

Fostering Women's Contributions to Inland Fisheries in Southeast Asia

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Gender is defined by the concept of duties, functions, and roles attributed to women and men in the public and private lives of society. In the context of gender policies, the Inland Fishery Resources Development and Management Department of the Southeast Asian Fisheries Development Center (SEAFDEC/IFRDMD) has actively promoted gender equality in Indonesia, Cambodia, Lao PDR, and Philippines since 2020. Women have taken leading roles in the inland fisheries value chain, particularly in processing and marketing. However, women have often been limited in their participation in decision-making processes. Recognizing these challenges, IFRDMD was committed to promoting gender equality in inland fisheries in Southeast Asia under the projects supported by the Japanese Trust Fund 6-2, entitled “Management Scheme of Inland Fisheries in Southeast Asian Region” and “Sustainable Management of Anguillid Eel Fisheries in Southeast Asian Region” which were implemented in 2020-2024.

Gender refers to the roles, duties, and responsibilities attributed to women and men, both in public and private spheres. These roles often shape access to resources, participation in decision-making, and overall livelihood opportunities. Gender dynamics are deeply embedded in the social, economic, and cultural fabric of societies worldwide (Bolger, 2010), including those involved in small-scale fisheries.

Gender issues received attention in the global fisheries arena. The fisheries sector is often characterized by gender-based divisions of labor, where men are typically involved in fish capture while women handle post-harvest activities such as processing, marketing, and resource management. This division underscores the critical role of women in the fisheries value chain. However, despite their significant contribution, their involvement is rarely acknowledged in decision-making processes related to fisheries governance, resource management, and development policies. The involvement of women is often overlooked, particularly in key decision-making roles, even though women contribute significantly to the sector. Women constitute nearly half of the fisheries workforce worldwide, yet their roles remain

largely underrecognized. Studies, such as those by Chambon *et al.* (2023), showed that women are often excluded from decision-making processes related to fisheries management and policy-making. Indeed, over 80 % of case studies in fisheries reveal limited or no participation of women in key management decisions, a finding supported by a systematic review conducted by Chambon *et al.* (2023). Analyzing 124 peer-reviewed case studies on small-scale fisheries management across 51 countries, the study found that among the 75 cases with detailed information on women's participation, over 80 % reported that women were either minimally involved or entirely excluded from management processes (Leisher *et al.*, 2016; Chambon *et al.*, 2023). This exclusion not only diminishes their potential impact but also limits the socioeconomic benefits they could bring to their communities and fisheries as a whole. Further, women play multidimensional household roles that are often undefined or undervalued.

Small-scale fishing communities adapt to resource fluctuations by diversifying their livelihoods. Households engage in multiple activities such as fishing, farming, and labor to secure their income (Frangoudes & Gerrad, 2018). Gender plays a critical role in these strategies, with women often pursuing different livelihood opportunities compared to men. According to FAO (2015), women's involvement in small-scale fisheries is not only beneficial for the overall sustainability of fisheries but also enhances social cohesion within communities. Studies from Leisher *et al.* (2016) and Chambon *et al.* (2024) have shown that women's participation in resource management leads to better resource distribution and improved community well-being. Moreover, women's roles as processors, marketers, and resource managers make them key stakeholders in the fisheries sector.

Additionally, socioeconomic constraints such as limited access to financial resources, technology, and education further hinder women's ability to fully participate in the fisheries sector. Corpuz *et al.* (2023) highlighted that many women in fisheries lack the capital needed to invest in more efficient fishing gear or to scale their operations. Moreover, women often bear the dual burden of household responsibilities and income-generating activities, which limits the time

and energy they can devote to fisheries-related work. These constraints perpetuate gender inequities, leaving women with fewer opportunities to advance or contribute meaningfully to fisheries management.

Fostering women's contributions to small-scale inland fishery is critical not only for enhancing food security but also for promoting gender equity within this vital sector. Women play significant roles across various stages of the fisheries value chain, from small-scale fishing and aquaculture to post-harvest activities such as processing and marketing. However, despite their contributions, women often face systemic barriers that limit their participation, visibility, and decision-making power. Addressing these challenges can lead to improved socioeconomic outcomes and more sustainable fisheries management practices.

Active involvement of women in fisheries management, on the other hand, correlates with several positive sociocultural and ecological impacts. For example, when women are actively involved, communities often experience enhanced resilience, as women bring unique perspectives and skills to resource management. According to Chambon *et al.* (2023), women's participation helps foster stronger community bonds, promotes ecological sustainability, and enhances the overall health of fisheries ecosystems. Their involvement can lead to more equitable resource distribution, stronger community cohesion, and improved adaptability to environmental changes, all of which are essential for the long-term sustainability of fisheries.

Gender roles in inland fisheries in Southeast Asia

In the Southeast Asian region, women and men utilize different spaces and have differential access to resources because of the norms and values attached to certain places (Muthmainnah *et al.*, 2019). However, the contributions of women are either overlooked or considered less valuable compared to those of men. Women are often assumed to play more traditional and supporting roles with lesser economic values attached to their activities. Women participate in the households' fishing activities that take place along the waters that are in the vicinity of their house because they want to stay close to their house. When not fishing, the women dominate in activities that support fishing, such as preparing food for their families, especially for their husbands when they go fishing, repairing fishing equipment, and sorting the landed fish catch of their husbands. Women also participate in economic activities, usually in the processing and marketing of the fish catch.

Inland fisheries in Southeast Asia, although small-scale, are crucial for food security, livelihoods, and economic sustainability. They are typically characterized by traditional

fishing practices carried out by family units rather than commercial operations, involving relatively low capital and energy inputs, with short fishing trips near the coast and primarily aimed at local consumption (FAO, 2018). Women play a particularly important role in inland fisheries value-chain, especially in the post-harvest phases including processing and marketing. Freshwater fish products from the inland waters constitute a significant part of the rural peoples' diet. Most of the fish catch are consumed immediately although some portions of the catch are sold in local markets. The surplus of the fish catch is preserved in a variety of ways according to cultural preference and the prevailing local conditions. Commonly, fishers' families are engaged in fermenting (the primary process), pickling, drying, and smoking of fish.

Markets are the central points where sellers and buyers meet. Insufficient support from local governments, especially providing better market facilities in rural areas, often forces women to restrict their activities in the market. Thus, women would prefer marketing on a limited scale or directly selling their catch to retailers even if the price is often quite low.

However, despite national and regional gender policies, women still face exclusion from key decision-making processes in the sector. Despite their crucial role, women in inland fisheries face significant barriers that hinder their productivity and visibility. One of the most critical challenges is the lack of sex-disaggregated data, which obscures the true extent of women's contributions to the fisheries value chain. Without accurate data, policymakers and stakeholders often overlook women's roles, making it difficult to implement gender-sensitive policies that address their specific needs.

SEAFDEC initiatives in promoting gender equality in fisheries

SEAFDEC has made significant strides in promoting gender equality and women's empowerment in fisheries through its institutional strategies and regional policy instruments. The SEAFDEC Gender Strategy, adopted in 2017, provides a comprehensive framework for integrating gender perspectives in SEAFDEC programs, projects, and internal operations. Additionally, the Resolution and Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region Towards 2030 (RES&POA-2030) emphasizes the importance of mainstreaming gender in fisheries policies and programs across Southeast Asia. SEAFDEC has also incorporated gender considerations into its Strategic Plan 2022–2025, ensuring that inclusivity and equity remain guiding principles in fisheries development. Through regional workshops, training, case studies, and support for sex-disaggregated data collection, SEAFDEC has strengthened the capacity of the Member

Countries to apply gender-sensitive approaches. Projects such as “Mainstreaming Gender in Small-scale Fisheries” and various national initiatives of SEAFDEC technical departments have further demonstrated its commitment to empowering women and promoting equitable participation in fisheries management and decision-making processes.

Furthermore, IFRDMD has adopted gender-inclusive policies that emphasize the importance of women’s participation in fisheries governance. By engaging women in fisheries-related decision-making and management, IFRDMD promoted inclusive and equitable inland fisheries policies across Southeast Asia. IFRDMD involved women in practical tasks such as water quality monitoring and resource management. By providing women with training in these areas, IFRDMD ensures that women have the skills and knowledge to contribute to sustainable inland fisheries management. IFRDMD carried out several studies on gender equality in inland fisheries in Cambodia, Indonesia, Lao PDR, and Philippines (Figure 1). This article aims to highlight the contributions of women to inland fisheries and the challenges they face, and to promote gender equality in the sector.

Case study 1: Striped catfish culture and processing in Riau Province, Indonesia

Kampung Patin Village, which is close to the Koto Panjang Reservoir in Riau Province, Indonesia, is home to a thriving aquaculture industry, where striped catfish (*Pangasius*

hypothalamus) are farmed in over 1,200 ponds spanning 120 ha. Many women are engaged in aquaculture by feeding, helping harvest, and checking the water quality and fish processing. Out of the 2,328 residents in 2022, 50 % of the women were actively involved in various tasks, including the preparation of raw materials, size selection, cleaning, filleting, and smoking (Figure 2) to produce smoked striped catfish. The women process large quantities of fish, typically filleting 200–300 kg per day, earning IDR 400 (USD 0.025) per kg. The village produces smoked fish, the product that generates significant income for the community. The smoked fish is distributed to markets across West Sumatra, North Sumatra, and South Sumatra in Indonesia. Kampung Patin shows a good example of how women’s involvement in inland fisheries can make a positive impact on community development and economic sustainability, which produces approximately 4 t of smoked fish each month.

The women in Kampung Patin are involved in the preservation of striped catfish, while men handle the smoking process. The work is divided based on productivity, and female workers can process large quantities of fish daily. The entire process from smoking to packaging involves both genders but assigns different roles based on physical demands and expertise. This collaboration between men and women has led to the economic success of Kampung Patin, which serves as a model for other inland fisheries communities. Women’s involvement in the processing and selling of smoked fish, which is sold for higher prices than fresh fish, has become a key factor in

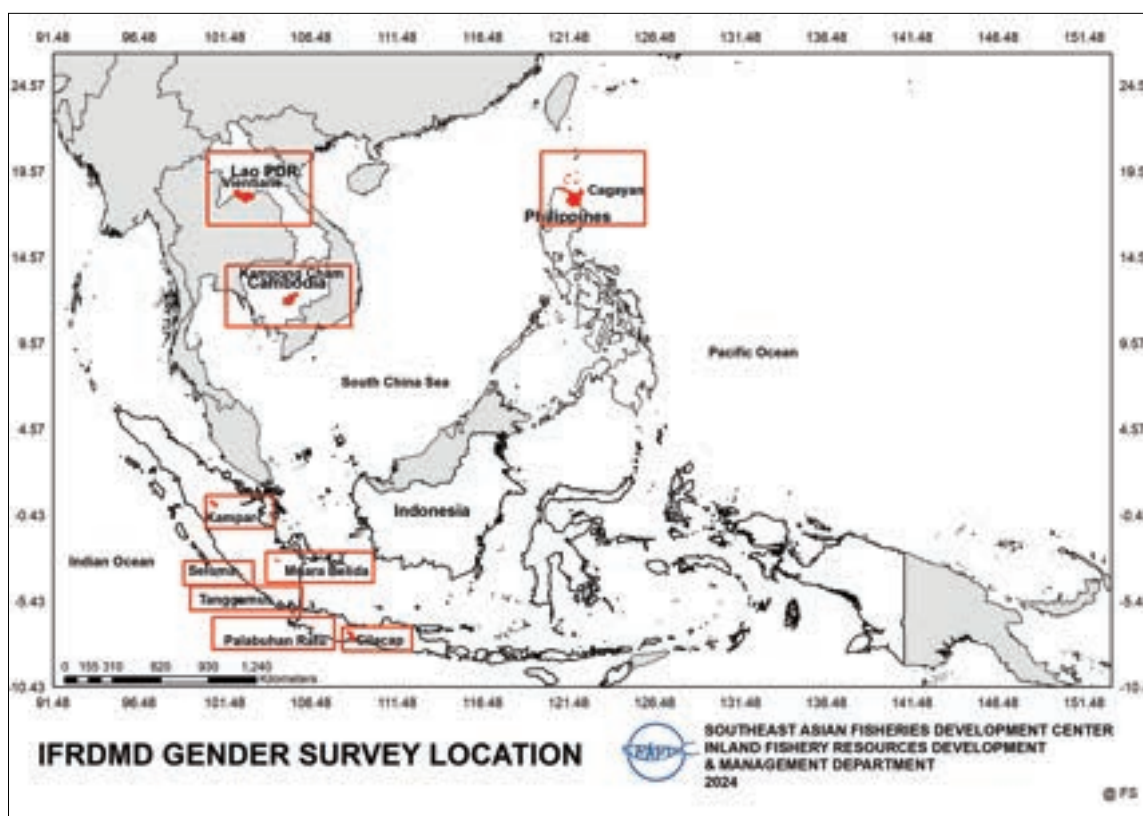


Figure 1. Location of study sites of gender equality in inland fisheries in Cambodia, Indonesia, Lao PDR, and Philippines

boosting household income. The village's success is further amplified by the fact that it integrates aquaculture, post-harvest processing, education, and tourism into one cohesive business model (Muthmainnah *et al.*, 2022a).



Figure 2. Women cleaning (top) and smoking (bottom) striped catfish in Kampong Patin Village, Riau Province, Indonesia

However, one of the main challenges in gender-based division of labor is the limitation of roles assigned to men and women based on physical demands and expertise. While this specialization has contributed to economic success, it may restrict opportunities for skill development and cross-training. Additionally, women, who process large

quantities of fish daily, may face high workloads and potential physical strain without adequate support or technological improvements. Despite their crucial role in processing and selling smoked fish, which significantly boosts household income, women may have limited representation in decision-making processes related to business management and community leadership. Economic dependence and potential wage gaps are also concerns if profits from smoked fish are not equitably distributed. Furthermore, as the industry grows, maintaining fair labor conditions and ensuring that both men and women have equal access to economic opportunities and skill development will be critical. While Kampung Patin successfully integrates aquaculture, education, and tourism into its business model, ensuring that both genders benefit equally from these expansions remains a challenge. Addressing these issues will be essential to sustaining the village's success while promoting gender equity.

Case study 2: Women in fish food product processing

The study of women's roles in processing fish food products in Indonesia, Cambodia, and Lao PDR showed that women play a significant role in the fish processing industry, especially in the production of traditional fish products like fermented fish, fish crackers, skin fish crackers, smoked fish, and salted fish. These products are processed primarily by small-scale enterprises, with women often at the forefront of every stage—from sourcing raw materials to managing finances and marketing. Women typically obtain raw materials, including fresh fish, fish skins, and salt, from local fisheries, markets, or directly from fishers. They usually build strong relationships with suppliers to secure fresh and high-quality fish at competitive prices. Women participate in small-scale fisheries or have husbands and family members engaged in the fishing industry, further ensuring a steady supply of the necessary ingredients.

In South Sumatra Province in Indonesia, the processing of fish products is often labor-intensive, and women typically manage the entire workflow. The steps involved in processing these products include: cleaning, grinding the fish or preserve with some material, kneading the mixture, sun-drying (**Figure 3**), and packaging. The fish commonly used include snakehead



Figure 3. Sun-drying the fish skin crackers



Figure 4. Fish products produced by women in South Sumatra Province, Indonesia

and other fish species from bycatch to produce a variety of fish products (**Figure 4**). For products like fish skin crackers, women often utilize parts of striped catfish that are otherwise discarded, promoting sustainability by reducing waste.

The women manage the finances of small-scale fish processing businesses. They handle everything from purchasing raw materials to keeping track of sales and profits. Financial management often involves basic bookkeeping, which may include: (a) recording daily expenses and revenue; (b) calculating the cost of raw materials and other inputs such as spices, packaging materials, and transportation; (c) tracking profits and savings; and (d) budgeting for future purchases of raw materials and equipment. Some women use simple notebooks for record-keeping, while others have started using mobile apps to streamline the process. Proper financial management helps these businesses maintain sustainability and plan for growth. Once processed, women also take charge of distributing the fish products to the market. They either sell directly to local markets, distribute to middlemen, or sell through local cooperatives. Women often negotiate with vendors to secure space for their products at wet markets, grocery stores, and local food stalls.

Transportation is another key aspect, where the women either deliver the products themselves using motorbikes or trucks or work with local distributors to ensure that their goods reach wider markets across provinces. Some communities have cooperatives that assist women in transporting their products collectively to reduce costs and ensure fair pricing. With the rise of e-commerce and social media, many women in the fish processing industry are turning to online platforms to expand their market reach. They promote their fish crackers, fish skin crackers, and salted fish to customers across Indonesia through social media. They manage online marketing by involving their children in creating social media accounts, partnering with e-commerce platforms, utilizing WhatsApp for direct orders, and collaborating with influencers.

The role of women in the fish processing industry in Indonesia is vital, as they manage everything from sourcing

raw materials to marketing their products online. With increasing access to digital tools, women are not only preserving traditional methods of fish processing but also adapting to modern technology to grow their businesses. Their contributions are essential to the sustainability and economic growth of small-scale fisheries in Indonesia, and empowering them through training, financial access, and digital literacy is crucial for the future.

Similarly, in Cambodia, women are at the forefront of post-harvest activities, such as drying, fermenting, and smoking fish, especially around key fishing areas like Tonle Sap Lake and the Mekong River Basin. Many manage micro- and small-scale processing businesses from their homes, purchasing fish on credit and selling processed products through local markets or informal channels.

Meanwhile, in Lao PDR, women also play a critical role in post-harvest activities in rural areas along the Mekong River and its tributaries. They process fermented and dried fish, manage household income from fisheries, and sell at local markets, often relying on traditional knowledge and family labor. However, challenges such as limited capital, lack of technical training, and remote access to markets hinder their growth. In response, regional efforts led by SEAFDEC and the Mekong River Commission have supported women through capacity-building programs in fish processing and gender-inclusive development. Despite differing contexts, women across all three countries are central to the fisheries value chain and are increasingly being empowered through access to training, financial tools, and technology, ensuring both the preservation of traditional practices and the advancement of modern, sustainable livelihoods.

Case study 3: Participation of women in eel fisheries

The participation of women in eel fisheries, particularly in the handling, processing, and marketing of anguillid eels, is significant but often overlooked. While men typically dominate eel capture, women handle marketing, trading, and decision-making in the sale of fish. Women possess strong

marketing skills, which are essential for quick product sales and boosting family income. Women's involvement is crucial in small-scale fisheries, where they often know the market value of different eel sizes better than men.

IFRDMD conducted a study in 2020–2024 by interviewing the women involved in eel fisheries in Indonesia (Bengkulu, West Java, Central Java, Bali, and Central Sulawesi) and Cagayan Province in the Philippines (**Figure 5**). The results revealed that women's roles in the anguillid eel fishery value chain are significant but underappreciated. Women face constraints in accessing resources, decision-making roles, and economic opportunities. While they dominate processing and marketing, they lack representation in formal data and statistics, which are more focused on male-dominated activities (Muthmainnah *et al.*, 2022b).



Figure 5. Interview with women involved in eel fisheries in Indonesia (top) and Philippines (bottom)

To enhance women's roles in eel fisheries, improvements in access to modern techniques and tools, training in fish capture, eel farming, processing, and marketing, and better access to communication technologies are recommended. This will help sustain their livelihoods and ensure their participation in sustainable fishery management.

Strategies to Expand Women's Roles in Inland Fisheries

While Kampung Patin provides a successful model for women's involvement in inland fisheries, IFRDMD recognizes that there is still work to be done to promote gender equality across Southeast Asia. Women in many countries in the region continue to face barriers such as limited access to resources, exclusion from decision-making processes, and unequal power relations. Addressing these challenges is vital for empowering women and ensuring the sustainability of inland fisheries.

One of the key strategies employed by IFRDMD is the organization of workshops and training programs aimed at enhancing women's participation in fisheries (**Figure 6**). These workshops provide women with the knowledge and skills necessary to take on leadership roles in fisheries governance and resource management. Educational initiatives are another critical element in fostering gender equity. Providing women with access to training in sustainable fishing practices, resource management, and leadership skills can empower



Figure 6. IFRDMD conducts a series of workshops and training programs in 2020-2024 to improve women's participation in inland fisheries in Indonesia

them to take on more active roles in the sector. Fitzgerald *et al.* (2023) emphasizes the importance of creating networking opportunities for women in fisheries, allowing them to share knowledge, resources, and best practices. These networks can also help women build solidarity and advocate for greater inclusion in policy discussions and resource management.

Moreover, IFRDMD organized the training in Patra Tani, Muara Enim, South Sumatra, in June 2022 to improve women's participation in inland fisheries, particularly in freshwater fish culture and eco-friendly fish handling. This initiative was conducted in conjunction with the ongoing SPECTRA project of IFRDMD, which aims to promote sustainable and inclusive inland fisheries management. The workshop was attended by 21 local women and featured lectures delivered by relevant experts. Topics covered included freshwater fish culture, processing techniques, and the use of eco-friendly fishing gear. Such initiatives are crucial in empowering women to contribute more effectively to the fisheries sector, both in terms of economic productivity and resource sustainability.

Promoting women's participation in fisheries is not just about achieving gender equality—it also has far-reaching implications for the sustainability of fisheries. When women are involved in decision-making and management, fisheries benefit from a more holistic and inclusive approach to resource management. Women often bring different perspectives on sustainability and conservation, focusing on long-term ecological health and community well-being. By ensuring that women have a seat at the table, fisheries management can become more inclusive, resilient, and responsive to the needs of all community members.

Moreover, engaging women in fisheries management helps ensure that the entire fisheries value chain is strengthened, from catch to post-harvest processing and marketing. Women, particularly in small-scale fisheries, play a vital role in preserving fish through drying, salting, and smoking, and their active participation in value-added activities contributes significantly to food security and local economies. By addressing the systemic barriers they face, the fisheries sector can become more productive, sustainable, and equitable.

Way Forward

Women's contributions to inland fisheries are not just significant; they are vital for the sector's sustainability and success. Despite their crucial roles in the fisheries value chain, women often face barriers to full participation in decision-making processes and resource management. Therefore, the commitment of SEAFDEC/IFRDMD to promoting gender

equality in inland fisheries is a crucial step towards addressing these challenges and ensuring that women's contributions are fully recognized.

Fostering women's participation is essential not only for improving food security and promoting gender equity but also for ensuring the sustainable management of fishery resources. Although women play significant roles in the workforce, they often face exclusion from decision-making, limited access to resources, and socioeconomic constraints. These challenges can be mitigated through data collection, educational initiatives, and improved networking, enhancing women's participation and contributing to better socioeconomic and environmental outcomes. In this regard, SEAFDEC/IFRDMD is committed to promoting gender equality in inland fisheries by strengthening data collection, providing capacity-building programs, and improving women's access to financial resources and technology. Their initiatives aim to equip women with technical skills, foster networking opportunities, and ensure meaningful participation in decision-making processes. By addressing gender disparities, IFRDMD strives to build a more inclusive and sustainable fisheries sector that supports both economic empowerment and resource conservation.

Ultimately, promoting gender equality in fisheries will lead to more robust, more resilient fisheries systems that benefit entire communities. Furthermore, gender equality will play a central role in achieving long-term sustainability in the fisheries sector. By continuing to promote inclusive policies, providing training, and conducting gender-sensitive research, the inland fisheries sector in Southeast Asia has immense potential for growth and development. Thus, empowering women in inland fisheries will improve livelihoods and promote sustainable resource management and environmental stewardship.

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