



## RESEARCH ARTICLE

Section: *Digital Humanities***Empowering women in Indonesia's fishing communities: Overcoming structural barriers for economic resilience**

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**ABSTRACT**

This study examines the challenges and opportunities faced by women in Indonesia's fishing communities, focusing on their critical contributions to household and community resilience. The research highlights systemic barriers such as gender disparities in resource ownership, limited access to financial services, and low digital literacy levels. Utilizing the Harvard Analytical Framework, the study analyzes data collected from 120 participants through surveys, in-depth interviews, and field observations across Medan, Yogyakarta, and Makassar. Key findings reveal significant inequities in resource distribution and leadership roles alongside opportunities for digital empowerment. Policy recommendations emphasize enhancing access to capital, fostering digital literacy, and promoting inclusive leadership. The study concludes that addressing these barriers is essential for achieving gender equality and sustainable economic development in fishing communities. Practical implications include the design of targeted interventions to empower women as drivers of financial resilience.

**KEYWORDS:** access to capital, digitalization, entrepreneurship, fishing communities, gender equality, women

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## 1. Introduction

Women play a crucial role in Indonesia's fishing communities, contributing significantly to household incomes and local economies through various entrepreneurial activities. Despite their contributions, systemic barriers hinder their full participation in economic activities. These challenges include gender disparities in resource ownership, limited access to capital and technology, and entrenched cultural norms undervalue women's roles in the fisheries sector. Understanding these barriers is essential for developing targeted interventions to promote gender equality and economic resilience in these communities. The importance of women's participation in the fisheries value chain cannot be overstated. Women often participate in post-harvest activities such as fish processing, marketing, and running small home-based businesses. These activities are critical for ensuring the sustainability of household incomes and the economic stability of fishing communities. However, their contributions are often undervalued due to traditional gender roles that prioritize men's involvement in primary fishing activities. (Kleiber et al., 2015) Highlighted similar trends globally, emphasizing the need for policies recognizing and supporting women's economic roles in fisheries. Digitalization offers a transformative opportunity for women in these communities. Access to digital tools and platforms can empower women by enhancing their ability to connect with broader markets, manage finances more efficiently, and access information and training. However, as (James et al., 2020a) noted, digital literacy remains a significant barrier, particularly for women in rural areas. Addressing this gap through targeted training programs can unlock the potential of digital tools to enhance women's entrepreneurial capabilities. Another critical aspect is the role of social capital and leadership in empowering women. Cooperatives and community-based organizations can provide resource-sharing, training, and collective decision-making platforms. However, as (Thapa Karki & Xheneti, 2018) observed, structural barriers often limit women's leadership roles within these organizations. Increasing women's participation in leadership positions is essential for ensuring more equitable access to resources and fostering inclusive decision-making processes. This study investigates the interplay between structural barriers, digital empowerment, and social capital in shaping women's economic participation in Indonesia's fishing communities. By applying the Harvard Analytical Framework, the research aims to identify actionable strategies for addressing gender disparities and promoting sustainable development in these communities. The study also aligns with global efforts to achieve the Sustainable Development Goals (SDGs), particularly those related to gender equality, decent work, and economic growth.

## 2. Literature Review

### 2.1 Structural Constraints

Women's roles in fishing communities are often relegated to post-harvest activities, such as fish processing and marketing, which are considered secondary to men's fishing roles. This division of labor reflects deeply rooted patriarchal norms that limit women's access to critical resources, including fishing equipment and financial capital (Kleiber et al., 2015). These constraints are exacerbated by women's lack of asset ownership, undermining their ability to secure formal loans and invest in entrepreneurial ventures (Mayoux, n.d.) (Cabeza-García et al., 2019). Legal and policy frameworks in Indonesia have also been criticized for their inadequacies in promoting gender equality. While the Protection and Empowerment of Fishermen Act provides some support for fishermen, it fails to address the specific needs of women in the sector. This gap in legal protections perpetuates gender disparities and limits women's ability to participate fully in the economic sphere.

### 2.2 Role of Digitalization

Digitalization has emerged as a transformative force in enhancing women's economic participation. Online platforms allow women to expand their market reach, access real-time market data, and improve business efficiency. However, the benefits of digitalization are unevenly distributed, as many women in rural fishing communities lack the digital literacy and infrastructure needed to leverage these tools effectively [6] [7]. (James et al., 2020b) Studies have shown that digital marketing skills can significantly enhance women's bargaining power and economic independence. Access to e-commerce platforms allows women to bypass traditional market intermediaries and connect directly with consumers. Despite these advantages, low levels of digital literacy and limited access to reliable internet services remain significant barriers for women in Indonesia's fishing communities.

## 2.3 Social Capital and Cooperatives

Cooperatives have long been recognized as effective platforms for promoting women's entrepreneurship. By pooling resources and providing access to training and networks, cooperatives can empower women to scale their businesses and increase their income. However, in many fishing communities in Indonesia, men dominate cooperatives, particularly in leadership roles. This imbalance limits women's influence within these organizations. It reduces their ability to advocate for policies that promote gender equality (Thapa Karki & Xheneti, 2018) (Kleiber et al., 2015). Research highlights the importance of social capital in facilitating women's economic empowerment. Strong networks and community support help women overcome structural barriers and access resources otherwise out of reach. However, rigid gender norms often undermine the effectiveness of social capital, restricting women's mobility and participation in decision-making processes.

## 2.4 Conceptual Framework

The conceptual framework of this study is based on the interplay of three key components:

1. **Structural Barriers:** Examining how systemic factors, such as limited resource ownership, financial constraints, and cultural norms, restrict women's economic participation.
2. **Digital Empowerment:** Highlighting the potential of digital tools to bridge gaps in market access, financial inclusion, and entrepreneurial efficiency.
3. **Social Capital and Leadership:** Investigating the role of cooperatives, networks, and community-based organizations in empowering women through shared resources, training, and inclusive decision-making processes.

These interconnected components influence women's economic resilience in fishing communities. The framework guides the research in identifying barriers and proposing actionable solutions for sustainable development.

## 3. Methodology

This study adopts a mixed-methods approach, integrating both quantitative and qualitative methodologies to provide a comprehensive understanding of the challenges and opportunities faced by women in Indonesia's fishing communities. This approach allows for the triangulation of findings, enhancing the depth, validity, and reliability of the results (Creswell & Creswell, 2018).

### 3.1 Research Design

The research explores multiple dimensions of women's economic participation, particularly focusing on access to resources, digital literacy, and leadership roles.

- Quantitative data were collected using structured surveys to assess demographic information, resource ownership, financial access, and the use of digital tools.
- Qualitative data were obtained through in-depth interviews and focus group discussions (FGDs) to gain deeper insights into participants' lived experiences.

This dual-method design strengthens the interpretation of data by enabling comparison between measurable patterns and contextual narratives (Lin, 2022).

### 3.2 Sampling Method

A purposive sampling technique was employed to select 120 participants from three coastal regions: Medan, Yogyakarta, and Makassar. These areas were chosen for their diverse socio-economic and cultural contexts. The selection criteria required that participants be actively involved in fishing-related activities—directly (e.g., harvesting and processing) or indirectly (e.g., marketing, cooperative leadership) (MAXWELL, 1992).

### 3.3 Data Collection Procedures

1. **Quantitative Surveys:** Administered to collect data on participants' profiles, access to capital, ownership of fishing equipment, and digital technology usage. The questionnaires included closed-ended and Likert-

scale questions (Fowler, 2014).

2. Qualitative Interviews and FGDs: Conducted with women entrepreneurs, cooperative leaders, and local policymakers. These discussions provided space for participants to share common challenges and potential solutions (Kvale, 2011).
3. Field Observations: Researchers visited fishing communities to observe daily activities and social dynamics. These contextual observations enriched the interpretation of both survey and interview data (Hamel et al., 2011).

### 3.4 Analytical Framework

Data were analyzed using the Harvard Analytical Framework, which is well-suited for gender-focused studies. It explores gender roles, access to resources, and the influence of institutional and cultural norms (Overholt, 1986). Key components include:

- Activity Profile: Mapping productive, reproductive, and community-support roles.
- Access and Control Profile: Analyzing disparities in resource control (e.g., capital, fishing equipment, digital tools).
- Cultural and Institutional Norms: Examining how gender norms shape power relations and resource distribution.

### 3.5 Data Analysis Techniques

- Quantitative data were analyzed using SPSS and Microsoft Excel for descriptive and inferential statistics, including frequency distributions, percentages, and cross-tabulations (Pallant, 2020).
- Qualitative data were transcribed and thematically analyzed using NVivo software to identify recurring themes, patterns, and contradictions (Flick & Uwe, n.d.). The thematic coding enabled the integration of narrative insights with survey results to strengthen the study's conclusions.

## 4. Results

### 4.1 Activity Profile

Women primarily engaged in fish processing, marketing, and home-based stalls. These activities are vital for household economic resilience but are often undervalued compared to men's fishing roles. Women also participated in reproductive and community-support activities, demonstrating their multifaceted contributions.

**Table 1. Main Activities of Women in Fishing Communities**

Activity	Percentage (%)
Fish Processing	36.1
Marketing	52.9
Home-Based Businesses	51.0

This finding aligns with global research by (Kleiber et al., 2015), highlighting the undervaluation of women's contributions to small-scale fisheries despite their critical roles in post-harvest activities. Their work underscores the need for more inclusive policies recognizing and supporting these contributions.

### Access and Control Profile

Significant gender disparities were observed in resource ownership:

- Fishing Equipment: Women-owned only 32.2% of boats compared to men's 51.6%.
- Digital Tools: While 63.2% of women-owned smartphones, only 24.8% had digital marketing skills.
- Capital Access: Women relied heavily on informal savings groups, while men accessed formal loans.

**Table 2. Ownership of Fishing Equipment by Gender**

Equipment	Male Ownership (%)	Female Ownership (%)
Wooden Boats	51.6	32.2
Engines	54.1	20.6
Nets	49.0	27.0
Fishing Rods	21.2	11.6

These disparities reflect findings by (Cabeza-García et al., 2019), who emphasize the role of financial inclusion in empowering women. Their study demonstrates that access to capital can significantly enhance women's ability to invest in income-generating activities, thereby improving their economic independence.

#### 4.2 Digital Literacy and Technology Access

While many women-owned smartphones, only a small percentage had the digital skills necessary to expand their businesses through online platforms. This highlights the urgent need for targeted digital literacy programs.

**Table 3. Women's Access to Digital Tools**

Digital Access	Yes (%)	No (%)
Smartphone Ownership	63.2	36.8
Internet Access	40.5	59.5
Digital Marketing Skills	24.8	75.2

(James et al., 2020b) argue that digital tools can bridge market gaps for women entrepreneurs by enabling direct consumer engagement. Their study highlights the transformative potential of digital platforms in enhancing women's economic participation.

#### 4.3 Social Capital and Leadership

Women's participation in cooperatives was largely limited to membership roles, with men dominating leadership positions. Increasing women's representation in leadership could enhance their decision-making influence and access to resources.

**Table 4. Gender Roles in Cooperative Leadership**

Role	Male (%)	Female (%)
Administrator	86.4	10.3
Regular Member	12.5	78.4
Informal Supporter	1.1	11.3

Research by (Thapa Karki & Xheneti, 2018) supports this finding, showing that women's involvement in leadership roles within cooperatives improves access to resources and fosters more equitable decision-making processes.

### 5. Discussion

The findings highlight the multifaceted challenges women face in Indonesia's fishing communities. First, the undervaluation of women's contributions, particularly in post-harvest activities, reflects entrenched gender norms prioritizing men's fishing roles. (Kleiber et al., 2015) Noted similar trends globally, emphasizing the need for policies that explicitly recognize and support women's economic contributions in the fisheries value chain. Second, significant gender disparities in resource ownership and access to capital underscore the need for financial inclusion initiatives targeted at women. (Cabeza-García et al., 2019) Emphasize that equitable access to financial resources can empower women to expand their entrepreneurial activities and enhance household economic resilience. In Indonesia, fostering partnerships with microfinance institutions and cooperatives could bridge this gap. Third, digital literacy emerged as a critical factor limiting women's ability to leverage technology for business expansion. (James et al., 2020a) Digital tools can transform informal economies by connecting

entrepreneurs directly with markets. Community-based digital training programs could empower women to utilize online platforms effectively. Finally, findings on cooperative leadership highlight structural barriers that limit women's influence within community organizations. (Thapa Karki & Xheneti, 2018) noted that increasing women's participation in leadership roles enhances access to resources and fosters inclusive decision-making. Policy interventions should focus on mentorship programs and capacity-building initiatives to prepare women for leadership positions. These findings underscore the need for a multifaceted approach to empower women in Indonesia's fishing communities. Addressing structural barriers, promoting digital literacy, and fostering inclusive leadership can unlock the full potential of women as drivers of economic resilience.

### **Policy Recommendations**

1. **Expand Access to Capital:** Provide gender-sensitive financial products, such as microcredit schemes tailored to women's needs.
2. **Promote Digital Literacy:** Implement training programs to enhance women's ability to use digital tools for market access and business management.
3. **Encourage Women's Leadership:** Create mentorship and leadership development programs to increase women's participation in cooperative governance.
4. **Community Awareness Campaigns:** Conduct cultural sensitization programs to challenge restrictive norms and promote women's economic contributions.

### **6. Conclusion**

This study underscores the critical role of women in sustaining the economic resilience of fishing communities in Indonesia. By applying the Harvard Analytical Framework, the research highlights systemic barriers, including limited resource access, digital literacy gaps, and restrictive cultural norms. Addressing these issues requires integrated policy interventions to empower women and promote gender equality in fishing communities. The findings emphasize that women in fishing communities contribute significantly to household and community resilience through entrepreneurial activities despite facing structural and cultural barriers. Ensuring equitable access to resources, fostering digital literacy, and increasing women's representation in leadership are vital steps to unlocking their full potential. Addressing societal norms through community engagement and policy reforms can create a more inclusive environment that values women's economic contributions. Future research should consider a longitudinal approach to evaluate the long-term impacts of these interventions and explore the intersectionality of gender, ethnicity, and socioeconomic status in shaping women's economic opportunities. Researchers and policymakers can contribute to building more resilient and equitable fishing communities in Indonesia.



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