Socio-Economic Profile and Operational Dynamics of the Fish Market in Veraval, Gujarat, India

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Abstract:

The fishing sector is a vital part of livelihoods and food security, especially in coastal areas. This study examines the socio-economic traits of fish traders and how the open fish market operates in Veraval, Gir Somnath district, Gujarat, India. Data from 114 traders (60% male, 40% female) collected using a structured questionnaire and convenience sampling showed notable differences between wholesale and retail segments. The wholesale market is marked by male dominance, good infrastructure with cold chain facilities, and broad distribution networks. Conversely, the female-led retail market functions in an open, unhygienic environment, lacking basic amenities such as electricity and drainage. The study offers insights into trader demographics (age, education, experience), market practices (sales volume, income, access to loans), and mode of marketing. The results highlighted the importance of targeted efforts to upgrade retail market infrastructure and support systems for traders, fostering more efficient and equitable fish marketing in the region.

1. Introduction:

Globally, the fisheries sector plays a multifaceted role in economic development, food security, and poverty alleviation, supporting millions of livelihoods directly and indirectly [1]. In coastal nations like India, fishing is not merely an economic activity but a deeply embedded social and cultural practice, especially for rural communities. The efficiency of the fish marketing system is a critical determinant of the sector's success, influencing the economic returns for fishers, the availability and affordability of fish for consumers, and the overall supply chain's resilience[2]. Chourey et al. study analysed the market from the point of manufacturing to the point of consumption[3]. An excellent marketing structure is essential to make fish available to consumers at the proper time and place. Understanding the socio-economic profiles of those involved in fish trading, alongside the operational mechanisms and challenges within fish markets, is essential for informed policy-making and sustainable development initiatives.

Veraval, situated in the Gir Somnath district of Gujarat, holds a prominent position as a major fishing port and a vital hub for the fishing industry in India. It's an open fish market that serves as a crucial point for the distribution of fresh and processed fish, not only within the local region but also to major urban centers across the country. Despite its significant role, detailed studies focusing on the socio-economic landscape of its fish traders and the specific challenges they face within the market's operational framework are limited. Previous research in other Indian contexts has highlighted issues such as poor market infrastructure, varying levels of trader education, and the gendered nature of market roles [4,5,6]. This study aimed to provide a comprehensive analysis of the Veraval fish market, focusing on characterizing the

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infrastructure and operational differences between wholesale and retail market segments, profiling the socio-economic status of fish traders, including their demographics, educational background, experience, income, and access to financial resources, assessing the daily, weekly, and monthly sales volumes and profitability of traders.

This research sought to offer valuable insights for stakeholders, policymakers, and development practitioners interested in strengthening the informal fish marketing sector and improving the socio-economic well-being of fish traders in coastal India.

2. Materials and Methods

2.1. Study Area

The research was carried out at Krishna Nagar's open fish market, Veraval taluka, Gir Somnath district, Gujarat, India. Geographically, Veraval lies at 20.9∘N,70.37∘E and is highly renowned as a major center of commerce of the fish trade having one of India's biggest fishing harbors. The market is a wholesale and retail market, with an enormous daily turnover of fish being exported to the major cities such as Ahmedabad, Surat, Mumbai, and Delhi. The active participation of both male and female traders dominated the market activity.
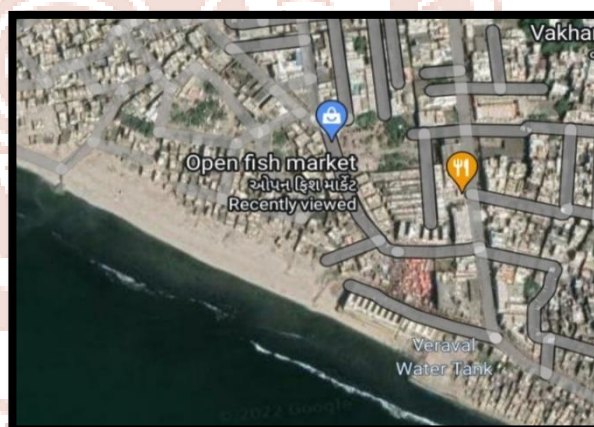

| Fig.1 Somnath District | Fig. 2 Google map of fish market |

2.2. Data Collection

Primary information was obtained with the help of a structured questionnaire of twenty-seven self-explanatory questions. The questions were framed considering the educational level of the fish traders, who would mostly be illiterate or low-literates with very little formal education, so technical vocabulary was avoided. Major areas included under the questionnaire were:

- ❖ Socio-economic profile (age, sex, education, caste, family background)
- ❖ Career profile (market position, experience, other jobs)
- ❖ Source, storage, and preservation of fish

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❖ Market dynamics (cost price, selling price, sales volume, profitability, income)

❖ Access to financial services (loans, insurance)

The survey took place over 10 consecutive days from January 31st, 2022, to February 9th, 2022, with data collection sessions carried out each day between 6:00 AM and 4:00 PM. Wholesale and retail markets were included during data collection. Fish traders were personally approached and informed of the educational nature of the study, with firm promises of confidentiality of the data. Questions were verbalized while interviewing, and those hard words which were needed were translated into simple words so that they could be understood. Convenient sampling was employed in this case, as recommended by Kothari and Garg [7]. 114 traders were interviewed from both market segments.

3. Results and Discussion
3.1. Fish Market Structure and Infrastructure
The Veraval fish market was segregated into separate wholesale and retail operations, each with its characteristics in terms of infrastructure, working hours, and trader composition.

3.1.1. Wholesale Fish Market
The wholesale market, which had 68 registered sellers, functions from 8:00 AM to 8:00 PM. It was dominated by male wholesalers to a large degree. Fish consignments were brought in by vehicles and rickshaws from different fishing grounds and jetties such as Okha, Muldwarka, Diu, Vanakbara, Mangrol, and Veraval Jetty itself. One of the strongest observations was that satisfactory permanent buildings were found within the wholesale market, with good preservation facilities such as ice boxes and refrigerators. A few of the wholesalers also used ice crushing machines to keep bigger fish. General conditions of cleanness were clean. Fish unsuitable for selling were usually kept in thermocol boxes with ice covering them to sell on follow-up days. Distribution from this market is large-scale, and it is all-encompassing as far as the local, district, and state levels go, with major amounts distributed to Ahmedabad, Surat, Delhi, and Mumbai.

The availability of developed infrastructure and warehouses inside the Veraval wholesale market was a contrast to other Indian fish markets. A different study by researchers reported Surat fish markets as devoid of proper structures, facilities, and hygiene [4,8]. This would indicate that the wholesale channel in Veraval is comparatively well-developed in terms of infrastructure, which can help ensure improved fish quality and increased distribution potential.

3.1.2. Retail Fish Market
As compared to the wholesale market, the retail fish market, which was dominated by women, possessed a poor strategy. There was no space for basic amenities like electricity, water, or drainage in the open space where trading was done. Though there was a small platform,

retailers never used it for the sale of fish. Fish were brought from the wholesale market to the retail market without any provision for cooling. Sanitary conditions were particularly repulsive. The retailers supplied the domestic market nearly entirely.

These results on the bad infrastructure and sanitation of the Veraval retail fish market were strongly in agreement with other Indian research study observations. Sharma et al. also observed similar deplorable conditions of Surat retail markets due to the lack of proper structures, flooring, electricity, and drainage [4]. Bengani et al also found poor infrastructure and hygiene conditions in Bilimora fish market, Gujarat, India, with lack of cold storage, proper stalls, electricity, drainage, lavatories, and sanitation facilities [9]. Similarly, Bengani and co-workers studied the Nanpura Fish market of Surat, Gujarat and observed poor facilities affecting the quality of fish [10]. The total absence of infrastructure in fish markets in retail markets from various regions represents a systemic issue that requires urgent remedying in a bid to enhance public health and working conditions for the vendors, especially the female vendors who are predominant in this market.

3.2. Socio-Economic and Occupational Background of Fish Traders

114 traders were interviewed, which gave a complete picture of the human wealth of the market.

Gender Composition: There was a distinct gender segregation in the market: 60% male (wholesale-dominating) and 40% female (retail-dominating) (Fig.3). This trend was consistent with a study by Kurien which also reported that wholesale marketing is controlled by men and retail is mostly taken care of by women in fishing communities[6].

Age Profile: The largest age group was 41-45 years (26%), followed by 36-40 years (20%) and 31-35 years (16%). Less than 3% were 20-25 years of age (Fig. 4), indicating a more mature age workforce and possibly greater barriers to entry for younger people.

Caste and Market Role: 82% of the traders were from the OBC class and 18% from the open class (Fig. 5). 60% of the traders interviewed were wholesalers and 40% were retailers (Fig. 6).

Educational Level: Most traders were illiterate or had secondary education, which accounts for the traditional face of the profession, and 26% of them fell into this group. This was followed by 24% with primary education, 15% with higher secondary, and only 9% with college education (Fig. 7). Results were found similar to those shown by Mia with co-workers and Shahidul et.al, who also reported the dominance of lower levels of education among Bangladesh's fish traders. [11,12] Even though there was no need for fish marketing, the low

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levels of higher education among these fishermen imply some form of limitation to new technology or management techniques, as quoted by Jobaer and co-researchers [5].

• **Occupation Involvement:** Most of the traders (78%) were merely involved in marketing, whereas 22% involved themselves in fishing as well (Fig.8), which testifies to a specialized but relatively diversified livelihood strategy among a minority.

• **Experience:** Experience is a significant resource in this business, with 51% of the dealers having 10-20 years of experience, and a notable 33% having over 20 years (Fig.9). Such extensive experience suggests stabilized networks and deep market knowledge.

• **Source of fish:** Nearly half (49%) of the fish available was from the Veraval Ocean, while Okha (28%), Vanakbara (10%), Muldwarka & Diu (5%), and Mangrol (3%) were other major sources (Fig.10). This indicated how well placed Veraval is in the sense that it has diverse fishing grounds surrounding it.

• **Access to Finance:** The most of the surprising findings was that 12% of the traders have taken loans to expand business, with a massive majority (88%) never having utilized any formal loans (Fig.11). This minimal usage of loans may be due to dependency on informal credit, ignorance, or unavailability to formal financial institutions, which may restrict business growth and resilience. Likewise, business insurance was only available in 13% of the traders (Fig.12).

•**Family Assistance:** 20% indicated having been assisted by relatives in their business (Fig.13), which shows the family-based nature of most small-scale trading businesses.

3.3. Sales Volume, Income, and Profitability
The research captured the economic size of the trading businesses:

• **Daily Sales:** 49% sold 75–100 kg of fish per day. Significant percentages also sold 1–25 kg (23%), 25–50 kg (11%), and 50–75 kg (8%) (Fig. 14).

•**Weekly Sales:** 50% of the traders reported weekly sales of 750–1000 kg, which is a high volume for the majority. 21% recorded lower volumes (100–250 kg), and 29% by 250–500 kg (16% + 13%) (Fig.15).

Monthly Sales: 38% of the dealers sold more than 2 tonnes on a monthly basis. Another 28% sold between 1–2 tonnes, 21% sold less than 500 kg, and 13% sold between 500–1000 kg (Fig.16). These statistics reveal a very wide range of sizes of operations from small-scale retail to large-scale wholesale.

•**Annual Income:** Most of the traders (44%) had an income of under 5 lakh rupees, 23% under 2 lakh, and 16% under 1 lakh (Fig.17). As formidable as these figures may appear modest in the urban context, they are real livelihoods for the rural-based traders.

•**Profitability:** Regardless of the differences in the volumes of sales, a substantial 77% of the traders indicated that they made a good profit, and 23% indicated average profits (Fig. 18). This confirms that fish trading at Veraval is predominantly a profitable and profitable means of earning livelihood for the concerned individuals. The price of fish depends on market structure, species quality, demand, and the size and weight of fish species [13].

• **Processed Fish Sales**: Few traders (6%) were involved in the selling of processed dry fish (Fig.19), which showed that the market was fresh-fish dominated.

3.4. Preservation Facilities

Preservation Facilities: 77.6% of traders possessed some form of preservation facilities (thermocol boxes, refrigerators), but a notable 26% lacked any such facilities (Fig.20). The absence of preservation facilities for a quarter of traders, particularly in the retail market, directly contributes to poor fish quality, as observed by Shah in other markets, potentially leading to reduced selling prices [14].

3.5 Marketing Mode:
The fisherman-to-retailer marketing mode was prevalent (60%), alongside the wholesaler-to-consumer model (40%) (Fig.21), illustrating the direct and indirect supply chains in operation.
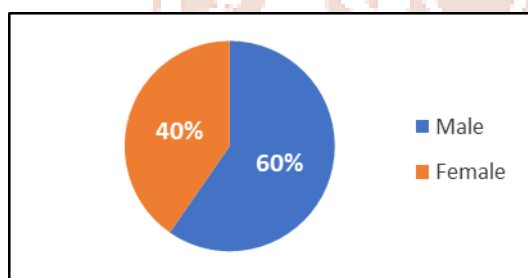
Fig. 3 – Gender composition
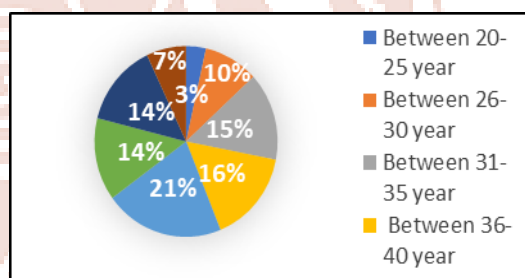
Fig. 4 – Age composition
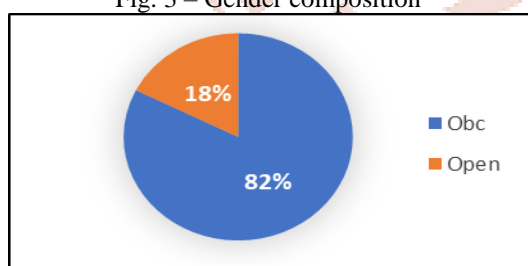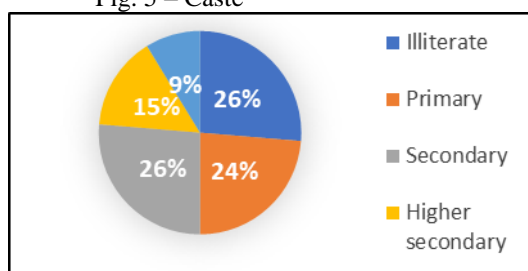

Fig. 5 – Caste
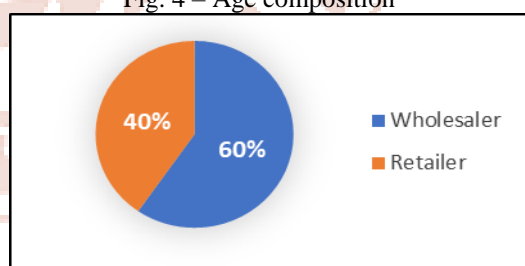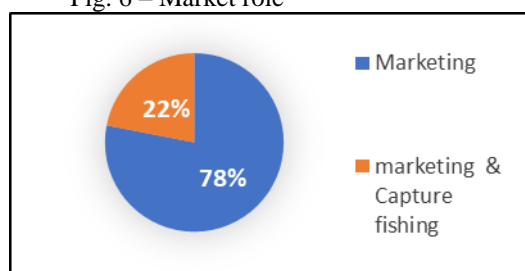

Fig. 6 – Market role

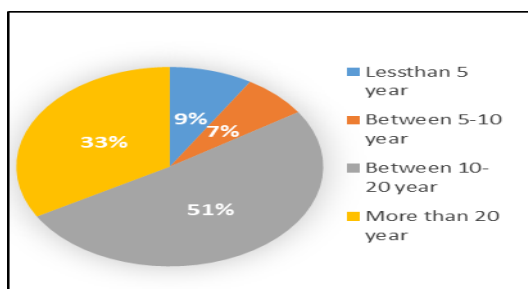Fig. 7 – Education
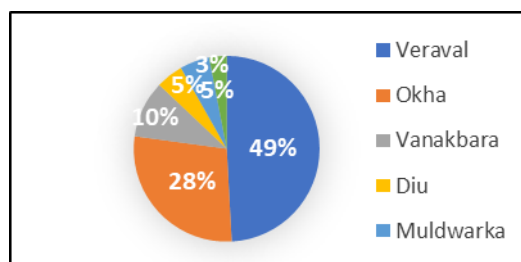

Fig. 8 – Occupation

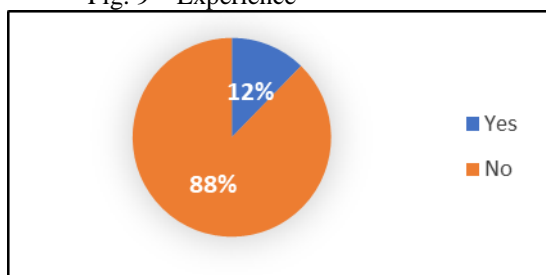Fig. 9 – Experience

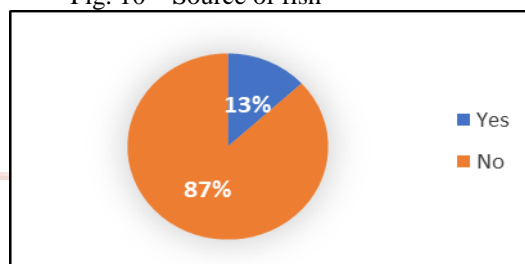Fig. 10 – Source of fish

Fig. 11 – Loan status
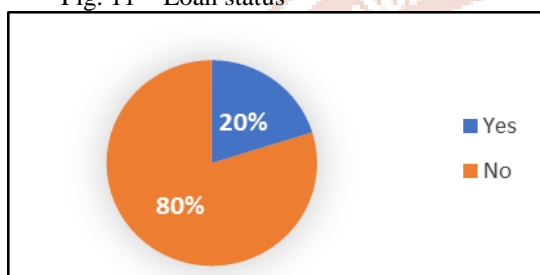

Fig.12 Insurance

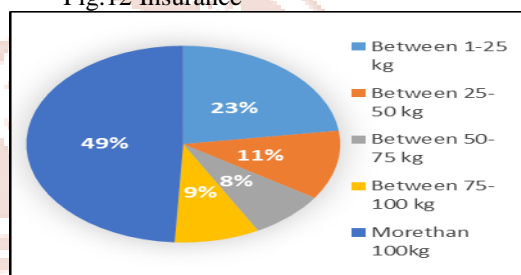Fig. 13 – Family assistance
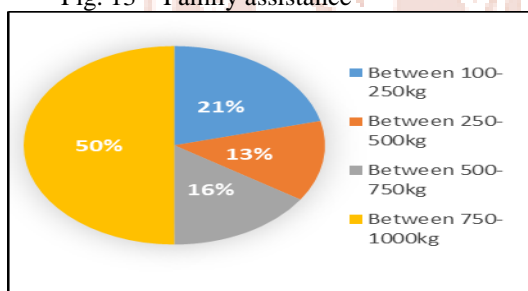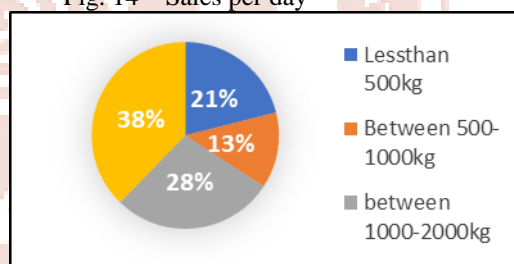

Fig. 14 – Sales per day

Fig. 15 – Sales per week
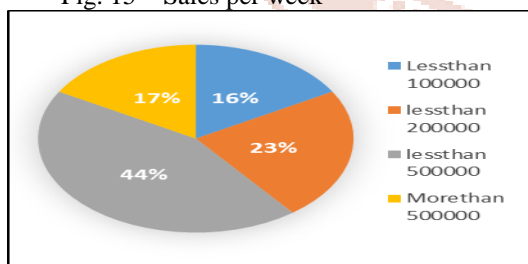

16 – Monthly sales
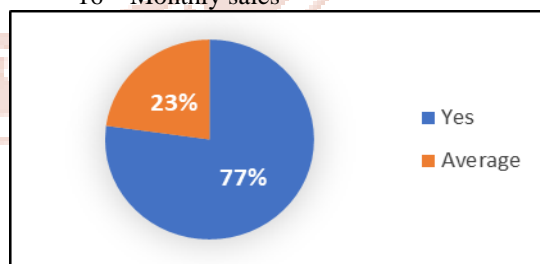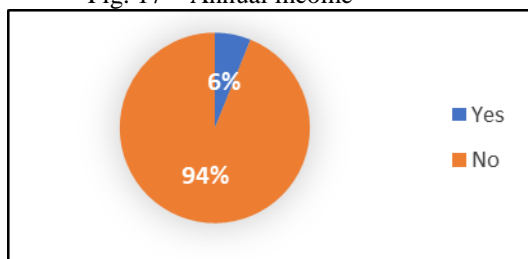

Fig. 17 – Annual income

Fig. 18 – Profitability

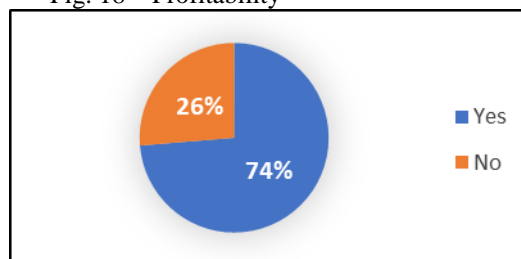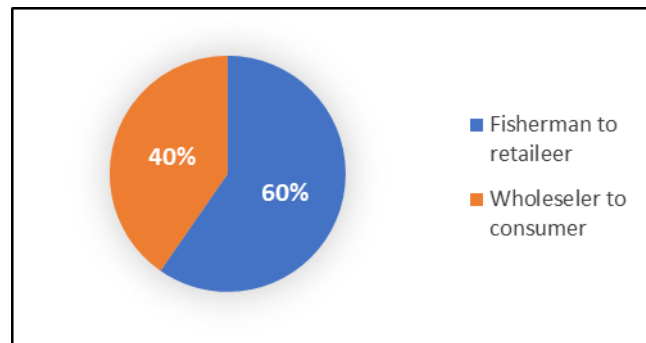
Fig. 19 – processed fish sale

Fig.20 Preservation

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Fig.21 Mode of marketing

4. Conclusion and Recommendations

The Veraval fish market is a dynamic economic space characterized by distinct wholesale and retail operations. While the wholesale segment benefits from relatively good infrastructure and preservation facilities, the retail market suffers from a severe lack of basic amenities and poor hygiene. This disparity impacts the quality of fish and the working conditions of predominantly female retailers. Fish traders in Veraval are largely experienced, with a significant portion sustaining their livelihoods through substantial sales volumes and good profitability. However, limited access to formal loans and insurance points to an informal financial ecosystem that may constrain growth and resilience. Based on these findings, the following recommendations were proposed:

1. **Infrastructure Development:** Urgent investment is needed to upgrade the retail fish market infrastructure. This includes providing proper covered spaces, electricity, running water, drainage systems, and sanitation facilities (restrooms, washing areas) to improve hygiene, fish quality, and the working environment for retailers.

2. **Financial Inclusion:** Programs should be implemented to improve traders' access to formal financial services, including small business loans and insurance, to foster business expansion, resilience, and adoption of modern practices.

3. **Capacity Building:** Tailored training programs, particularly for less-educated traders, could focus on basic business management, hygienic practices, and the benefits of proper fish preservation techniques.

4. **Supply Chain Optimization:** Addressing transportation blockages and promoting cold chain logistics for retail distribution could minimize post-harvest losses and ensure better quality fish for consumers.

5. **Gender-Sensitive Policies:** Recognizing the dominance of women in the retail sector, interventions should be designed to specifically empower female traders, providing them with better facilities, financial literacy, and market linkages.

By implementing focus in these areas, the Veraval fish market can enhance its efficiency, improve the livelihoods of its traders, and ensure a more sustainable supply of nutritious food for the consumers.

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