



Women's Participation in Reservoir Fisheries: Enhancing Livelihood and Empowerment

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Women play a crucial role in reservoir fisheries, contributing to fishing, processing, and trading while enhancing household incomes and food security. Despite facing institutional barriers, their participation in small-scale and artisanal fisheries is increasing, supported by self-help groups and cooperatives. Women's involvement in post-harvest activities such as drying and smoking fish adds economic value, while their engagement in fish marketing strengthens local economies. Additionally, women are gaining leadership roles in fisheries governance, advocating for gender-inclusive policies. Initiatives in India, Bangladesh, and Latin America highlight the benefits of empowering women in fisheries. Strengthening their access to resources, training, and policy support is essential for achieving sustainable and equitable reservoir fisheries.

Introduction

A vital part of the world's inland fisheries, reservoir fisheries contribute significantly to economic growth, employment, and food security. Critical aquatic habitats that support fish species and maintain fishery-dependent livelihoods are provided by both natural and constructed reservoirs (Sugunan, 1995). Particularly for rural communities where fish are the main food source, these fisheries are a significant source of micronutrients and protein (Welcomme et al., 2010). Additionally, by providing revenue for fishermen, processors, and dealers throughout the value chain, they support regional and national economies (De Silva et al., 2006). Small-scale reservoir fisheries are essential to the financial security of underprivileged populations in emerging nations. However, these fisheries frequently encounter difficulties including poor management, a lack of gender-inclusive policies, and insufficient technical assistance, which can lead to a decline in production and socioeconomic disparity among stakeholders (FAO, 2020). Women continue to be an undervalued workforce in reservoir fisheries, despite their significant contributions to fishing, processing, marketing, and management.

Despite their substantial contributions to pre-harvest, harvest, and post-harvest operations, women's participation in fisheries has historically been underestimated (Harper et al., 2013). Women work in reservoir fisheries in a variety of capacities, such as harvesting, processing, adding value, and distributing fish to markets (Kleiber et al., 2015). Their involvement in small-scale fish processing, including smoking, drying, and fermenting, is essential to the economic stability and nutritional security of households (FAO, 2022). Furthermore, women frequently take part in self-help organizations and fishing cooperatives, which improves financial inclusion and group bargaining power (Weeratunge et al., 2010). However, sociocultural hurdles, restricted access to resources, and exclusion from decision-making processes are only a few of the many difficulties faced by women in the fishing industry (Béné et al., 2016). Women's participation in active fishing and governance is frequently restricted by traditional gender roles, which also confine them to post-harvest chores (Williams, 2008). These problems are made worse by the lack of gender-responsive

policies, which prevent women from accessing training programs, financial assistance, and technology improvements (FAO, 2021). Improving the sustainability of reservoir fisheries and advancing gender equality depend on addressing these issues.

Women's Roles in Reservoir Fisheries

Women play a crucial yet often overlooked role in reservoir fisheries, contributing at multiple stages of the value chain, including fishing, processing, trading, and management. Their involvement enhances the socioeconomic resilience of fishing communities and sustains household livelihoods. Despite institutional challenges, women's participation in fisheries governance and development is increasing, reflecting a trend toward greater gender inclusion (FAO, 2021). Although traditionally viewed as a male-dominated field, women actively engage in artisanal and small-scale fishing, particularly in shallow waters using nets, lines, and traps (Kleiber et al., 2015). Their participation is especially significant in family-based fishing operations, where traditional methods such as hand-collecting fish, setting bamboo traps, and using gillnets are common (Weeratunge et al., 2010). With advancements in technology, women have expanded their roles in fishing, but financial and social barriers still restrict their access to modern equipment (Williams, 2010). Women-led cooperatives, such as the Matsyafed cooperatives in Kerala, India, have helped overcome these challenges by providing financial support, training, and technology access (Ramachandran et al., 2017). Similarly, in Bangladesh, women's involvement in community-based fisheries management has led to improved food security and household incomes (Hossain et al., 2020).

Post-harvest activities form a significant part of women's work in reservoir fisheries. Women are responsible for drying, smoking, salting, and packaging fish, ensuring year-round availability (FAO, 2022). In regions like South Asia and West Africa, traditional fish processing methods sustain local and regional trade, while value-added products such as fish pickles and powders create new income opportunities (Weeratunge et al., 2010). Women-led fish processing enterprises in Sri Lanka have demonstrated increased household earnings and financial independence (De Silva & Yamao, 2007). Women also play a key role in fish marketing and trade, selling fresh and processed fish in local markets and managing supply chains. However, challenges such as price volatility and gender-based discrimination limit their full participation (FAO, 2022). Women's self-help groups (SHGs) and cooperatives, supported by organizations like India's National Fisheries Development Board (NFDB), have improved market access and financial support for female fish traders (NFDB, 2020). Beyond economic contributions, women are increasingly taking on leadership roles in fisheries cooperatives and governance, advocating for gender-equitable management policies. In Latin America and Cambodia, gender-inclusive policies and cooperatives have strengthened women's roles in decision-making and economic self-reliance (Salazar et al., 2018; McDougall et al., 2019). Institutional support for gender-sensitive policies is crucial for ensuring women's continued empowerment in reservoir fisheries (FAO, 2021).

Socio-Economic Benefits of Women's Participation

Women's active participation in reservoir fisheries significantly contributes to household income, food security, and community development. Their roles in fishing, processing, and marketing not only enhance economic independence but also promote gender inclusion in fisheries management, leading to more equitable and sustainable fisheries (FAO, 2021). Economically, women in reservoir fisheries engage in post-harvest processing, fish marketing, and small-scale enterprises, generating financial stability and independence. Studies from Bangladesh and India highlight how women's involvement in fish drying, smoking, and trading strengthens their financial standing and household decision-making power (Hossain et al., 2020). Access to cooperatives and microfinance further enables women to invest in better equipment and technologies, improving productivity (Gopal et al., 2020). Research from Nigeria and Cambodia shows that households with active female fishers report higher incomes and economic resilience (McDougall et al., 2019; Adebo & Alfred, 2008).

Women's contributions are also crucial for nutrition and food security. By engaging in fishing, processing, and distribution, they ensure a steady supply of nutritious food, benefiting vulnerable groups such as children and the elderly (FAO, 2022). Women prioritize household nutrition by retaining part of their catch for consumption, particularly in inland fisheries where fish is a primary protein source (Bennett, 2005). Studies indicate that when women control fishing income, households allocate more funds to food, healthcare, and education, leading to improved child nutrition (Béné et al., 2016). In Southeast Asia, women-led fisheries cooperatives have been linked to lower child malnutrition and improved dietary diversity (Weeratunge et al., 2010).

Beyond economic benefits, women's participation strengthens governance, education, and skill development in fisheries. Historically, decision-making in fishing communities has been male-dominated, but women's involvement in cooperatives and policy discussions is shifting governance structures. In India, the National Fisheries Development Board has facilitated women's leadership roles in fisheries management (NFDB, 2020). Similar efforts in Latin America and Africa have improved resource access and working conditions for women (Salazar et al., 2018). Education and training in sustainable harvesting and fish processing have further increased women's technical expertise, reducing post-harvest losses and enhancing market competitiveness (Harper et al., 2013; De Silva & Yamao, 2007). Promoting gender equality in fisheries is essential for sustainable growth. Initiatives providing women with boats, gear, and training help break gender stereotypes, fostering a more inclusive industry (Williams, 2008). Successful gender-focused policies in Indonesia and programs such as Ghana's "Women in Fisheries" initiative and India's community-based fisheries management demonstrate the positive impact of women-led fisheries (Gopal et al., 2020; Ramachandran et al., 2017). Supporting cooperative structures, education, and gender-inclusive policies will maximize women's contributions, ensuring a more sustainable and equitable future for inland fisheries.

Challenges Faced by Women in Reservoir Fisheries

Women play a crucial role in reservoir fisheries, yet numerous barriers limit their full participation and economic advancement. Institutional constraints, socio-cultural norms, and structural hurdles restrict their access to resources, decision-making roles, and social protections. Addressing these issues through targeted policy reforms and interventions is essential for achieving gender-inclusive and sustainable fisheries management (FAO, 2022).

A major challenge women face in reservoir fisheries is restricted access to critical resources such as boats, fishing gear, financial credit, and capacity-building training. In many communities, men control boat ownership and fishing equipment, forcing women to rely on small-scale, nearshore fishing with basic tools, resulting in lower catch volumes and reduced financial returns (Williams et al., 2020). Limited access to financial credit, often exacerbated by socio-cultural biases and lack of collateral, further prevents women from expanding their businesses by investing in boats, cold storage, or value-added processing equipment (Kleiber et al., 2018; Gopal et al., 2020). Additionally, gender biases and logistical challenges exclude women from fisheries training programs, restricting their technical skills and participation in sustainable fisheries practices (López Angarita et al., 2019; Ramachandran et al., 2017).

Cultural traditions also hinder women's involvement in fishing activities and fisheries governance. In many regions, fishing is considered a male-dominated profession, discouraging women from actively participating in decision-making processes (FAO, 2021). Despite their critical contributions to fish processing and trade, women are often excluded from leadership roles in fisheries cooperatives and governance bodies, limiting their ability to influence policies that could improve their economic opportunities (Salazar et al., 2018). In parts of Africa and Asia, women are largely confined to post-harvest activities such as drying and marketing, restricting their income potential and skill development (Bennett, 2005; Weeratunge et al., 2010). Furthermore, gender-responsive fisheries policies remain insufficient in many countries, with national regulations failing to address the specific needs of female fishers (Gopal et al., 2020; Kusakabe et al., 2020).

Strengthening policy frameworks with gender-inclusive resource allocation and budgeting can help bridge this gap. However, women's fishing cooperatives and self-help groups often struggle due to inadequate funding, limited market access, and lack of institutional support (Williams, 2008). Additionally, women in fisheries face significant occupational hazards, including prolonged sun exposure, handling hazardous chemicals, and poor sanitary conditions in fish markets, which pose serious health risks (De Silva & Yamao, 2007; Harper et al., 2013). The absence of formal contracts also excludes them from social security benefits such as insurance, pensions, and maternity leave, making them vulnerable to economic instability during crises (Béné et al., 2016). Establishing gender-responsive social protection programs is crucial to enhancing women's resilience and financial security in reservoir fisheries.

Strategies for Enhancing Women's Participation and Empowerment

A comprehensive strategy that tackles institutional, technological, and socioeconomic constraints is needed to increase women's involvement in reservoir fisheries. Implementing gender-inclusive legislation, encouraging skill development, enhancing financial accessibility, fortifying cooperatives, and encouraging the use of contemporary technology should be the main objectives of key measures. For women to have equitable access to resources, decision-making opportunities, and socioeconomic advantages, gender-responsive policies—like incorporating gender-sensitive frameworks into national fisheries strategies—are essential (Gopal et al., 2020). While gender-balanced representation in fisheries governance can enhance decision-making and resource sustainability, legal recognition of women's contributions throughout the fisheries value chain can allow them to access institutional support and financial assistance (Harper et al., 2020; FAO, 2021). Enhancing women's productivity and financial returns requires capacity-building initiatives, such as technical training in value addition, sustainable fishing methods, and company management (Williams, 2008). Women can be empowered to grow their enterprises with financial support through microfinance programs and gender-sensitive lending schemes (FAO, 2022). Furthermore, bolstering self-help organizations and women's cooperatives can enhance social security, market access, and collective bargaining power (Williams, 2008). Lastly, promoting the use of technology, such as contemporary preservation methods and smartphone applications for market access, may greatly increase productivity, cut waste, and boost profitability in the fishing industry (Gopal et al., 2020; Harper et al., 2013). Women in reservoir fisheries may become more resilient, take up leadership roles, and become economically independent by putting these principles into practice.

Case Studies and Success Stories

With several case studies demonstrating how women-led fisheries programs have improved economic stability, food security, and social empowerment, the importance of women in reservoir fisheries is becoming more widely acknowledged via successful efforts across the world. For instance, via entrepreneurship, value-added product development, and fish drying, women-led fishing cooperatives in Kerala, India, like the Theeramythri initiative, which is funded by the Society for Assistance to Fisherwomen (SAF), have increased income levels and economic independence. The initiative's main takeaways stress the value of government subsidies, training programs that increase women's marketability and bargaining power, and access to microfinance (FAO, 2021). Through community-driven governance, Community Fisheries (CFi) projects in Cambodia's Tonle Sap Lake have improved resource protection and economic advantages by empowering women to assume leadership positions in fisheries management (Resurrección & Elmhirst, 2020). Similar to this, the NAFIRRI Women's Fish Processing Initiative in Lake Victoria, Uganda, has enabled women to embrace better fish preservation techniques including solar drying and sanitary packing, which has improved market conditions and raised economic returns (Béné et al., 2016). Lessons learned from women-led projects emphasize the significance of gender-sensitive policies, support networks, and financial inclusion across all areas.

Women's cooperatives in Ghana and Senegal, for instance, have demonstrated how infrastructure, training, and financing availability may greatly enhance fisheries value chains (Williams et al., 2018). The Mujeres del Mar cooperative in Mexico is one example of a Latin American organization that has combined biological knowledge with contemporary fisheries management to support sustainable resource use while preserving economic viability (Harper et al., 2020). Women's engagement in aquaculture, seafood processing, and commerce has increased throughout Southeast Asia thanks to gender-sensitive fisheries policy, which has increased food security and earnings (FAO, 2022). These case studies show that empowering women in reservoir fisheries requires fostering the use of technology, bolstering women's networks, and guaranteeing equitable market access. Policymakers and stakeholders may promote more inclusive fisheries programs that promote gender equality and sustainable development in inland fisheries by utilizing these best practices.

Conclusion

One important but sometimes overlooked aspect of the inland fisheries industry is the involvement of women in reservoir fisheries. They contribute in a variety of capacities, including as direct fishing, commerce, post-harvest processing, and management duties. Women continue to play a crucial role in improving livelihoods, guaranteeing food security, and promoting socioeconomic development in their communities despite major obstacles such as restricted access to resources, gender discrimination, and a lack of institutional assistance. A multifaceted strategy that incorporates financial assistance, skill development, policy interventions, and technological adoption is needed to empower women in reservoir fisheries. Successful case studies from different areas demonstrate how women greatly contribute to sustainable fisheries management and economic stability when given access to resources, training, and decision-making platforms. Microfinance programs, women-led fisheries cooperatives, and gender-inclusive governance are examples of initiatives that have shown that equitable involvement improves household earnings, community well-being, and the sustainability of fisheries as a whole.

Government officials, academics, and stakeholders should prioritize promoting gender equality in reservoir fisheries going ahead. Achieving gender equity in fisheries requires bolstering women's networks, expanding their access to infrastructure and financing, and guaranteeing their inclusion in governance institutions. Inland fisheries can realize their full potential for sustainable resource management and economic growth by identifying and removing the structural obstacles that women face. Ultimately, including women's contributions into the larger framework of fisheries is crucial for boosting resilience, encouraging innovation, and guaranteeing the long-term viability of reservoir fisheries. It is not only a question of social fairness. A revolutionary step toward more inclusive and equitable fisheries governance, empowering women in this field benefits local communities as well as the global fisheries environment.

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