

# Seasonal Variation and Profitable Market Potentiality of *Bellamyia bengalensis* in the Western Zone of West Bengal, India

## Abstract

Fresh water Molluscs, *Bellamyia bengalensis* have latent potential mainly as socioeconomic point of view. By selling this commodity a lots of people can able to earn their daily livelihood. Because beside its good edible value & medicinal value, it also act as a cheap source of protein. In this study several market places of West Zone of West Bengal were considered as per daily bulk selling, like Midnapore town (Rail gate Market, Miya Market, Kotwali Market, School Market, Raza Market.), Bankura (Bankura Sadar Market, Sonamukhi, Market, Bishnupur Market, Patrasayar Market, Balsi Market) & Purulia (Purulia Tawn Market, Puchar Market, Mosera Market, Khatra Market.). Through private distribution system the whole market process has been analysed. Where Collectors & Sellers can earn per day including three zones, i.e. 150/- to 200/- (approx.) & 150/- to 250/- (approx.) respectively. As it has a seasonal variation, it showed a impact on marketing process. Where rate of Pre-Monsoon showed comparatively lower than Monsoon & Post Monsoon.

**Keywords:** *Bellamyia bengalensis*, Midnapore, Bankura, Purulia, Collector, Wholesaler, Retailer, Seasonal Variation

## Introduction

Aquaculture has developed an effective tool, in providing additional food resources for the increasing human population in our country & that leads improvement of several sectors beside the finfish & shell fishes. Molluscan group are not so far lagging behind in this concern. In West Bengal South west region basically West Midnapore, Purulia, Bankura, & some parts of East Midnapore Hoogly Howrah etc contribute a good market potential in the Fresh water Molluscan economy & depending on those markets a large number people able to capture their daily livelihood. Here fresh water snail market related with mainly *Bellamyia bengalensis* which is locally called "Genri". Beside its good edible value, it can supply not only very cheap source of protein but also nutritionally rich diet to the people. And those who are not able to purchase meats & fishes (which are far costly to them) depends upon this animal food. People has being realized for a long time that *Bellamyia bengalensis* has good medicinal value. for disturbance of eye sight, vitamins deficiencies & helps in controlling diarrhea, gastric disorders etc. (Pravakar & Roy, 2009). And That's why keeping these point in mind an experiment was made on the marketing process & daily transaction, by selling of *B. bengalensis*, in those areas where this item has high market demand for its edible value, namely West Midnapore, Bankura & Purulia. As seasonal abundance was observed of this species with changing of water quality parameters and availability food matter (Bath et al 1999). So, an experiment also made on its seasonal availability that leads towards changing on marketing process.

## Materials & Methods

Here Market places were chosen, where every day, a huge number of transaction is occurred. The markets were Midnapore town (Rail gate Market, Miya Market, Kotwali Market, School Market, Raza Market), Bankura (Bankura Sadar Market, Sonamukhi Market, Bishnupur Market, Patrasayar Market, Balsi Market, Khatra Market) & Purulia (Purulia Tawn Market, Puchar Market, Lalpur Bazar, Man Market). By using the protocol of "Private Distribution system", the whole marketing process of *Bellamyia bengalensis* was considered. Here product reach from collectors to consumers either direct or through several types of middlemen (branch system process). Each middleman perform some work in bringing the product to the ultimate consumers, the ultimate consumers are belonging

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at the end point of the channels. (Gongopadhyay, 2001).

Here people are called “Collectors” who engage in the collection of *B.bengalensis*, are belonging in group “D” (here “D” means “Division”). Here three divisions was made from group “D” according to the distribution channels, from the collectors to the ultimate consumers. At first the people called retailers who buy the products from the collectors & sell it door to door either whole (fleshy part covered with shell) or flesh (only fleshy part excluding shell part), are belonging in the group of D-I. In the marketing process of group D-II, where wholesaler sells their product either flesh or whole condition directly to the

consumer, within a market place, it was then considered as group D-IIA. When product moves to the consumer through wholesaler & retailer they were taken into group D-IIB. Other people (collectors) who sell their item either door to door fashion or within the market, which was considered as group D-III. In this study collection place, collection time etc. were taken into account.

For Seasonal market survey three successive season were chosen i.e. Premonsoon (February to May), Monsoon (June to September) & Post Monsoon (October to January) & survey was done from 2009 to 2012. For Statistical Analysis Mean, Standard deviation was applied.

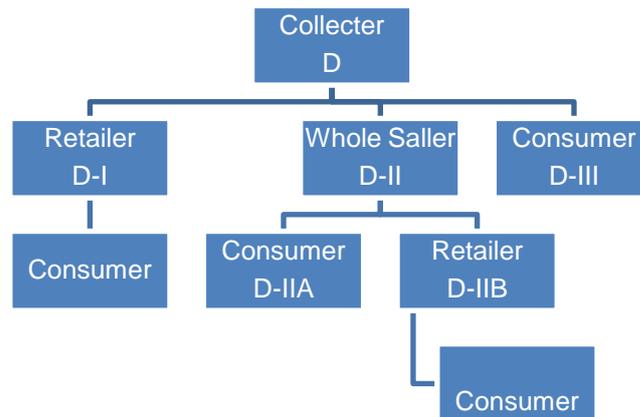


Diagram on marketing process

## Results Collection

There Are Some Section Of People Who Are Engage In Collection (Called “Collector”) Of *Bellamya Benmgalensis* & Fall In The Group D, They Are The Inhabitant Of Mainly Debra, Nayagram & Other Parts Of West Midnapore, Bankura & Purulia.

### Collection Sectors

Collection Is Done From Wet Lands, Beels, Canals Etc. Of East & West Midnapore, Howrah Etc. Like Haldia, Mecheda, Tamluk, Noyagram, Moina, Santaragachi, Phuleswer, Mourigram, Ramrajatala Etc. People Of Bankura Markets Do Collection From Ponds, Beels, Canals Of Nearest Market Area, Mukutmanipur Dam Etc. Collectors Of Purulia Do Collection From Mukutmanipur Dam Area & Also From Ponds, Beels, Canals Of Nearest Market Area.

### Time of Collection

They Go To The Collection Center At The Early In The Morning, After A Sufficient Collection, They Come To The Selling Ground.

### Marketing Process & Transaction

The Whole Process Is Mentioned In The Table-1 & Table-2. Where Informations Were Given On Marketplaces Of Each Zones & Their Source Of Product (Collection Ground, Wholesaler), Seasonal Collection & Buyer Channels With Their Selling (Wholesaler, Retailer, Whole & Flesh) Rate.

## Discussion

In every day, at the early in the morning, collectors distributed towards the several locations to collect *B.bengalensis* and at the certain time they meet together at different locations it may be stations or several Bus road side places or near the collection & selling ground. A lots of wholesalers came from different districts to purchase *B.bengalensis*. Different wholesalers of Rail gate Market, purchased *B.bengalensis* from collectors at different places like stations & road side area of Panskura, Mecheda, Khirai etc. wholesalers of Bankura & Purulia purchased *B.bengalensis* from collectors at near by areas of Mukutmanipur dams & other collection area (Table-1). The number of collectors is not less than 5-10 for every zone & the numbers of seller not less then 10 to 15 in each market of each Zones (it may be varied). Collectors sell their product to the whole seller & every person earn profit Rs.150/- to Rs.200/- per day (approximately). Collectors bring the quantity (collectively), which is near about 0.25 to 0.5 ton or more (approximately), but it depends on the collection site, collection season etc. After purchasing, wholesalers returned to their own district or zones through local train or bus. In the Midnapore town, Group (Gr.) D-IIA & Gr. D-IIB both seen in the Rail Gate Market. The sellers of Gr.D-IIB found in Miya Market, School Market, Kotwali Market & Raja Market. Gr.D-IIB purchased *B.bengalensis* from Rail Gate

Market (Table-1). Both this Group earn profit Rs 200/- to Rs. 250/- (approximately) per day. Gr. D-III was seen at Kharagpur & near by area of Midnapore-Kharagpur, here sellers under this group earn profit Rs.150/- Rs.200/- per day (approximately). Gr. D-III (Table-1) was found Bankura except Mosera & Khatra (D-I area, where collectors earn profit Rs. 100/- to Rs. 150/- per day) & sellers earn profit per day Rs.200/- to Rs. 250/- (approximately), here every collector/seller bring *B. bengalensis* in the market (stated above) not less than 20 kg or even 50 kg or more (approximately). Both D-I & D-III (Man Market) are found in Purulia (Table-1). Here per day income of Collectors, Rs.100/- to Rs.150/- or more (approximately) & every collectors, collect every day 30 kg to near about 50 kg. (approximately). Retailers get profit about Rs.200/- to Rs.250/- (approximately) per day.

From the seasonal marketing study point of view it was observed that "Wholesaling" as well as "Selling" rate showed vary in three experimental zones (Midnapore Town, Bankura, Purulia) (Table-2). Here availability is the main cause, which increases its selling rate. Pre-Monsoon & starting of Monsoon season showed not too much "increasing rate", but from middle of the Monsoon to Post Monsoon, rate showed a increasing trend. Nevertheless latter part of September to October rate showed somewhat lower than its previous rate but after this months the rate again gradually increase. It was observed that (Table-2), from the middle of the Pre monsoon season the availability become higher from that of the later Monsoon & Post Monsoon season. Because in monsoon season the ponds, swamps, wet lands, lacks, dams etc become inundate due to rain and that's why at that time, collection become hampered, while in the Post-Monsoon, starting of winter season (End of November to January) the availability become reduced. For explanation of this problem, there are several opinions, but the main fact is due to change of abiotic and biotic factors within the water bodies (Cabuk et al., 2004). In this regards, one of the most important factor is temperature; it was observed that preferable temperature for *Bellamyia bengalensis* is over 25°C, beyond which temperature they can able to maintain their physiological activities like digestion, maturation, breeding etc. It was also observed that their rate of mortality become higher below 15°C (Pir et al., 2010).

However, in this Post-Monsoon season many Collector & Seller move towards the additional work like agriculture, bamboo basket making & their selling etc. It was observed that in every family 1 or 2 members are engage with this profession & they come this profession not only as their family business but also a main source of income in their daily life, which lead to develop their socio economic condition. It was observed that almost every market about 5% to 10% people among the whole market, are involve in this profession. Through which they can able to capture their daily livelihood.

From marketing point of view it was seen that *B. bengalensis* has a good market demand to all level

of people of our society. It can be used to make several value added edible products like smoked, caned & other product, which can be served as a ready to eat or ready to cook product. Not only that by using "Shell" of this species many models, architectures, show pieces & other valuable value-added product can be produced that creates a beautiful & attractive look of our drowning room. As it has a good steady market demand, that's why it can create a big market opportunities to expedite socio-economic growth (Mukherjee & Basu, 2008). In this connection it can be said that *B. bengalensis* are never viewed as a commercial exploitable product in inland aquaculture. But now a days slowly emphasis is being given on this shell fish sector (Subba Rao & Dey, 1992). If development has been carried out by forming small scale or large scale industries by exploiting *B. bengalensis*, total marketing process shall be more developed than present status, where more monetary transaction can be occurred, that will lead towards a social growth. As globally, demands : resource ratio is decreasing day by day, snail fisheries, related with *Bellamyia bengalensis* can make a solution against this problem. At present *B. bengalensis* are harvested from nature, but in future, introduction of small & large scale culture practices will ensure, a steady & improved supply of low cost animal protein to the reciprocate population of different economic status & it can be boldly said, that day is not so far.

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**Table -1: Different market and collection places of *Bellamyia bengalensis***

Name of Zone	Market Name	Collection place
Midnapore Town	Rail gate Market	East Midnapore, Howrah etc
	Miya Market	Railgate Market
	School Market	Railgate Market
	Kotwali Market	Railgate Market
	Raza Market	Railgate Market
Bankura	Bankura Sadar Market	Near by ponds, swamps, wet lands, lacks etc.
	Sonamukhi, Market	-do-
	Bishnupur Market	-do-
	Patrasayar Market	-do-
	Balsi Market	-do-
	Mosera Market	Mukutmanipur dam
	Khatra Market	-do-
Purulia	Purulia Town Market	Ponds, Swamps, Wet lands, lacks, Mukutmanipur dam etc
	Punchar Market,	-do-
	Lalpur Market	-do-
	Man Marker	Near by ponds, Swamps, Wet lands, lacks etc

# Asian Resonance

**Table-2: Wholesale and retail market rate of *Bellamya bengalensis* in the different market of study area during pre monsoon, Monsoon and Post monsoon**

Name of Zone	Market Name	Rate (For WS/W) (Rs./Kg)			SELLING RATE (For Consumers)					
					Whole (Rs./Kg),			Flesh Rs./100 gm		
		Pre Monsoon	Monsoon	Post Monsoon	Pre Monsoon	Monsoon	Post Monsoon	Pre Monsoon	Monsoon	Post Monsoon
Midnapore Town	Rail gate Market	3.0 ± 0.47	4.0 ± 0.42	4.6 ± 0.73	6.8 ± 0.81	7.2 ± 0.97	7.0 ± 0.92	9.0 ± 0.36	10.0 ± 0.30	11.2 ± 0.37
	Miya Market	5.0 ± 0.41	6.5 ± 0.79	7.3 ± 0.86	9.1 ± 0.78	9.6 ± 0.81	9.8 ± 0.78	10.3 ± 0.33	11.5 ± 0.37	12.0 ± 0.51
	School Market	5.0 ± 0.46	6.3 ± 0.83	6.9 ± 0.88	8.7 ± 0.53	9.0 ± 0.35	9.6 ± 0.55	10.7 ± 0.86	11.2 ± 0.61	11.3 ± 0.21
	Kotwali Market	5.2 ± 0.51	6.2 ± 0.62	7.0 ± 0.79	8.6 ± 0.59	9.0 ± 0.38	9.5 ± 0.51	10.5 ± 0.89	11.5 ± 0.76	11.2 ± 0.27
	Raza Market	5.0 ± 0.39	6.2 ± 0.73	7.0 ± 0.76	8.7 ± 0.57	9.0 ± 0.36	9.5 ± 0.51	11.2 ± 0.18	11.6 ± 0.35	11.8 ± 0.92
Bankura	Bankura Sadar Market	N.A.	N.A.	N.A.	7.2 ± 0.26	7.6 ± 0.30	8.0 ± 0.16	9.8 ± 0.82	10.2 ± 0.91	10.8 ± 0.89
	Sonamukhi, Market				6.3 ± 0.54	6.6 ± 0.52	7.0 ± 0.68	8.8 ± 0.76	9.0 ± 0.62	9.5 ± 0.91
	Bishnupur Market				6.9 ± 0.93	7.3 ± 0.31	7.6 ± 0.88	9.6 ± 0.81	10.2 ± 0.82	10.7 ± 0.93
	Patrasayar Market				6.1 ± 0.56	6.8 ± 0.78	7.3 ± 0.77	9.3 ± 0.78	9.8 ± 0.88	10.5 ± 0.77
	Balsi Market				6.2 ± 0.21	6.5 ± 0.33	6.8 ± 0.89	8.9 ± 0.39	9.5 ± 0.75	10.1 ± 0.84
	Mosera Market				6.8 ± 0.76	7.7 ± 0.88	8.0 ± 0.29	10.8 ± 0.44	11.7 ± 0.88	11.9 ± 0.91
	Khatra Market				3.2 ± 0.45	3.8 ± 0.92	4.1 ± 0.51	6.5 ± 0.66	7.2 ± 0.78	7.8 ± 0.87
Purulia	Purulia Town Market	3.6 ± 0.68	4.0 ± 0.26	4.5 ± 0.74	7.0 ± 0.15	7.6 ± 0.71	8.0 ± 0.89	11.0 ± 0.28	11.3 ± 0.47	11.8 ± 0.87
	Punchar Market,	3.5 ± 0.61	3.9 ± 0.29	4.3 ± 0.58	7.3 ± 0.48	7.8 ± 0.87	8.1 ± 0.23	11.3 ± 0.46	11.8 ± 0.86	12.1 ± 0.60
	Lalpur Market	3.2 ± 0.30	4.1 ± 0.31	4.7 ± 0.77	7.1 ± 0.22	7.8 ± 0.89	8.2 ± 0.26	11.5 ± 0.68	11.7 ± 0.83	12.0 ± 0.12
	Man Marker	N.A.	N.A.	N.A.	6.8 ± 0.91	7.2 ± 0.41	7.8 ± 0.89	9.0 ± 0.11	9.8 ± 0.95	10.2 ± 0.88

\*\* Abbreviations: WS-Whole seller, R- Retailer, N.A.-Not Applicable, W-Whole, F-Flesh (Values are mean ± SD, n = 10).