ANALYSIS OF EXPORTED INDIAN MARICULTURE PRODUCTS PRICE INFLATION RATE FOR SOME YEARS USING PAASCHE PRICE INDEX

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ABSTRACT

In the present study, through review of the data obtained from reference material a successful attempt has been made to find out the inflation or increment of value of Indian mariculture products in the international market. No such attempts have been made earlier, therefore present study may be considered as a baseline. The percentage inflation in the export value of Indian mariculture products from 1996 to 1999 was 21.77%, from 1996 to 2002 it was inclined to 52.64% and from 1996 to 2005 it was just inclined to 56.65%. The export price of Indian mariculture products has increased from 1996 to 1999 by 21.77%, and from 1999 to 2002 by 30.87% which can be consider as good increment but from 2002 to 2005 it drastically declined to 4.01%, which is very poor increment price and harmful to the growth of mariculture farmers. The percentage inflation was determined using the Paasche price index. The Indian mariculture products export prices have shown a steady rise from 1996 to 2002 but from 2002 to 2005 the export price rise has declined drastically. From the year 2002 to 2005 there was a sudden collapse in the mariculture shrimp farming industry due to various upcoming environmental problems and also shrimp diseases. India has to take requisite steps to overcome the problems presently faced by the mariculture farmers and the related industries so that it revives itself and the export prices of the mariculture products increases for their satisfaction.

KEYWORDS: Paasche price index, cultured shrimp, frozen mussel meat, mariculture.

INTRODUCTION

Mariculture is a specialized branch of aquaculture involving the cultivation of marine organisms for food and other products in the open ocean, an enclosed section of the ocean, or in tanks, ponds or raceways which are filled with seawater (Srivastava 1999).

Mariculture has become a promising area of aquaculture all over the world. It is one of the most important and rapidly growing components of Asian aquaculture, contributing substantially to the increased demand for high-value seafood items in the global market. India has a long tradition of aquaculture and is a world leader after the People's Republic of China, contributing about 5.2 percent of the total world production in 2003. A subcontinent with seas on three sides, India has a long coastline of about 8129 km. The country's continental shelf is estimated as 0.5 million km^2 and its Exclusive Economic Zone (EEZ) encompass 2.2 million km^2 (FAO 2005).

The mariculture potential of India is vast as there is great scope for developing farming of shrimps, pearl oysters, mussels, crabs, lobsters, sea basses, groupers, mullets, milk fishes, rabbit fishes, sea cucumbesr, ornamental fishes, seaweeds etc. Although about 1.2 million ha is suitable for land based saline aquaculture in India, currently only 13 % is utilized. In India till date mariculture activities are confined only to coastal brackish water aquaculture, chiefly shrimp farming (Sathiadhas *et al.*, 2005). The export of aqua-cultural shrimp has been stagnating around 50,000 tonnes per annum in the seventies and early eighties. The quantity of shrimp exports increased to 1, 28,000 mt in 2001-02 and 1, 35,000 mt in 2002-03.

The value realized by the aquaculture shrimps has also gone beyond 80 % of the gross earnings of shrimp exports. The same scenario is also observed in the other Mariculture products export (Sathiadhas *et al.*, 2005).

But during the last decade the export prices of all mariculture products have increased considerably. Through the present study an attempt has been made to determine the inflation of price of the exported mariculture Indian products over the years using Paasche price index. Till date no such attempt has been made by any other investigators present study may be consider as baseline for further study on price inflation.

MATERIALS AND METHODS

The following data is being obtained from the Reference (Sathiadhas *et al.*, 2005; Bhat *et al.*, 2008).

Table 1: Indian Mariculture Products export value in different years.

Mariculture Products	Years							
	1996		1999		2002		2005	
	Quantity in Kg	Price in Rs	Quantity in Kg	Price in Rs	Quantity in Kg	Price in Rs	Quantity in Kg	Price in Rs
Frozen Mussel Meat	1	67	1	50	1	86	1	100
Live Crab	1	119	1	174	1	204	1	259
Frozen Finfish	1	37	1	42	1	42	1	54
Cultured Shrimp	1	250	1	310	1	390	1	328

The Paasche price index formula is as follows

$$I_p = \frac{\sum P_n Q_n}{\sum P_o Q_n} \times 100$$

P = Price of the Commodity, Q = Quantity of the Commodity, o = Base year and n = Current year under study (Santhanam *et al.,* 2010). The above depicted formula is being implemented on the data obtained from the reference.

RESULTS DISCUSSION

Every country mainly obtains foreign exchange through export of various commodities to other countries. The foreign exchange earning basically depends on the value of the exported products in its own currency. The export values of various Indian mariculture products depicted in the Table 1 are exhibiting continuous fluctuations thus affecting the foreign exchange earnings through the mariculture products.

In the present study through assessment of the data obtained through reference work, attempt has been made to find the inflation or increment of value of our mariculture products in the international market. As such attempt has not been made earlier by any other investigator and is our first effort, very less material is available in the form of reference. Therefore this study may be considered as a baseline for the same.

The export value of our country's mariculture products in year 1996 was taken as the base values and then the Paasche price index was deduced for the periodic preceding years. The Paasche price index is an indication of price increment or decrement. The percentage inflation in the export value of mariculture product from 1996 to 1999 was 21.77%, from 1996 to 2002 it was 52.64% and from 1996 to 2005 it was 56.65%. The break-even price for the tiger shrimp is worked out at 161/kg while it fetches market sale price of Rs. 350 to 400/kg. In mussel culture, break-even price is worked out to Rs. 3 to 35/kg fetches market sale price of Rs. 8/kg (Sathiadhas *et al.,* 2009). Poulomi Bhattacharya, 2009 reveals that the production of shrimp in West Bengal has increased from 6200 metric tonnes in 1990-91 to as high as 8958 metric tonnes in 1996-97. But after that, due to frequent disease outbreaks the production started declining and has gone down to 6510 metric tonnes in 2002-03.

Table 2: Paasche price index for the year 1996 – 1999.

Mariculture Products	1996		1999		PnQn	PoQn
	Po	Qo	Pn	Qn		
Frozen Mussel Meat	67	1	50	1	50	67
Live Crab	119	1	174	1	174	119
Frozen Finfish	37	1	42	1	42	37
Cultured Shrimp	250	1	310	1	310	250
Total					576	473

For year 1999 the I_P = 121.77

Table 3: Paasche price index for the year 1996 – 2002.

Mariculture Products	1996		2002		PnQn	PoQn
	Po	Qo	Pn	Qn		
Frozen Mussel Meat	67	1	86	1	86	67
Live Crab	119	1	204	1	204	119
Frozen Finfish	37	1	42	1	42	37
Cultured Shrimp	250	1	390	1	390	250
Total					722	473

For year 2002 the I_P = 152.64

Table 4 : Paasche price index for the year 1996 – 2005.

Mariculture Products	1996		2005		PnQn	PoQn
	Po	Qo	Pn	Qn		
Frozen Mussel Meat	67	1	100	1	100	67
Live Crab	119	1	259	1	259	119
Frozen Finfish	37	1	54	1	54	37
Cultured Shrimp	250	1	328	1	328	250
Total					741	473

For year 2005 the I_P = 156.65.

Table 5 :Percentage of inflation over the years.

Year	Paasche Price Index	Percentage Inflation Rate	Percentage Inflation Rate increase from 1999 to 2002 is 30.87 %, while from 2002 to 2005 is 4.01%.
1996	100	----------	
1999	121.77	21.77%	
2002	152.64	52.64%	
2005	156.65	56.65%	

The export price of Indian mariculture products has increased from 1996 to 1999 by 21.77% and from 1999 to 2002 by 30.87% which may be considered as favourable for the mariculture farmers and industries but from 2002 to 2005 it drastically decreased to 4.01%, which may be considered as disaster for the growth of mariculture farmers and industries.

The Indian mariculture products export prices have shown a steady rise from 1996 to 2002 but from 2002 to 2005 the export price has been declined drastically.

This is because the growth of Indian mariculture is rather slow as compare to the mariculture growth in other countries. In India 1.2 million ha of potential area for mariculture have been identified but till date only 1,00,000 ha have been utilized for operational mariculture. In the years from 2002 to 2005 there was a sudden collapse in the mariculture shrimp farming industry due to various upcoming environmental problems and also shrimp diseases. This collapsation led to severe decrement in the export price of Indian mariculture products also the fisherman engaged in the mariculture shrimp farming diversified them to mariculture fin- fish farming.

While the shrimp-oriented aquaculture industry in India recorded exceptional growth for the last three decades in spite of its high exposure to risk and uncertainties the farming/culture of various other species has not picked up to the expected level enabling the optimum use of potential area suitable for aquaculture (Sathiadhas *et al.*, 2009).

In present scenario major commercial ventures in mariculture finfish farming are also restricted due to the lack of advance technology and also unreliable nature of the wild fish seeds. India has to take requisite steps to overcome the problems presently faced by the mariculture farmers and related industries so that it revives itself and the export prices of the mariculture products increases. And in future mariculture sector can become a major contributor in earning foreign exchange.

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