

Case Study

Supply Chain of Pahala *Rasagola* in Odisha

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ABSTRACT

Pahala *Rasagola* is known in every corner of the consumers in Odisha due to its taste, ethnicity and purity that mend the researchers to understand its supply chain and issues intricate in it through this study. For that sake, a total 10 retailers and 200 consumers were tested through a pre-structured schedule in which operations regarding *Rasagola* making, supply chain interventions, costs, margins and simultaneously various constraints were identified through this study. Seasonal impact, locational disadvantages, and spoilage of the *Rasagola* due to its perishable nature are coming as the major deterrents at the retailers' level where as consumers also worry about poor shelf-life of the *Rasagola* and quality issues in their consumption centric behavior. It opens the scope of organized retailing and web based interface for better product delivery in future.

HIGHLIGHTS

- Perishable nature of *Rasagola* needs efficient supply chain management and innovative disposal pattern in Pahala areas of Odisha. Seasonal impact, locational disadvantages, and spoilage of the *Rasagola* due to its perishable nature are coming as the major deterrents at the retailers' level.
- Consumers show concern regarding low shelf life in product subsequently followed by poor quality in it in their consumption behaviour.

Keywords: Pahala, *Rasagola*, Shelf-life, Chhena

Milk is the largest liquid commodity of India (Subramanian, Kakkagowder, Perumal, & Gurusamy, 2019) that is not only a food in itself but also a symbol of cultural sanctity, social upliftment, empowerment and equity across the strata of different population of the country. No doubt, operation flood and Anand cooperative milk marketing model has a paramount importance in this direction but changing consumer behavior and dynamism for value added and functional food give an indication towards new product development and future market segmentation (NABARD, 2023). That creates the business opportunity and probable ecosystem of different stakeholders to connect and grow with each other.

Rasagola is the identity of Odisha for its presence in every household of the state where as state culture

connects with Lord Jagannath, Rathayatra and Niladribije from time memorial (Mohanty, 2017). Comparison to western part of the country, per capita milk consumption in Odisha is very much abysmal (National Dairy Development Board, 2022); that opens the market of tea consumption, homemade value based products like Chhena, Dahi, and Ghee consumption in the state. Even eastern part of India is majorly a lactose intolerant zone generate opportunities for sweet consumption among the consumers (Lewis, 2016). In between raw to ready-made milk products, *Rasagola* has its paramount importance for different stakeholders

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who involve it in their livelihood and get the income out of it.

At one side, *Rasagola* is a perishable product, produced from one of the milk byproduct, Chhena (Times Food, 2021). For maintaining its shelf life, liquid sugar syrup is added in it that maintains its quality and size for some days. As day prolongs, more concentrated sugar syrup is required that increases the concentration of the medium and decrease the size of the *Rasagola* due to osmosis of the medium (Das et al. 2010). Once it is spoiled, it is added to other value added products; majorly Chhenapoda as the raw material. From farmers' milk pail to consumer plate, *Rasagola* travels its journey and generates business opportunities for many sweet parlour; more specifically in Pahala areas of Odisha.

MATERIALS AND METHODS

Pahala (a reward from God), and a place in between twin city of Cuttack and Bhubaneswar where around fifty-five sweet shops are there and have been selling sweets to the travelers who stay for a while and taste the product as a life time experience. Every day, people are rushing in between these cities for jobs or for opportunities and come across the road side sweet parlours or shops in Pahala. Visibilities of the shops drive attention of the customers and develop a business epicenter of the sweets which got the geographical indication tag on February 19, 2019 (Bapat, 2023).

A total of 10 retailers of the sweet shops were interviewed through a pre-structured questionnaire to understand their vertical integrations; starting from producer to consumer end. Meanwhile, it was tried to understand their business skills and tentative revenue generated by them with effective speculation of their costs and margins. Total 200 on road trespassers/commuters who were the customers of the sweets were also interviewed to understand about their perceptions regarding the products, constraints they faced and expectation they had for the sweets in details.

Data that were collected were processed further and were analyzed through simple tabular calculations (for understanding business), and open discussion methods for understanding the constraints intricate in it. Some observations regarding sweet processing methods across the supply chain were also taken

in detail for future probable value addition in this business.

RESULTS AND DISCUSSION

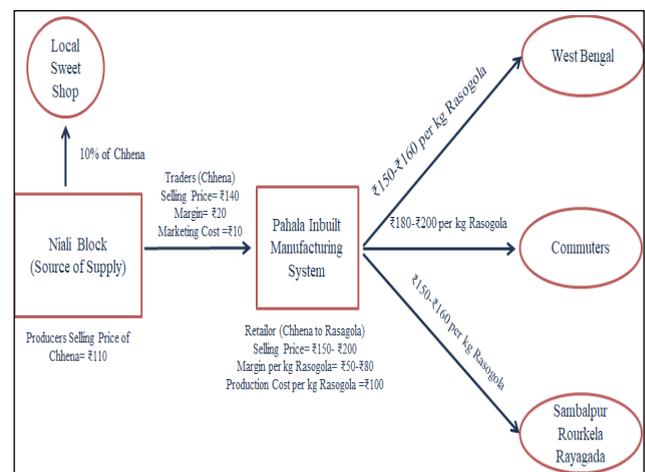
Supply Chain management of *Rasagola*

Fig. 2 highlighted, the supply chain of *Rasagola* in the study area was extended from the core supplier level of Niali Block of Cuttack district of Odisha to consumers seating at Sambalpur, Rourkela, and Rayagada district of the state and sometimes to the neighboring state of West Bengal.



Source: Primary data collection

Fig. 1: Pahala *Rasagola* in Odisha



Source: Primary data collection.

Fig. 2: Supply Chain of Pahala *Rasagola* in Odisha

This supply chain incorporates value addition of Chhena¹ (byproduct of milk) to another functional and ethnic product, *Rasagola* (Sarkar, Salauddin, & Chakraborty, 2021) which was sold to the commuters on daily basis and distance consumers on interval basis as per the demand. Niali block of Cuttack district, Odisha is around 40km away from the study area Pahala, but majorly chhena were coming from that area due to potentiality of the block in milk production and good quality animals.

As reported from the dairy producers, only 10 percent of marketed surplus of Chhena was channelized to the local sweet shops of the Niali block and rest 90 percentage was traded to the Pahala areas; may be due to sustained demand and assured market. It was observed that producers selling price of chhena at Niali block was ₹ 110 per kg (modal price was taken) to the traders who sold same to the retailers (Pahala Inbuilt manufacturing system) at ₹ 140 per kg in which margin was ₹ 20 per kg of chhena and marketing cost was ₹ 10 per kg of chhena in the study area. After that there was a value addition process at the Pahala inbuilt manufacturing system² (Retailers) where chhena to *Rasagola* was made (process was shown in table 1).

Table 1: Preparation of 20Kg Rasogola from 10kg Chhena

Particulars	Amount (Kg)	Price (Rupees)	Cost (Rupees)
Chhena	10	140	1400
Rava	2	50	100
Cardamom powder	0.25	1200	300
Sugar	5	40	200
Total			2000

Source: Primary data collection.

Accordingly, it was observed that for 20kg rasagola production, it was needed 10Kg Chhena with other ingredients like rava, cardamom powder, and sugar as per the practices were observed in the study area. Once, the *Rasagola* was made, selling price was decided on an average of ₹ 150 to ₹ 200 per kg as per the demand of commuters, district wise demand within state and as per the demand

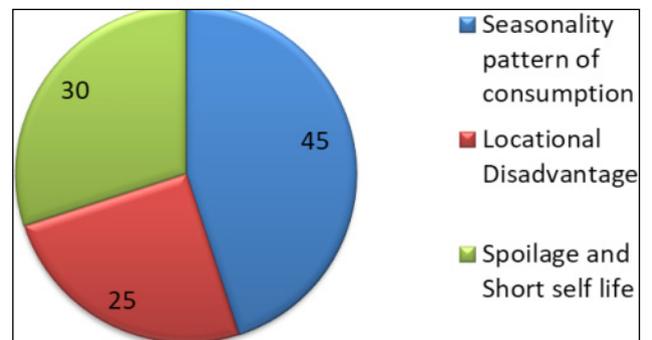
¹As per the statement of dairy producers, it was needed 3ltrs of milk for production of 1kg of Chhena.

²Pahala inbuilt manufacturing system is the retailer space where backward area or side use for *Rasagola* production and front end parlour is used for selling purpose.

of adjacent state, West Bengal. Accordingly, it was found that price of *Rasagola* for the commuters was ₹ 180 - ₹ 200 per kg, for other districts within the state and at adjacent state, it was ₹ 150 - ₹ 160 per kg per *Rasagola* may be due to bulk procurements by the consumers from the retailers in the study area. In a simple calculation of 10kg *Rasagola*, a retailer at Pahala site can get ₹ 3000 to ₹ 4000 rupees per day by selling them to the consumers. In the particular area, it was observed that total 55 retailers were there who might get around ₹ 1,65,000 to ₹ 2,20,000 revenue per day from the particular area. Revenue increases as per the demand of *Rasagola* by the consumers and generate a sense of business opportunities for the stakeholders who were in the retail business of *Rasagola*.

Problems faced by the Pahala retailers

No doubts, Pahala retailers were getting good amount of revenue from their *Rasagola* business but it was more a seasonal venture and affected by a lot due to incessant rain at the time of monsoon and natural calamity like cyclone which is recurring phenomenon in the coastal districts of Odisha. The conditions of shops and ill infrastructures of the retailers increase the gravity of situations in the adverse climatic conditions. As per 45% of retailers of study area *Rasagola* consumption reduced during seasonal adversities (Fig. 3).



Source: Primary data collection

Fig. 3: Problems faced by retailers of Pahala

About 30% retailers’ highlighted perishability of product was the major deterrent in this business. Some of them highlighted that before products got spoiled, it was used as Chenapoda preparation, another popular sweet dishes in Odisha for the consumers of another segments (Varghese, 2023). About one fourth respondents stated that Pahala

locational disadvantages impact a lot in the business. Many known sweet retailers were found in the twin city of Bhubaneswar and Odisha. As a result, Pahala *Rasagola* found a tough competition from them due to their locational disadvantages which came on the way of the journey of the commuters.

Problems faced by the consumers

Milk based products are always a matter of worry due to its perishable nature and short shelf-life (Jackson, 2007). That was also marked in the perception of the consumers and found as major deterrents against the *Rasagola* as a product for consumption (table 2).

Table 2: Issues intricate among consumers for the *Rasagola*

Attributes	Garret Score	Rank
Availability	50.00	III
Packaging	40.00	IV
Taste	25.00	V
Quality	60.00	II
Short shelf-life	76.00	I

Source: Primary data collection.

In the study area, *Rasagola* was delivered to the consumers as light or a bit brownish in colour according to the sugar syrup concentrations in them. As commuters always take the product in their way, many times due to inherent product quality and short shelf-life, persistent in quality as an attribute varied at the time of consumption which was found as second most problems among the consumers. Availability of the products was the problems for the consumers as there is a locational disadvantage of the study area which hinders in products availability in the time of requirements and needs. Packaging was another area that need to be though off for better *Rasagola* disposal and consumers satisfaction. Polythene package and carry the *Rasagola* to the destination many times may not be feasible for the consumers. Taste was the least problem creating attributes but there is always have a scope to maintain its persistency due to perishability of the *Rasagola* into consideration.

CONCLUSION

Rasagola and even Pahala *Rasagola* have immense positive positioning in the mind of the consumers of Odisha due to its quality, taste, ethnicity and

enigma that connects the culture with its food and vice versa since time memorial. In spite of perishability of the products and short life-cycle, Pahala *Rasagola* generates a good number of consumers who generate substantial profit for the retailers and link many stakeholders from the source to the sink. Value addition of milk in the form of ethnic *Rasagola* as product create widening market opportunities and spreading sales from Niali block of Cuttack district to distance districts of Odisha and West Bengal. Though availability, perishability, poor packaging are some of the issues for better *Rasagola* product disposal, it can be solved through organized retail marketing, and different web interfaces by which retailers to consumers will be benefited as time comes.

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