



Socio-economic impact of fish markets on the local community in Dhanbad District (Jharkhand)

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Abstract

The fish market system in Dhanbad district represents a significant yet often underexplored component of the regional economy, operating alongside the district's more famous coal-based industrial sector. Based on an analysis of fisheries production data from 2015 to 2024, together with field observations and secondary literature, this article examines how fish markets contribute to employment generation, nutritional security, income diversification, and social inclusion for local communities. The fisheries sector in Jharkhand has shown consistent growth over the past decade, with fish production reaching 2.80 lakh metric tonnes in 2023, directly supporting an estimated 3.5 lakh people across the state. In Dhanbad, the presence of major water bodies such as the Damodar and Barakar rivers along with the Maithon, Panchet, and Topchanchi reservoirs has created favorable conditions for both capture fisheries and aquaculture. However, the sector faces persistent challenges including inadequate market infrastructure, environmental pollution affecting fish stocks, and the predominantly informal nature of fish trading. This article argues that with proper policy support focused on infrastructure modernization, cold chain development, and strengthening of fisher cooperatives, fish markets in Dhanbad can evolve into organized economic hubs that substantially contribute to regional development while improving the livelihoods of marginalized fishing communities.

Keywords: Fish market system, Dhanbad District, fisheries sector, employment generation, nutritional security, income diversification, social inclusion

Introduction

Dhanbad district, long celebrated as the "Coal Capital of India," presents a fascinating economic duality. Beneath the shadow of its towering coal mining infrastructure, a quieter but equally vital economic activity has been steadily growing: the fisheries sector. Fish markets in Dhanbad, ranging from wholesale centers to small roadside vending stalls, serve as critical nodes connecting the district's aquatic production systems with its urban and semi-urban consumers. While coal mining has historically dominated the formal economy, the fisheries sector has emerged as an essential safety net for rural and peri-urban communities, offering livelihoods that are often more accessible and less capital-intensive than industrial employment.

Across Jharkhand as a whole, fisheries have gained increasing recognition as a key driver of economic development. According to state government data, fish production has surpassed 2.2 lakh tonnes annually, with over 3.5 lakh people directly or indirectly engaged in fish farming and associated activities. The cultural and dietary significance of fish is equally substantial, with an estimated 65 to 70 percent of the state's population consuming fish regularly. Within this broader framework, the fish markets of Dhanbad function as socio-economic lifelines for fisherfolk, traders, transporters, ice suppliers, and small-scale vendors, many of whom belong to Scheduled Tribe, Scheduled Caste, and Other Backward Class communities.

Regional Context of Fisheries in Dhanbad

Dhanbad district is endowed with diverse aquatic resources that provide the foundation for its fish market economy. The Damodar River, often called the "Sorrow of Bengal" for its historic flooding, flows through the district and supports a

variety of fish species. The Barakar River, a major tributary of the Damodar, adds to the district's water wealth. Beyond the rivers, the reservoirs at Maithon, Panchet, and Topchanchi Lake represent significant man-made water bodies that have become important sites for both capture fisheries and aquaculture. The Topchanchi Lake, in particular, has been the subject of detailed ichthyological study, with researchers recording 36 fish species belonging to 7 orders, 16 families, and 24 genera within this single water body. The Damodar River within Dhanbad district has similarly been documented as hosting 35 distinct fish species distributed across 30 genera and belonging to 19 families, with the Cyprinidae family emerging as the dominant taxonomic group.

This rich aquatic biodiversity provides the raw material for Dhanbad's fish markets. However, it is important to note that local production alone does not meet the district's demand. A substantial portion of the fish sold in Dhanbad's markets arrives through inter-state trade, particularly from West Bengal, as well as from other districts within Jharkhand. This dual sourcing—local catch combined with imported supply—helps stabilize market availability but also introduces vulnerabilities related to transport disruptions and price fluctuations.

Types of Fish in Dhanbad's Markets

The fish varieties available in Dhanbad's markets reflect both the natural biodiversity of local water bodies and the influence of commercial aquaculture. Among the most commonly traded species are the Indian major carps, which dominate both production and consumption. Rohu (*Labeo rohita*) is perhaps the most popular freshwater fish across northern and eastern India, prized for its tender flesh and

culinary versatility. Katla (*Catla catla*), another major carp, is equally sought after, known for its large head which is particularly valued in fish curry preparations. Mrigal (*Cirrhinus mrigala*) completes the trio of major carps that form the backbone of Indian aquaculture.

Beyond the major carps, several other species feature prominently in Dhanbad's fish markets. Tilapia, an African cichlid that has naturalized widely in Indian waters, has gained popularity due to its rapid growth rate and adaptability to various farming conditions. Pangasius, often marketed under the name "pangas" or "pacific white fish," has become increasingly common, particularly in the frozen fish segment. Among the catfishes, Magur (*Clarias batrachus*) and Singhi (*Heteropneustes fossilis*) are highly valued despite their relatively higher price points; indeed, the Government of Jharkhand has declared Desi Mangur (*Clarias magur*) as the state fish, underscoring its cultural and economic importance for the region.

The scientific study of fish diversity in Dhanbad's water bodies has revealed some noteworthy presences. Investigations in the Damodar River have recorded species such as the bitterling (*Rhodeus amarus*) and the bleak (*Alburnus alburnus*), alongside introduced species that have established themselves in the river system. For local consumers, however, the distinction between wild-caught and farmed fish matters considerably: wild-caught specimens from the rivers and reservoirs are generally believed to have superior taste and fetch higher prices, while farmed fish are more affordable and available year-round.

Fish Production Trends in Jharkhand (2015–2024)

The growth trajectory of fish production in Jharkhand over the past decade provides essential context for understanding the expansion of fish markets in Dhanbad. Drawing on data from the Department of Fisheries and the CEIC database, the table below presents the annual fish production figures for the state from 2015 to 2024, together with year-on-year growth rates.

Table 1: Fish Production Trend in Jharkhand (2015–2024)

Year	Fish Production (Thousand Tonnes)	Growth (%)
2015	165	—
2016	178	7.9
2017	195	9.5
2018	210	7.7
2019	225	7.1
2020	238	5.8
2021	248	4.2
2022	257	3.6
2023	280	8.9
2024*	295 (est.)	5.3

Source: Department of Fisheries, Government of Jharkhand, and CEIC database. 2024 is a projected estimate based on growth trends in official reports.

Several important observations emerge from this data. The period from 2015 to 2019 witnessed robust annual growth rates ranging between 7 and 10 percent, reflecting the success of state and central government programs aimed at expanding aquaculture. The year 2020 saw a moderation in growth, dropping to 5.8 percent, which can be attributed in

part to the disruptions caused by the COVID-19 pandemic lockdowns that affected transport networks and market access. The years 2021 and 2022 showed continued but slower growth, with rates of 4.2 and 3.6 percent respectively, before a strong rebound to 8.9 percent growth in 2023. The target for fish production in the financial year 2024-25 has been set by the department at 3.73 lakh metric tonnes, with 2.10 lakh metric tonnes already achieved as of December 2024.

For Dhanbad district, these state-level figures translate into increased availability of fish for local markets, though district-specific production data would be needed for a more precise analysis. The consistent growth in production has encouraged the entry of new actors into the fish value chain, from hatchery operators to transport providers, all of whom contribute to the economic vitality of Dhanbad's fish markets.

Economic Impact of Fish Markets

The economic impact of fish markets on Dhanbad's local community manifests across multiple dimensions: employment generation, income diversification, and contribution to local economic circulation.

Employment Generation

Fish markets in Dhanbad provide employment across several layers of the value chain. At the primary level, fishermen engaged in capture fisheries on the Damodar and Barakar rivers and in the district's reservoirs form the base of the supply pyramid. Above them, wholesalers, often called *beparis* in local parlance, aggregate fish from multiple sources and supply them to retailers. Small-scale retail vendors, many of them women, constitute the final link in the chain, selling fish directly to consumers in neighborhood markets. In between these tiers, transporters, ice suppliers, and packaging workers perform essential ancillary functions.

The fisheries sector is particularly significant for informal employment. Unlike coal mining, which requires substantial capital investment and often operates through large contractors, fish trading can be entered with minimal capital. A prospective vendor needs little more than a basket, a weighing scale, and a small stock of fish to begin trading. This low barrier to entry has made fish vending a critical source of livelihood for families who may not have access to formal industrial jobs. In a district where mining employment has experienced cyclical downturns, fish markets offer an alternative that is relatively insulated from the volatility of global coal prices.

Income Diversification

For rural households in Dhanbad district, fish trading serves as an important supplementary income source that complements agricultural earnings, wage labor, and other economic activities. The daily cash flow generated by fish vending stands in marked contrast to the seasonal income patterns typical of agriculture. A household might cultivate paddy during the monsoon, engage in wage labor during the dry months, and operate a small fish stall year-round, thereby stabilizing their overall earnings across seasons.

This diversification strategy has proven particularly valuable for households that have been displaced by mining operations or that have lost access to agricultural land. As landlessness has increased in parts of Dhanbad district due to industrial expansion and urbanization, fish trading has provided a pathway to economic participation that does not require substantial land ownership.

Contribution to Local Economy

Fish markets stimulate local economic circulation through daily cash transactions, linkages with transport and storage sectors, and demand for ancillary services such as ice production and packaging material supply. Even small-scale fish markets contribute significantly to micro-level economic activity. The multiplier effect extends to vendors of complementary goods—vegetables, spices, oil, and other cooking essentials—who benefit from the foot traffic that fish markets generate.

In urban centers like Dhanbad city itself, fish markets serve as important nodes in the daily supply chain that connects rural production with urban consumption. The morning hours see a flurry of activity as fish-laden vehicles arrive from Panchet and Maithon dams and from wholesale suppliers coming in from West Bengal. By midday, the fish has been distributed to dozens of retail stalls across the district, and by evening, much of it has been sold and consumed. This rapid turnover ensures that cash circulates quickly through the local economy, benefiting a wide range of economic actors.

Social Impact on Local Communities

Nutritional Security

Fish is a rich source of high-quality animal protein, essential fatty acids, and micronutrients including iron, zinc, calcium, and vitamin A. In Jharkhand, where malnutrition and anemia remain significant public health concerns, fish markets play a critical role in improving dietary diversity. The "Fish for All" concept, a global initiative by WorldFish to improve food and livelihood security for the rural poor, recognizes that fish embodies more than just protein—it provides essential micronutrients, minerals, and vitamins that are often deficient in cereal-based diets.

The accessibility of affordable fish varieties ensures that even low-income households can meet basic nutritional requirements. While the wealthier segments of Dhanbad's population may purchase larger, more expensive fish like Rohu and Katla, smaller and less expensive varieties remain within reach of poorer consumers. Daily consumption of fish, even in modest quantities, can significantly improve nutritional status compared to diets that rely solely on cereals and vegetables.

Gender Participation

Perhaps the most transformative social impact of fish markets in Dhanbad has been the economic empowerment of women. Across India, women in fishing communities are major players in the post-harvest sector and are traditionally involved in the processing and marketing of fish. Dhanbad is no exception to this pattern. Women vendors are a familiar sight in the district's fish markets, particularly in the

retail segment where direct interactions with consumers take place.

For many women, fish vending offers a rare opportunity for independent income generation that does not require extensive education, formal credentials, or permission from male household members. The income earned from selling fish gives women greater decision-making power within their households and enhances their ability to contribute to children's education, healthcare expenses, and other family needs. Training programs have been developed specifically to augment entrepreneurial attitudes among tribal women in Jharkhand, encouraging them to develop small businesses building on their micro-entrepreneurship skills.

Social Interaction and Community Networks

Fish markets function as more than mere sites of economic transaction; they are vibrant social spaces where community members interact on a daily basis. Regular customers develop relationships with vendors who learn their preferences for particular fish species, sizes, and preparation methods. The market serves as a gathering place for the exchange of news, gossip, and information about prices, availability, and quality. Informal credit systems among traders and between vendors and trusted customers help smooth out fluctuations in income and expenditure.

These social dimensions of fish markets strengthen local social capital and mutual support networks, contributing to community cohesion in ways that are not captured by purely economic metrics.

Impact on Marginalized Groups

Fish markets are particularly important for Scheduled Tribes, Scheduled Castes, and Other Backward Classes, who often dominate the fisheries sector in Jharkhand. For these communities, fisheries offer low entry barriers, traditional knowledge systems that support fish rearing, and market participation that ensures economic inclusion. The central government's Pradhan Mantri Matsya Sampada Yojana has been specifically designed to support these communities, with the Union Budget for 2023-24 introducing a new sub-scheme with an additional Rs 6,000 crore allocation focusing on empowering fish vendors and small enterprises.

The transformation of abandoned coal mines into fish farms offers a particularly compelling example of how fisheries can provide alternative livelihoods for displaced communities. Across Jharkhand, an estimated 1,741 abandoned open cast coal mines exist, with approximately 26 currently being used for fish farming. Fish farming now operates in 16 abandoned coal mine pits spanning Ramgarh, Ranchi, Bokaro, and Chatra districts. While these operations are not located within Dhanbad district itself, their existence demonstrates the potential for repurposing mining-affected lands for fisheries, a lesson that could be applied to Dhanbad's own abandoned mining areas.

Fishermen cooperative societies have also contributed to the sector's development. Dhanbad district is home to 15 fishermen cooperative societies, which help organize production and marketing activities. As many as 2,000 fish farmers are engaged in cooperative fish farming in the broader region, with most earning satisfactory incomes.

Challenges Faced by Fish Markets

Despite their significant contributions to the local economy and community well-being, fish markets in Dhanbad face a range of persistent challenges that limit their potential and create hardships for those who depend on them.

Infrastructure Deficiencies

The most visible challenge is the poor physical condition of market facilities. Many fish markets operate in spaces that lack adequate drainage, leading to accumulations of fish waste, blood, and water that create unsanitary conditions. The absence of proper cold storage facilities means that unsold fish must be sold at reduced prices or discarded, resulting in significant post-harvest losses. Studies of fish markets elsewhere in India have documented similar problems: chronic drainage issues, choked sewer lines, absence of potable water supply, and inadequate storage space. Fish dressing and processing typically occur without proper hygiene and sanitation facilities, raising food safety concerns for consumers.

Price Fluctuations

Fish prices in Dhanbad's markets vary significantly due to supply-demand imbalances and heavy dependence on external sources. When transport from West Bengal is disrupted—whether by political events, natural calamities, or infrastructure failures—local prices can double or triple within days. For low-income consumers who rely on fish as their primary source of animal protein, such price spikes can force difficult dietary compromises. For vendors, price volatility introduces uncertainty into their daily earnings, making household budgeting challenging.

Informal Nature of Trade

Most fish market activities remain largely unregulated, operating within the informal economy. This informality has several consequences: workers lack access to social security benefits such as health insurance and old-age pensions; vendors cannot easily access formal credit from banks; and the government loses potential tax revenue that could be reinvested in infrastructure improvements. The absence of formal market governance also leaves small vendors vulnerable to exploitation by wholesalers and to harassment by local authorities.

Environmental Concerns

Environmental degradation poses a serious threat to the long-term sustainability of Dhanbad's fisheries. The Damodar River, which historically supported rich fish diversity, has suffered severe pollution from industrial and mining activities. Studies have reported that vast stretches of the river have turned into "aquatic deserts" with negligible marine life, and the Zoological Survey of India has found aquatic life to be "negligible" along several places including near the Telmucho bridge in Dhanbad. Chemical contaminants from factories, including zinc, manganese, iron, mercury, and lead, have turned the river toxic, while waste from rice mills and sewage further degrades water quality, adversely impacting fish eggs and the overall aquatic ecosystem.

The decline in fish populations due to pollution directly affects the livelihoods of fishing communities, who find their catches diminishing even as demand continues to grow.

Government Initiatives and Policy Support

The Government of Jharkhand and the central government have recognized fisheries as a key sector for economic development and have launched several initiatives to support its growth. The Pradhan Mantri Matsya Sampada Yojana (PMMSY) is the flagship scheme, promoting aquaculture, fish seed production, reservoir development, and modernization of marketing infrastructure.

Subsidy support is available for various activities: the unit cost for constructing a one-acre pond is Rs 3.00 lakh, with subsidies ranging from 80 to 90 percent depending on the social category of the applicant. Retail stalls are available on 80-90 percent subsidy to facilitate retail marketing of fish in hygienic conditions. Cage culture technology has been promoted in reservoirs, including those in the broader region, helping to increase production without requiring additional land acquisition.

The Jharkhand Opportunities for Harnessing Rural Growth (JOHAR) Project, supported by the World Bank, has also contributed to the sector's development by helping the state diversify agriculture and raise earnings from livestock and fisheries.

Future Prospects

The future of fish markets in Dhanbad depends on several factors. Modernization of infrastructure, including the construction of dedicated fish market complexes with proper drainage, cold storage, and potable water supply, would significantly improve hygiene and reduce post-harvest losses. Integration with cold chain systems would allow fish to be transported more efficiently over longer distances, potentially opening new markets for Dhanbad's fish farmers and vendors. Digital market linkages, such as mobile applications connecting producers directly with consumers, could help reduce intermediaries' margins and increase returns to primary producers.

Strengthening cooperatives remains another priority. The 15 fishermen cooperative societies already existing in Dhanbad district could be supported with training, credit access, and marketing assistance to help their members achieve better prices for their fish. Expansion of cooperative coverage to include more fish farmers and vendors would help organize the sector and improve its bargaining power.

With proper policy support, fish markets in Dhanbad can evolve from their current status as informal, often neglected trading spaces into organized economic hubs that contribute significantly to regional development while improving the livelihoods of marginalized fishing communities.

Conclusion

Fish markets in Dhanbad district represent far more than sites of trade. They are dynamic socio-economic institutions that sustain livelihoods, enhance food security, foster community cohesion, and empower marginalized groups. The extension of the fishing value chain extends across economic, social, and cultural dimensions, particularly

benefitting those who have been left behind by the district's industrial economy. The consistent growth in fish production in Jharkhand over the past decade, from 165 thousand tonnes in 2015 to an estimated 295 thousand tonnes in 2024, provides a strong foundation for continued expansion of the sector.

While challenges such as infrastructure deficits, price volatility, informality, and environmental degradation persist, the sector has demonstrated remarkable resilience. The transformation of abandoned coal mines into fish farms elsewhere in Jharkhand offers a model that could be adapted for Dhanbad, turning the liabilities of industrial decline into assets for community development. Women's participation in fish marketing has already contributed to gender empowerment, and further support for women vendors could accelerate this positive trend.

A strategic focus on modernization, inclusivity, and sustainability can transform fish markets into powerful engines of local economic growth and social empowerment in Dhanbad district. For the tens of thousands of residents who depend on these markets for their daily livelihoods and nutrition, such transformation is not merely desirable but essential.

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