

MYANMAR

Tin Hla* and Thein Htu**

*Assistant Director,

**Chief Inspector, Export Quality Control,
Department of Fisheries,
Myanmar

INTRODUCTION

The fishery sector has become an increasingly important sector in Myanmar, contributing both to social and economic development. The fishery sector is the fastest growing sector in the Myanmar economy and is now ranked third in export value. HACCP system, implemented since 1998, is a crucial tool to ensure food safety and quality required by consumers and trade regulations.

The Department of Fisheries (DOF), under the Ministry of Livestock and Fisheries, is the government agency responsible for the inspection and licensing of all export-oriented fish processing industry in Myanmar. It is the competent agency responsible to ensure seafood safety and quality.

PRESENT STATUS OF FISH PROCESSING INDUSTRY

Myanmar is blessed with an abundance of fishery resources. Having a 2,820 km coastal line, 8.2 million hectares of inland water resources and about 0.5 million hectares of swamps along the coasts, it provides an ideal environment for various types of fish, both fresh water and marine water. In Myanmar, the fish production has been increasing consistently, from a

mere 0.83 million metric tonnes in 1995 - 1996, to 1.579 million metric tonnes in 2002 - 2003. This trend is expected to increase further, mainly because there is still a large potential from aquaculture production.

Per capita consumption in Myanmar has also increased, as shown in Table 1.

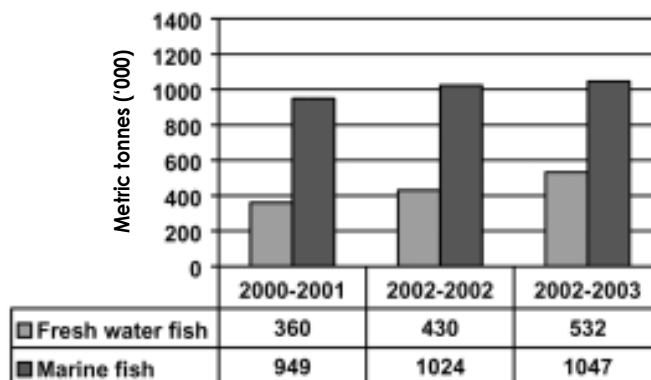


Fig 1. Production of fish and fishery products (in 1000 metric tonnes)

Table 1. Fish consumption per capita

Year	Per capita consumption of fish (kg)
1999-2000	21.8
2000-2001	22.7
2001-2002	24.5
2002-2003	26.2

Fish and fish products are exported in a few forms, such as fresh, chilled, frozen, dried, and salted. It is transported via sea, air and land. More than 40 countries have been importing fish and fishery products from

Myanmar annually. Significant importing countries are China, Japan, US, EU, ASEAN, Australia and Arabic countries. The market segments and export trend are shown in Figures 2 - 5.

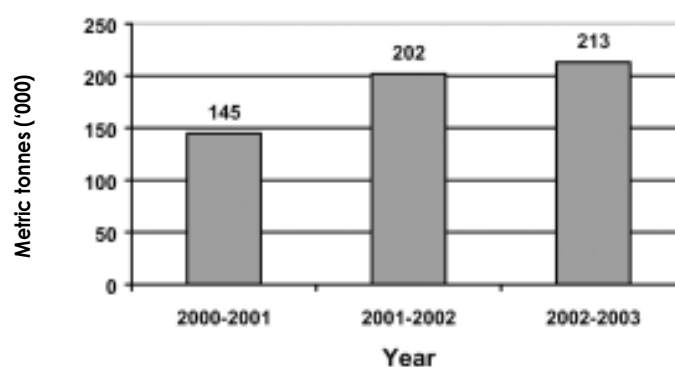


Fig 2. Export of fish and fish products (in 1000 metric tonnes)

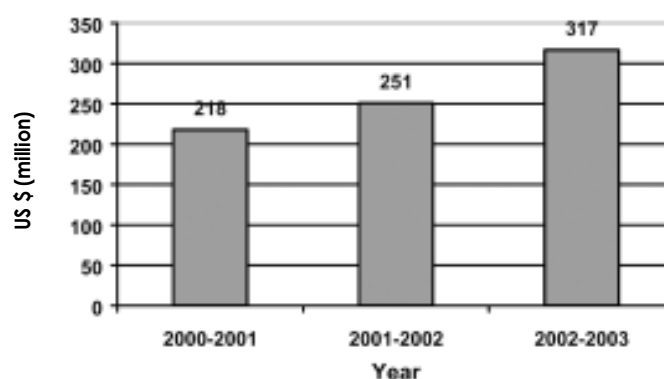


Fig 3. Export value (in million US\$)

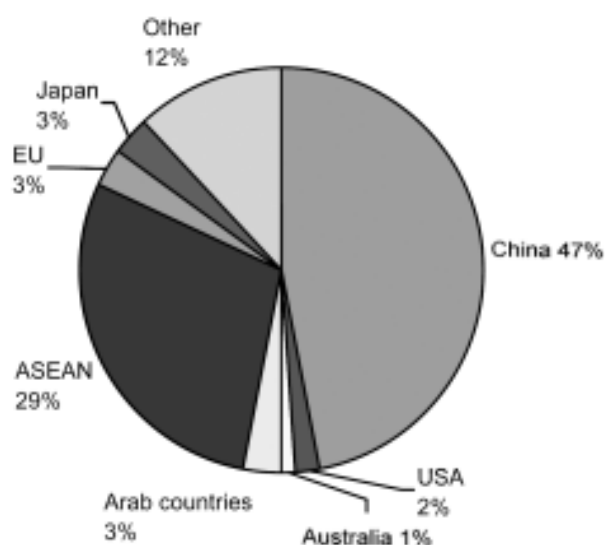


Fig 4. Quantity of fish product export by country in 2002 – 2003

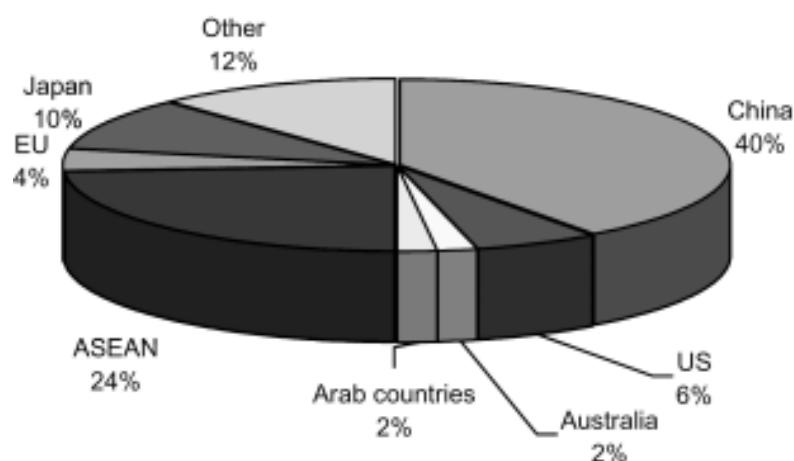


Fig 5. Value of fish product export by country in 2002 – 2003

Table 2. Fish product export quantity and value from 2000 - 2003

Year	Quantity (1000 tonnes)	Value (million US\$)
2000-2001	145	218
2001-2002	202	251
2002-2003	213	317

As of 2002 - 2003, there are a total of 134 fish processing plants, with frozen fish products establishments making up the majority of all fish

processing plants. Table 3 shows the breakdown and number of fish processing plants in Myanmar from 2000 to 2003.

Table 3. Fish processing plant in Myanmar

Year	Frozen fish and prawn	Dried fish	Surimi	Fish meal	Total
2000-2001	84	2	2	6	94
2001-2002	120	3	2	6	131
2002-2003	120	4	3	7	134

IMPLEMENTATION OF HACCP IN THE FISH PROCESSING INDUSTRY

The Export Quality Control Section under the DOF is the main organization providing services to the export-oriented fish and fishery product industries on fish inspection and quality assurance. The Export Quality Control Section inspects fish and fishery products for compliance with international standards for export, where applicable and the imported requirements related to health, quality, safety and identity.

The DOF recognized that end-product inspection alone is not enough to ensure the quality and safety of the products, hence since 1999 the inspection system was based on HACCP. Inspection procedures and operations were revised with reference to CODEX guidelines, standard and code practices on HACCP and GMP.

The concept of HACCP has been introduced to fish processing plants since 1998. Since then, the government has been actively communicating HACCP to local fish processing establishments. Training on HACCP application were conducted to fish processing establishment's staff as well as DOF inspectors. In 1998, seven fish processing plants, out of 94 took part in the program. Factory inspections have been done twice a year since.

The training on seafood safety and quality assurance were conducted for DOF inspectors and lab technicians, by FAO and SEAFDEC (MFRD). HACCP, GMS and SSOP training were carried out yearly in state and divisions where processing plants are located. DOF would then conduct the extension training for fish processors. Training on GMP and SSOP were conducted to fish processing plants by DOF. HACCP application training was conducted by DOF to the fish processing plants, upon requests by plant owners. In 2002, 19 DOF staff were trained in connection with seafood safety programme by MFRD. From 2000 - 2003, there are a total of 164 DOF officers, which in turn trained and 699 fish processors.

In 2001, a project entitled 'Upgrading the Safety and Quality of Fish and Fishery products' sponsored by FAO was implemented. This project included:

- Revise and Review of DOF Directives
- HACCP implementation training in processing plants
- Lab operation procedure for lab technician of DOF

FAO project was extended up to Dec 2002 to further continue laboratory training, that is:

- HPLC / GC operation test for Histamine
- ELISA test chloramphenicol
- PCR test white spot virus syndrome
- Insecticide Survey Programme

NATIONAL PROGRAMMES, REGULATION AND POLICIES

It is compulsory for every registered fish processing establishment to be inspected and rated by DOF twice a year. The inspection is related to HACCP audit that is conducted by DOF once a year. This plant rating-program was approved by ministerial management committee in 2001 and started to conduct in 2002.

Plants are rated A, B, C, D and E in order of merit related to compliance relevant to DOF directives. The

plant that is rated E has to be upgraded to D and upwards within six months. Should the plant not upgrade, it is not allowed to export its products. Plants rated A and B are allowed to export their products to EU, US, Australia, Canada and Japan. C and D-rated plants are able to export their products any other countries except EU, US, Australia, Canada and Japan. To date, there are 45 processing plants that have A and B rating. The status of HACCP application in the fish processing plants in Myanmar is as shown in Table 4 below.

Table 4. Status of HACCP-approved fish processing plants, 2000 - 2003

Year	Type of Plant	Register	Plant rating approved by DOF				
			A	B	C	D	E
2000-2001	-Frozen fish and prawn	84	2	15	20	21	26
	-Dried fish	2	-	-	-	2	-
	-Surimi	2	-	1	1	-	-
	-Fish meal	6	-	-	-	6	-
	Total	94	2	16	21	29	26
2001-2002	-Frozen fish and prawn	120	5	18	29	31	37
	-Dried fish	3	-	-	-	3	-
	-Surimi	2	-	2	1	-	-
	-Fish meal	6	-	-	1	5	-
	Total	131	5	20	31	39	37
2002-2003	-Frozen fish and prawn	120	4	42	20	27	27
	-Dried fish	4	-	-	-	4	-
	-Surimi	3	-	2	1	-	-
	-Fish meal	7	-	-	2	5	-
	Total	134	4	44	23	36	27

The application of HACCP has greatly assisted the fish processing establishments to meet the requirements of importing countries, leading to the increase export ability of fish processing establishments.

There is a significant progress in fish and fish products export from Myanmar to EU and other countries (Table 5 and Table 6).

Table 5. Export of Myanmar shrimp, 2000 - 2003

No	Market	2000-2001		2001-2002		2002-2003	
		US\$	%	US\$	%	US\$	%
1	Japan	22,536,194	21.60	22,049,930	23.40	27,786,739	26.40
2	US	11,516,816	11.00	14,681,584	15.0	14,872,286	14.10
3	EU	3,477,044	3.30	5,420,582	5.70	7,541,139	7.20
4	China	11,021,253	10.80	12,536,894	13.30	11,586,078	11.00

Table 6. Export of Myanmar fish and fish product, 2000 - 2003

No	Market	2000-2001			2001-2002			2002-2003		
		Tonnes	US\$	US%	Tonnes	US\$	US%	Tonnes	US\$	US%
1	Japan	4,293.54	24,102,629	11.04	4,651.14	23,317,907	9.27	6,817.85	30,895,251	9.73
2	US	2,936.21	12,886,155	4.58	3,732.61	16,058,146	6.38	3,792.02	17,675,841	5.56
3	EU	4,116.71	6,596,721	3.02	5,894.48	10,229,428	4.06	5,767.67	13,315,152	4.19
4	China	69,015.13	66,788,243	30.59	77,311.89	86,701,932	34.47	100,807.85	128,583,447	40.51

PROBLEMS/ DIFFICULTIES ENCOUNTERED

Some difficulties in HACCP implementations in fish processing industries are:

- High cost in implementing HACCP, as perceived by small and medium-size plant
- Lack of enforcement by government
- Lack of trainings for inspectors and fish processors
- Lack of training for boat crews and farmers
- Lack of awareness on HACCP by fishermen
- Fish processors lack interest in implementing HACCP in their establishments
- HACCP training for fish processing establishments' staff are not effective due to their low education level
- Lack of FAO and WHO-approved lab equipments and techniques that are necessary to support food safety certification system
- Lack of risk assessment and hazard necessary for setting up critical limits in fish processing
- Insufficient power supply and diesel in fish processing establishments, due to high price and unstable foreign exchange, resulting to fluctuation in cold store temperature

FUTURE DIRECTION

- To conduct more HACCP training for government officers and fish processors
- To conduct HACCP training in fish catch and aquaculture procedure for boat crew and farmers respectively
- To conduct insecticide survey programme, as assisted by FAO
- To introduce GMP/ SSOP in traditional fish products processing
- To standardize lab procedures to harmonize with other ASEAN countries
- To install regional laboratory in all states and divisions
- To monitor hand swab, table swab and products test once a monthly in order to assist the Health Certification

CONCLUSION

Food safety and quality assurance are crucial for consumer protection and trade facilitation. Food safety is the responsibility of processors. HACCP system has to be implemented to ensure food safety in the processing plants. The success of HACCP application

in the processing plants in Myanmar is still far from completion. More efforts will be continued to encourage the application of HACCP in the fish processing industry.