

# The Philippines' HACCP-Based Fish Inspection System

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## ■ Introduction

Fish is economically and nutritionally important in the diet of every Filipino. Most of their protein requirement is derived from fish with a high capita consumption of 36 kg per annum (24 kg as fresh, 12 kg as dried, processed, crustaceans and molluscs).

The fisheries sector is important in the national economy with its contribution of P80.4 billion (2.7 %) to the country's Gross Domestic Product (GDP) which is 15.4 % of the Gross Value added (GVA) of P523.5 billion in Agriculture, Fishery and Forestry sectors at current prices next to agricultural crops.

The fishing industry provided employment to about 1 million or 5% of the country's labor force. Municipal fisheries contribute the largest labor force of 68 %, followed by aquaculture (26%) and commercial fisheries of about 6%.

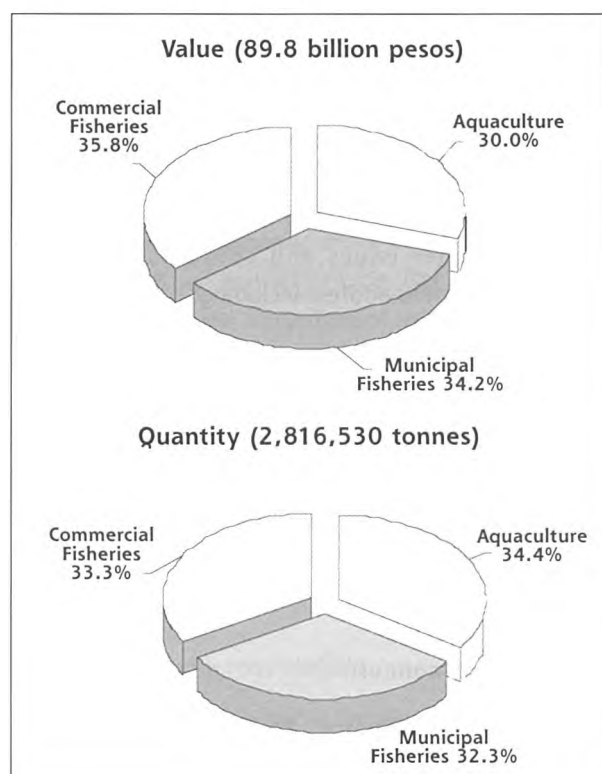
## 1. Fish Production

The output of the fishing industry in 1999 was over 2.8 million tonnes contributed by commercial fisheries (33.3%), municipal fisheries (32.3%) and aquaculture (34.4%) (Fig 1).

From 1995 to 1999 the very minimal increase was brought about by the commercial sector. The slowdown can be attributed to the warm temperature experienced from 1997 to the present. A negative 2.91% drop in total production in 1997 was due to the decline in aquaculture production as a result of the shrimp disease. However, the industry recovered a 5.8% increase in 1999 over the 1998 total production (Table 1).

## 2. Processed Fish Products

Fish products manufactured both for domestic consumption and for export include dried, smoked, salted, canned and fermented products. Considerable improvements have been done in terms of product formulations and packaging over the last few years. New products have been developed with the traditional ones modified to suit the demands of the consumers both on food safety, high quality and other considerations such as low salt, spicy products, marinated, acidic, fried, etc.



**Fig 1: Total Production by Quantity and Value - 1999**

### 3. Fisheries Export and Import Performance

Fishery exports are a very significant source of foreign exchange. In 1999, fishery export amounted to P19,345 billion (173,051 tonnes), a decrease of 5.8% in value and 6.8 % in volume as compared to 1998 performance. Shrimp which used to be the top export was replaced by tuna in 1997 up to 1999. Shrimp continues to suffer significant setbacks as a result of the shrimp disease outbreaks. Major exports in terms of value were the following: tuna, (P5, 533 billion); shrimp/prawn (P5,142 billion), seaweeds (P3,483 billion). Other products are octopus, pearls, cuttlefish/squid, live ornamental fish, lobster and live grouper.

Foreign buyers of fish and fishery products in descending orders were Japan, US, EU member states, Hong Kong, Canada, Korea and Singapore.

Import of fishery products is allowed as long as these are raw material inputs of processing plants that may be re-exported as high value product. From 1995 to 1999 there was an increase of volume of import except in 1998. The bulk of fishery imports comprised tuna, sardines and mackerel that go to the local canneries and fish meal companies, as a vital component of animal feeds (Table 2).

#### ■ Issues and Concerns

The major concern in the fisheries sector is the need to maintain a balance between the requirement for increased production to contribute to the country's food security against the intervention of conservation, and protection of resources for long-term sustainability. There are other issues and concerns which the government should address including:

#### 1. Resource management and environment

The shrimp disease problem that plagued the industry over the past 5 years and the over exploitation of the coastal areas and inland waters show a negative impact on the country's fish supply situation.

#### 2. Industry concern

**Trade Liberalization.** There is a need to review foreign policies on trade liberalization, tariff reduction on equipment and machinery inputs.

**Table 1: Volume (tonnes) of Fish Production by Sector 1995-1999**

Year	Aqua-culture	Muni-cipal	Commer-cial	Total
1999	948,995	918,781	948,754	2,816,530
1998	954,656	891,146	940,533	2,786,335
1997	957,390	942,466	884,651	2,766,507
1996	980,829	909,248	879,073	2,769,150
1995	919,810	972,043	893,232	2,785,085

**Table 2: Export and Import of Fish and Fishery Products, 1995-1999**

Year	Quantity (MT)	FOB-Value	
		(P000)	(\$000)
<b>Export</b>			
1999	173,051	19,344,634,000	480,055
1998	185,758	20,553,378,000	529,999
1997	173,887	16,337,349,000	549,831
1996	164,673	15,110,548,000	549,331
1995	169,746	15,656,803,000	606,038
<b>Import</b>			
1999	255,066	4,399,002,000	107,272
1998	165,989	3,287,760,000	83,319
1997	295,016	4,020,376,000	138,120
1996	262,586	3,178,130,000	120,996
1995	270,213	2,923,590,000	112,114

**Post-harvest losses.** There is a need to reduce fish post-harvest losses in order to bridge the widening gap between demand and production. The actual quality losses occur mostly in remote coastal areas where infrastructure facilities are still wanting.

**Trade barriers.** The growing concern for food safety has often led to unjust trade barriers in the guise of more stringent food safety and quality standards. The implementation of HACCP in the seafood industry as required by the key market has put some pressure on both the government authority and the industry. In addition, other semi-technical barriers related to environment and tariff continue to emerge such as BADGE, GMO, etc.

**Increasing cost of production inputs.** The continuing oil price hike and of other production inputs has also caused the increase in production inputs, thus making the product cost much higher and less competitive.

### 3. Institutional concern

- (1) Institution strengthening and human resources development. Need for institutional strengthening and human resources development especially on fishery inspection and quarantine.
- (2) Information system. Need for efficient delivery of information on seafood trade. The government needs an efficient and up-to-date information delivery system to enhance access to trends in seafood trade particularly with regard to standards of seafood trading partners.

#### ■ The Philippines Fish Inspection and Quality Control System

The current international seafood market is characterized by consumers demand for better and more transparent food safety standards. Meeting the new standards of the importing countries has placed great stress on both industry and government inspection agencies in countries such as the Philippines. Although the traditional role of the inspection agency in sampling and analysis has been reduced, there are enormous responsibilities in reorganizing the agencies' role to face the new realities in assisting the industry to comply with the requirement. This task entails a substantial amount of work for both parties.

In the Philippines, the government agency responsible to regulate the import and export of fish and fishery products is the Bureau of Fisheries & Aquatic Resources (BFAR). Other agencies have their specific mandates and roles on the national food control system. Such agencies share their limited manpower resources, facilities and technical capabilities to respond to the current needs of the industry.

In the process of implementing a HACCP-based inspection system, the government has taken steps to harmonize the implementation of the system among the agencies concerned. The government has also realized to further strengthen its capability to effectively implement its mandate and responsibilities to meet the demand for food security, food safety and global competitiveness.

#### 1. Legislative framework

Even long before the mandatory implementation of the HACCP system, the Philippines has already established legislations to ensure the

safety and quality of its seafood products. As early as 1975, the basic minimum requirements prescribed for the operation of fish processing establishments have been set in place such as:

- **Fisheries Administrative Order No. 117 s. 1975** — rules and regulations governing the operation of processing plants for fish and fishery/aquatic and prescribing/requiring standards, quality control and inspection of processed fish and fishery/aquatic products.
- **Fisheries Administrative Order No. 117-1 series of 1994** — amending Sections 3, 4 and 5 of FAO 117 to include provisions for the minimum requirements for fish processing plants, personnel hygiene and plant premises and hygiene and sanitation.
- **Presidential Decree No. 856 of 1976** — known as the Sanitation Code of the Philippines, which provides for public services directed towards the protection and promotion of health, integrating sanitary laws of the Philippines.

This was followed by other legislations to respond to the changing needs of the seafood trade. Current legislations being implemented include the following:

- **Republic Act 8550 (Fisheries Code of 1998)** — an act providing for the development, management and conservation of the fisheries and aquatic resources of the country and for the implementation of HACCP-based inspection in the fish processing industry.
- **Fisheries Administrative Order No. 195, series of 1999** — rules and regulations governing the importation of fresh, chilled and frozen fish and fishery aquatic products.
- **Fisheries Administrative Order No. 199, series 2000** — guidelines on fish transshipment, defining the unloading of fish caught by foreign fishing vessels outside of Philippine waters.
- **Republic Act No. 7394 (Consumers Act of the Philippines of 1992)** — rules and regulations pertaining to the production and sale of all consumer products to protect the interest of the consumer, promote his general welfare and establish standards for products.

#### 2. Authority responsible

By virtue of Republic Act No. 8550, BFAR is now a line bureau of the Department of Agriculture with fifteen (15) Regional Offices nationwide including the

autonomous regions of Cordillera and Muslim Mindanao. The BFAR is the government authority responsible for implementing the Philippines food safety control programme for fish products under the MakaMASA Fisheries Programme, Fish Quality Assurance Component. The programme is designed to provide directions and framework to develop and manage the country's fisheries resources.

### 3. Facilities

The Fish Product Testing Laboratory at the BFAR's headquarters serves as the central fish product-testing laboratory. It has already established four Regional Quality Control laboratories in Cebu, Zamboanga, Davao and General Santos City. Other government and private accredited laboratories recognized by BFAR provide assistance on the physico-chemical and microbiological testing of fishery products for verification purposes in support to the implementation of the country's seafood control programme.

### 4. Certification System

- (a) Certification of fish and fishery products as required by importing countries are issued by BFAR based on the following:
  - (i) Result of the regular check of processing plants.
  - (ii) Test results (chemical, microbiological and sensory) on products inspected conducted by BFAR laboratory, other government or recognized private laboratory.
  - (iii) Evaluation of the quality assurance programme.
  - (iv) Inspection specifically required for the issuance of a certificate.
- (b) Certificates of product analysis for fish and fishery products are issued by the Product Testing Laboratory and its Regional Quality Control Laboratories. Other government laboratories like the Bureau of Food and Drugs of the Department of Health, and the Food Development Center, National Food Authority, and other accredited laboratories can also issue laboratory analysis stating the test result of the fishery product as basis for product certification required by the importing country.
- (c) Certification of quality is also issued as required by the

importing countries based on specific requirement.

- (d) Health Certificate is issued for fishery products except bivalve mollusks exported to EU member countries. BFAR issues this certificate on the basis of competence to EU requirements as well as for Philippines requirements for food safety.
- (e) Certificate of HACCP Compliance for exports to US. In the absence of an MOU between the Philippines and US, this certificate is issued to seafood processors based on verified compliance to the USFDA Title 21 CFR 123 regulation.

## ■ Status of HACCP System Implementation

### 1. Manpower reinforcement

The implementation of HACCP as a system to ensure food safety is an interplay of the key players involved from production to consumption. The major players being the government and the industry sector saw the need to train their manpower resources in order to implement the system effectively.

The government through BFAR prepared the inspectors through collaboration of national and international bodies such as USFDA, WMFS, AQIS, FAO-UN and CIDA among others. The inspectors were trained on HACCP concept, principles, application, HACCP plan development, regulatory assessment and documentation. Analysts were also trained in good laboratory practice and on advanced methods of fish product analysis.

In like manner, the industry participated in national and international training on HACCP principles and application of new development, monitoring, internal audit and documentation. Such contribution from both sectors have made the implementation of HACCP more relevant to the current market requirement.

Aware of the importance of the Philippines' position in the seafood trade, the government took several initiatives to cope with the challenges and requirements in the international market.

The application of the concept of HACCP in the Philippines is generally accepted by the seafood industry, although there are apparently different levels of understanding and application.

### 2. Accreditation system of inspection

Based on the emerging stringent global requirements on seafood trade the government took a bolder move by instituting an inter-agency accreditation

programme for food processors and exporters as part of its trade and investment promotion activities.

The US and EU markets require the application of the Hazard Analysis Critical Control Point (HACCP) system for exports of seafood into their market to ensure food safety. Due to this reasons, the government has adopted an accreditation system of inspection on a voluntary basis for exports to US and on a mandatory basis for exports to EU with BFAR as the designated government competent authority.

The implementation of the USFDA Seafood Mandatory HACCP regulation is currently carried out by three different government agencies namely BFAR, BFAD and FDC through a voluntary accreditation programme. These three agencies comprised the Joint Management Committee whose responsibilities are inspection, audit/verification, certification and provision of training. The committee issues a HACCP and GMP compliance certificate based on compliance to regulatory requirements to ensure food safety also on a voluntary basis. This has led to a harmonized system of inspection for fish products and fish processing plants.

The EU accreditation is based on the principles of "equivalence" to those regulations governing the production and placing on the market of the fish and fishery product. BFAR as the competent authority to verify the application of Council Directive 91/493/EEC and other EU regulation in force, recommend for accreditation fish processing plant on the basis of compliance. Guidelines and procedures have been established for the accreditation of processing plant including freezing vessel and carriers supplying frozen fish to EU accredited plant. To date, there are 40 fish processing plants and 68 freezer accredited to export the fish products to the EU market.

### 3. HACCP-based inspection capability

Since 1994, a series of training on HACCP principles, concept and application and HACCP development for fish inspector, quarantine officers, technical personnel and training staff, have been conducted nationwide. This is also done in coordination with BFAR-Regional Offices and other agencies with BFAR headquarter providing the training expert.

Training for fish inspectors is an on-going activity to increase their understanding, skill and competency in the application of the HACCP system including verification of the pre-requisite programmes.

Participation of fish inspectors in national, regional and international trainings, seminar and symposia were likewise encouraged to further enhance the capability to implement a HACCP-based fish inspection and quality assurance system in the seafood industry.

### 4. Training for industry

To enable the industry to meet the requirements, the government through BFAR has conducted a series of training courses for the industry personnel nationwide with priority in the seafood export-active regions. The training course comprised of HACCP principles, concepts and application for managers; HACCP plan development for QC supervisors and SSOP for line workers.

A recent training on Monitoring and Internal Verification/Audit of HACCP programmes was conducted wherein seventy-seven Quality Assurance Manager/ Supervisors from 35 seafood companies have participated.

### 5. Regulatory assessment of fish processing plants

The BFAR national and regional fish inspectors conduct regular inspection, monitoring and audit/ verification of exporting fish processing plants to ensure that they consistently comply with regulatory requirements. Inspection of fish plants processing products for domestic market is mainly on compliance to GMP requirements.

### 6. Laboratory capability building

Quality control laboratories have been established in four seafood export-active regions of the country. These laboratories conduct physico-chemical, microbiological analysis of fish and fishery not only for exports but also for domestic consumption. They also conduct analysis for environmental contaminants that affect the safety of fish and fishery products including heavy metals, and Paralytic Shellfish Poisoning (PSP). Analysts have been trained on Good Laboratory Practices (GLP) to update themselves on the procedures and methods acceptable to international standards.

### 7. Technical assistance to the seafood industry

This is a continuing activity both in the national and regional level. This consists of one-on-one

consultations, walk-in inquiries, advisory assistance and requests for training and preliminary plant inspections.

## ■ Problems in HACCP Implementation

### 1. Lack of trained manpower

There is a need to train the local government units concerned with implementation and enforcement of regulations to ensure the safety of domestic products. On the part of the seafood industry, the lack of skilled and competent manpower is due to the rapid turnover of its personnel resulting in a continuing need to train new quality managers, supervisors as well as workers.

### 2. Sustainability of HACCP implementation

The rapid turnover in personnel in the industry poses a significant effect on the sustainability of HACCP implementation. This indicates that a series of training on monitoring and verification of HACCP programme should be made available to the industry on a continuing basis. To sustain the implementation of HACCP, adherence to GMP as pre-requisite requirements is especially important.

## ■ Current Policies

As the regulatory agency for the import/export of fish and fishery/aquatic products, BFAR has adopted the following policies:

- (i) Implement a HACCP-based fish inspection system.
- (ii) Conduct research on food safety hazards specific to processed, Philippine fishery products.
- (iii) Implement interventions to reduce post harvest losses.
- (iv) Optimum utilization of fishery resources through the development of value-added products from under-utilized fish species.
- (v) Provide favorable environment conducive to increased investment and global competitiveness.
- (vi) Increase in public investment particularly on post harvest facilities;
- (vii) Tap the expertise of state universities and colleges (SUC's) in accessing appropriate technologies, providing a form for research-extension linkages.
- (viii) Provision of infrastructure, marketing and support facilities.
- (ix) Cooperate in achieving harmonization or mutual recognition of fish inspection and certification system.

- (x) Support and participate in regional and international affairs and commitment.

A number of guidelines, rules and regulations through Fisheries Administrative Orders (FAO) have been established. These guidelines, rules and regulations are:

- (i) Rules and regulations on the exportation of fresh, chilled and frozen fish and fishery/aquatic product.
- (ii) Guideline on the implementation of Hazard Analysis Critical Control Point System.
- (iii) Guideline setting the requirement for pre-processing and processing plants, the Sanitation Standard Operating Procedures thereof, and the processing and quality requirements for shellfish.
- (iv) Guideline on the establishment and maintenance of BFAR's quality control laboratories.
- (v) Guideline on the registration and licensing of fishery post-harvest facilities by the local government unit.
- (vi) Guidelines on the production, harvesting, handling and transportation of shellfish for implementation by the local governments.

## ■ Future directions

Under the MakaMASA-Fisheries Programme, HACCP shall be promoted not only in fish processing establishment but also in other fish post-harvest facilities. With the objective clearly defined, future direction shall focused on:

- (a) Harmonize fish inspection and quarantine system in the Philippines:
  - (i) Develop a harmonize inspection procedures and guidelines.
  - (ii) Establish rules and regulation on the importation of live fishery products with emphasis on Import Risk Analysis (IRA).
  - (iii) Prepare guidelines and procedures for the movement of live fishery products.
  - (iv) Conduct cross regional inspections.
  - (v) Conduct meeting of fish inspectors to discuss inspection/audit issues and concern.
  - (vi) Each government agency tasked with the mandate shall develop each own expertise and involvement.
- (b) Establish an accreditation/certification system for fish inspector/audit to upgrade their level of competency:
  - (i) Identify the government agency responsible.
  - (ii) Develop policy and procedures in the implementation.

- (c) Preparation of training manuals on regulatory assessment (external verification/audit) of fish processing for fish inspectors and monitoring and internal verification/audit of HACCP programmes for industry.
- (d) Provide extensive human resources development for fish inspector, quarantine officers, industry personnel and local government units:
  - (i) Training on HACCP plan development for fish inspector, quarantine officers, and QC managers and supervisors for the industry.
  - (ii) Training on regulatory assessment (external verification/audit) of fish processing for fish inspectors.
  - (iii) Training course for Low Acid Canned Food (LACF).
  - (iv) Training on monitoring and internal audit of HACCP Plan for the industry personnel.
  - (v) Refresher courses on fish post harvest technology, fish drying, smoking, freezing, etc. for local government units.
  - (vi) Training on HACCP for Aquaculture for fish inspector, quarantine officer and industry personnel.
  - (vii) Training on Import Risk Analysis (IRA), disease surveillance and contingency planning for quarantine officers.
- (e) Develop a generic HACCP Plan to include economic fraud and regulatory issues.
- (f) Development of potential hazard list for Philippine fish and fishery products.
- (g) Establish Mutual Recognition Agreement (MRA) Memorandum of Understanding (MOU) between the Philippines and its seafood trading partners.
- (h) Encourage the participation on regional and international meeting, conferences, training and forum on fish inspection and quality assurance.

## ■ Conclusion

The implementation of HACCP to ensure food safety is now the responsibility of the seafood industry. The regulatory agency has played a very important role

to support the seafood industry to sustain its compliance to the system. With the mandatory implementation of HACCP in the international markets and in the light of the emerging strict requirements in the global seafood trade, the role of the government regulatory agency has become more profound. The government has become the vital partner of the industry — the industry's guide, mentor and compatriot to help them improve their operations, maximize resources and make Philippine exports become "true winners".

Generally, the implementation of HACCP has established a more cooperative working relationship between the regulatory agencies and the private sector. The industry is now capable of providing a record of assurance that their products are in compliance with food safety standards and fit for human consumption. To sustain the implementation of HACCP in the seafood industry, the amount of training from both inspectors and industry personnel has become an activity of the compliant authorities.

While HACCP is not a stand-alone system, its implementation requires the interplay of the key players in the food production chain from the harvest area to the table. Key players need to be trained on the principles and concept of HACCP so that they will understand their role better and contribute to the production of safe fish products.

HACCP implementation was also able to minimize end-product testing and allow easy market access for fish products. It has also paved the way for more interesting interaction and collaboration with national government and international bodies concerned with fish safety and quality assurance. The accreditation system of inspections for fish processing plants was able to inspire confidence that the industry is capable of meeting the regulatory requirements to ensure safe fish products.

The training materials generated in the process of instituting the HACCP system provide useful information and ready reference for new processors/ exporters and would be entrepreneur and in the seafood trade.

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