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ASIAN SHRIMP SITUATION

A close look at cultured shrimp production figures points to Asia's predominance in the industry. Of the estimated world production of 560,000 tons in 1988, Asian countries produced 85.4% and the rest of the world, about 15% (Fig. 1). The major contributors to this "Blue Revolution" are China, followed by Indonesia, Thailand, Taiwan, Philippines, India, Vietnam, and Bangladesh.

In the case of capture fisheries, world shrimp landings totalled 2.04 million tons in 1987 as compared to 1.86 million tons in 1984. This is only a 9% growth rate, whereas in the aquaculture sector the growth rates were 25% and 27% in 1987 and 1988, respectively. Again, Asian shrimp producing countries were largely responsible for this accelerated growth. The market crash in early 1989, stemming from an over-supply of shrimp, and the subsequent reduction in production by shrimp producers in many Asian countries are, however, likely to contribute to a reduced growth rate in 1989 (Table 1) and probably in 1990, too.

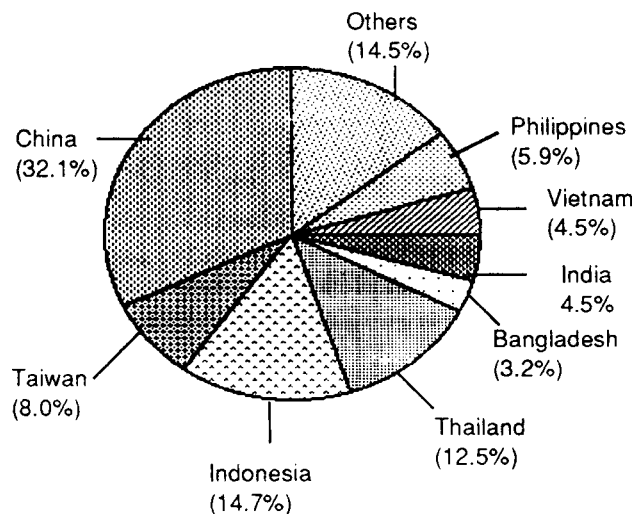


Fig. 1. Asian cultured shrimp production.

Table 1. Catches of shrimp by major producing countries, 1984-89 (In 1 000MT)

Country	1984	1985	1986	1987	Share of world catch in 1987 (%)
Bangladesh	61.0	70.0	73.0	74.0	3.6
China	207.1	229.2	200.1	192.5	9.5
Taiwan PC	100.7	107.7	137.0	126.5	6.2
India	203.1	232.5	214.7	216.7	10.6
Indonesia	132.9	144.1	157.3	140.9	8.2
Malaysia	70.1	69.0	72.9	72.9	3.6
Philippines	52.2	62.4	72.1	68.0	3.3
Thailand	136.2	126.3	139.5	150.1	7.4
Vietnam	52.0	54.1	55.4	56.0	2.7
Japan	62.9	55.0	47.9	47.8	2.3
Brazil	58.6	67.5	68.6	68.6	3.4
Ecuador	39.9	36.2	52.8	78.7	3.9
Greenland	41.5	52.4	64.1	64.1	3.1
Mexico	76.1	74.6	73.2	83.9	4.1
Norway	84.0	91.2	67.4	42.0	2.1
USA	145.0	152.7	183.3	165.0	8.1
Others	341.5	355.5	332.0	363.4	17.9
Total	1 864.0	1 980.4	2 001.3	2 011.1	100.0

Still reeling from the impact of the Japanese market price crash, Asian producers look towards domestic market development, market diversification and product development as buffers against any future price drop.

Item One: Indonesia - Surviving in the International Market with Low Production Cost

Some 50,000 ha are in use for shrimp culture in Indonesia. The majority of the farms, i.e., 60%, use the extensive culture system whereas 20% and 10% are involved in semi-intensive and intensive farming, respectively.

Farmed shrimp production reflected a phenomenal growth rate of 27% over the last five years. In 1988, Indonesian farmers harvested 82,500 tons of black tiger (*Penaeus monodon*) (Table 2).

Like other shrimp producing countries in Asia, Indonesia also suffered a price drop in the international market in 1989. Nevertheless, farmers enjoy certain advantages over other shrimp producing countries in the region such as lower production cost which has helped the country survive in the international market.

Shrimp is the biggest contributor to the country's fishery exports. Exports of shrimp increased from 26,166 tons in 1983 to 56,552 tons in 1988, registering a 116% increase. Exports are very much dependent on one country, i.e., Japan. In 1988, 71% of exports were directed to the latter. Indonesia is, in fact, the number one shrimp supplying country to the Japanese market. During January-August 1989, exports totalled 32,039 tons against 24,314 tons for the same period in 1988.

The second largest market at the moment is Singapore which absorbed about 9% of the total export volume in 1988. Singapore buys much fresh/chilled shrimp from Indonesia for domestic consumption as well as for re-exports. Although fresh shrimp usually fetch higher prices, suppliers encountered a drastic fall in price in the market, too.

Meanwhile, more and more shrimp are being exported to Hong Kong and Malaysia and other European countries.

Some 80,000 ha along Indonesia's 80,000 km coastline have been identified for brackishwater shrimp culture. Of this, 50,000 ha are already in use and aquaculture is expected to grow in the near future. While still encouraging shrimp farming, the Government remains cautious about maintaining the current balance between intensive and extensive culture to keep farm level production cost as low as possible in view of the depressed international market price.

Item Two: Thailand - Problem of Shrimp Feed Shortage

Thailand's cultured shrimp production doubled within a year to reach 70,000-75,000 tons in 1988, making the country the third largest cultured shrimp producer in Asia as well as in the world. The industry has expanded rapidly in recent years, especially in 1988 when shrimp prices increased markedly in response to higher demand in the international market and also due to continuous crop failure in Taiwan.

Since 1987, intensive and semi-intensive methods spread to almost all coastal provinces and farmers are culturing black tiger only.

Thailand's booming shrimp industry encountered initial problems of shrimp feed shortage and increased fish meal prices. In May 1989, Japan, the major market, cut back imports from Thailand because of its high inventory situation. As a result, the Commerce Ministry agreed to allow the

Table 2. Cultured shrimp production in Asia, 1975-88 (in 1 000 MT)

Country	1975	1980	1984	1985	1986	1987	1988
China	0	2.0	22.0	35.0	70.0	153.0	180.0
Taiwan PC	0.3	5.0	17.0	33.3	65.0	75.0	45.0
Indonesia	10.0	28.0	33.0	39.0	48.0	55.0	82.5
Thailand	3.3	10.0	14.5	15.0	16.0	30.0	70.0
Bangladesh	4.0	7.0	11.5	12.5	13.5	14.5	18.0
India	4.0	12.0	14.0	16.7	18.4	22.0	23.5
Philippines	1.0	1.5	26.3	26.5	27.9	35.4	33.6
Vietnam	1.0	4.0	7.0	7.0	7.0	15.0	25.0
Sub-total	13.3	69.5	145.3	185.0	265.8	399.9	477.6
Other	16.7	20.5	29.7	25.0	39.2	100.0	82.4
World total	30.0	90.0	175.0	210.0	305.0	500.0	560.0p

p = Preliminary

import of 10,000 tons of high-quality fishmeal. Other decisions made were:

- 12 major shrimp feed producers agreed to reduce price by 12.75% in the case of direct sales to farmers through cooperatives and groups;
- the Department of Fisheries proposed limiting shrimp farming to 500,000 rai in order to maintain production between 100,000 and 300,000 tons; and
- the Department of Fisheries together with the Department of Trade and Commerce, Shrimp Farmers' Association and Shrimp Exporter's Association arranged shrimp exhibitions and cooking demonstrations from June to boost domestic demand for black tiger.

The 1989 black tiger price drop has indeed encouraged people to buy more shrimp. The major outlets are seafood restaurants. Almost all four- and five-star hotels operate Japanese, Thai, and Chinese restaurants where shrimp is an essential ingredient of various cuisines. Apart from tourists, there are some 50,000 Japanese expatriates who love shrimp.

Thailand exported 42,841 tons of frozen shrimp to the world market last year; 50% of this went to Japan, most of them being cultured shrimp. In 1987, this volume was only 11,559 tons. As a shrimp supplier, Thailand ranked third in the Japanese market. Up to August 1989, exports totalled 25,459 tons against 12,408 tons during the same period the previous year, placing the country second after Indonesia.

Thailand is also the number one canned shrimp supplier to the US market, maintaining an export volume of more than 15,000 tons for the last three years. In Europe, Italy is the major market; some 5,996 tons of frozen shrimp were exported in 1988. Exports to this market increased by almost 400% within a year. For cooked and peeled and canned products, UK remains the principal outlet. Fresh products are mostly sold to neighboring Malaysia and Singapore. For high-value products, Japan is the growing outlet for Thai packers who are, in fact, becoming more active in processing value-added products.

Item Three: India - Seriously Looking into Market Diversification

Shrimp has been the "prima donna" of Indian fishery export since the early '70s and continues to remain so. Until 1987, India was the world's largest shrimp producing and exporting country. Landings from the capture fisheries remained between 175,000-200,000 tons during 1973-87 and it is generally felt that production from this sector will not increase further as the inshore waters are fully exploited. An estimated 58,430 ha are used for producing brackishwater shrimp in India

with black tiger accounting for 50% of cultured shrimp.

Culture technology in India is very much extensive in nature because of the simple technology and low capital investments involved. Out of 58,370 ha, 50,000 are used for traditional paddy-cum-shrimp farming. The rest are semi-intensive.

Shrimp is hitherto the major fishery export of India. In 1988, Indian shrimp exports to the world market totalled 55,976 tons, reflecting 8% increase over 1987's volume. Valuewise, the increase is 15%.

Like other major suppliers, Indian shrimp exports are also very much dependent on the Japanese market. Unfortunately, the country is losing her market share to Indonesia, China and Thailand. Exports dropped from 32,352 tons in 1987 to 31,000 tons in 1988. During January-August 1989, exports trended upwards to 20,318 tons over last year's 18,881 tons.

In the US market, Indian shrimp consists mostly of peeled products totalling about 75%. During January-July 1989, exports totalled 8,818 tons (19.4 million lbs) as compared to the corresponding figure of 7,863 tons (17.3 million lbs) in 1988. India has been the number one peeled shrimp exporter to this market until last year but now has been overtaken (marginally) by China. Notwithstanding this, the US offers better opportunities than Japan in 1989.

Due to disappointments in the Japanese market, packers are now seriously looking into market diversification, with the target area being Europe. The United Kingdom, which is the third largest market for Indian shrimp, imported more shrimp in 1988. Exports to the market were 6,868 tons in 1988, almost double the 3,930 tons in 1987.

Packers, meanwhile, are now rushing to set up plants producing value-added products. The current aggressive marketing efforts in Europe will certainly push more products to this market area.

Item Four: Philippines - From Milkfish and Sugarcane to Shrimps

As of 1987, 210,000 ha have been utilized for brackishwater culture. An estimated 205,000 ha of this is under extensive shrimp and milkfish culture. Some 90% of cultured shrimp in the Philippines comprise black tiger.

Catches from the sea remained at a level of 63,000 tons on average during 1984-87 whereas aquaculture production increased from 9,287 tons in 1983 to 33,675 tons in 1988.

The rising consumption and price of shrimp has encouraged many sugarcane farmers to utilize their farm land for shrimp farming. Many fishpond operators in Luzon and Visayas have also switched from milkfish to shrimp. The Island of Negros is the most notable example - here sugarcane planters have switched to shrimp farming, setting up expensive aquaculture facilities. Most of the intensive farms are located in this area. The Philippines has been blessed with an educated work force and aquaculture expertise which has contributed towards the expanding of the shrimp culture industry. Furthermore, there is sufficient broodstock to help set up more hatcheries for fry production.

Intensive farming has developed rapidly in the Philippines. Latest survey results show that 40% of cultured shrimp in the country comes from intensive farms. Yield from these farms ranges from 2-10 tons/ha/year. Ex-farm price for black tiger has increased considerably during the last five years. Intensive farming has also given rise to some serious technical problems due to high stocking densities. To overcome this, farmers have reduced densities resulting in lower yields and high overall costs. Incidentally, cost of production in the Philippines is higher than in Indonesia due to high fuel, labor, and energy costs.

Although Japan remains the major market for Philippine shrimp (18,639 tons in 1988 against 11,794 tons in 1987), exporters are trying to sell more shrimp to other market areas. Exports to the USA have increased remarkably (7.6 million lbs in 1988 against 5.6 million lbs in 1987). During January-July 1989, Philippines' exports to the USA were 7.6 million lbs compared to 3.8 million lbs in the corresponding period in 1988. Other markets are Canada, France, Hong Kong, and Australia.

Item Five: Malaysia - Shrimp Farming Expands at Slow Pace

Although the Malaysian shrimp culture history goes back to 1979, cultured shrimp contributes only 2 tons of the country's total shrimp landings. Shrimp landings in 1987 totalled 98,000 tons from the capture fisheries while harvests from the brackishwater ponds amounted to 1,500 tons only.

Malaysia has perfect climatic conditions for round-the-year shrimp culture. But due to lack of expertise and management problems several farms have failed until very recently. Foreign experts appeared to have overlooked local conditions when establishing projects.

Malaysia is a net importer of fishery products with a lot of shrimp imported from Thailand and Indonesia. These imports recently put farmers in a bad spot when shrimp prices dropped to their lowest in the international market during May-June 1989. Local products could not compete with the less expensive Thai and Indonesian shrimp, prompting the Government to initiate a campaign in early August to limit shrimp farming. Farmers stopped stocking for a while and as production volumes are not very big, the industry survived marginally, though having still to recover fully.

Shrimp farming is now expanding at a slow pace. The Government projection is 21,000 tons from aquaculture by the year 2000. Malaysia is not a major shrimp exporter; exports in 1988 were only 7,360 tons and comprised frozen headless, cooked and peeled, and canned shrimp. For headless products, the major markets are Japan and USA. Some fresh and chilled products are also exported to Singapore. Cooked and peeled products are exported to Australia and Europe. In 1988, canned shrimp exports totalled 4,559 tons.

Item Six: People's Republic of China - Major Peeled Shrimp Exporter to the USA in '89

The People's Republic of China produced 32% or 180,000 tons of the world's cultured shrimp in 1988. The predominant species cultured is white *Taisho* or *P. orientalis*. Small volumes of *P. monodon* and *P. penicillatus* are also cultured.

Chinese shrimp culture grew by almost 79% during the last six years placing the country at the top of shrimp-producing countries. Total acreage of Chinese shrimp farms expanded from 9,300 ha in 1980 to 131,300 ha in 1987. Shrimp culture in China is very seasonal and takes place only during summer (4-5 months) because of the long and cold winters except in the southern areas.

China has also succeeded in expanding its market worldwide, to keep pace with production. *Taisho* continues to be the preferred species among the Japanese and imports into Japan increased from 10,307 tons in 1984 to 37,987 tons in 1988. China was the top exporter to the Japanese market last year. However, 1989 January-August exports seem to be lagging behind Indonesia and Thailand.

Last year, China became the principal supplier to the USA exporting some 24.4 million lbs (47,300 tons), taking over from India as the major peeled shrimp exporter to the US market in 1989. Until July '89 exports of peeled products were 17.8 million lbs (against a total of 68.1 million lbs) while those from India totalled 15.2 million lbs. Exports to UK increased from 182 tons in 1985 to 2,265 tons in 1988. The price of Chinese shrimp in the US market is usually 10% lower than the Ecuadorian whites, thus explaining its saleability in this market area.

The latest development is the emergence of Chinese black tiger exports in the Japanese market in October 1989. Some 3,284 kg of shrimp packed on ice in 10 kg styrofoam packs arrived in the Tokyo market from Fujian Province. The shrimp were reportedly blue shrimp weighing 34 to 51 g/pc and were relatively cheaper.

Besides being a major shrimp supplying area, Asia is also gaining prominence as an importer of fish and shrimp. In addition to Japan, there are three major markets in Asia that should not be ignored. These are Singapore, Hong Kong, and Malaysia. A great deal of intra-regional trade is

evident in this area. Singapore has become an import market for neighboring Indonesia, Malaysia, and Thailand, reflecting a steady increase in imports of fresh/frozen shrimp.

In 1988, Singapore imported 22,457 tons of shrimp from Burma, Thailand, Malaysia and China. A substantial volume of Indonesian shrimp is either processed or re-packed in Singapore for re-export to other destinations. Singaporean processors buy shrimp from the neighboring Johore state of Malaysia where some Singaporeans have also invested in shrimp farms. Shrimps are also imported by truck from Thailand via Malaysia for domestic consumption as well as for exports. Because of stringent quality assurance, Singapore has the advantage of processing value-added shrimp and shrimp in consumer packs.

Hong Kong is another important market. Imports increased from 23,372 tons in 1984 to 71,622 tons in 1988. Its major supplier is, of course, China (exports being re-exported) followed by Vietnam, Indonesia, and Macau. Hong Kong is a re-processing center, too. Domestic consumption of shrimp among the ethnic Chinese community is also substantial.

The over-supply situation followed by plummeting prices of shrimp and a disappointing Japanese market in 1989 have served as a good lesson for Asian shrimp producers. Producers are now for the first time taking a closer look at the world supply situation. Certain countries now also realize that the development of domestic markets is very important as are market diversification and product development.

Source: Fatima Ferdouse, "Asian shrimp situation," *INFOFISH International*, No. 1/90, January/February.

FRY FISHING GEARS AND THE FISHING PRACTICE

The various fishing gears of Panay Island, Philippines and their modifications are summarized in the accompanying figure. The figure suggests the following tendencies in the development of the gear: increase in gear size and wing opening, extension of area of operation to offshore waters, and reduction of the bottom net (in the *sweeper*).

The development of the traditional *sagyap* into the *taktak* exemplifies increase in gear size and operation area. The development of the *sweeper* into the *bulldozer* demonstrates increase in gear size, extension of area of operation offshore, and loss of the bottom net. Coupling of the kerosene lamp with many of the gears has made night operation possible. All these trends of development reflect most obviously the economics of fry fishing and less clearly the behavior of the fry. First of all, the fishermen want to increase the catch to increase their income so that the gear structure and operation are made as extensive as possible, the use and cost of materials are seriously considered, and competition is avoided by varying the gears and the area of operation.

It is usually asked: How efficient are the various gears? Which one is the best?

It is very difficult to answer these questions and misleading to compare the catching efficiency of different fry gears. Each type has properties and advantages that cannot be equated with those of another. The different gear types operate under different, and rather specific, conditions as have been described. The physical effort involved in the operation differs from gear to gear, and for one gear, from place to place, from time to time. This is because the shore profiles of the fry grounds differ; so do the weather and sea conditions from day to day. Even if all the gear types were operated in the same fry ground at the same time a comparison would still be questionable because milkfish fry, it seems, are not homogeneously distributed in shore waters. The catch depends heavily on where the gear is and where the fry are at a particular moment. A gear can catch from zero to several thousands. Catch data show that the *sweeper* had the smallest mean hourly catch among the three gears tested (*sagyap*, *sweeper*, and *bulldozer*). Nevertheless, it