

# **Satay Fish and Other Traditional Fish Products Development in Malaysia**

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## **Introduction**

Traditional fish processing in Malaysia utilized about 6-10% of the total fish landed annually and the pattern of fish utilization is mainly confined to traditional basic methods of curing namely drying, salting and fermentation. The fish used are mainly the under-utilized species comprising of trawl bycatch and the small pelagic species which are unsaleable or non-profitable when disposed in their fresh state.

In the 60's most of the traditional processing were done in the 'backyard factories' where the standard of hygiene and processing technique were generally low, resulting in products of relatively short shelf-life. Consequently, their market characteristics with regard to consumer preference and acceptance were very localised. Not only did they lack quality assurance but their supply was inconsistent as export commodities. As such, low priority was given to the traditional fish processing industry; it was also unimportant as a foreign exchange earner.

However, with the formulation of the New Economic Policy in 1971, with its main objective to eradicate poverty, policies, programmes and projects were designed amongst others to generate and expand opportunities as well as to increase the productivity of all those engaged in low productivity activities.

From this perspective, although traditional fish processing involved only a small portion of total fish landed, it was an important component of the artisanal fishermen's earnings. Thus it became equally important to the national economy since most of the processing was done by the fishermen's family members, each contributing a small but crucial portion to the nett household income. This enabled them to ride out periods of low income due to bad weather, seasonal fluctuations and poor catches.

## **New Licensing Policy**

The introduction of the New Licensing Policy by the Department of Fisheries in 1982 with the objective of controlling and reducing fishing effort particularly in the inshore fishing areas demanded a broad spectrum of alternative employment opportunities to be established. Non-fishing employment opportunities are not readily available in the country but there is room in the resource based activities especially in 'non-fishing' fishery activities such as improvement of fish utilization, processing and marketing which would, at worst create some additional income and, if better reduce artisanal fishermen's dependence on fishing.

## **National Agricultural Policy**

In line with the National Agricultural Policy introduced in 1984, a new perspective is added whereby the policy stresses on the rational maximal utilization of the nation's resources. The import values of fish and fishery products increased to approximately US\$153 million in 1986 of which about 82% was imported for human consumption and about 18% was feed meal. The significance of these import figures is noted when compared to the post harvest losses. Official estimate of 20% loss of the nation's total landings in 1986, valued at US\$111 million or roughly 113,000 mt shows them to be considerable and indicate both the extra financial benefit as well as nutritional benefit that could be made if they were controlled. To the nation's economy the loss is equivalent to 72% of fish and fishery products imported in the same year. Post harvest losses is currently a matter of serious concern.

With the formulation and development of the policies mentioned programmes and projects are being implemented based on an Integrated Development Approach to cover various aspects of production, post harvest handling and processing, quality control and market distribution. A comprehensive coverage

was presented in my country report and this paper will focus selectively, generally and briefly on the development that has been achieved in the traditional processing industry over the last two decades.

### **Satay Fish**

*Satay* fish is a type of snack food utilizing the Yellow Goatfish (*Upeneus sulphureus*, Cuv.) locally called 'ikan biji nangka' from the trawl by-catch. Two other species are also used but the product is inferior in quality and market value. Prior to their use for *satay* fish these species were utilized as fertilizer or reduced to fishmeal for incorporation into animal feed rations (Chee, 1980). In 1984 some 1,147 mt of this fish was landed in Peninsular Malaysia.

Production of *satay* fish originally started on the Island of Pangkor, situated off the West Coast of Peninsula Malaysia. Production on a smaller scale started in the State of Trengganu on the East Coast sometime in 1984 as a result of extension efforts by the Department of Fisheries. With the exception of a few establishments the majority of the processing units operate as 'backyard' industries.

The traditional method of *satay* fish processing is basically a simple process requiring very little technical know-how and little investment consisting mainly of a roller and oven for drying.

As commonly practised, processing of *satay* fish is done in two stages namely;

1. The Primary Processor; usually confined to women who bought the raw material from the trawl fishermen and after dressing and sundrying, the butterfly-fashioned pieces are sold to *satay* fish processors,
2. The Secondary Processor; usually entrepreneur who bought the dry pieces and finishes the processing into end product.

In the past few years several efforts were made to standardize the product's quality and to improve *satay* fish production by introducing mechanization, eg. a dehydrator which, additionally, improves absorption of the sauce before oven drying.

The use of a dehydrator provides a better

drying rate under controlled conditions of temperature, relative humidity, and air velocity yielding a more standard product and increasing output since the processing is independent of the weather.

*Satay* fish provides a means of altering the utilization of small-sized underutilized species which otherwise is channelled towards fertilizer production, into food for human consumption, thereby reducing waste and increasing the protein consumption through snack food amongst the people.

*Satay* fish is well accepted by the consumers throughout the country and the supply of raw material is abundant in the East Coast of Peninsular Malaysia. The Department of Fisheries through its extension services conducted short courses on *satay* fish processing to enable the transfer of technology from the West Coast to the East Coast, with MARDI (Malaysian Agricultural Research and Development Institute) conducting research on processing and Bank Pertanian Malaysia together with LKIM (Fisheries Development Authority) providing the credit facilities and guidance on management.

### **Keropok**

*Keropok* or crackers are popular snackfood in Malaysia made from either fresh fish, prawns or squid and starch, either tapioca or sago starch. Pelagic species such as 'ikan parang' (*Chirocentrus dorab*), 'ikan tamban' (*Clupea leiogaste*) or 'selayang' (*Decapterus russellii*) are the main species used although several other species are also used.

*Keropok* production in Peninsular Malaysia, once confined to the coastal fishing areas along the East Coast especially in the States of Trengganu and Kelantan, has since the 70's been produced in small quantities (< 5%) in other states like Johore, Pahang, Kedah and Perak. *Keropok* production increased from 563 mt in 1971 to 6,163 mt in 1984 and is still growing as an important cottage industry in Malaysia.

The use of the traditional method of processing which is highly labour intensive is becoming less common. In order to capture a larger market, a majority of processors has incorporated some degree of mechanization into their processing method, enabling some improvement in production efficiency and end-product quality, such as the use of:-

- a. Mechanical blade mixer: to obtain a homogenous mixing
- b. Aluminium/stainless steel or water permeable casings: to produce *keropok* of constant shape and size and reduce labour cost
- c. Steaming under ordinary pressure: instead of cooking by boiling, to save on time and space
- d. Mechanical Slicer: to produce *keropok* of even thickness, to save labour cost and time
- e. Mechanical Drier: to control moisture content, prevent hardening and poor expansion characteristic, eliminate contamination during and after drying and,
- f. Better packaging material.

*Keropok* of various sizes, shapes and colour and made from different kinds of fish are available in the market and export-quality *keropok* are sold to over 30 countries; the export market is still expanding and demand exceeds supply.

### Dried/Salted Fish

Drying and salting are probably the oldest and most common of all food preservation methods for several reasons, namely;

1. It is the least expensive processing method,
2. Low capital costs, and
3. Cheaper end products, more within reach of low income groups.

There is a large number of dried/salted fish products, including jelly fish and some are export commodities such as dried jelly fish, few types of salted fish and dried anchovies.

Much of the sun dried and salt cured fish products produced in Malaysia are of very high quality, and some of the products, once the poor man's food and become 'luxury' items for low income groups (eg; dried anchovies at US\$6.40/kg). Processing methods remains traditional. However there is scope for further development particularly in the

improvement of onboard fish handling, better sanitation in processing establishments and in keeping quality (experiencing losses as high as 25% in quantity due to spoilage during storage).

Artificial drying has been tried to meet the demand for a more uniform quality of product and to enable continuous production in some localities most affected by weather fluctuations. This has not met with much success economically; moreover consumer acceptance of artificially dried fish was poor.

### *Belacan*

*Belacan* or shrimp paste, a high-salt intermediate moisture food is a traditional preparation of salted and fermented minced shrimp of a tiny *Acetes* sp. It is well established as a widely consumed condiment in Malaysian cuisine and is normally added as a flavouring ingredient in local dishes.

The production of *belacan* still remains at cottage industry level and most of them established as family concerns. Main production areas are the coastal fishing villages along the West Coast of Peninsular Malaysia and in smaller quantities in the East Coast.

Some form of mechanization in the *belacan* production can be seen especially in the main production areas, and the product's packaging has improved considerably. *Belacan* production in 1984 was 2,818 mt and the export market in South East Asia as well as Hong Kong and Europe is well established.

### Conclusion

Malaysia's fisheries development programme like that of most developing countries aims to step up production of fish as well as to increase incomes and standard of living of her fishing population. Apart from determining ways to tap the newly acquired resources in the Exclusive Economic Zone, finding the best ways of utilizing the catch already available to her is no less important. As far as fish processing is concerned, traditional methods still commend themselves as being the most generally applicable and the most likely to be successful.

Realising the constraints within the fish processing sector which are mainly technical and economy of scale in nature, efforts are being made to educate the processors, and to up-grade and even relocate the processing units to facili-

tate the introduction and transfer of technology. The aim is to process the available resources efficiently into high-quality end-products for human consumption thereby increasing the productivity of fishing household and minimizing post harvest losses.

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