

Advancing Improved Fish Processing Technology in Lao PDR

Pachone Bounma

This article is based on the paper presented by the author during the Regional Planning Meeting of the Project on Quality Assurance Systems for Small and Medium-Sized Fish Processing Establishments in ASEAN Member Countries, 20-21 June 2007, Singapore.

The Government of Lao PDR has always emphasized on the importance of economic growth based on agriculture and food production to promote rural development as a key part of its national framework for poverty reduction. During the past decade, fish and fishery products played an important role in the country's economy, being source of income and employment for rural men and women, and contributing a large share of the people's food consumption. In 2004, the country's fisheries sector produced approximately 94,700 mt of fish (**Table 1**) and production is expected to increase at around 3-5% per year (as reported production was about 97,400 in 2006).

Due to the abundance of its fishery resource, capture fisheries and collection of aquatic animals are important activities of the country especially during the rainy season. Fish supply is derived mainly from the country's natural freshwater resources such as the Mekong River, its tributaries and reservoirs (40%), ponds, swamps, wetlands, flood plains (26%), rice fields (32%), and cage culture (2%). In 2004, Lao PDR imported about 3,000 mt of food fish and fishery products valued at about USD 3.0 million (FAO FishStat Plus 2006) comprising mainly canned sardines, frozen squids, mackerels, tunas, etc. Its export of freshwater fishes was valued at USD 64,000 in 2001 but decreased to USD 12,000 in 2004 (FAO FishStat Plus 2006).

Although the supply of fish and fishery products is expected to increase annually, the country's high demand for food fish makes its production usually ending up only for domestic consumption. The per capita supply of fish in Lao PDR in 2004 was about 17 kg/person for a population of 5.62 million reported in March 2005 by the National Statistics Centre of Lao PDR. Sugiyama *et al* (2004) reported that the average per capita consumption of fish in Lao PDR is about 15-25 kg/year.

Any surplus from the country's fish production especially during the rainy season is preserved in a variety of ways based on cultural preference and prevailing local conditions. Usually, fish is processed in small scale by traditional domestic manufactories, which are established mostly by traditional fish processing families or traditional fish processing communities. The most common form of traditional fishery products are: fish sauce, fermented fish, pickled, dried or smoked fish. The preserved fishery products are then utilized during the dry season when fresh fish is relatively scarce.

In the food processing industry, the Lao PDR Government strongly supports the establishment of small and medium enterprises, to ensure that there is sufficient food for domestic consumption and also for export. However, the fish processing industry in Lao PDR has not yet been established *per se*, despite the efforts of its Government to invest in this fisheries sub-sector.

Problems and challenges

The fish processing industry in Lao PDR mainly adopts the traditional processing system and management thus, is still underdeveloped. The dearth of knowledge and

Table 1. Fish production of Lao PDR (mt)

Species	2000	2001	2002	2003	2004
Bighead carp	2,466	2,931	3,500	3,804	3,804
Catla	685	814	972	1,056	1,056
Common carp	10,517	12,500	14,926	16,225	16,225
Cyprinids nei	4,400	4,650	5,000	4,500	4,500
Freshwater fishes nei	26,953	28,850	31,426	28,545	28,545
Grass carp(=White amur)	1,379	1,639	1,957	2,127	2,127
Mrigal carp	1,761	2,093	2,500	2,717	2,717
Nile tilapia	18,928	22,499	26,872	29,205	29,205
Roho labeo	1,761	2,093	2,500	2,717	2,717
Silver carp	2,466	2,931	3,500	3,804	3,804
TOTAL	71,316	81,000	93,153	94,700	94,700

Source: FAO FishStat Plus 2006



Fermented fish common in the ASEAN countries

understanding by the processors and consumers about food quality and safety continues to have negative impact on the country's public health and economic development. Public awareness of serious health risks from food contamination by both consumers and processors is also very limited. The outbreak of intoxication and some incidence of food-borne infections and diseases that occurred recently prompted the government to exert efforts in improving the country's fish processing industry. At present, the necessary regulatory tools are not yet available although some regulations and decrees related to food control are in place but these needs improvement in order to be able to effectively address food safety problems. The government's fisheries sector has no special laboratory for fish quality and control. At present, the sector shares the facilities of the animal disease laboratory at the National Animal Health Center of the Department of Livestock and Fisheries that performs tests for animal parasites and diseases, and certifies the safety of meat products. It is therefore, necessary to establish or improve the country's institutional infrastructure and especially the human resource in order to be able to develop proper certification for the quality and safety of its fishery products.

The absence of trained manpower in the processing industry and inadequate qualified food inspectors in the fisheries sector also constitute the country's major concerns. Most of the government personnel have limited capacity in food analysis and quality assurance, while essential and more specialized equipment are either inadequate or not available at all. Thus, the government's capacity to test for pesticide residues and mycotoxins for example, as well as to test and monitor chemical contamination of food products is rather inadequate. Added to this is the country's difficult terrain and absence of proper communication systems making it difficult to monitor the quality and safety of the fishery products processed by the small manufactories. Summing up, all these are brought about by inadequate operational funds.

Advancing improved fish processing through capacity building

The country's National Food and Drug Committee and National Codex Committee (inter-ministerial committee) chaired by the Ministry of Health of Lao PDR has developed a Food Safety Policy to address food safety along the food production chain, food regulations, standardization of food and control. The country's Ministry of Agriculture and Forestry through the Department of Livestock and Fisheries on the other hand, plans to conduct activities aimed at helping the country's fish processing industry especially in the application of GMP and SSOP through capacity building of the institution as well as the human resource. This is

intended to enhance quality improvement of the country's fishery products. This effort will be pursued initially through the implementation of two important approaches, i.e. the development of GMP/SSOP in the TPEs together with intensified human resource development.

Plan of Action

Unlike in other ASEAN countries, Lao PDR has no pre-processing establishments (PPEs) although the government is promoting the production of semi-processed raw materials from freshwater fishes for the fish processing industries. Lao PDR is optimistic that with its participation in the SEAFDEC Program on Quality Assurance Systems for Small and Medium-Sized Fish Processing Establishments in ASEAN Member Countries (under the Government of Japan Trust Fund Program), would steer the country towards improving its fishery products for human consumption and improve its economy. Thus, under the SEAFDEC Program, Lao PDR aims to conduct pilot projects for the development of good manufacturing practices (GMP) and standard sanitation operating procedures (SSOP) especially in the traditional fish product processing establishments (TPEs) for the production of fermented fish and dried fish, which are the country's most popular fishery products.

With possible technical assistance from regional/international organizations, Lao PDR also intends to conduct training courses for the TPEs in the country in order to upgrade their capabilities and be competitive in the fish processing industry. Eventually, this will lead to the development of the country's quality assurance systems such as GMP and SSOP leading to the implementation of HACCP, and help the TPEs meet the safety and quality assurance requirements of its fish products for the welfare of the consumers.

References

- FAO FishStat Plus 2006. FAO, Rome, Italy
Sugiyama, S., Staples, D. and Funge-Smith, S. 2004. Status and potentials of fisheries and aquaculture in Asia and the Pacific, RAP Publication 2004/25, FAO Regional Office for Asia and the Pacific, Bangkok, Thailand

About The Author

Mr. Phachone Bounma is the Deputy Head of the Technical Division, Department of Livestock and Fisheries, Ministry of Agriculture and Forestry, Vientiane, Lao PDR.