characteristics of the products, in addition to the environmental qualities of biodiversity. However, the results of genetic research may play an important part in the future development of global food production. SAS, under the guidance of ADMEWA may review their position on this topic if such developments are acceptable to the consumer and do not pose any safety or environmental problems.

Should genetically modified fish or crustaceans be commercialized in the future, producers shall comply with all relevant national regulations regarding such organisms. Since some consumers do not desire genetically modified foods, they should be provided with reliable information to enable informed food choices.

Aquaculture farms shall keep records of their sources and purchases of stocking material and record the number stocked in each culture unit for each crop. During site inspection, documentation of compliance with government regulations relating to the import of fry or postlarvae shall be available. The farm must maintain active communication links with the ADMEWA to verify international importation requirements.

#### Standards

34 : *The facility shall maintain accurate records of the species farmed and, where relevant, any significant stock characteristics, including but not limited to non-native, specific pathogen-free, specific pathogen-resistant, hybrid, triploid, sex-reversed. (BAP point 10.1)*

35 : *For any imports of live aquatic organisms for aquaculture purposes, the relevant ADMEWA permitting documents shall be made available for inspection, even if imported fry were purchased from an intermediary. (BAP point 10.2)*

36 : *The facility shall keep records of sources and purchases of stocking material, and record the number stocked in each culture unit for each crop. (BAP point 10.3)*



- **Control of Escapes**

The escape of domesticated and/or non-native culture species or the release of their eggs or larvae could lead through interbreeding to the alteration of the gene pools of local crustacean or fish populations. Escapes of non-native species could also lead to competition with native species for food and/or habitat, and possibly have other detrimental ecological consequences. Diseases can also be transmitted from escapees to wild fish and other aquatic organisms.

Typically escapes occur when holes develop in nets due to wear and tear, due to collisions with boats, due to human error or attack by large predators. Damage can also occur during severe weather, which can tear nets and lead to substantial losses. Escapes sometimes happen when fish are removed from the water for grading or harvesting, or if net meshes are too large for the smallest fish stocked in the cages.

Aquaculture producers must seek to minimize the potential risks that are presented by farmed escapes to the wild. Certified farms shall take all practical steps to prevent escapes and minimize possible adverse effects on aquatic wildlife if escapes occur.

Producers shall, in the event of escapes, co-operate and inform the respective authorities to assure that appropriate actions will be taken. In more detail, all incidents involving animal escapes shall be accurately documented. Farms should demonstrate reductions in escapes over time. All systems shall be designed to minimize the escape of culture animals.

Ponds and other culture systems shall have intact screens on water inlets and outlets. Acceptable filter devices include a series of mesh screens capable of screening all water, dry-bed filters constructed with gravel and sand, microscreen solids filters, and pond traps with screened discharge. Production facilities shall be constructed so as to prevent overtopping by storm surges, waves or flood water. When heavy rainfall is expected, pond levels should be drawn down to prevent the rain from raising water levels and overtopping embankments.





Cages, nets and pens shall be tagged and maintained in good condition, and records of repairs shall be kept. Periodic inspections of mooring lines shall be documented. Jump nets that extend above the water line should surround the perimeters of net cages.

Cages and pens should be placed in areas where there is little danger of collisions with boats or floating debris and where heavy waves are not likely to damage them. Placement of cages and pens in navigable waters need approval from the Coast Guard authorities. Divers or underwater cameras shall periodically inspect cages for holes, rips and tears.

If an escape is known or suspected to have occurred, the cause shall be investigated immediately, and steps shall be taken to correct it. These actions shall be documented in farm records.

If, after investigation, there are grounds for believing an escape occurred, the fish remaining in the cage or cages shall be counted, if and/or when water and welfare indicators indicate this can be done without causing excessive distress to the fish, and any loss of inventory shall be recorded.

## Standards

### **Control of Escapes**

37 : *All holding, transport and culture systems shall be designed, operated and maintained to minimize the release of eggs, larval forms, juveniles and adult animals. (BAP point 11.1)*

38 : *Screens and nets sized to retain the smallest farmed animals present shall be installed on water outlet pumps, pipes or sluices. Screens, nets or other controls shall be installed on or near pump intakes to minimize the introduction of local aquatic fauna. (BAP point 11.2)*

39 : *All incidents involving escapes of aquaculture animals shall be accurately documented. (BAP point 11.4)*

3.10 : *Cages, nets and pens shall be tagged and maintained in good condition, and records of repairs shall be kept. Periodic inspections of mooring lines shall be documented. Jump nets that extend above the water line should surround the perimeters of net cages. (BAP point 11.5)*







- **Storage, Disposal of Farm Supplies and Wastes**

Fuel, lubricants and agricultural chemicals shall be stored and disposed of in a safe and responsible manner. Paper and plastic refuse shall be disposed of in a prompt, sanitary and responsible way. Excessive accumulation of waste and/or discarded farm supplies and equipment shall be removed and disposed of responsibly.

Farms use fuel, oil and grease to power and lubricate vehicles, pumps, aerators and other mechanical devices. The main agricultural chemicals used in aquaculture include fertilizers, liming materials and zeolite. Some farms use insecticides, herbicides, parasiticides and algicides. Other products employed include preservatives, paints, disinfectants, detergents and antifoulants.

Fuels and some fertilizers are highly flammable and/or explosive, and pesticides, herbicides and algicides are toxic. They shall therefore be considered potential hazards to workers. Spills or careless disposal of petroleum products and agricultural chemicals can also affect aquatic organisms and other wildlife in the immediate vicinity, and result in water pollution over a wider area.

Farms generate considerable waste that can cause pollution, odors and human health hazards on the farm and in surrounding areas when not disposed of properly. Human food scraps, out-of-date feed, other organic waste, and discarded equipment or supplies can attract pests and scavengers. Runoff from refuse piles can cause pollution and contaminate ground water.

Empty plastic bags and other containers used for feed, fertilizing and liming materials do not decompose quickly. They can be a hazard to animals.

Therefore, all fuel, lubricants and agricultural chemicals shall be labelled and safely stored. Used chemicals shall be disposed of in a responsible manner.

Oil leaks from tractors, trucks and other equipment shall be prevented through good maintenance. Oil changes and refueling shall avoid spills, with used oil sent to a recycling center.





Chemicals such as insecticides, herbicides, algicides, sodium metabisulfite used in shrimp, and detergents shall be stored in locked, well-ventilated water-tight buildings. Warning signs shall be posted.

Feed shall be properly stored off the floor and away from walls, and protected from moisture, pests and other contaminants.

Fertilizers, liming materials, salt and other less hazardous agricultural chemicals shall be stored under a roof, where rainfall will not wash them into surface water. Particular care shall be taken with nitrate fertilizers, which are strong oxidants that are particularly explosive when contaminated with diesel fuel or other oils.

Trash, garbage and other farm waste, including discarded farm machinery and equipment, shall not be dumped in mangrove areas, wetlands or vacant land, or allowed to accumulate on farm property. Such waste shall be disposed of responsibly. Composting shall be done by a procedure that does not create an odor problem or attract wild animals.

Paper and plastic should be recycled if possible. Waste collection for recycling requires readily accessible waste containers that are serviced at regular intervals. All containers must be appropriately labelled with risk indicators (poisonous/explosive, etc.).





## Standards

- 3.11: *Fuel, lubricants, feed and agricultural chemicals shall be labelled, stored, used and disposed of in a safe and responsible manner. (BAP point 13.1)*
- 3.12 : *Fuel, lubricants and agricultural chemicals shall not be stored near feed, in employee housing or kitchen areas, or near harvest equipment and supplies. (BAP point 13.2)*
- 3.13: *Fuel, lubricant and chemical storage areas shall be marked with warning signs. (BAP point 13.3)*
- 3.14: *Precautions shall be taken to prevent spills, fires and explosions, and procedures and supplies shall be readily available to manage chemical and fuel spills or leaks. Designated staff shall be trained to manage such spills and leaks. (BAP point 13.4a)*
- 3.15 : *Garbage from housing and food waste shall be retained in water-tight receptacles with covers to protect contents from insects, rodents and other animals. (BAP point 13.5)*
- 3.16 : *Garbage and other solid waste, including fouling organisms, shall be disposed of to comply with local regulations and avoid environmental contamination and odor problems (e.g., recycling, burning, composting or placing in a legal landfill). (BAP point 13.6)*
- 3.17 : *Household trash and other farm wastes shall not be dumped in mangrove areas, wetlands or other vacant land and shall be removed promptly and properly to avoid accumulation . (BAP point 13.7)*
- 13.18: *Discarded farm supplies and equipment (e.g., tires, pallets, bags, barrels, aeration paddles or engines) shall not be dumped in mangrove areas, wetlands or other vacant land, and shall be removed properly to avoid excessive accumulation. (BAP point 13.8)*
- 3.19: *Measures shall be taken to prevent infestation by animal and insect vectors and pests. (BAP point 13.9)*





#### 4. Health and Welfare of Cultured Organisms

Contemporary societal trends seek to avoid needless animal suffering, numerous regulations address animal welfare. Although few such regulations address crustaceans and fish, many consumers would like to know that farmed aquatic animals were produced by humane techniques.

When farmed animals are exposed to continuing stress, their feed consumption and growth rates can decline. Stressed animals are also less resistant to diseases, and mortality usually increases.

Animal suffering can be prevented and production efficiency enhanced by applying good husbandry techniques to avoid stressful culture conditions.

Producers shall thus demonstrate that all operations on farms are designed and operated with animal welfare in mind, and maximum survival shall be sought. In more detail:

- ✓ Farms shall provide well-designed facilities for holding and rearing crustaceans and fish with adequate space. The temperature and chemical composition of culture water should be appropriately maintained, and changes in water quality should be made slowly so the species being cultivated can adjust to the changes. Adequate levels of dissolved oxygen shall be maintained.
- ✓ Feed appropriate for the culture species should be offered at regular intervals. Although fasting periods may be needed to enable harvesting in hygienic conditions, they should be minimized.
- ✓ Aquaculture farms should minimize stressful situations during handling by limiting crowding time and time out of water. Culture conditions should be managed to avoid situations that could lead to stress, injury or disease.
- ✓ Accessible, dead animals shall be removed from ponds or cages at least daily and disposed of properly.
- ✓ Farm staff shall regularly inspect the culture facility, noting water quality as well as the appearance (e.g., fin condition) and behavior (e.g., loss of appetite) of the





- animals in their charge. Swift action shall be taken to correct deficiencies or symptoms.
- ✓ The crowding and handling of aquacultured animals during harvesting and transport are potentially stressful, so measures shall be taken to prevent unnecessary animal suffering.
  - ✓ Live transport of animals should maintain adequate water quality during transport. This usually requires the application of mechanical aeration or oxygenation in the transport containers. Temperature control may also be necessary.

#### Standards

*4.1 : Feeding shall be managed to avoid stress caused by under- or overfeeding. (BAP point 14.2)*

*4.2 : Facility staff shall make regular inspections of the culture facility, water quality, and behavior and condition of crustaceans or fish. (BAP point 14.4)*

*4.3 : Disease outbreaks shall be managed through rapid diagnosis and treatment, and when necessary, humane slaughter. (BAP point 14.5)*

*4.4 : Humane slaughter techniques shall be used that are appropriate for the culture species. (BAP point 14.6)*





## 5. Biosecurity

Disease of aquacultured animals is considered by many to be the single largest threat to the growth and stability of the global aquaculture industry. The spread of diseases affecting aquaculture crops has been traced in many cases due to poor biosecurity at farms. The aquaculture industry in the KSA has suffered dearly in the past (WSSV crises)

Mass mortalities occasionally occur at aquaculture farms, and dead carcasses or animal remains can potentially spread disease. When these mortalities occur, facilities shall have a plan to dispose of the carcasses through incineration or sanitary burial.

Biosecurity controls shall be in place to prevent the introduction and/or spread of disease agents and disease on the farm. These include regular disease surveillance, sanitation of equipment and personnel, quarantine of diseased animals and controlled movement of personnel and equipment. Farm staff and visitors shall be trained in and apply biosecurity measures.

Measures shall be taken to avoid the spread of disease within farm or to neighboring farms or client farms to which animals are transferred for further growout.

Proper biosecurity controls shall prevent the introduction or spread of disease agents within the farm. The likely vectors for these risks shall be identified in a biosecurity plan that includes specific control measures and at a minimum:

- ✓ Identifies the likely disease risks for the culture species within its culture region.
- ✓ Requires routine disease surveillance and characterization of the health status of the farm.
- ✓ Identifies critical control points such as movement of animals and equipment, and farm access by visitors.
- ✓ Establishes active control measures to reduce the risk of introduction and/or spread of disease agents past these control points.





- ✓ Establishes hygiene and sanitization protocols and standards for equipment and personnel.
- ✓ Establishes quarantine protocols for diseased animals, where possible.
- ✓ Prevents the movement of personnel and equipment from diseased areas both within the farm and from neighboring farms.
- ✓ Establishes protocols that allow the tracking of animal and equipment movements.
- ✓ Establishes a visitor and delivery log.
- ✓ Establishes a method of tracking actions, taken to reduce the risk of disease and/or control disease if it occurs.

Where movement of equipment and personnel from diseased or suspect areas to other areas is unavoidable, cleaning and sanitization measures shall be employed to disinfect all equipment and personnel prior to entry to non-diseased areas.

Where slaughtering is conducted at the farm, blood water and other effluents generated through processing shall be contained or treated so they do not contaminate the environment or present a biosecurity risk.





## Standards

5.1: *The farm shall have in place biosecurity controls that seek to prevent the introduction and spread of disease agents and disease on the farm, including the sanitization of equipment and personnel when disease is suspected or confirmed at the farm site, and there shall be a biosecurity plan. (BAP point 17.1a)*

5.2: *Farm staff shall be trained in biosecurity procedures and shall, along with all visitors, comply with them. (BAP point 17.2)*

5.3: *A plan for prompt and responsible disposal of excessive mortalities of culture animals by incineration, burial, composting or removal by a competent contractor shall be available for inspection and applied. (BAP point 17.3)*

5.4: *Where slaughtering is conducted at the farm, blood water and other effluents generated through processing shall be contained or treated so they do not contaminate the environment or present a biosecurity risk. (BAP point 17.4)*







## 6. Food safety and Quality

### • Chemical and Drug Management

Good health management focuses on the prevention of disease rather than disease treatment with chemical compounds. The best ways of controlling disease are

- a) to avoid stocking diseased fish,
- b) adopt fallowing and “all in, all out” stocking procedures at cage and net pen sites,
- c) avoid environmental stress by maintaining good water quality in culture systems.

In pond culture, limiting water exchange lessens the risk of disease spreading from one farm to another.

Proactively prohibited antibiotics, drugs and other chemical compounds shall not be used. Other therapeutic agents shall be used as directed on product labels for control of diagnosed diseases or required pond management, and not for prophylactic purposes without veterinary oversight.

Residues of some therapeutic agents can accumulate in fish tissue and present a potential health hazard to humans. Therefore, certain compounds have been proactively prohibited, and residue limits mandated for others. Apart from compromising food safety, failure to comply with such regulations can have serious economic consequences to all involved in the food supply chain.

Improper use of chemicals can harm other organisms that live around farms. Moreover, prolonged use of antibiotics can lead to antibiotic resistance in disease organisms that affect fish and other aquaculture species.

Use of certain antifouling materials on farm facilities and containment structures can introduce potential environmental contaminants. The application of certain approved food additives to maintain product quality or appearance during harvest, transport and





various stages of post-harvest processing can exceed recommended levels or duration of exposure and impart a residual level in excess of legal food safety limits or product-labelling requirements regarding prior use.

### Critical Concerns for Antibiotic Use

Chloramphenicol and nitrofurans antibiotics are proactively prohibited.

When antibiotics that are not proactively prohibited for use for therapeutic purposes, antibiotic residue tests shall be carried out after the withdrawal period to ensure regulatory limits on residues are met.

Records for disease diagnoses should provide supporting evidence to justify cases where therapeutants are used.

Vaccines and anesthetics, where employed, shall be approved and used only according to manufacturers' instructions.

Cage farms making use of antifoulants shall obtain all necessary authorizations for their use. Land-based farms shall obtain any required discharge permits from government agencies

Any use of approved food additives must involve monitoring the amount and method of application to prevent illegal residues in the edible portion of the products and assure product labelling to designate prior usage.

During inspections, auditors shall have access to full records as described above for all applications of drugs, antibiotics etc.





## Standards

- 6.1 : *If used, drug treatments shall be based on recommendations and authorizations overseen by an aquatic organism health specialist only to treat diagnosed diseases, accompanied by antibiotic sensitivity testing in accordance with instructions on product labels and national regulations. (BAP point 15.2)*
- 6.2 : *Records shall be maintained for every application of drugs and other chemicals that include the date, compound used, reason(s) for use, antibiotic sensitivity test results, dose and harvest date for treated production lots. See the Traceability requirement. Periodic verification testing of the effectiveness of the withdrawal period shall be conducted. The auditor shall collect usage data for all antimicrobials. (BAP point 15.3)*
- 6.3 : *Any use of antifouling agents must involve recognized applications of approved materials in a manner that can be monitored for potential contamination of the aquacultured animals. (BAP point 15. 4)*
- 6.4 : *Any use of food additives shall involve approved materials and be monitored for time and method of application. (BAP point 15.5)*
- 6.5 : *Antibiotics or chemicals that are proactively prohibited in the producing or importing country shall not be used in feeds, pond additives or any other treatment. (BAP point 15.6)*
- 6.6 : *Antibiotics, antimicrobials or hormones shall not be used as growth promoters. (BAP point 15.10)*
- 6.7 : *All records specified in Section 6 shall be retained for a period that exceeds both 12 months and the expected shelf life of the aquaculture products. (BAP point 15.11)*





- **Microbial Sanitation & Hygiene**

Human waste and untreated animal manure shall be prevented from contaminating pond waters. Domestic sewage shall be treated and not contaminate surrounding areas. Aquacultured products shall be harvested and transported to processing plants or other markets in a manner that maintains temperature control and prevents physical damage or contamination.

In the unlikely case that culture water is drawn from water bodies that could receive untreated human waste in the immediate vicinity of the farm, water holding or pretreatment is recommended. Toilets located near canals or waste treatment systems that discharge or leak into ponds or farm canals shall not be allowed.

It is in the best interests of the aquaculture industry to use pelleted or extruded feeds, and in ponds to use chemical fertilizers or organic manure that has been treated to kill potential food-borne pathogens .

#### Standards

6.8 : *Domestic sewage shall be treated and properly disposed of to avoid contamination of surrounding areas (e.g., sewer system, septic system, portable toilet or outhouse).*

*(BAP point 16.1)*

6.9 : *Farm animals and domestic pets shall not be allowed to access production ponds.*

*(BAP point 16.2)*

6.10 : *Human waste and untreated animal manure shall not be used to fertilize ponds. (BAP point 16.3)*

6.11 : *Uncooked organisms and their by-products shall not be used as feed in growout ponds. (BAP point 16.4)*





- **Harvest & Transport**

Unclean water and transport containers can cause contamination of fish/shrimp during transit from cages/ponds to plants or markets.

For fish or crustaceans placed on ice or in iced water at the farm, alternating layers of ice and product are recommended to avoid temperature fluctuations.

#### Standards

6.12: *Fish and crustaceans shall be harvested and transported in a manner that maintains temperature control. (BAP point 16.5)*

6.13: *Ice shall be made from water that complies with microbial limits for potable water. (BAP point 16.6)*

6.14: *Equipment and containers used to harvest and transport fish or crustaceans shall be cleaned, sanitized, and be free of lubricants, fuel, metal fragments and other foreign material. (BAP point 16.7)*

6.15: *Non-approved chemicals shall not be applied directly or indirectly to aquacultured products during transport. (BAP point 16.8)*

6.16: *Workers with wounds, open sores or skin infections shall be prohibited from handling harvested products. (BAP point 16.9)*





## 7. Record Keeping and Traceability

Product traceability is a crucial component of the SAMAQ program. It interconnects links in the production chain and allows tracing of each harvested and sold lot p back to the culture unit and inputs of origin. Food quality and safety analyses by accredited laboratories can also be included. Traceability ultimately assures purchasers that all steps in the production process were in compliance with environmental, social and food safety standards.

Farms may utilize any traceability system that suits them. This can be an online system; the farm's own in-house database, paper records, files and documents; or a combination thereof.

The record-keeping process requires a high degree of care and organization. To effectively establish product traceability, the following data shall be recorded for each culture unit and each production cycle:

- ✓ culture unit identification number
- ✓ unit area or volume
- ✓ stocking date
- ✓ quantity of fingerlings or postlarvae stocked
- ✓ source of fingerlings or postlarvae (hatchery)
- ✓ antibiotic and drug use
- ✓ sulfite use in shrimp
- ✓ herbicide, algicide and other pesticide use
- ✓ manufacturer and lot number for each feed used
- ✓ harvest date
- ✓ harvest quantity
- ✓ transport document number (if applicable)
- ✓ processing plant(s) or purchaser(s) (identify all if any harvest quantity goes to more than one plant or purchaser)





## Standards

7.1: *The facility shall operate an effective record-keeping system that provides timely, organized, accurate entries, performed and overseen by a designated trained person or team responsible for collecting the data, ensuring it is complete and accurate, and that traceability requirements are met. (BAP point 18.1)*

7.2: *The facility shall keep complete and accurate records for each culture unit and production cycle, including the culture unit identification number, unit area and volume, species stocked. (BAP point 18.2)*

7.3: *The facility shall keep complete and accurate records concerning any antibiotic or other drug use at both the hatchery and the farm. (BAP point 18.3)*

7.4: *Complete and accurate records shall be maintained on the use of sulfites or other approved food-processing aids/additives in shrimp, as well as the use of herbicides, algicides and other pesticides. (BAP point 18.4)*

7.5: *Complete and accurate records regarding manufacturer and lot numbers for each feed used shall be maintained. (BAP point 18.5)*

7.6: *The facility shall maintain complete and accurate records of the sources and numbers of postlarvae or fingerlings stocked, stocking dates and all feeds used for each culture unit. (BAP point 18.6)*

7.7: *Complete and accurate records regarding the harvest date, harvest quantity, movement document number (if applicable) and processing plant(s) or purchaser(s) shall be maintained. If product lots are destined to more than one plant or purchaser, each lot shall be separately identified. (BAP point 18.7)*





## V. 'SAMAQ' Certification; Eligibility, Procedure and Usage Rules

### 1. Eligibility

ANY aquaculture production facility operating in the territory of the Kingdom of Saudi Arabia is eligible for SAMAQ certification under the *Saudi Arabian Code for Responsible Aquaculture Practices*, and its products eligible for being marketed under the respective national logo provided that:

1. The aquaculture facility is legally based in the KSA
2. The aquaculture facility holds a valid operation license by ADMEWA
3. The company owning the facility is a registered member of the Saudi Aquaculture Society
4. The aquaculture facility holds a valid GAA/BAP certificate

Until the end of 2020, facilities with no valid GAA/BAP certificate can be considered eligible for SAMAQ certification provided that they are listed in the GAA/iBAP<sup>3</sup> programme.

After 2020 only new aquaculture production facilities, with less than 3 years licensed operation, will be considered eligible for SAMAQ certification provided that they are listed in the GAA/ iBAP programme.

---

<sup>3</sup> The iBAP program, with the "i" representing "improver," has been specifically designed for aquaculture facilities that are capable of attaining Best Aquaculture Practices (BAP) certification, but have not for technical or other reasons. This innovative educational opportunity, which provides the assistance and encouragement necessary to apply for BAP certification, gives aquaculture facilities tangible, bottom-line motivation to achieve deadline-driven improvement. In effect, ***iBAP Incentivizes Aquaculture Facilities to Improve.***







## 2. SAMAQ Application & Certification Process

For an eligible aquaculture production facility to become SAMAQ certified, it must comply with the requirements stated in the SAMAQ standards and audit form (Annex 2).

SAMAQ applicants initially review and complete the audit form, send it to SAS and request for a site audit. The facility must appoint a contact person for all relevant correspondence and operations.

Upon receipt and review of the self-completed audit form, SAS trained auditors contact the appointed person of the facility and arrange for a suitable date for the audit. During the audit the contact person of the facility must have available all relevant documents and records.

To become SAMAQ certified, the facility must comply with the ALL requirements stated in the SAMAQ standards and audit form. Any non-conformity raised during the evaluation is recorded by the auditor in the formal report as:

**Critical** – When there is a failure to comply with a critical food safety, social compliance or legal issue, the SAS auditor immediately notifies the SAS SAMAQ coordinator who in turn informs ADMEWA. Failure to comply with these standards results in failure of certification and subsequent not approval (or suspension in the case of renewal) of the SAMAQ logo.

**Major** – When there is a substantial failure to meet the requirements of a standard but no food safety risk, the auditor notifies the SAS SAMAQ coordinator and records this in the report. Verification of the implementation of corrective actions shall be submitted to SAS within 28 days of the audit. (Major non-conformities typically reflect issues with general policies.)





**Minor** – When full compliance with the intent of the standards has not been demonstrated, the auditor notifies the SAS SAMAQ coordinator and records this in the report. Verification of the implementation of corrective actions shall be submitted to SAS within 28 days of the audit. (Minor non-conformities typically reflect general housekeeping issues.)

In all cases, the outcome of the audit (SAMAQ audit report) is communicated to ADMEWA.

**Important points:**

1. SAMAQ certification remains in effect for one year from the date of final certification approval by SAS.
2. In each successive year, facilities must undergo a site inspection and audit. Facilities must complete recertification by their recertification date to be in full compliance with the SAMAQ programme.
3. Upon the successful audit of the facility a Certificate of SAMAQ Compliance (CoC) is then issued and send to the facility's contact person (see Annex 1).
4. **Points 1 and 2 above do not apply for facilities holding a valid (updated) BAP certificate.** In such case the contact person of the facility provides a copy of the valid BAP certification to the SAS SAMAQ coordinator, who in turn notifies ADMEWA. A Certificate of SAMAQ compliance (CoC) is then issued and send to the facility's contact person.





### 3. SAMAQ Logo Usage Rules

The successfully audited facilities under the SAMAQ guidelines and standards, receive a Certificate of Compliance by ADMEWA and SAS (see Annex 1). The certificate entitles the facility to use the SAMAQ logo on its products and/or any other related promotional material.

All aquaculture products harvested from a SAMAQ certified facility and marketed in the local, regional (GCC) or wider international markets are allowed to use the SAMAQ logo under the following rules:

- ✓ SAMAQ licensees must register logo usage and claims with the SAS in advance and must receive approval of logo usage and claims from the SAS in advance.
- ✓ Licensees may use the SAMAQ logo in any company related promotional and advertising material upon approval by SAS.
- ✓ Licensees must comply with all logo usage requirements and design mark specifications.
- ✓ If anything changes during the year, licensees must contact the SAS promptly.
- ✓ The SAMAQ Certification Mark is a registered trademark of the SAS. Misuse may result in legal action and/or facility decertification.





Figure 7 & 8: The SAMAQ logo and its approved color codes

Above the 'shaded' sample more suitable for printed and other media marketing material.

Below the 'solid color' sample more suitable for gill tags and other product -type labels (for product display in wet/chilled bench



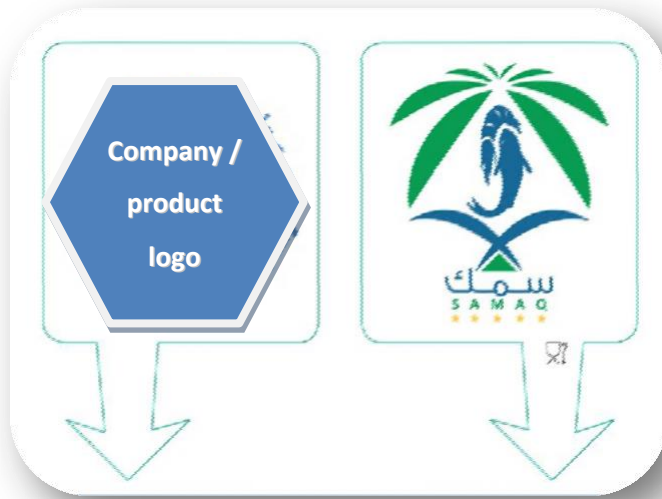


Figure 9 :

Sample of fish gill tag with SAMAQ and Company / product logo



Figure 10 :

Samples of SAMAQ logo for packaged products

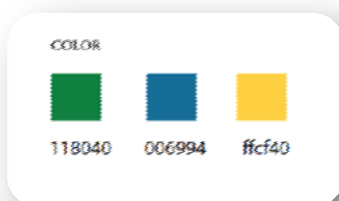


Figure 11 :

SAMAQ logo color codes



**Annex 1 :**  
**SAMAQ**  
**Certificate of Compliance**







الجمعية السعودية للاستزراع المائي  
SAUDI AQUACULTURE SOCIETY

## SAMAQ

### CERTIFICATE of COMPLIANCE



وزارة البيئة والمياه والزراعة  
Ministry of Environment Water & Agriculture  
المملكة العربية السعودية - Kingdom of Saudi Arabia



Issued to Company:

**Company name**

**Type of Aquaculture Producer**

**Region**

**The Aquaculture Department of the Ministry of Environment, Water and Agriculture**  
&  
**The Saudi Aquaculture Society**

Declare that the aquaculture production and the products of the company mentioned on this certificate have been found to be in compliance to the requirements of the

**"Saudi Arabian Code for Responsible Aquaculture Practices"**

and the subsequent guidelines and standards of the

**'SAMAQ'**



**Mohammed Odaiby**  
Secretary General  
Saudi Aquaculture Society

Certification and Labelling scheme

Certification : **Ref.no/Year**

Certification date : **date/month/ Year**

Valid until : **date/month/ Year**



**Ali Al Shaikhi**  
General Director  
Gen. Directorate of Aquaculture & Fisheries  
Ministry of Environment, Water & Agriculture





## Annex 2 :

### SAMAQ Shrimp and Fish Farm Certification

### Application and Audit Form

