

Introduction

The shrimp fishery plays an important role in Bangladesh economy. Ranked high as popular human food, freshwater, marine and estuarine shrimps contribute significantly to the export and foreign exchange earning of Bangladesh. Since 1974-75, the export of shrimps in terms of weight and value has increased each year. The shrimp industry is now the major fisheries foreign exchange earner.

Shrimp Processing Industries

The various shrimp processing industries in Bangladesh consist of freezing plants, smoking/drying factories and meal factories.

Freezing plants. There are 36 shrimp freezing plants in Bangladesh which are mainly established in the cities of Chittagong, Khulna and Dhaka. Twenty exporting companies in Bangladesh, with no freezing plants of their own, use some of these 36 freezing plants.

The first freezing plant was established in 1959 in Chittagong and up to 1965, there were only seven plants in what was then East Pakistan. Six years later, there were only nine. But after 1972, specifically from 1977-81, freezing plants and fishing trawlers with freezing facilities burgeoned.

Starting capital, establishment cost, running cost and revolving capital of most of the plants are sustained by the owners themselves but some banks helped boost the industry.

Freezing plants have land areas of 464.5 m² to 6,490.5 m² with an average of 1,858 m².

Most freezing plants have two contact plate freezers and one or two air blast freezers (average of 1.6 contact plate freezers and 0.7 air blast freezers with a mean capacity approximately 4.3 tons and 7.1 tons, respectively).

All freezing plants have flake ice plants to preserve fish and shrimp during transport from the landing station to the freezing plant. The majority of these flake ice plants produce 8-10 t of ice a day.

Some freezing plants have refrigeration motor vans and carrier boats for transporting shrimp and fish.

Upon landing in the plant, the shrimps are immediately transferred to the 0°C chill-room for temporary storage. Each freezing plant has at least one chill-room.

Shrimp Processing in Bangladesh

M.A. HOSSAIN

Fishery Research Laboratory
Department of Zoology
Rajshahi University, Bangladesh

Production of freezing plants depends on the number of freezers and the number of trays in each freezer. In Bangladesh, the percentage of actual production in relation to total annual production capacity is very low (e.g., 23% in Khulna in 1978-79; 21% in Chittagong in 1981-82). While some plants produce more than 90% of their total production, there are others which produce only 1-3% of their total capacity.

From the chill-room, the shrimps are packed in inner cartons of ten which in turn are contained in a master carton. Each master carton contains 20 kg of deheaded, peeled or deveined shrimps. Two-kg packs of shrimp tails are also prepared. On each inner carton and master carton, the kind of shrimps, grades and weights are printed in a chequer.

After packing, the master cartons are immediately transferred in the cold storage with the temperature maintained at least below -20°C. Most freezing plants have two cold storage rooms, each with an average capacity of 80 t (capacity, however, ranges from 15 to 250 t).

Quality Control. There are two quality control laboratories in Bangladesh—one in Chittagong Port City and another in Khulna Port City. These laboratories examine the quality of fresh and frozen fish and shrimp through four kinds of tests: physical test, taste panel (organoleptic tests, boiling and testing), chemical test and bacteriological test or biochemical test. After the tests, the quality control officer issues a health certificate for consignment on behalf of the government of the People's Republic of Bangladesh.

Prawn-Smoking Factories. In Khulna, there are more than 100 shrimp-smoking factories locally known as "khote." These are cottage industries under private ownership. Small-sized species of shrimps

such as *M. mirabile*, *M. scabriculum*, *Palaemon styliferus*, *Metapenaeus* sp. are commonly used for smoking.

Sundrying. Majority of Bangladeshi fishermen sundry smaller prawns for home consumption. This is especially done in the coastal areas and in some parts of Sylhet, Mymensingh, Rajshahi and Pabna during the winter months when peak landings of the smaller prawns occur.

Export of Shrimps

Frozen food is one of the top exportable products of Bangladesh. Fish, frog-legs and shrimps are frozen for export. Most of the foreign exchange earning comes from shrimps, 11 species of which are exported to Japan, America, Holland, Belgium, the United Kingdom, West Germany, France, Sweden, Switzerland, the Netherlands, Italy, Saudi Arabia, Singapore, Spain and other countries.

Other Shrimp Products

Aside from frozen, smoked and sundried shrimps, there are also canned shrimps, shrimp pickles, shrimp papodum, shrimp flour, among others. Shrimp pickles and shrimp papodum are produced in different parts of North Bengal but only for home consumption. Shrimp meal or flour is usually added in cooking vegetables particularly by the countryside people of Rangpur.

Suggestions for Improved Production

Research shows that utilization of freezing plants at national level is very low, that is, less than 25% of the total capacity of production. If all freezing plants work to full capacity and export their products, exports would at least be four times more. It is also reported that due to low supply of raw materials during particular seasons of the year, freezing plants are not able to achieve maximum production.

Suggestions from a survey on improved production of Bangladesh freezing plants include: government loans at low interest rates for new plants, mechanized boats and fishing equipment; tapping of foreign markets for prawn products; tax-free importation of equipment; cold storage rooms at shipping terminals; incentives to shrimp exporters; regulation of collection of seeds from natural estuarine waters and artificial rearing of shrimp seeds.