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P.O. Box 1390, Skulagata 4  
120 Reykjavik, Iceland

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## **A COMPARATIVE STUDY ON COMPLIANCE, HYGIENE AND ADEQUATE OFFICIAL CONTROL, IN ASSURING FOOD SAFETY OF FISH AND FISHERIES PRODUCTS BETWEEN ICELAND AND CAMEROON**

Chuba Leunga Didier  
Department of Fisheries and Aquaculture  
Yaoundé - Cameroon  
didichuba@yahoo.co.uk

Supervisor:

Margeir Gissurarson  
Matís ohf Icelandic Food and Biotech R & D  
Vínlandsleið 12, 113 Reykjavík  
margeir@matis.is

### **ABSTRACT**

The fisheries sector plays an important role in Cameroon both from the economic and food security point of view as it provides affordable animal protein for a large majority of the population. Cameroon has in the past been exporting fish products to the EU, but recently received a ban from the import of such products into EU markets on grounds of poor hygiene and inadequate official control on products destined for the export market. This ban has had huge economic implications more especially in terms of trade deficit. This study attempts to look into ways of resuming trade export of fisheries products by examining the case of Iceland that has a long history of trade with EU as an example for setting up a control system that fulfils EU requirements. The finding of this study shows that Iceland has advanced and organised regulatory and institutional arrangements, which ease the control process and promote transparency. On the other hand, the Cameroon regulatory framework though lacking in certain areas, needs to be improved while the institutional arrangement must be reviewed in order to promote a more responsible, motivated and transparent control system.

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**ABBREVIATIONS**

ACP/OCT	African, Caribbean and Pacific/ Overseas Countries and Territories
BIP	Border Inspection Post
CA	Competent Authority
CFA	Communauté Financière d'Afrique
DG SANCO	Direction Générale de la Santé des Consommateurs
EEA	European Economic Area
EFSA	European Food Safety Authority
EFTA	European Free Trade Association
EU	European Union
EEC	European Economic Commission
FBO	Food Business Operator
FAO	Food and Agricultural Organisation
FVO	Food and Veterinary Office
GHP	Good Hygiene Practices
GMP	Good Manufacturing Practices
HACCP	Hazard Analysis and Critical Control Point
MAST	Icelandic Food and Veterinary Authority
MINADER	Ministry of Agriculture and Rural Development
MINCOMMERCE	Ministry of Commerce
MINEPIA	Ministry of Livestock, Fisheries and Animal Industries
MINSANT	Ministry of Public Health
MT	Metric Tons
OAV/UE	Office Alimentaire Vétérinaire (Food and Veterinary Authority)
RASFF	Rapid Alert System for Food and Feeds
SPS	Sanitary and Phytosanitary Measures
UE	Union Européenne
USD	United States Dollars
WHO	World Health Organisation
WTO	World Trade Organisation

## 1 INTRODUCTION

Fish and fisheries products are among the most internationally traded food commodities in the world today and developing countries from Africa, Caribbean and the Pacific (ACP) play a key role in assuring supplies to markets of Europe, United States of America and Asia. Of the 4.7 million tons of fish produced by these countries in 1997, about 700 000 tons entered the international trade generating about €1.3 billion in terms of revenue (Goulding and do Porto 2010).

However, this globalisation of fish trade has many food safety implications that can be responsible for food borne illnesses or the risk of exposure to chronic diseases caused by pathogenic agents or contaminants (Unnevehr 2003). Such contamination is prone to cause serious social and economic burden on communities and their health systems. In the USA for example, diseases caused by the major food pathogens are estimated to cost up to US \$35 billion annually in medical costs and lost productivity, while the re-emergence of cholera in Peru in 1991 resulted in the loss of US \$500 million in fish and fishery product exports that year (WHO 1997).

Health issues related to the consumption of contaminated and adulterated foods has been a major concern for citizens of the world and many governments and international organisations has focussed much attention on addressing these safety concerns by enacting regulations and enforcing standards. The dynamic nature of food safety hazards related to fish consumption has pushed many governments in the western world to implement new regulatory programs that addresses more types of safety related attributes such as emerging food hazards, microbial pathogens, environmental contaminants, animal drug and pesticide residue (Caswell 2003).

Compliance with these new regulations by developed countries often involves the application of science based risk analysis principles. Under these principles, and in line with the World Trade Organization's (WTO's) Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement), countries should base their regulatory actions on scientific risk assessment (Caswell 2003).

To ensure fair trade in fish products most countries have harmonised their regulations. Third countries can henceforth trade with major importing countries of the western world on the basis of equivalence, which entails that countries should not only have their regulations updated to meet those of the importing countries, but equally need to have an efficient institutional set up that ensures the adoption of Good Hygiene and Manufacturing Practices and adequate control mechanisms to meet compliance.

Even though the capacity to implement effective food safety control is of vital importance for food export in developing countries, the provision of guarantee to food safety by these countries is usually met with numerous obstacles amongst which administrative structures, management and financing, scientific and technical infrastructures and training have been noted to compromise the effectiveness of food safety controls (Caswell 2003).

Surmounting these obstacles remain a major challenge for many developing exporting countries who in some cases are denied access to export markets or in extreme cases out rightly banned if they fail to meet with safety standards because cost of compliance are prohibitively high (Caswell 2003).

## 1.1 Fisheries production

Fisheries are a very important sector in the Cameroon economy contributing to 1.7% of the GDP representing about 2.5M USD in 2004 (Ngok *et al.* 2005). The fisheries sector is comprised of the industrial fleet, the maritime artisanal fisheries, the inland fisheries and aquaculture. The coastal area exploited for fisheries is divided into three zones, as shown in Figure 1.



**Figure 1: Locations of the Cameroon coastal zone areas (Source: MINEP 2011).**

In Cameroon, fish is considered to be the most accessible form of animal protein for the population. As such, there is a high demand for fish and fish products with a per capita consumption of 15.5 kg (FAO 2007). However, the artisanal and inland fisheries production, which stand at about 300 000 tons each year are far from meeting the national demand in fish products. Consequently, the country relies on huge imports of fish and fish products in order to compensate for the deficit, thereby resulting in some loss of foreign earnings.

The main export from Cameroon is shrimp that is frozen and packaged on-board freezing vessels at sea. Between 1997 and 1999, shrimp production from the industrial fleet stood at about 1850 tons. A greater part of this production was exported to certain European countries including France, Spain, Belgium, Holland and Greece, which procured the government some foreign earnings to balance the trade deficit caused by heavy importation of fish. (MINCOMMERCE 2009). Despite the fact that Cameroon produces many fish species both from the artisanal and industrial fleet, shrimp remains the most valuable export species obtained from the industrial fleet (Table 1).



**Table 1: Export of fisheries products from Cameroon to EU (1997-1999) (Eurostat 2000)**

Year	1997		1998		1999	
Species	Shrimp	Other	Shrimp	Other	Shrimp	Other
Quantity (MT)	1133	32	1642	25	1247	26
<b>Total</b>	1165		1667		1273	

There is however an important production from the artisanal sector, which because of lack of appropriate storage facilities, are traditionally processed and either consumed locally or exported illegally to neighbouring countries.

The exports registered in the 90's have stopped as a result of noncompliance with the specific hygiene rules and inadequate official control that could compromise the safety of the products and affect the health of consumers. This has had drastic consequences as Cameroon is now only importing fish without any real exports, thereby creating a huge trade deficit (Tables 2 & 3).

**Table 2: Trends in import of fish products into Cameroon (Q: quantity in tons, V: value in millions of Francs CFA) (Source: Statistics directory of Cameroon 1998; 2000; 2004)**

Item	1996		1997		1998		1999		2000	
	Q	V	Q	V	Q	V	Q	V	Q	V
<b>Fish and shrimps</b>	42 993	11 156	53 600	14 639	78 271	20 236	73 848	17 474	85 125	20 142
<b>Frozen fish</b>	42 883	11 044	53 524	14 546	78 197	20 191	74 942	17 690	85 055	20 089
Item	2001		2002		2003		2004		2005	
	Q	V	Q	V	Q	V	Q	V	Q	V
<b>Fish and shrimps</b>	97 282	20 365	78 424	15 797	124 619	21 049	125 614	24 756	106 622	33 165
<b>Frozen fish</b>	97 200	20 260	78 385	15 732	124 508	20 963	119 991	23 262	106 595	33 085

**Table 3: Trends in export of fish products from Cameroon**

Item	1996		1997		1998		1999		2000	
	Q	V	Q	V	Q	V	Q	V	Q	V
<b>Frozen shrimp</b>	332	621	385	513	901	1 461	498	888	374	611
Item	2001		2002		2003		2004		2005	
	Q	V	Q	V	Q	V	Q	V	Q	V
<b>Frozen shrimp</b>	110	161	94	70	74	110				

There is a difference between the official figures from Cameroon and that registered by EUROSAT indicating that there was some unregistered export that entered the EU from uncertified vessels and from different ports in Cameroon.

To resume trade with EU member states, Cameroon had to satisfy conditions for imports as a third country. This required having the regulations on food law updated to meet the equivalence of EU regulations in terms of food safety, in order to have its name inscribed in the list of authorised third countries, as established by Decision 95/328/EEC of 25 July 1995 and modified by Decision 2000/170/CE of 14 February 2000.

Between the year 2000 and 2003, two inspection and audit missions from the Food and Veterinary Office (FVO) of the European Union visited Cameroon to check the hygiene level and sanitary conditions in processing establishments and freezing vessels, to verify if they complied with the provisions of Council Directive 91/493/CEE of 22 July 1991, with a view to maintain Cameroon in the list of authorised third countries. The report of the audit mission noted with satisfaction the progress made by Cameroon in terms of regulatory and institutional amendments, but pointed out certain areas where improvement had to be made, which mainly concerned adequate official control, the issuance of health certificates, water quality and reference laboratory (DG SANCO 2000).

The Cameroonian authorities addressed several correspondences to provide the necessary guarantee relative to the Commission's recommendations and in 2003 a second visit was effected to verify if those measures were effectively put in place (DG SANCO 2003). The conclusions of the report indicated that the maintenance of Cameroon on the list of authorised third countries was subject to the response the authorities were to give in reaction to the food safety shortcomings noted. Consequently, the Cameroonian authorities issued a letter temporarily suspending all exports to EU and proposed an action plan with corrective actions in the near future. From 2004 to 2009, no feedback was given to the FVO on the progress made despite the fact that Cameroon continued to receive support from the EU (under the Strengthening Fishery Products Health Conditions Benin, Togo and Cameroon) in terms of training personnel of the CA, providing equipment for the food analysis laboratory, providing training to processing plant owners in quality and staff hygiene, Good Hygiene Practices (GHP), Good Manufacturing Practices (GMP), and "own checks" operations (Hazard Analysis and Critical Control Points (HACCP)) on board registered fishing vessels and in certified processing plants (Tall 2010).

Finally, the Commission, under the decision (EC) 146/2009 of 20 February 2009, banned fish and fishery imports from Cameroon to the EU market. This situation has had serious consequences on the Cameroon economy. Today, Cameroon imports fish and fish products from the EU for a total value of € 13.2 million while export from Cameroon to EU is zero (DG Trade 2010), thereby causing a trade deficit and loss in earnings.

## **1.2 Objective of the study**

### *1.2.1 General Objective*

The general objective is to secure free access of Cameroon's most valuable fish and fishery products into foreign markets in order to maximize the use of the fisheries resources and increase the foreign income earnings.

### *1.2.2 Specific objectives*

The specific objective is to review the regulatory requirement for import of fishery products into the European market and how these regulations are implemented. The review will be compared to the situation in Cameroon and recommendations for improvements suggested. The specific objectives will be obtained by the following means:

- Reviewing the EU regulatory framework with regard to official and hygiene control of fish handling and production.
- Reviewing the Cameroon regulatory framework in regards to official hygiene control of fish handling and production.
- Conducting studies on the implementation of official control that fulfils the EU regulatory requirements with emphasis on freezing vessels.

## **2 EU LEGAL FRAMEWORK FOR FISH TRADE**

### **2.1 General legal framework on fish and fisheries products**

Within the last two decades, several food scares have plagued the European food sector giving consumers greater awareness as to the quality of food they consume. This pushed the European legislators to put forward a set of legislative acts and directives intended to protect consumers against possible risk of exposure to food borne diseases and hazards (Huss *et al.* 2004). These regulations now act not only as a measure to guarantee the safety of the consumer, but equally as a determinant for international trade in food products (Abila 2003). As a general rule, all food products imported into EU must meet the safety requirements of the EU. The main regulation governing food safety in the EU are contained in the following Acts:

- Regulation (EC) No. 178/2002 laying down the general principles and requirements of food law, establishing the European Food Safety Authority and procedures in matters of food safety, 28 January 2002 (referred to herein as Regulation 178/2002).
- Regulation (EC) No. 852/2004 on hygiene of foodstuffs, 29 April 2004 (referred to herein as Regulation 852/2004).
- Regulation (EC) No. 853/2004 on specific hygiene rules for food of animal origin, 29 April 2004 (referred to herein as Regulation 853/2004).
- Regulation (EC) No. 854/2004 on rules for the organisation of official controls on products of animal origin intended for human consumption, 29 April 2004 (referred to herein as Regulation 854/2004).

- Regulation (EC) No. 882/2004 on official controls performed to ensure the verification of compliance with feed and food law, animal health and animal welfare rules, 29 April 2004 (referred to herein as Regulation 882/2004).

In order to trade freely with the EU member states, a country needs to understand the basic principles behind these regulations.

## 2.2 The General Food Law

The main objective of the food law is to ensure high level of consumer protection, taking into account the protection of animal health and welfare, plant health and the environment with a view of achieving free movement of food within the community. The general food law is guided by three basic principles, which are the integrated approach, the preventive or precautionary approach and transparency.

The integrated approach "farm to fork" is now considered a general principle for the EU food safety policy. It introduces the concept of 'traceability' which means that food businesses, whether they are producers, processors or importers, must make sure that all foodstuffs, animal feed and feed ingredients can be traced right through the food chain, from farm to fork.

There is as yet no widely used system in place to give consumers total guarantee of protecting them against microbiological and chemical hazards that may be present in food. The general food law adopts a preventive approach that relies on science based risk analysis of food and establishes structures (European Food Safety Authority (EFSA)) and mechanisms (risk assessment, risk management and risk communication) for the identification of possible hazard and how they can be eliminated or reduced to an acceptable level. Where science based risk analysis cannot provide the necessary information on which risk management decision is to be based, other considerations are taken into account such as societal, economic, traditional, ethical and environmental factors, and the feasibility of controls.

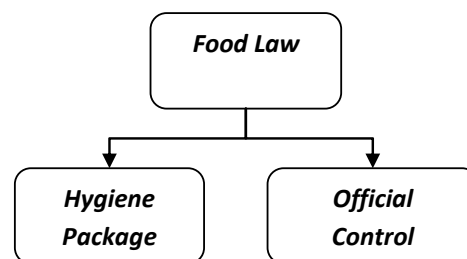
Food safety and consumer protection is gaining a wider range of audience among public institutions, non-governmental organisations, professional organisations and trade organisations. As such, it is legitimately necessary to ensure that the confidence of the consumer along with the trading partners be secured through the open and transparent development of the food law. Public authorities also need to take appropriate steps to inform the public where there are reasonable grounds to suspect that a food may present a risk to health.

Once the authorities of the exporting third country understand these principles of the food law, then they have to fulfil the basic hygiene requirements for food production, processing and distribution. The two main facets of the food law comprise the hygiene package and the official control (Figure 2).

## 2.3 The Hygiene Package

The hygiene package' (summarized in Figure 3) refers to a collection of legislation which aims to introduce consistency and clarity throughout the food production chain from 'farm to fork'. The basic requirements for production, processing and distribution of food and feed are contained in these Acts, which were adopted by the

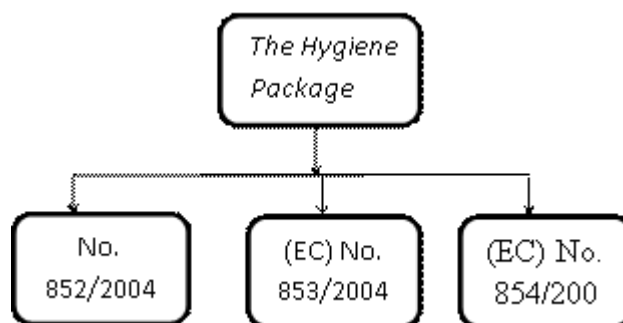
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**Figure 2: Structure of the EU Food and feed regulations.**

European Parliament in April 2004. They define the hygiene rules for foodstuffs produced in the EU and non-EU countries exporting to the EU. They include the following acts:

- Regulation (EC) No. 852/2004 on the hygiene of foodstuffs.
- Regulation (EC) No. 853/2004 laying down specific hygiene rules for food of animal origin in order to guarantee a high level of food safety and public health.
- Regulation (EC) No. 854/2004 putting in place a community framework of official controls on products of animal origin intended for human consumption.



**Figure 3: Components of the Hygiene Package.**

These regulations are however complemented by numerous supporting regulations.

With regard to public health, these rules and procedures contain common principles, particularly in relation to the manufacturers' and competent authorities' responsibilities, structural, operational and hygiene requirements for establishments, procedures for the approval of establishments, requirements for storage, transport and health marks.

The guarantee of food safety is the result of several interactions in which legislation should lay down minimum hygiene requirements, official controls should be organised to check the food business operators' compliance, and food business operators should establish and operate food safety programmes and procedures based on the HACCP principles.

### 2.3.1 The Legislation

The European Parliament has enacted three regulations on the basic hygiene requirements for the production, processing and distribution of food and feed together with measures to ensure that compliance is met. These include Regulations EC 852/2004, which lays down the general hygiene rules of foodstuffs and 853/2004, which lays down specific hygiene rule for food of animal origin. Under both regulations, it is the responsibility of the Food Business Operator to ensure food safety of the consumers.

Regulation 852/2004 replaced Directive 93/43/EEC on the hygiene of foodstuffs with a view to establishing a comprehensive and integrated policy covering all food from the farm to fork. This Regulation applies to food businesses, but not to the primary production of food for private domestic use or the domestic preparation of foodstuffs for private consumption. It covers issues related to compliance with hygiene requirements, food safety management procedures based on HACCP principles, approval of establishments, general requirements for all food business operators, and conditions for import and export of food.

Regulation 853/2004 lays down specific hygiene rules for food of animal origin and complements the requirements laid down in Regulation 852/2004, and also concerns Food Business Operators (FBOs) involved in the production, processing and distribution of products of animal origin. For the fisheries sector, it covers all areas of food hygiene going from the approval of establishments, hygiene in food processing, hygiene in food processing premises including freezing and factory vessels, cleaning and disinfection, quality of water used in fish processing and the temperature requirements.

### 2.3.2 *The Food Business Operator (FBO)*

Under the provisions of the hygiene package the FBO whether involved in primary production, processing or distribution, has the obligation to ensure safety of the consumers. They have to show responsibility by carrying out analysis for internal verification of parameters relevant to their processing, and check the performance of the hygiene control and HACCP programs. The official inspector then collects samples for analysis in order to establish official confirmation that the product is in compliance with the legislative requirements, and to verify that the documents provided by the producers as part of their own checks program are correct.

### 2.3.3 *The Competent Authority (CA)*

The CA designated by the member state or the third country is the central authority to which the competence is conferred, to conduct official controls. The competent authorities conduct official controls that covers all stages of production (fishing vessels, landing sites, cold stores, establishments, and laboratories) i.e. a “farm to fork” approach.

The legal bindings for official control by the CA are regulations 882/2004 and 854/2004. Regulation 882/2004 refers to official control carried out to verify compliance with the food law. This is the responsibility of the member states toward the Commission and to fulfil this, the country through the CA must have in place:

- A multi annual control plan.
- National control plan for heavy metals, contaminants and pesticide residues.
- National contingency plan.
- Risk based approach to food safety.
- Rapid Alert System for Food and Feeds.
- Accredited or certified laboratory for analysis.
- Monitoring and surveillance plan for aquaculture.
- Carry out controls according to procedures laid down by law.

Community controls in the member states allow the Commission control services to verify whether feed and food law, and the legislation on animal health and animal welfare are implemented in a uniform and correct way throughout the community.

On the other hand, regulation 854/2004 concerns official control on food of animal origin intended for human consumption and it is the responsibility of the FBO to comply with this by having:

- An approval.
- Good hygiene and manufacturing practices.
- HACCP plan.
- Documented operational procedures.

The Inspector from the CA is in charge of verifying if these basic requirements are met by the FBO.

The competent authorities approve establishments that comply with community regulations on hygiene of food while FBOs provide the CA with all the assistance needed in carrying out the control, notably access to premises and the presentation of documentation or records.

The official controls include audits of good hygiene practices and HACCP principles, as well as specific controls whose requirements are determined by sector (fresh meat, bivalve molluscs, fishery products, milk and dairy products).

In addition to these common control requirements, specific official controls on fishery products are carried out at the time of landing or before first sale at an auction or wholesale market. These controls include:

- Organoleptic surveillance testing.
- Total volatile basic nitrogen tests.
- Histamine testing.
- Surveillance testing for contaminants.
- Microbiological checks.
- Parasite screening tests.
- Checks for the possible presence of poisonous fish species or fish containing biotoxins.

Fishery products are declared unfit for human consumption if organoleptic, chemical or microbiological checks on such products reveal the presence of excessive quantities of substances dangerous to human health.

The CA needs to have the necessary staff, equipment and logistics necessary to carry out their work effectively and with a certain degree of financial autonomy. The inspectors working under the CA need to have scientific based knowledge to make their actions non-contestable. The professional competence is achieved by regular training in areas like national and community legislation on health, good hygiene and farming practices, HACCP principles, and relevant aspects such as epidemiology.

The EU organises training for the staff of national authorities and competent authorities from third countries in order to ensure greater uniformity of control procedures, methods, results and more effective control. This helps in improving food safety and animal and plant health, standardised control procedures creating a more equitable situation for the businesses subject to them and better food safety standards in third countries.

## **2.4 Official Control**

Fish inspection is concerned with ensuring that consumers gets access to safe and nutritious fish and fish products, whether they are produced locally, imported or prepared for the export market. Therefore, the quality objectives set out by legislation must be met with a view to establishing whether the fish are handled and processed in a safe and hygienic manner, whether they are safe to eat after undergoing further processing or whether they present danger of poisoning or injury as a result of their consumption. Under the EU law, the food or fish inspection activity is termed “Official Control” and is carried out without prior warning, using different methods that include surveillance, monitoring, audit, inspection, sampling and analysis. The conduct of official control is defined in EU under regulation EC 882/2004 on official controls performed to verify compliance with feed and food law, animal health and animal welfare.

Official control is an expensive task to carry out all year round and nationwide. The CA need the adequate financial resources in order to effectively manage the system and also fund the control operations. Such resources are provided by the government either through general taxation or by establishing fees and charges levied on the FBO in accordance with binding regulations.

Sampling for analysis is an important part of the inspection process, which is carried out in order to identify potential hazards in food, the degree of risk associated with it and the magnitude of the danger that these can pose to the health of the consumer. Samples are collected in accordance with provisions of the community rules and the analyses are carried out in certified or accredited laboratories. In order to establish credibility in a control system, a country needs to have the necessary facilities and human resources to carry sampling and analysis.

## **2.5 EU requirement for import**

The EU is the world's largest importer of fish, seafood and aquaculture products. Import rules for these products are harmonised, meaning that the same rules apply to all EU Member States. For non-EU countries, the European Commission is the negotiating partner that defines import conditions and certification requirements. Also, for most countries with existing trade, the Commission negotiates on behalf of all 27 Member States.

Imports of fishery products into the EU are subject to official certification based on recognition of the CA of the non-EU country by the European Commission. Public authorities with the necessary legal powers and resources must ensure credible inspection and control throughout the production chain, which covers all relevant aspects of hygiene, public health and, in the case of aquaculture products, also animal health. For all fishery products, countries of origin must be on a published list of eligible countries for the relevant product. Thus, the European Commission must first approve countries wishing to export aquaculture products to the EU. The countries must have a CA responsible for official controls throughout the production chain. The CA must be empowered, structured and resourced to implement effective inspection and guarantee credible public health and animal health attestations in the certificate to accompany fishery products destined for the EU.

In the case of aquaculture products, a control plan for heavy metals, contaminants, residues of pesticides and veterinary medicines must be in place to verify compliance with EU requirements. Approval of a country is dependent on its compliance with the veterinary residue monitoring requirements outlined in Directive 96/23/EC. The exporting country must submit a plan setting out the guarantees it can provide with regard to the monitoring for veterinary residues and other substances listed in Annex 1 of Directive 96/23/EC. The residue monitoring programme must be submitted by the CA of the exporting country to the European Commission for initial approval and must be resubmitted annually for evaluation and renewal. The aim of the evaluation is to assess whether the exporting country's regulatory systems for the control of contaminants, veterinary residues, the authorisation of veterinary medicinal products, and the control plan provide guarantees that are at least equivalent to those provided by EU legislation. Approval is based on the guarantees received on paper, but if a subsequent inspection in the exporting country, conducted by FVO to assess the implementation of residues and veterinary medicines controls, reveals that the paper guarantees cannot be relied upon, the status of the country could be revised. Key requirements of the guarantees are:

- A full description is given of the legislation governing the authorisation, distribution and use of veterinary medicines.
- A centrally co-ordinated residue monitoring plan is in place.
- The number of samples taken is in accordance with the sampling levels and frequencies laid down in Annex IV of Directive 96/22/EC.



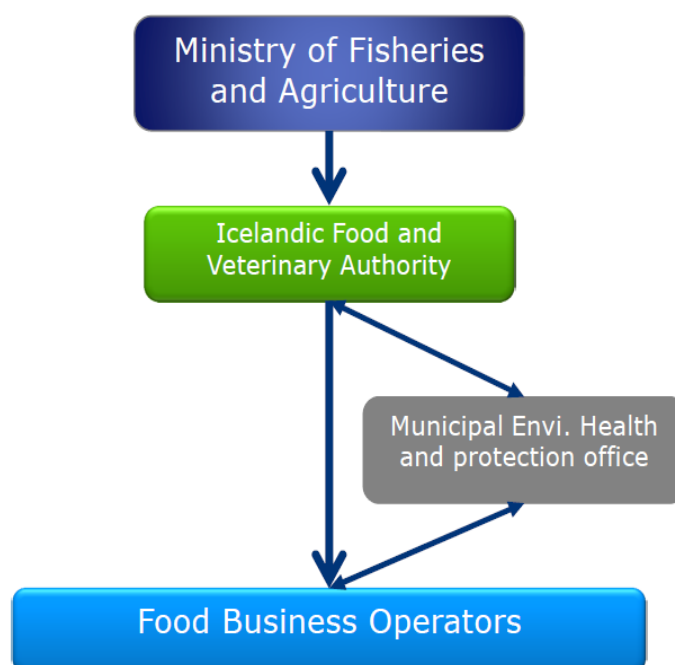
Inspections by the EC Food and Veterinary Office are carried out to confirm compliance with the requirements. The inspection forms the basis of establishing confidence between the EC and the CA of the exporting country

Imports of fishery products from non-EU countries must enter the EU via an approved Border Inspection Post (BIP) under the authority of an official veterinarian. Each consignment is subject to a systematic documentary check, an identity check and a physical check. The frequency of physical checks depends on the risk profile of the product and also on the results of previous checks. Consignments that are found not to be compliant with the EU requirements are either destroyed or returned within 60 days.

### 3 OFFICIAL CONTROL OF FISH AND FISHERY PRODUCTS IN ICELAND

Iceland is not a member of EU and not a third country as well, but is a member of the European Free Trade Association (EFTA) and trade with EU member states under the European Economic Area (EEA) agreement. This agreement allows Iceland, Norway and Liechtenstein to trade freely with EU member states under the condition that they have to translate EU regulations into national regulations.

Official control of food in Iceland is under the responsibility of the Ministry of Fisheries and Agriculture. The Icelandic Food and Veterinary Authority (MAST) with its 14 district offices is the designated CA for official controls of foodstuffs, including fishery products in Iceland. Controls at the retail level however, is the responsibility of the local competent authorities, which are municipal authorities that also carry out controls related to environmental issues and potable water within their municipalities. There are ten local competent authorities in Iceland (Figure 4).



**Figure 4: Organisational structure of inspection in Iceland (Gissurarson 2011).**

The Authority's functions in the fisheries sector include the hygiene inspection of fish processing facilities, the control of fish quality, the verification of compliance with binding regulations, the issuing of licences to fishing establishments and vessels, the surveillance of UNU-Fisheries Training Programme

fish processing and the co-ordination and control of local CA. It has its headquarters in Selfoss, about 60 Km from Reykjavik.

### **3.1 The Icelandic Food and Veterinary Authority**

The Icelandic Food and Veterinary authority was established in 2007 by Act No 167/2007, passed by the Icelandic Parliament and entered into operation from the 1 January 2008. Through this act, several authorities that were implicated with food inspection related activities were merged and the responsibility given to a single administrative and inspection body, which is MAST.

With the entry into force of the Act, the Icelandic Food and Veterinary Authority took over the tasks and duties of the Agricultural Authority of Iceland, the food safety and food control tasks, and duties of the Environmental and Food Agency of Iceland and the Icelandic Directorate of Fisheries. The main tasks of MAST include:

- Food safety, control of primary production of animal products, including fish products and import and export control of all foodstuffs.
- Supervision of the domestic food control by municipal authorities even though they do not have full authority over them.
- Veterinary services.
- Plant protection services.
- Feed, seed and fertilizer services.
- Meat classification services.
- Administration of organic production of agricultural products.
- Management, monitoring of supplies and surveillance of animal welfare.

The main work of inspection and administrative work regarding fisheries products is carried out within the Division of Food Safety and Consumer Affairs of MAST (Figure 5). There are three senior officers with university degrees in food science and engineering working in this division on control of fish and fishery products. In addition, MAST employs two fish inspectors while a number of specialists with university degrees in food science are involved in various specific fields such as labelling, additives, contaminants, food contact materials etc. (EFTA Surveillance Authority, 2010)

### **3.2 Official control system set up, implementation and control.**

Official control in Iceland is in accordance with binding EU regulations. MAST carry out official control on food products based on a farm to fork approach, on the risk analysis, risk management and risk communication, and has a national contingency plan that defines actions to be taken in case things go wrong.

Food safety is about minimising risk. The importance of having a risk based system in place is that it improves the efficiency of resource allocation allowing them to be focussed in areas where they can have a major effect on food safety and public health. Official control based on risk analysis is still a major challenge that the Icelandic Food and Veterinary Authority has to deal with. Risk analysis involves three components, which include risk assessment, risk management, and risk communication.

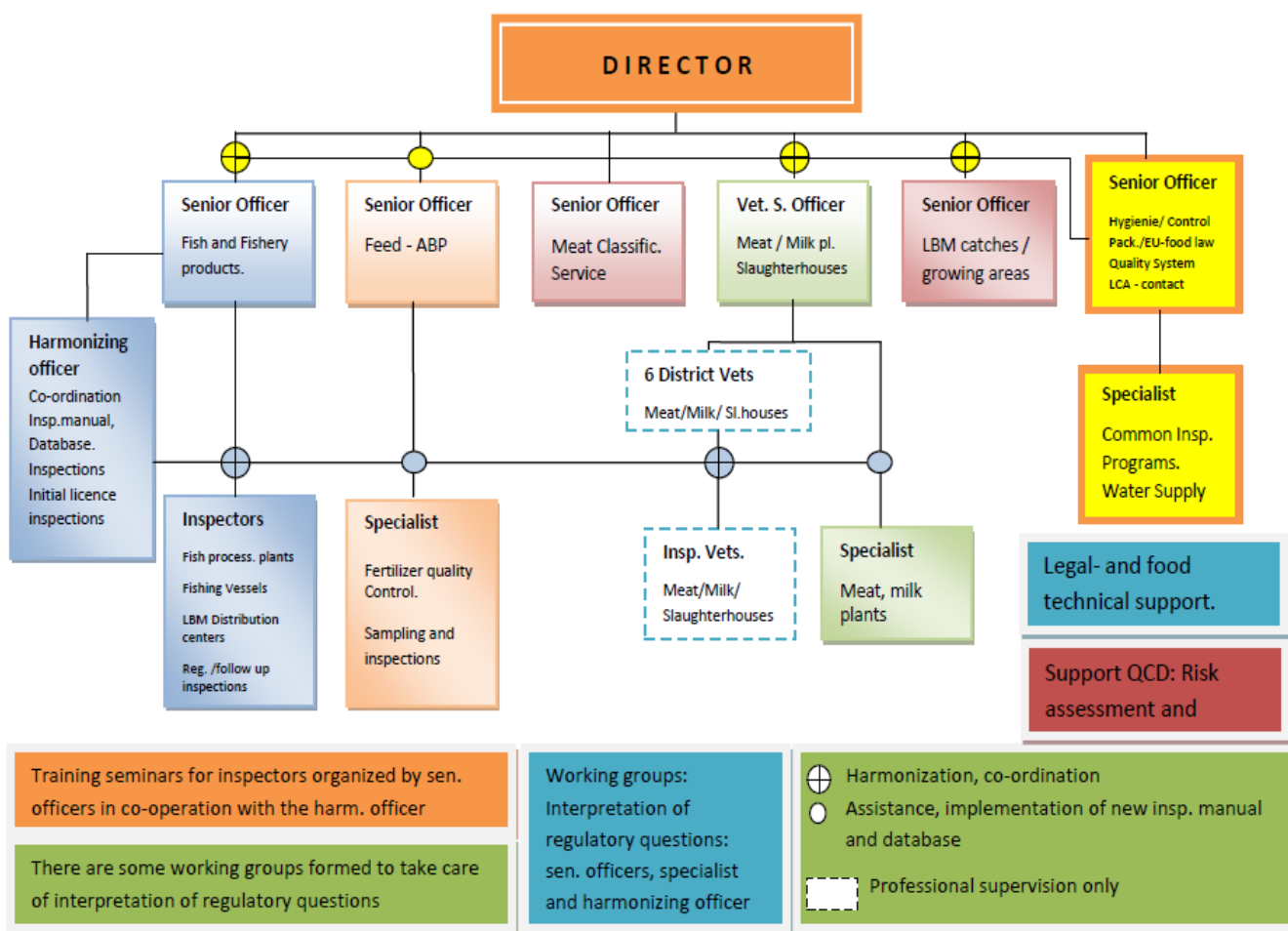
Risk assessment is a science-based approach that is aimed at establishing a numerical estimate of the occurrence of a particular illness from a food. Under the Icelandic law, the

Minister of Fisheries and Agriculture is to appoint a scientific committee to deal with risk assessment in the food industry.

Despite the limitations posed by risk assessment, risk management is receiving more attention. There are some risk management tools that are put in place as part of mitigating measures to prevent the occurrence of risk or to minimise their occurrence to an acceptable level. Such measures include traceability, the Rapid Alert System for Food and Feeds (RASFF) and national contingency plan.

Risk management in MAST is placed under the Division of Food Safety and Consumer Affairs. Traceability is gradually being enforced in the Icelandic food industry even though the pace is slow probably due to the huge financial implications involved in building the system. However, many big companies in the food industry have succeeded in putting in place good traceability systems, which makes it possible to withdraw or recall unsafe food.

The globalisation of food trade has made it possible for food hazard to appear in one area while control measures to be implemented in other areas. This has caused the EU to introduce the RASFF. This system is intended to provide a means of communicating concerning hazards in food to allow for appropriate actions to be taken. Under its risk management system, MAST has an RASFF, which investigates notifications on Food and Feed and takes actions in line with the requirements of the EU regulations.



**Figure 5: Structure of the Division of Food Safety and Consumer Affairs of MAST (Sverrisson 2012).**

Unlike other EU countries, the question of transparency is still a challenge in Iceland. MAST has a website on which it posts all relevant information concerning food safety, but this system is constantly being upgraded to meet the challenges of ensuring an efficient means of disseminating information to the consumers.

### **3.3 Auditing fisheries establishments and vessels**

Official control in Iceland is the sole responsibility of MAST. MAST has about 54 staff members with a body of inspectors distributed all over the country. In order to harmonise the inspection process, MAST has an inspection manual that is used by each inspector. The procedure includes direct filling of the inspection manual by the inspector into the database in his computer.

Inspection is carried out in two phases. First, a documentary check is conducted to verify if the establishment is operating according to procedures described in the quality manual, then a physical inspection is carried out to verify if the documented information is correct.

There are a total of 82 inspection items covering general issues such as the name of the establishment, its approval licence, and documentary check to verify if the establishment's own quality manual is being followed. Compliance with each item in the inspection manual should be justified by relevant documentation. Each process that is done without any documentation is given a negative remark.

To ensure a harmonised, unbiased and impartial inspection, MAST has set up a system that centralises the performance of each individual inspector. The system is evaluated at least once each year for all the inspection items, the total number of inspections carried out, and the total number of inspectors. The results show the differences in the performances of the individual inspectors. When an inspector registers a high deviation on certain items from the rest, it calls for two assumptions, either that inspector is doing the right thing or the rest are not doing the right thing. This may then lead to the decision of organising training sessions for certain inspectors in order to reduce the gap in inspection errors.

### **3.4 Laboratory Analysis**

For laboratory analysis, MAST work with the Icelandic Food and Biotech R&D Institute (MATÍS) and several accredited laboratories to carry out analysis of samples collected from inspection procedures. A health certificate does not accompany products that are intended for the EU market as they operate under the European Economic Area (EEA) agreement, which is an agreement between the member states of the European Free Trade Association (EFTA) and the European Union. This agreement specifically allows Iceland, Liechtenstein and Norway to participate in the EU's internal market without a conventional EU membership.

A health certificate is issued by MAST for export of fish and fish products destined for non-EU markets of Africa, Russia, America and Asia. Border inspection posts in Iceland are many and include airports and seaports.

### **3.5 Approval of establishments**

Food Business Organizations are responsible for food safety and have to fulfil the requirements of safety by putting in place a prerequisite program that is based on HACCP procedures, and validate the HACCP plan for the operational procedures of their establishment based on hazard analysis. By this way, they prove to be responsible. And the

level of responsibility an establishment demonstrates determines the frequency of inspection in that establishment.

Approval of fisheries establishments is done based on the application forwarded by the establishment to MAST. MAST carries out an on-site visit to inspect the facilities and evaluate the own check systems and compliance with the requirements in the relevant legislation. The establishment is granted provisional approval if minor corrective actions are identified. A definite approval is granted only when full compliance is met and the food business operator also complies with other relevant legislation such as environmental requirements. If serious aspects of non-conformity are identified, then the application is simply rejected. The approval is done by a coding system that includes numbers to identify the type of fishery products manufactured. An approval may be suspended or withdrawn through a notification from an inspection body of serious non-compliances, a notification from an inspector of MAST, or a notice from the establishment itself.

Inspection is carried out by the use of an approved inspection manual. The performance of the company with regard to food safety is noted on the basis of the overall score it gets, which is calculated based on the sum of the deficiencies (minor, major, serious or critical deficiencies). The overall score the establishment gets determines its level of responsibility and the frequency of inspection. An establishment presenting higher risk will have a higher frequency of inspection.

### **3.6 Audit by the European Surveillance Authorities**

As earlier discussed, Iceland being an EFTA country, trades with EU under the EEA Agreement, which requires that countries under this agreement adopt EU legislation as part of their national legislation in the areas of social policy, consumer protection, environment, company law and statistics. The EFTA Surveillance Authority and the EFTA COURT regulate the activities of the EEA, which parallel the work of the EU's European Commission and European Court of Justice. It is EFTA surveillance Authority (ESA) that carries out audit missions to member states of the Agreement in the areas of food safety and official control on behalf of the FVO.

For the fisheries sector, Iceland has received the EFTA Surveillance Authority mission in 2008 and 2011. The purpose of these missions was to verify the compliance of the Icelandic fisheries with the EU legislation. The specific areas covered during the audit mission were:

- The organisation and responsibility of the CA.
- Audits carried out by the CA on fisheries establishments.
- Staff performing the official control.
- Control and verification procedures.
- Rapid Alert System for Food and Feeds.
- Approval of establishments.
- Primary production in aquaculture farms (EFTA Surveillance Authority, 2010).
- Official control related to FBO's compliance with general and specific rules on hygiene of fisheries products and the implementation of these rules to FBOs.

## **4 OFFICIAL CONTROL OF FISH AND FISHERY PRODUCTS IN CAMEROON**

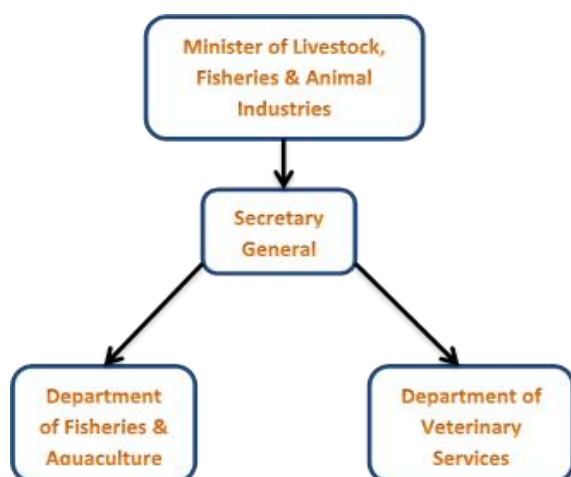
In Cameroon, several administrations are involved in the control of foodstuff. These include the Ministry of Livestock, Fisheries and Animal Industries (MINEPIA), the Ministry of

Agriculture and Rural Development (MINADER), the Ministry of Public health (MINSANT), and the Ministry of Commerce (MINCOMMERCE).

The MINEPIA is the competent authority for the quality control of food and feed of animal origin. To fulfil its mission, MINEPIA has the Department of Fisheries and Aquaculture, the Department of Veterinary Services, and the Department of Development of Productions and Animal Industries, in accordance with Decree N°2005/152 of 4<sup>th</sup> of May 2005, laying down its organisational structure.

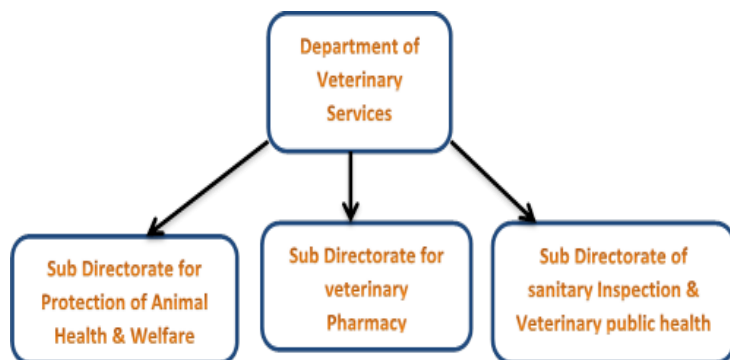
#### 4.1 Organisational structure

The Minister of MINEPIA is in charge of the elaboration, the execution and the evaluation of all government policies in matters of livestock production, fisheries, and animal industries. He is assisted by a secretary general and four heads of Departments (Department of General Affairs, Department of Development of Productions and Animal Industries, Department of Fisheries and Aquaculture, and Department of Veterinary Services). Only the Departments of Fisheries and Aquaculture, and Veterinary Services are implicated in official control as shown in Figure 6.



**Figure 6: The organisational structure of MINEPIA with services in charge of food safety.**

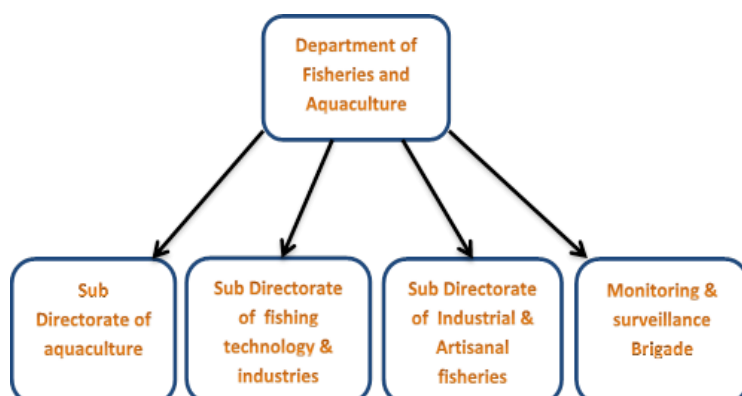
At the central level, the Department of Fisheries and Aquaculture, and the Department of Veterinary Services assure food safety, as shown in Figures 7 & 8 In line with the attributes laid down in the organogram, the Department of Veterinary Services is in charge of the protection of animal health and welfare and the protection of the health of consumers. To carry out this function, the director of veterinary services is assisted by three sub directors. A chief of service assists each sub director. The chief of service for sanitary inspection and zoonosis and the chief of service for veterinary public health and consumer protection are both responsible for veterinary food safety.



**Figure 7: Organisation of the Department of Veterinary Service in Cameroon.**

The Department of Veterinary Services is represented at the regional level by the regional service for sanitary inspection and veterinary public health.

The Department of Fisheries and Aquaculture is responsible for implementing all government policies for fisheries and aquaculture. Four sub directors and nine chief of services assist the director. The department is responsible for the issuance of licences to fishing vessels, the certification and the approval of fisheries establishments and the setting of standards for fishing establishments, among others things. Beside the central administrations, are ten regional delegations, which correspond to the ten administrative regions of the country.



**Figure 8: Organisational structure of the Department of Fisheries and Aquaculture.**

The chief of centres for veterinary and sanitary control monitor fish quality at regional level while the chief of centres for fisheries and aquaculture control the verification of compliance with the fisheries regime law. For fisheries products destined for the export market, the Office for the Control of Fisheries Products, which was established within the Regional Delegation of Littoral in Douala in the year 2000, does the inspection. This office is the designated Competent Authority for the control of fish product intended for the export market in Cameroon. Sworn personnel of the department of veterinary services, and the department fisheries and aquaculture carry out all other domestic inspections with their representations at regional level. Currently, there is no multi annual inspection plan put in place and there is no standard inspection manual used by the inspectors. Furthermore, there is no effective coordination of the inspection teams and the central administration.

Fishing vessels intending to fish in Cameroon waters for the first time need to be inspected at the port of origin prior to its entry into Cameroon. This inspection is jointly done by the competent officials of MINEPIA and the Division of Maritime Transport, and is intended to check compliance to binding regulations in terms of gross registered tonnage and its Illegal, UNU-Fisheries Training Programme

Unregulated and Undeclared (IUU) status. Inspection of fishing vessels is done at every landing and this includes checking the vessel log book to verify the number of fishing days, the fishing grounds, the owner of the vessel, and the labelling and expiry dates of the products. This is followed by organoleptic evaluation of samples and if freshness is not ascertained, then laboratory analysis is done at the certified laboratory.

## 4.2 Legal framework

The hygiene and official control of foods of animal origin are governed by sets of legislative and regulatory acts (summarized in Figure 9). These include, among others:

- Law N° 2000/017 of 19 December 2000 laying down the regulation of veterinary inspection.
- Law N° 006 of 16 April 2001 laying down the nomenclature and sanitary regulation of legally contagious animal diseases for which declaration is mandatory.
- Law N° 94/01 of 20 January 1994 laying down the forestry, wildlife and fisheries regime (herein referred to as law No.94/01).

*Law N° 2000/017 of 19 December 2000.*

This law lays down the regulatory measures for veterinary inspection for products of animal origin and proposes measures to be taken when things go wrong.

*Law N° 006 of 16 April 2001*

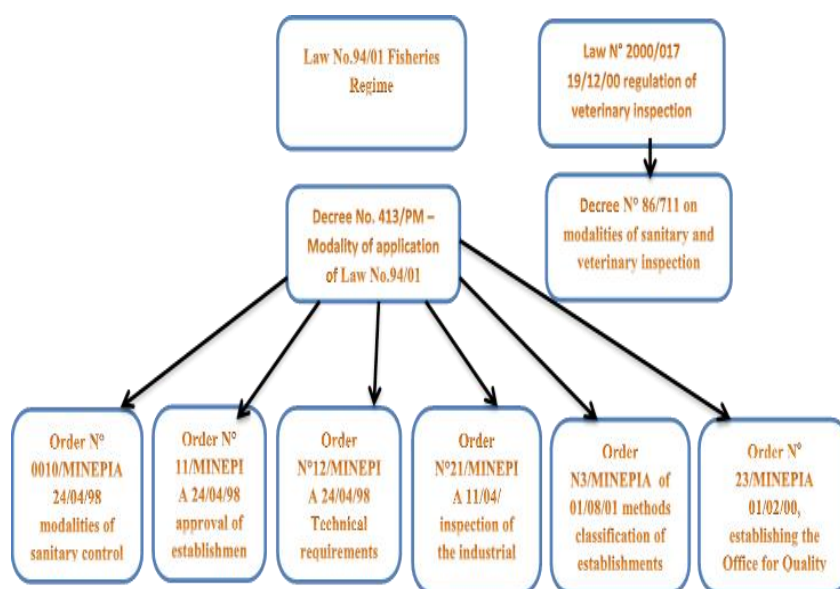
This law lays down the nomenclature and sanitary regulation of legally contagious animal diseases for which declaration is mandatory. It establishes a non-exhaustive list of pathogens known to cause diseases in farm and domestic animals.

*Law N°94/01 of 20 January 1994*

This law lays down the forestry, wildlife and fisheries regime. The fishery sector is an extract from the law that deals with fisheries and aquaculture. The law covers all aspects of fisheries from resource conservation and management through environmental protection and finally quality management. It also provides sanctions and penalties for defaulters. Decree N° 95/413/PM provides implementing measures on how the fisheries regime is to be applied. The law is supplemented by implementing regulatory acts, ministerial orders and decisions.

*Decree N°95/413/PM of June 20, 1995*

This decree by the Prime Minister lays down certain implementing measures of the fisheries regime. It establishes among others, the conditions for the obtainment of fishing licences, fishing permit for the artisanal sector, approval of fisheries establishments, and import and export licences.



**Figure 9: Architecture of the fisheries law and supporting regulations in Cameroon.**



*Decree N°2002//PM of January 2002*

The scope of this decree specifies the requirement for handling, packaging and transporting of fish and fish products within Cameroon. It gives specific conditions on the handling of fresh and frozen products and the transport condition for such products.

*Order N°0010/MINEPIA of April 24, 1998.*

This order lays down the modalities of sanitary control and monitoring of the conditions of production of fish and fishery products by providing specific guidelines for the quality control of fish intended for human consumption with particular emphasis on:

- Control of the fishing vessels.
- Control of conditions of loading and unloading.
- Regular control of the establishments to verify that approval conditions are respected, fisheries products are handled in a hygienic manner, the sanitation of the premises and equipment as well as staff hygiene are well respected, and identification of the products is correctly carried out.
- Control of the markets.
- Control of conditions of storage and transportation.
- Export and importation control.

*Order N°0011/MINEPIA of April 24, 1998.*

The order lays down specific conditions for approval of establishment intended to export fisheries products and also specific rules for the layout of such establishments. It also gives guideline on the building layout by emphasising that the buildings must present a clear separation between the clean sector and the soiled sector and to have sufficient space necessary to carryout activities under suitable hygiene conditions. It also specifies the hygiene requirements for staff and equipment.

*Order N°0012/MINEPIA of April 24, 1998*

This order establishes the technical requirements applicable to the fishing vessels with provisions applicable to factories and freezing vessels. It establishes the methods for installation of equipment likewise the handling and storage of the products on board.

The above three ministerial orders were passed in order to fulfil the requirements of the directive 91/493/EEC and 92/48/EEC on the health condition and placing on the market of fisheries products and the minimum hygiene requirement for fisheries products obtained on board fishing vessels respectively, and which corresponds to the hygiene package of the new EU regulation.

*Order No 23/MINEPIA of the 1<sup>st</sup> of February 2000*

This ministerial order establishes the Office for the Quality Control of Fisheries Products in the Littoral Regional Delegation, which is the designated CA.

*Order N°003/MINEPIA of August 1, 2001*

The scope of this order lays down the methods of classifying fisheries establishments into category "A" and "B" for industrial and artisanal establishments respectively. It also gives conditions for the exploitation of the ornamental species.

*Order N°0021/MINEPIA of April 11, 2002*

The order lays down the modalities of inspection of the industrial fishing vessels and the conditions for the recruitment of scientific observers to monitor fishing activities. It also provides for sanction and penalties for non-compliances.

*Decision N°98 /MINEPIA of 13th November 2003*

The aim of this order is to fix the maximum level of certain contaminants and heavy metals like lead, cadmium and mercury in shrimps.

*Decision N°99/MINEPIA of 13th November 2003*

This order fixes the maximum level of sulphur that should be found in the comestible parts of crustaceans after treatment with sulphur containing compounds.

*Decision N°100/MINEPIA of 13th November 2003*

This order is intended to define the quality criteria for water used for the handling, processing and preservation of fisheries and aquaculture products intended for human consumption.

### **4.3 Institutional arrangement of inspection and sanitary control in Cameroon**

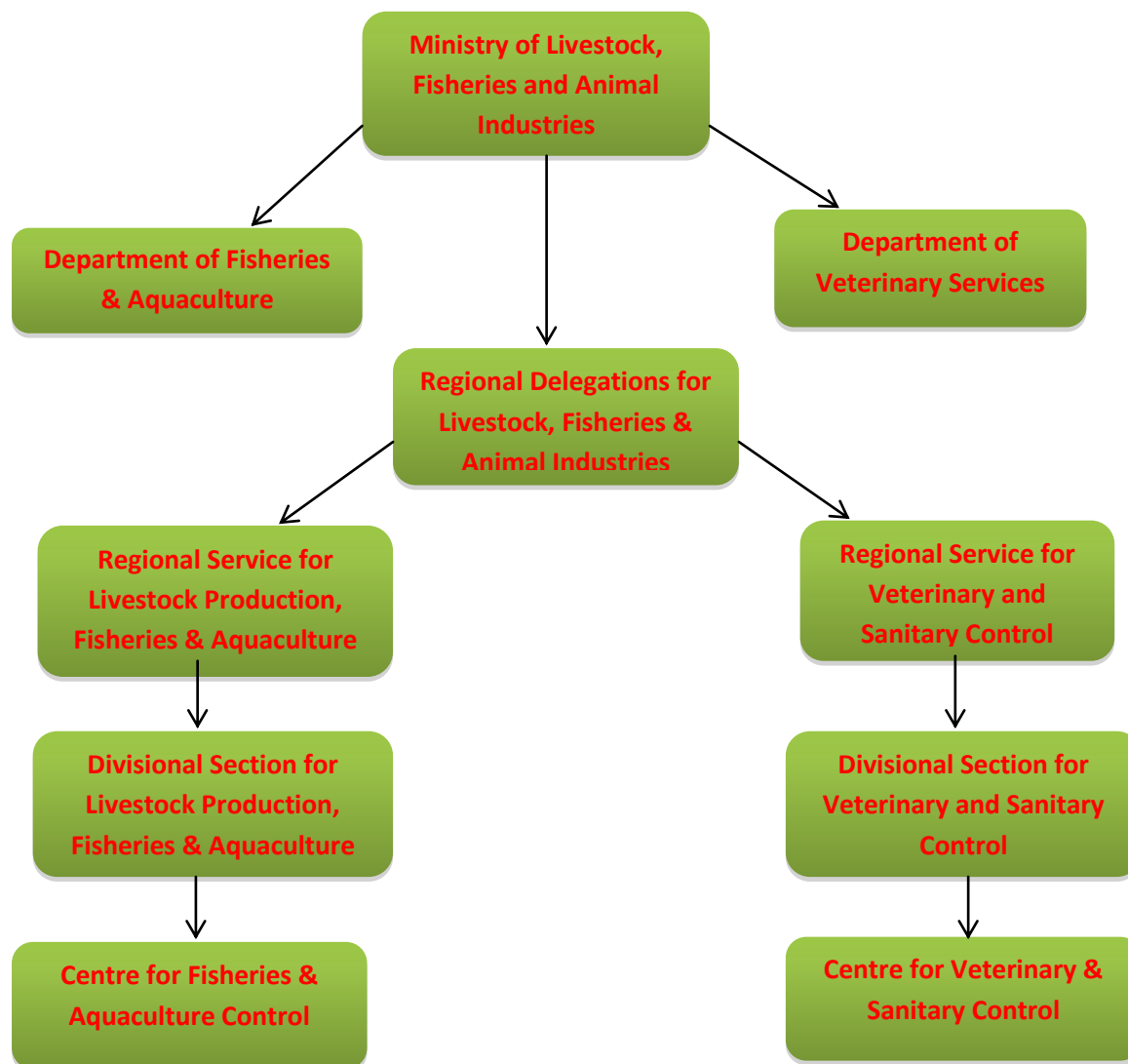
Within the structure shown in Figure 10, only the Littoral regional delegation is involved in the quality control with the creation of the Office for Quality Control of Fisheries Products intended for export.

### **4.4 Set up, implementation and control of the control system.**

Three ministerial Orders, No. 10, 11, and 12/MINEPIA of 24th of April 1998 laying down the modalities for the sanitary control and monitoring of conditions of production of fisheries products regulate inspection of fish and fish products in Cameroon.

Inspection of fish and fish products are carried out at several levels. Import and export controls are carried out by the Office for Quality Control of Fishery Products. The chiefs of centres for fisheries and aquaculture control fish landings from the artisanal and inland fisheries while control at retail level is done by the chief of centres for veterinary and sanitary control (Figure 5). The control of transport and storage facilities and control of fish markets are done by the chiefs of centre for veterinary and sanitary control and the chiefs of centre for fisheries and aquaculture. There are about 750 chiefs of centre for veterinary and sanitary control and about 88 chief of centres for fisheries and aquaculture distributed all over the country. The chief of centres for fisheries and aquaculture are posted to areas in which fishing activities are predominant while chief of centres for veterinary and sanitary inspection has a wider coverage as they inspect meat and other livestock products.

The control and monitoring system in Cameroon involves the control of fishing vessels, the control of loading and unloading conditions, and the regular control of fishing establishments in order to ensure compliance with approval conditions, sanitary and hygienic condition in fish handling and processing, hygienic conditions of premises, equipment and staff and proper identification of products. There is also control of transport and storage facilities, control of fish markets, and import and export control.



**Figure 10: Institutional framework for inspection and sanitary control in Cameroon.**

#### 4.5 The Competent Authority in Cameroon

The Office for the Quality Control of Fisheries Products, which is the designated CA, is responsible for carrying out official control for fish and fish products for export and imports. Its main duties are:

- Collection and testing of samples for laboratory analysis, through the services of certified public and private laboratories.
- Issuance of health certificates for fish destined for the export market.
- Technical inspection of new establishments and factory ships requesting approval for export.
- Training and sensitizing personnel in charge with fish quality on general hygiene principles applicable in fish industry.
- Introduction of the HACCP concept in the fish industry.
- The certification and control of fish products intended for the EU market.

The office is placed under the responsibility of a veterinary officer who is the office head with two inspectors who are veterinary nurses and placed under the authority of the Littoral Regional Delegate.

#### 4.5.1 *Official control*

The staff members of the CA carry out official control. This includes the control of certified vessels authorised to export to EU. It consists of the control of the fishing vessels, control of conditions of loading and unloading, regular control of the establishments to verify if:

- Approval conditions are respected.
- Fisheries products are handled in a hygienic manner.
- Sanitation of the premises and equipment as well as staff hygiene is well respected and identification of the products is correctly carried out.

However, the CA needs to have adequate qualified personnel and resources to carry out its assigned duties and improve the record keeping and documentation of inspections carried out in fisheries establishments and vessels.

#### 4.5.2 *National Contingency plan*

There is yet no contingency plan put in place for actions to be taken in case of emergencies.

#### 4.5.3 *Certification of fishing vessels*

Approval of fishing vessels is the responsibility of the Department of Fisheries and Aquaculture. Once an establishment or vessel is approved, the CA has the responsibility of certifying vessels that are authorised for export of products to the EU. This is done after inspection of the vessels to verify their conformity with EU regulations in terms of their on board hygiene management based on GMP, GHP and HACCP. Also, their own checks on the performance of their quality system is verified. The list of certified vessels are sent to the FVO with modifications. Over the years, there has been some incoherence in updating the list of authorised establishments, which caused discordance at the level of the FVO and this was noted during the audit mission (DG SANCO 2000).

#### 4.5.4 *Sampling and analysis*

Control of fish and fish products involves sampling, inspection and auditing. Before fish is placed on the market or exported, it has to be declared fit for human consumption. The procedure involves carrying out a documentary check of the establishment to verify the approval of the establishment, the establishment record, own check plan, and the product control. On-site inspection is also carried out to verify the hygiene condition of personnel, surfaces in contact with fish, production premises and facilities, the processing method used, and a sensory evaluation of a sample of the products to detect the presence of any visible parasites and fish freshness (Order N°0021/MINEPIA laying down the modalities of inspection of the industrial fishing vessels).

Where the product presents any doubt in quality, samples are collected from a batch and analysed using biological and chemical testing in a certified or accredited laboratory. Presently, there are two certified laboratories for analysis of food samples, which are the Centre Pasteur du Cameroun in Yaoundé and HYDRAC in Douala. Centre Pasteur du Cameroun carries out microbiological analysis of food samples while HYDRAC is the national HYDROCARBON laboratory that conducts analysis on petroleum products. In addition, they also conduct analysis on water quality, pesticides and contaminants. The CA also makes use of private laboratories to carry out certain specific tests. The Ministry of Livestock, Fisheries and Animal Industries has constructed a laboratory for quality analysis of food of animal origin in Douala that will henceforth carry out quality analysis of fish and fish products.

#### 4.5.5 *Issuance of Health Certificate*

The CA is responsible for the issuance of health certificates for all products that are to be exported from Cameroon. The standardised model of the certificate, which is in conformity with the requirements of decision 95/328/EEC, is used.

#### 4.5.6 *Monitoring and surveillance plan for veterinary drugs, pesticides and residues*

There is no monitoring and surveillance plan for the control of contaminants present in aquatic environment (heavy metals, trace elements and hydrocarbons). Also there is no microbiological and chemical evaluation for water used in fishing vessels for cleaning the products before freezing and packaging.

#### 4.5.7 *Traceability*

There is no traceability in place by the fishing vessels that allows the products to be traced to their origin. The approval delivered by the Minister carries the registration number of the approval, without mentioning the vessel number. This makes it difficult to identify the vessels from which fish are produced, processed and exported. More so the system of packaging and labelling does not allow products to be traced back to their origin.

#### 4.5.8 *Auditing by FVO*

Products imported from third countries into EU need to get approval from the Commission that such products are produced under condition somehow equivalent to those set by EU regulations. This is usually achieved by the Food and Veterinary Office (FVO) of DG Health and Consumer Protection of the European Commission carrying out an audit mission in the third country concerned in order to assess the health conditions taking into account the:

- Legislation of Cameroon (including powers and sanctions).
- Organisation of the competent authorities.
- Resources, including diagnosis facilities available to competent authorities.
- Existence and operation of documented control procedures.
- Extent and operation of official controls on imports of animals and products of animal origin.
- Assurances that Cameroon can give regarding equivalence to community requirements.
- Hygiene conditions of production, manufacture, handling, storage, and dispatch.
- Performance of the traceability system.
- Existence, implementation and communication of an approved residue control programme.

The FVO visit to Cameroon in the year 2000 and 2003 and its remarks on compliance to the items has been discussed in the earlier chapter.

### **4.6 Approval of Establishments**

Any establishment wishing to start a fish business operation in Cameroon, whether national or non-national, needs to get an approval from the minister in charge of fisheries. The procedures for the approval of various establishments are laid down in Law N° 94/01 of 20 January 1994 laying down the forestry, wildlife and fisheries regime. Decree N° 95/413/PM of June 20, 1995 lays down certain modalities for the application of the fisheries regime. This decree establishes the conditions for the obtainment of approval for fishing vessel, freezing

vessels, factory vessels, fishery establishment, and import and export licences, among other things.

#### 4.6.1 *Fishing Agreement*

Any person or company desiring to carry out industrial fishing activities in Cameroon waters must obtain an Agreement signed by the Prime Minister. The application for the agreement is deposited at the ministry in charge of fisheries before purchasing or order for construction of vessels. The constitution of the application file and the condition are specific for nationals and expatriates, but both cases require that applicant show adequate proof of financial support and the justification of the profession (Decree N°95/413/PM on implementing measures of the fisheries regime).

#### 4.6.2 *Fishing licences*

The practice of industrial fishing activity is subject to the obtainment of a fishing licence that is issued by the Minister in charge of fisheries. The condition for the issuance of this licence are described in chapter 2 section 2 of the same decree and entails that the beneficiary needs to have a ground establishment where to land the totality of his catches before any eventual export and must also accept official inspectors on board at his cost.

#### 4.6.3 *Fisheries Establishments*

The approval for creating of fisheries establishment is obtained from the minister in charge of fisheries after submission of an application that includes the description of the location of the establishment, the layout of the establishment, the health certificates of the staff of the establishment, and the nature of the business intended.

The procedure involves conducting a technical inspection of the premises to verify its conformity to existing regulations and ensuring the payment of the approval and inspection taxes. When the approval for creation is granted, then a certificate of conformity is issued by the Regional Delegation of the locality of the establishment after due inspection of the facilities and the health status of the personnel. This allows the beneficiary to apply for approval to open the establishment to the public (Decree N°95/413/PM). The approval for creation and opening are issued once, but the certificate of conformity is renewed annually after inspection of the premises by chief of centres for sanitary and veterinary control and chief of centres for fisheries and aquaculture.

## 5 DISCUSSION

Food safety is a science base activity that calls for the competence of multiple stakeholders, which include the food scientist, the policy makers, the food inspector, the food business operator and the consumer. In order to have an efficient food control system, these different stakeholders have to interact in order to guarantee the efficiency of the system and instil confidence in the consumer.

A summary of comparisons between the Iceland and the Cameroon system is delineated in Table 4. Iceland has a system where all these stakeholders interact to produce the expected result, which provides safety assurance for the consumers. The Cameroon system is somehow different in that the multitude of stakeholders are either absent or their level of intervention is mildly felt due to poor resource allocation necessary to keep the system moving.

This study reveals that the regulatory framework in Cameroon is made up of a series of laws, decrees, orders and decisions that establishes the legal basis of official control and sanitary certification of fish and fish products. This regulatory framework has been updated through the years to meet the requirements of Directive 91/493/EEC laying down the health condition and placing on the market of fishery products, and Directive 92/48/EEC laying down minimum hygiene requirements applicable to fisheries products obtained on board fishing vessels. Also the regulations are completed by three regulations on the level of contaminants in fish and fish products, the quality criteria for water used in fish processing, and the maximum level of sulphite present in crustaceans.

Since the period of the EU suspension on import of Cameroon fish products into the European market, these regulations have not been updated in Cameroon to comply with the new food law and the hygiene package of the European Union. Inspection is not just about regulations; it is the implementation of those regulations to ensure compliance by the various stakeholders. The institutional arrangement in Cameroon, in terms of official control is a bit too bureaucratic. The CA is appointed by the minister as part of the normal personnel of the ministry, but is placed under the authority, and reports to the Regional Delegate for Littoral in Douala. There are other fishing ports from where fish are landed and exported. The competent authority does not have the competence to inspect these vessels owing to territorial delimitation of zone of influence. This situation limits the action of the competent authority to just one region out of the three regions where industrial fishing activity is carried out.

There is also duplicity of function at the central level, which the legislation has to correct in order to make the control system more accountable. This concerns the fact that the approval of establishments and the renewal of approval are jointly done by the Department of Fisheries and Aquaculture and the Department of Veterinary Services. The same goes for the control operations where the chiefs of centres of fisheries and aquaculture have to carry out similar inspection functions with chief of centres for veterinary and sanitary control. This dichotomy in inspection function reflects the quality of the end results.

From experience observed on the Icelandic control system, official control takes two forms. There is the routine inspection of fish quality at each landing site before first sale at the auction market, and there is auditing of fisheries establishments to verify compliance with the production procedures set forth in the establishment quality manual to check fulfilment of the law requirements. Both procedures are properly documented and errors can be traced back to the producer.

In Cameroon, the situation is quite similar, with routine inspection being carried out at each landing to verify the approval conditions of the vessel and control of the logbook. Organoleptic evaluation is then carried out on samples collected from the batch before sale. Annual auditing is done at the end of the year prior to renewal of licences. Both procedures are either poorly documented or not documented at all. This makes the validation procedure to be based on verbal declarations of the business operator rather than on strict documentary checks based on the inspection manual, as is the case in Iceland.

The HACCP concept plays a key role in the auditing process. So all establishments must have an approved HACCP system design based on the risk assessment of the establishment, which should then be properly implemented. In Iceland, all the establishment have a HACCP plan as part of their of their quality system. This makes the work of the inspector reduced to verifying whether the processes in the plan actually reduces or minimise risk to an acceptable level. In Cameroon, it is the responsibility of the competent authority to introduce the HACCP concept in fisheries establishments. So far, this has not been done even though EU

has assisted in offering training session for the industrial vessel owners on the HACCP concept.

The findings of this study also indicates that the MINEPIA is well endowed with adequate personnel necessary to carry out inspection of artisanal landings, which are intended for domestic consumption. Numerous constraints limit the scope of action of such controls among which we can mention poor accessibility to the fishing zones and lack of adequate infrastructure, equipment and training.

Unlike the EU that has adopted a composite food law, the regulatory framework in Cameroon are still sector specific. In the food sector in general, there are regulations for food of animal and non-animal origin. Food of animal origin is regulated by MINEPIA while those of non-animal origin are regulated by MINADER. For control of food of animal origin, there are different departments that cover specific sectors such as the livestock and fishery sectors. The fisheries sector has an independent set of laws that gives it autonomy in the management of matters related to fisheries and aquaculture. Thanks to the watchful eyes of the EU on the export fishery products from Cameroon, the legislative acts in fisheries have been constantly updated to meet specific demands by these countries. Compared to other sectors where the legislative set up are incomplete and sometimes lacking implementation measures, the fisheries sector is among the administrations that has a complete set of laws and implementation measures for the management of inspection and official control of fish and fish products. It equally has the personnel needed to carry out the control nationwide.

The Department of Veterinary Service is involved with the sanitary and veterinary control of products of livestock and fisheries origin. At the same time, in the fisheries law, the Department of Fisheries has the mandate to carry out control for the verification that fisheries establishments comply with the binding regulations.

This mix up in the administrative set up involved in the quality control of products of animal origin results in the clash of competence observed in the implementation of control actions and this reflects in the quality of the expected results.



**Table 4: Comparison between Iceland and Cameroon**

Item	Iceland	Cameroon
Institution	Member EEA-EFTA agreement.	Third country.
	One central ministry in charge of food control.	Four ministries in charge of control of foodstuff in general.
	One department of fisheries responsible for the management of fisheries and fish quality.	Two departments implicated in quality control of fish and fish products.
	One national competent authority for official control of foodstuff with legal powers to suspend or withdraw licences.	Competent Authority attached to a regional delegation without national competence.
Legislation	Translates the EU food regulations that are well structured.	No common food law, but sector specific laws. The fisheries regime law governs fisheries from farm to fork. The regulation is somehow complete but not well structured and difficult to comply with.
Facilities and equipment	Good facilities throughout the country.	Facilities almost insignificant. The future laboratory can offer some facilities.
Staff of Competent	54 staff working in the competent authority.	Three staff working with the competent authority, but chief of centres carry out control elsewhere.
Training	Inspectors regularly receive recycling training.	Received training from EU in 2004 under the Strengthening Fisheries Health Conditions Programme.
Food Business Operators	Have in place quality log books based on GMP, GHP and HACCP with documented procedures.	Absence of quality log book or poorly executed when present without any records. HACCP is not much applied in fisheries establishments and vessels.
Hygiene Conditions	High standards of hygiene practiced by fisheries establishments.	Low standards both for local and export.
Auditing	Done at least once a year for each establishment.	Provided by the law, but poorly organised, poorly implemented, and little compliance with fisheries establishments.
Traceability	Currently enforced in fisheries establishments and factory and freezing vessels.	Not well implemented due to lack of financial resources and technical knowhow to put the system in place.
Control plans	There is a national control plan in place and a control plan for residues and heavy metals.	No control plan.
Monitoring and Surveillance	There is a monitoring plan for certain heavy metals and contaminants.	No monitoring plan has yet been put in place.

## 6 CONCLUSION AND RECOMMENDATIONS

In recent years, Cameroon has manifested safety concerns for fish products by enacting regulations that were aimed at addressing quality of fish destined for the export market. However, a wide range of constraints has hampered the country from meeting with safety objectives. Such constraints included the lack of financial resources required to implement control measures and carryout food safety research, lack of infrastructural facilities such as landing harbour, laboratory analysis facilities, lack of skills, training and support, absence of monitoring programs for contaminants in aquatic milieu, as well as the industry itself that needed a complete overhaul.

Adding to these constraints is the crucial problem of carrying out official control on fisheries establishments to verify if they meet the legal safety requirements. These controls by the competent authority have proven to be inadequate, poorly documented, together with the difficulties of getting compliance from the industry where majority of the stakeholders do not have a HACCP system in place.

From the findings of this study, the following recommendation are worth noting if Cameroon has to operate an inspection system that gives the necessary guarantee to consumers.

### *Legal framework*

With the dynamism recorded in the emergence of food scares and food borne pathogens, the legal framework for fish inspection and official control needs to be updated and supplemented by regulatory and implementing texts to address such issues as the national control plan for heavy metals and contaminants and contingency arrangements for the management of emergencies.

### *Institutional set up*

The area of intervention of the competent authority needs to be redefined to take into account the entire official controls both for the domestic and export market, as well as distributors and wholesalers. Their competence should not only be limited to the littoral regional delegation, but also cover all three regions (Littoral, South and South West) where industrial fisheries are carried out. This should be given more autonomy and responsibility so that they can be accountable on matters of food safety and official control. This means having the qualified personnel needed to carry out the inspection using the appropriate tools and procedures. These should include:

- The elaboration of an inspection manual that can be used to harmonise the work of individual inspectors with the use of checklists.
- Ensure a risk-based approach to inspection.
- The enforcement of HACCP concept to fisheries establishment.
- The enforcement of documentation and record keeping.

Inspectors should be recruited from the area of:

- Veterinary science.
- Microbiology.
- Food science or related disciplines.
- Trained Fisheries technicians or veterinary nurses.

#### *Financial*

The government need to dedicate the necessary financial resources required to run the control and provide a mechanism through which taxes from inspection can be used to finance the system. There is need to develop an inspection manual based on the provisions of the law and the implementing measures.

#### *Training*

The inspection staff need to undergo constant training to understand the legislative and regulatory framework governing official inspection as well as the different items that goes into the inspection manual. The personnel of the fisheries establishment also need to undergo constant training on HACCP with a view to introducing the concept as part of the establishment's own check program.

#### *Research in food safety*

Research in food safety needs to be promoted. Food safety is a science-based domain that focuses on risk assessment of potential hazards that can cause food borne illness. There is need for the government to finance research through the established quality analysis laboratory in Douala in order to cope with the dynamic nature of food pathogens.

#### *Industrial fleet*

Finally, government need to provide incentives for the renewal of industrial fleet, which has grown old and can hardly respond to acceptable standards.



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