



INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

Women's Participation and Empowerment in the Fish Marketing Value Chain: Socio-Economic Opportunities, Gender Challenges and Pathways for Sustainable Livelihood Development

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Abstract

Women constitute an important but frequently under-recognized workforce in fisheries and fish marketing. Their participation extends across fish collection, sorting, grading, processing, preservation, transportation, retailing, value addition and local trade. Although women's contribution is particularly significant in the post-harvest segment of the fisheries value chain, their economic and social position remains constrained by limited access to fish, credit, transportation, storage, market infrastructure, technology, information, institutional support and decision-making opportunities. Globally, women represented approximately 62% of workers in the post-harvest fisheries sector, demonstrating their central importance to aquatic food value chains. In India, official fisheries-sector reports similarly recognize women's substantial involvement in post-harvest activities, marketing and value addition.

The present paper examines women's participation in the fish marketing value chain, focusing on their socio-economic opportunities, gender-specific constraints and pathways towards sustainable livelihood development. The study is based on a review and synthesis of secondary information obtained from FAO reports, Government of India publications, ICAR sources and peer-reviewed studies on fisherwomen and fish vendors. The analysis indicates that fish marketing can provide women with employment, household income, entrepreneurship opportunities, financial independence, social networking and greater participation in household decision-making. However, informal employment, price uncertainty, inadequate infrastructure, occupational hazards, limited access to institutional credit, competition from larger traders and organized retail, gender discrimination and weak bargaining power continue to restrict their empowerment. Evidence from Kerala, Karnataka, Gujarat and other Indian regions shows that women's economic outcomes are strongly influenced by their access to productive resources, social networks, market information and investment capacity.

The paper argues that women's empowerment should not be confined to increasing their numerical participation in fish marketing; rather, it should involve improving their ownership of productive assets, control over income, bargaining power, access to institutions, leadership and participation in value-chain governance. Strengthening women's self-help groups and cooperatives, improving market infrastructure, expanding digital and financial inclusion, promoting value-added fish products, improving social

protection and occupational safety, and integrating gender-responsive policies can substantially contribute to sustainable livelihood development and a more inclusive fisheries economy.

Keywords: Women empowerment, fisherwomen, fish marketing, fisheries value chain, gender inequality, livelihood development, value addition, fish vendors, financial inclusion, sustainable fisheries.

1. Introduction

Fisheries constitute an important component of food security, nutrition, employment, income generation and rural development. The sector supports millions of livelihoods worldwide and is particularly important for small-scale and resource-dependent communities. Fisheries value chains encompass a wide range of activities, beginning with production and harvesting and continuing through landing, collection, sorting, grading, processing, transportation, wholesale, retailing and final consumption.

Within this value chain, women occupy a particularly important position in post-harvest activities. Their contribution includes fish handling, cleaning, sorting, grading, processing, drying, preservation, packaging, transportation and retail marketing. However, because many of these activities take place within informal economies or are considered extensions of household responsibilities, women's economic contribution is often inadequately recorded and poorly recognized.

According to FAO, women account for approximately 24% of employment in the primary fisheries and aquaculture sector but approximately 62% of employment in the post-harvest sector. This difference demonstrates the gendered structure of fisheries employment and the particular importance of women in processing and marketing activities.

In India, women are involved in a broad range of fisheries-related activities, including fish vending, processing, drying, sorting, grading, packing and local and intra-regional trade. The Department of Fisheries, Government of India, has recognized that women are particularly important in small-scale and post-harvest fisheries and has emphasized the need for greater support for their economic empowerment.

Fish marketing provides an important livelihood opportunity because it generally requires comparatively limited fixed capital relative to large-scale fisheries enterprises. Women can enter the trade as petty vendors, retailers, processors, wholesalers, members of self-help groups (SHGs), cooperative members and entrepreneurs involved in value-added fish products.

Nevertheless, participation does not automatically result in empowerment. A woman may participate extensively in fish marketing while having little control over purchasing decisions, credit, income or market relationships. Therefore, the distinction between participation and empowerment is central to understanding women's position in the fisheries value chain.

The growing commercialization, mechanization and modernization of fisheries markets have created both opportunities and challenges. Increased demand for hygienically processed and ready-to-cook fish products can create opportunities for women entrepreneurs. At the same time, competition from larger traders, organized retail, technological changes and capital-intensive marketing systems may marginalize women who lack financial resources and institutional support. Recent research among women fish vendors in Kerala found unequal access to fish, credit, ice, infrastructure, transport and storage facilities, while investment capacity and social networking were important determinants of income.

Against this background, the present study examines women's participation and empowerment in the fish marketing value chain and identifies strategies for transforming fish marketing into a more inclusive and sustainable livelihood opportunity.

Objectives of the Study

The major objectives are:

1. To examine the role of women in different stages of the fish marketing value chain.
2. To assess the socio-economic opportunities generated through women's participation in fish marketing.
3. To identify the major gender-specific constraints faced by women fish marketers.
4. To examine the relationship between market participation and women's economic empowerment.
5. To identify pathways for strengthening sustainable livelihoods through gender-responsive fish marketing interventions.
6. To suggest policy measures for improving women's access to markets, finance, technology, infrastructure and decision-making.

2. Review of Literature

2.1 Women in Fisheries Value Chains

FAO recognizes women as important actors throughout fisheries and aquaculture value chains. Their contribution is particularly prominent in post-harvest activities, although it is frequently informal, underpaid and insufficiently recognized. FAO also emphasizes that gender-disaggregated data are necessary to understand women's actual contribution and specific constraints.

Women are commonly engaged in activities such as processing, marketing and trade. Their involvement varies according to ecological conditions, cultural norms, fisheries systems and local market structures. Consequently, women's participation should be understood within its particular social and economic context rather than through a single universal model.

2.2 Socio-Economic Status of Fisherwomen

Gunakar and Bhatta examined fisherwomen in segmented fish markets of coastal Karnataka using data from 300 households. Their study found that fisherwomen possessed substantial marketing skills and contributed significantly to household welfare and income. However, growing competition from male vendors, organized retail shops and supermarkets created pressures on their traditional market position.

The study demonstrates that women's market participation can provide significant economic benefits while simultaneously exposing them to new forms of competition.

2.3 Women Fish Vendors and Access to Productive Resources

A recent study of women fish vendors in Kerala identified unequal access to fish, credit, ice, infrastructure, transport and storage facilities. It further found that social and economic networks and the ability to invest in fish vending influenced women's income outcomes.

This finding is important because empowerment requires more than employment. Access to productive resources determines whether participation produces meaningful economic returns.

2.4 Women in Inland Fish Marketing

Panigrahy and Vahoniya studied fisherwomen involved in inland fish marketing in Anand, Gujarat. The study reported women's involvement in activities such as segregation, cleaning, collection and selling of fish. However, women faced substantial real marketing costs and infrastructure-related constraints. The

authors emphasized infrastructure development and training as mechanisms for strengthening women's bargaining capacity.

2.5 Women, Technology and Digital Marketing

Technological transformation is increasingly influencing fish marketing. A study involving 383 women fish vendors in coastal Karnataka examined their adoption, readiness and willingness to use mobile commerce. The research indicates that digital technologies can potentially support women's marketing activities by improving access to customers, information and transactions.

Digital marketing may therefore become an important pathway for reducing information asymmetry and expanding market access, provided that women receive appropriate digital literacy and financial training.

2.6 Women and Value Addition

Value addition represents an important opportunity for women because activities such as hygienic cleaning, drying, smoking, pickling, ready-to-cook preparation, packaging and branding can generate higher returns than the sale of raw fish.

An ICAR initiative in Odisha demonstrated the potential of linking women's self-help groups producing value-added fish products with retail supply chains. The intervention included training in value addition, packaging, labelling, entrepreneurship, management, branding, marketing and bookkeeping.

This provides evidence that appropriate institutional support can move women from low-margin informal vending towards higher-value entrepreneurial activities.

2.7 Gender Constraints in Fisheries

FAO identifies several gender-related barriers affecting women in fisheries, including unequal access to finance, technology, infrastructure, education, information, training, leadership, decision-making and decent employment. Women may also face gender-based violence and unsafe working environments.

These constraints are not independent. For example, limited access to credit reduces the ability to purchase fish in larger quantities, which reduces bargaining power and profitability. Poor infrastructure increases physical costs and health risks, while limited market information can increase dependence on intermediaries.

2.8 Emerging Evidence on Women-Led Fisheries Enterprises

Recent Indian initiatives increasingly emphasize women-led fisheries enterprises. For example, ICAR-CIFRI reported in 2026 that interventions involving tribal women in Meghalaya supported women's participation in fisheries-based enterprises through cage aquaculture, capacity building and resource-management interventions.

Such initiatives indicate a broader transition from viewing women merely as beneficiaries to recognizing them as entrepreneurs, resource managers and economic decision-makers.

3. Materials and Method

3.1 Research Design

The present study follows a descriptive and analytical secondary-data research design. It synthesizes available evidence concerning women's participation, empowerment, constraints and livelihood opportunities in fish marketing.

The study does not claim to present original field-survey results. Instead, it develops an analytical framework from published empirical studies and authoritative institutional sources.

3.2 Sources of Data

Secondary information was collected from:

- Food and Agriculture Organization (FAO) reports and gender resources;
- Department of Fisheries, Government of India;
- Indian Council of Agricultural Research (ICAR);
- Indian Journal of Fisheries;
- Journal of the Inland Fisheries Society of India;
- Agricultural Economics Research Review;
- Peer-reviewed studies on women fish vendors and fisherwomen;
- Relevant research publications concerning gender, fisheries marketing and livelihoods.

The literature included studies from different Indian fisheries contexts, including Kerala, Karnataka, Gujarat, Tamil Nadu, Odisha and other regions.

3.3 Analytical Framework

The analysis was organized around five major dimensions:

A. Participation

- Fish collection
- Sorting and grading
- Processing
- Transportation
- Wholesale marketing
- Retail vending
- Value addition
- Digital marketing

B. Economic Empowerment

- Income generation
- Savings
- Access to credit
- Asset ownership
- Control over income
- Entrepreneurship
- Market bargaining power

C. Social Empowerment

- Household decision-making
- Leadership
- Membership in SHGs/cooperatives
- Social networking
- Community participation

D. Constraints

- Lack of infrastructure
- Credit constraints
- Gender discrimination
- Price fluctuations
- Limited market information
- Occupational hazards
- Inadequate storage and transportation
- Competition from larger traders

E. Sustainability Pathways

- Value addition
- Digital marketing
- Collective marketing
- Financial inclusion
- Skill development
- Institutional support
- Gender-responsive policies

4. Results and Discussion

4.1 Women's Participation Across the Fish Marketing Value Chain

The evidence reviewed demonstrates that women are present at multiple stages of the fish marketing value chain. Their participation is particularly strong in post-harvest operations.

Value-chain activity	Major role of women	Potential economic benefit
Fish collection	Collection from landing centres/local water bodies	Employment and income
Sorting and grading	Quality classification	Better market value
Cleaning	Removal of unwanted materials	Improved product quality
Processing	Drying, smoking, curing and preparation	Value addition
Retailing	Direct sale to consumers	Higher marketing margin
Transportation	Local movement of fish	Market expansion
Value addition	Ready-to-cook and processed products	Higher unit value
Digital marketing	Customer communication and online sales	Wider market access
Group marketing	SHG/cooperative-based marketing	Greater bargaining power

FAO's global evidence shows that women account for a substantially larger share of post-harvest employment than primary fisheries employment. This confirms the importance of gender-sensitive analysis of marketing and processing activities.

In India, the Department of Fisheries similarly recognizes women's roles in processing, sales and local and intra-regional trade.

4.2 Fish Marketing as a Source of Household Income

Fish vending can provide regular cash income to households dependent on fisheries. For many women, vending represents an accessible economic activity because it can be started on a relatively small scale.

Income from fish marketing can contribute to:

- household food expenditure;
- children's education;
- healthcare;
- housing improvement;
- debt repayment;
- household savings;
- investment in productive assets.

The literature also suggests that women's income may have important implications for household welfare because women frequently allocate a substantial proportion of their earnings to family needs.

However, income generation does not necessarily imply economic empowerment. The ability to control income and participate in financial decisions is equally important.

4.3 Access to Credit and Working Capital

Working capital is a critical determinant of fish marketing performance. Fish is highly perishable, and women need timely access to capital to purchase fish when prices and supply conditions are favourable.

The Kerala study found that women fish vendors experienced unequal access to credit and other critical inputs. Limited investment capacity affected their daily revenue. Dependence on informal lenders can create a cycle of indebtedness because high interest rates reduce net marketing returns.

Therefore, accessible institutional finance through banks, SHGs, cooperatives and microfinance institutions can improve women's ability to expand their businesses.

4.4 Infrastructure Constraints

Infrastructure represents one of the most important determinants of fish marketing efficiency.

Women vendors commonly require:

- hygienic market sheds;
- potable water;
- sanitation facilities;
- cold storage;
- ice;
- insulated containers;
- transportation;

- electricity;
- waste-management facilities;
- safe vending spaces.

The absence of such infrastructure increases product spoilage, physical hardship and marketing costs.

Official Indian fisheries reports have recognized that women engaged in post-harvest activities may face unsafe and unhygienic working conditions and inadequate facilities at landing centres and markets.

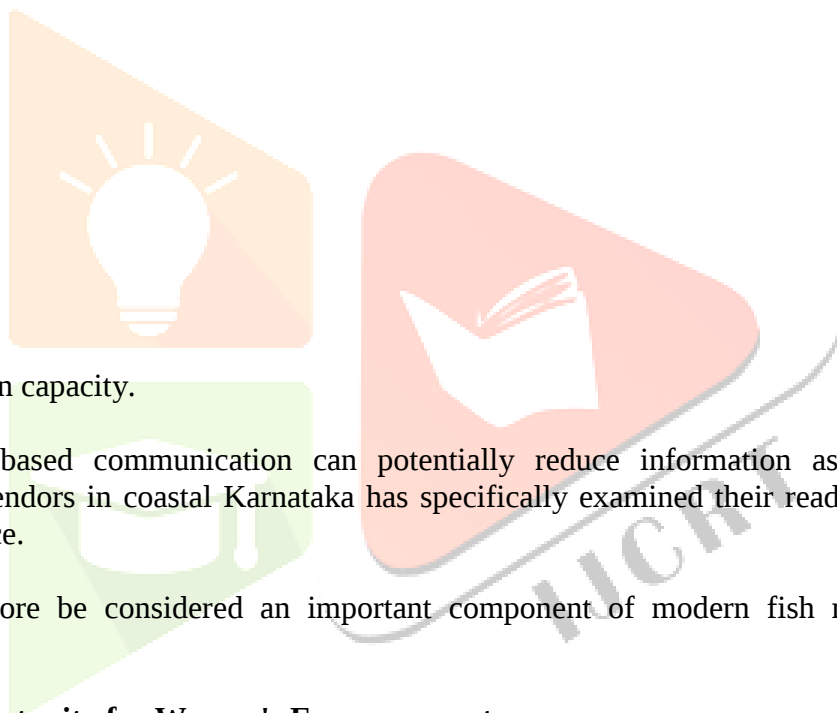
Infrastructure designed specifically with women's needs in mind can therefore simultaneously improve income, occupational safety and product quality.

4.5 Bargaining Power and Market Information

Bargaining power is central to empowerment. Women who depend on intermediaries or lack timely price information may receive lower prices for their products.

Market information regarding:

- prevailing fish prices;
- consumer demand;
- availability;
- quality preferences;
- alternative markets;
- transport costs;
- seasonal price changes



can improve women's negotiation capacity.

Digital platforms and mobile-based communication can potentially reduce information asymmetry. Research among women fish vendors in coastal Karnataka has specifically examined their readiness and willingness to adopt m-commerce.

Digital inclusion should therefore be considered an important component of modern fish marketing strategies.

4.6 Value Addition as an Opportunity for Women's Empowerment

Value addition is one of the most promising pathways for increasing women's income.

Women can engage in:

1. Cleaned and dressed fish;
2. Ready-to-cook fish;
3. Fish pickles;
4. Dried fish;
5. Smoked fish;
6. Fish snacks;
7. Fish cutlets;
8. Fish powder;
9. Hygienically packaged fish products;
10. Frozen and semi-processed products.

Value addition can increase the unit value of fish and create employment beyond traditional vending.

The ICAR-CIWA experience in Odisha demonstrates how SHGs can be trained in fish-product preparation, packaging, branding, marketing and bookkeeping and connected with retail markets.

Thus, women can potentially move from being low-margin retailers to value-chain entrepreneurs.

4.7 Social Capital and Collective Action

Individual women vendors frequently possess limited bargaining power. Collective organization through SHGs, cooperatives, producer groups and women-led marketing associations can help overcome this limitation.

Collective action can facilitate:

- bulk procurement;
- shared transport;
- access to cold storage;
- collective bargaining;
- access to institutional credit;
- joint branding;
- training;
- market information;
- insurance;
- government-scheme access.

Research in Karnataka has highlighted the importance of social and economic networks in determining the income opportunities of women fish vendors.

Collective organization therefore represents an important bridge between individual participation and institutional empowerment.

4.8 Gender Discrimination and Social Norms

Women's participation in fish marketing is influenced by cultural expectations concerning mobility, working hours and household responsibilities.

Women often face a dual burden:

productive work + unpaid domestic and care work.

Long working hours in fish markets may conflict with household responsibilities. Women may also face social criticism because fish vending often requires early-morning travel, prolonged market presence and interaction with male traders and customers.

Research in Kerala has documented how changing fish-marketing practices and longer travel distances have intensified social surveillance and gendered expectations surrounding women vendors.

Consequently, gender empowerment requires social transformation as well as economic interventions.

4.9 Occupational Health and Safety

Fish vending involves prolonged standing, carrying heavy loads, exposure to water and cold, repetitive activities, poor sanitation and potentially unsafe market environments.

Recent research on women fish vendors in Thiruvananthapuram highlights physical, reproductive and psychosocial occupational-health concerns associated with informal fish vending.

Improving occupational safety is therefore not merely a welfare intervention; it is an economic investment because healthier workers are more capable of sustaining their livelihoods.

4.10 Climate Change and Livelihood Vulnerability

Climate change can influence fish availability, seasonality, prices, fishing effort and household income. Women working in post-harvest fisheries can be particularly vulnerable because their businesses depend directly on the availability and affordability of fish.

Climate-related shocks may cause:

- reduced fish supply;
- higher raw-material prices;
- unstable income;
- market closures;
- increased food loss;
- greater household debt.

Women-led enterprises can become more resilient when they diversify into processing, value-added products, alternative fish species and multiple market channels.

4.11 Digitalization and New Market Opportunities

Digital technologies provide opportunities to modernize traditional fish marketing.

Potential applications include:

- WhatsApp-based customer networks;
- digital payments;
- online fish ordering;
- social-media marketing;
- digital price information;
- e-commerce platforms;
- online bookkeeping;
- digital banking;
- electronic market information systems.

However, technology can empower women only when accompanied by affordable smartphones, internet access, digital literacy, financial literacy and institutional support.

4.12 From Participation to Empowerment

The central finding of this review is that **participation and empowerment are related but distinct concepts**.

A woman may be highly active in fish marketing but remain economically disempowered if she:

- does not own the business;
- has no control over earnings;
- depends on informal lenders;
- lacks access to markets;
- cannot participate in business decisions;
- has no representation in cooperatives;
- lacks control over productive assets.

True empowerment requires improvement across several dimensions.

Dimensions of Fisherwomen's Empowerment

Economic empowerment

→ income + assets + credit + savings + enterprise ownership

Market empowerment

→ information + bargaining power + direct market access

Institutional empowerment

→ SHGs + cooperatives + producer organizations

Social empowerment

→ decision-making + leadership + mobility

Technological empowerment

→ digital literacy + digital payments + online marketing

Political empowerment

→ representation in fisheries institutions and local decision-making

5. Major Opportunities for Women in Fish Marketing

The review identifies the following major opportunities:

5.1 Expansion of Value-Added Fish Products: Growing consumer demand for hygienic, convenient and ready-to-cook products creates opportunities for women entrepreneurs.

5.2 Women-Led Self-Help Groups: SHGs can provide a platform for collective finance, training, production and marketing.

5.3 Cooperative Marketing: Women's fisheries cooperatives can strengthen bargaining power and reduce dependence on intermediaries.

5.4 Digital Fish Marketing: Mobile commerce and social-media marketing can connect women vendors directly with consumers.

5.5 Financial Inclusion: Bank accounts, savings, insurance and institutional credit can reduce dependence on informal finance.

5.6 Entrepreneurship Development: Training in accounting, packaging, branding, food safety and business management can help women move into higher-value activities.

5.7 Local and Regional Branding: Women-led enterprises can develop geographically or culturally distinctive fish products and build local brands.

5.8 Sustainable Fisheries Enterprises: Women can contribute to responsible resource use through improved handling, reduction of post-harvest losses, waste utilization and environmentally responsible processing.

6. Major Gender Challenges

The major constraints identified from the literature are:

1. Limited access to institutional credit.
2. Insufficient working capital.
3. Inadequate cold-chain infrastructure.
4. Poor transportation facilities.
5. Lack of hygienic market spaces.
6. Limited access to market information.
7. Weak bargaining power.
8. Dependence on intermediaries.
9. Competition from organized traders and male vendors.
10. Gender discrimination.
11. Household and care responsibilities.
12. Occupational health risks.
13. Limited digital literacy.
14. Limited participation in decision-making.
15. Inadequate formal recognition of women's work.
16. Price volatility.
17. Fish spoilage and post-harvest losses.
18. Limited access to training and extension services.
19. Weak institutional organization.
20. Climate-related livelihood risks.

7. Recommendations

7.1 Gender-Responsive Fish Market Infrastructure: Fish markets should include dedicated facilities for women such as hygienic vending spaces, drinking water, sanitation, childcare facilities, lighting, storage and waste-management systems.

7.2 Institutional Credit: Banks and financial institutions should develop accessible credit products specifically designed for women fish vendors and small-scale fish enterprises.

Collateral requirements should be flexible, and financial literacy programmes should accompany credit provision.

7.3 Strengthening Women's SHGs: Women should be encouraged to form fisheries-based SHGs and producer groups capable of collective procurement, processing and marketing.

7.4 Development of Women's Fisheries Cooperatives: Women-led cooperatives can improve collective bargaining power and facilitate access to markets, finance, technology and government schemes.

7.5 Training and Capacity Building: Training should cover:

- hygienic fish handling;
- fish preservation;
- value addition;
- packaging;
- branding;
- accounting;
- entrepreneurship;
- digital marketing;
- financial literacy;
- food safety;
- business planning.

7.6 Digital Empowerment: Women should be trained to use smartphones, digital payments, social media and online market platforms.

7.7 Promotion of Value-Added Products: Government departments, ICAR institutions, universities and NGOs should promote women-led enterprises producing hygienically processed and packaged fish products.

7.8 Better Market Information: Women should receive timely information about fish prices, demand, supply, transportation costs and alternative markets.

7.9 Social Protection: Women fish vendors should be linked with appropriate social-security schemes, insurance, pension and livelihood-support programmes.

7.10 Occupational Health and Safety: Market authorities should improve sanitation, drainage, waste management, lighting, ergonomic facilities and access to health services.

7.11 Women's Participation in Decision-Making: Women should have meaningful representation in fisheries cooperatives, market committees, producer organizations and local fisheries-management institutions.

7.12 Gender-Disaggregated Data: Government agencies should systematically collect gender-disaggregated information on:

- employment;
- income;
- working hours;
- marketing activities;
- ownership;
- access to credit;
- assets;
- training;
- technology;
- leadership.

FAO emphasizes that accurate gender statistics are essential for designing effective gender-responsive fisheries policies.

7.13 Convergence of Government Schemes: Fisherwomen should be connected with fisheries, rural-development, financial-inclusion, skill-development and entrepreneurship programmes through a coordinated institutional mechanism.

India's Department of Fisheries has already identified gender empowerment as a policy concern and has established a Gender Budget Cell to address gender imbalances in fisheries programmes.

8. Conclusion

Women are indispensable actors in the fish marketing value chain. Their contribution extends far beyond traditional fish vending to include sorting, grading, processing, transportation, value addition, retailing, entrepreneurship and household financial management. International evidence indicates that women's participation is particularly high in post-harvest fisheries, while Indian evidence confirms their significant involvement in fish marketing and related activities.

The review demonstrates that fish marketing can serve as an important pathway for women's livelihood development by generating income, employment, entrepreneurship and opportunities for greater household decision-making. However, the benefits are constrained by structural gender inequalities. Lack of finance, infrastructure, market information, technology, social protection and bargaining power limits the economic returns from women's participation.

The transformation of women from informal and vulnerable fish vendors into empowered value-chain actors requires a shift from a **welfare-oriented approach to an empowerment-oriented approach**. Policies should focus not only on increasing women's participation but also on improving their ownership, control, bargaining power, leadership and access to productive resources.

Collective action through SHGs and cooperatives, combined with institutional credit, modern market infrastructure, digital technologies, value addition, entrepreneurship training and gender-responsive policies, can significantly strengthen women's position in fish marketing.

Sustainable livelihood development in fisheries will therefore depend not only on increasing fish production but also on creating **inclusive, equitable and gender-responsive value chains**. Empowering fisherwomen is both a matter of social justice and an economic strategy for improving household welfare, reducing poverty, strengthening food systems and promoting sustainable fisheries development.

9. Policy Implications

The findings have several important policy implications:

1. Gender should be mainstreamed across the entire fisheries value chain.
2. Women should be treated as economic actors and entrepreneurs rather than merely beneficiaries.
3. Women-specific fisheries infrastructure should be developed at landing centres and markets.
4. Institutional finance should be made accessible to women fish vendors.
5. Women-led SHGs and cooperatives should receive technical and marketing support.
6. Digital marketing and digital financial services should be promoted among fisherwomen.
7. Value-added fish enterprises should receive incubation, branding and market-linkage support.
8. Women's representation in fisheries institutions should be strengthened.
9. Occupational health and social-security measures should cover informal women fish workers.
10. Gender-disaggregated fisheries data should become an integral component of fisheries planning and evaluation.

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