

Understanding Gender Roles in Anguillid Eel Fisheries of Indonesia

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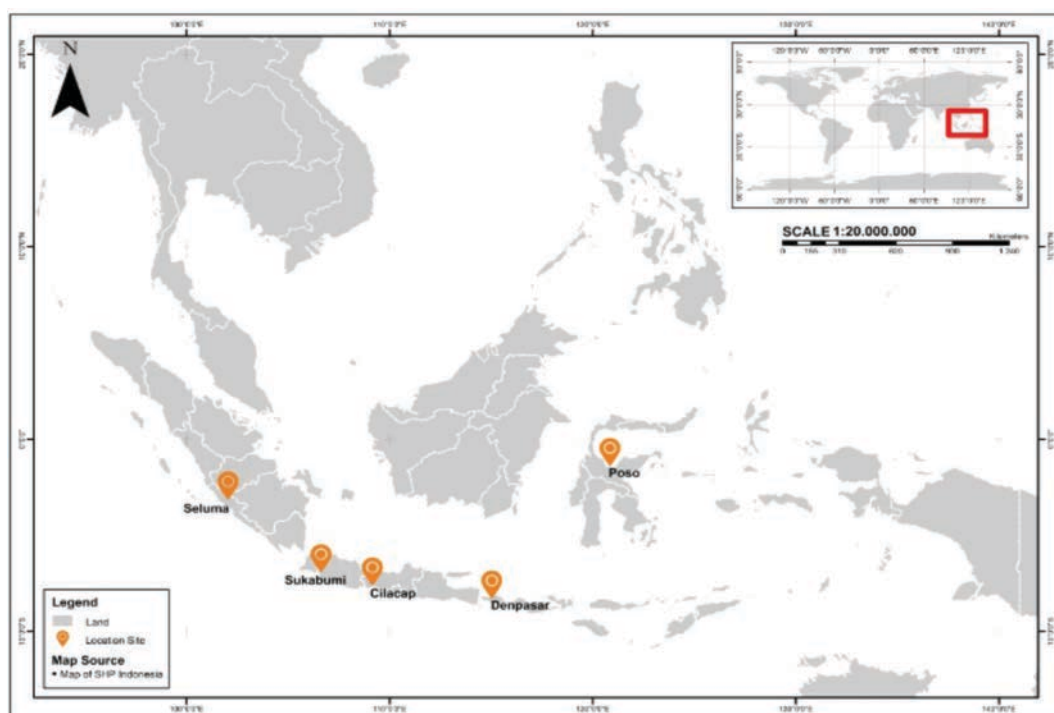
Indonesia is endowed with rich anguillid eel resources. The women are engaged in the whole fish value chain; however, their participation in eel fisheries has often been overlooked. To understand the roles of women and men in anguillid eel fisheries, SEAFDEC Inland Fishery Resources Development and Management Department (IFRDMD) conducted a series of surveys in selected sites from October to December 2021. It was found that the participation of women in anguillid eel fisheries is significant because they possess the marketing skills that can access markets and sell their products quickly which is beneficial for the family's economy.

Sustainable fisheries are important for securing food, alleviating poverty, and increasing the global economy. In small-scale fisheries and aquaculture, the situation, involvement, constraints, challenge, options, and benefits are often different between women and men. Women are limited in involvement in real economic opportunities and decision-making, ultimately restricting their potential. Nevertheless, women play a significant role in subsistence and small-scale fishery production, mainly in the primary production systems. Traditionally, fish catching received central attraction from men, who played a leading role, and female roles were dedicated primarily to fish handling, grading, and small-scale home-based processing (De Silva, 2011).

In the fisheries sector of Indonesia, more than 42 % are women who are engaged in fisheries activities (Marine Trends, 2020). However, women's participation in fisheries has been often overlooked, especially in inland fisheries where the involvement of women has not been well recorded. There is limited gender-specific data and information on fishing activities. Despite women's significant labor and economic contribution, statistics focus on male-dominated activities and not on processing and marketing where most women in the fisheries sector work.

Anguillid eels are becoming a more important food fish and the global demand has been increasing. It should be considered that women are actively engaged in the anguillid eel value chain. Therefore, stakeholders must be aware of the need to manage the resources for the sustainability of eel fisheries.

In this regard, SEAFDEC Inland Fishery Resources Development and Management Department (IFRDMD) conducted a gender analysis of anguillid eel fisheries of Indonesia from October to December 2021. The Study was under the project "Sustainable Utilization of Anguillid Eels in the Southeast Asia Region" implemented in 2020–2022 with support from the Japan Trust VI Phase 2. The study areas were in Seluma Regency in Bengkulu Province, Sukabumi Regency



Study sites for the gender analysis on anguillid eel fisheries of Indonesia

in West Java Province, Cilacap Regency in Central Java Province, Denpasar City in Bali Province, and Poso Regency in Central Sulawesi Province. The data were collected through interviews. Moreover, IFRDMD delivered presentations about gender. The roles of women and men in different eel fishery activities were described based on the gender analysis framework which is composed of an activity profile, access and control profile, and factors and trends.

Role of women and men in anguillid eel fishery

• Seluma Regency, Bengkulu Province

In Seluma Regency, Bengkulu Province, the two species of anguillid eels include *A. bicolor bicolor* and *A. marmorata*. Yellow eels are captured by using PVC traps in the middle

Table 1. Gender roles in anguillid eel fisheries in Seluma Regency, Bengkulu Province, Indonesia

Eel fishery activity	Activity profile	Access and control profile	Factors and trends
Capture	<ul style="list-style-type: none"> Men dominate in capture fishing, while women play a significant part in fish handling, trading, and processing No children are engaged in fishing activities Fishing activities are done in the Riak Siabun River and Jenggalu River 	<ul style="list-style-type: none"> Women play important roles as fishing partners with men, but women's works are still limited Men's works are oriented toward extensive or medium-scale commercial activities, while women do small-scale activities 	<ul style="list-style-type: none"> Women's involvement in fishing activities is slightly augmented
Trading	<ul style="list-style-type: none"> Women dominate the small-scale fish trade Women involve in making decisions on selling and buying fish Women know the value of the different sizes of anguillid eels more than men 	<ul style="list-style-type: none"> Women have more responsibilities in fish marketing including making decisions on buying and selling fish and involving in buying and selling activities 	<ul style="list-style-type: none"> Women dominate fish marketing and trading activities more than fishing

Activity profile

- Mainly focuses on what women and men (adults, children, and elders) do, and where and when these activities take place
- Usually considers all categories of activities; namely: productive, reproductive, and community-related services

Access and control profile

- Clarify who has access to and control of resources, and decision-making
- Considers productive resources such as land, equipment, labor, capital and credit, education, and training
- Differentiates between access to a resource and control over decisions regarding its allocation and use
- Examines the extent to which women are impeded from participating equitably in projects

Factors and trends

- Discusses how activity, access, and control patterns are shaped by structural factors (demographic, economic, legal, and institutional) and by culture, religion, and attitude
- Considers the structural and sociocultural factors that influence the gender patterns of activity
- Factors are described below demographic factors, general economic conditions, cultural and religious factors, and education levels and gender participation rates

Gender analysis framework (De Silva, 2011)



Interview with women and men on fishing gear and eel value chain in Sukabumi Regency, West Java Province, Indonesia

basin of rivers and swamps (Suryati *et al.*, 2018). The gender roles in anguillid eel fisheries are shown in **Table 1**.

• **Sukabumi Regency, West Java Province**

Glass eels are captured only in Palabuhan Ratu, Sukabumi Regency, West Java Province, which are abundant from October to March with a peak occurring in January. The capture activity is carried out from the evening to midnight between September and December. While eels for consumption are usually caught in April–September by lift net. The anguillid eel resource in Sukabumi Regency is in good condition since the fishers sustainably manage the resource by using environment-friendly fishing gear such as scoop nets to capture glass eels in the river mouth and elvers in the river. Moreover, meeting the market demand for glass eels for the development of eel aquaculture has recently resulted in the shift of procuring eel seeds from capture fisheries to cultured eels. Nevertheless, success in eel aquaculture still remains largely dependent on the availability of seeds that rely heavily on nature. The eel fishery system in Sukabumi Regency has been in existence for decades but still requires proper management for the sustainability of the eel resources. **Table 2** shows the gender roles in anguillid eel fisheries.

• **Cilacap Regency, Central Java Province**

While in Cilacap District, elvers and yellow eels are mainly caught from October to November using scoop net or PVC traps. A traditional drinking industry in Cilacap Regency supports disadvantaged women to sustain their livelihoods as they were trained to oversee marketing and sales which included setting up shops at food fairs and markets. Gender roles in eel fisheries are described in **Table 3**.

• **Denpasar City, Bali Province**

In Bali Province, the local people buy anguillid eels as ornamental fish for the Hindu religious ceremony. In the eel fishery in Denpasar City, women are involved as collectors. They connect the fishers with the buyers. One of their tasks is handling and grading the anguillid eel from the water tank. Moreover, they set up the retail price of the fish (**Table 4**).

• **Poso Regency, Central Sulawesi Province**

The glass eels, elvers, and yellow eels in Poso Regency are mainly caught from July to August by fyke nets or barrier traps. Since women know the value of the different sizes of anguillid eels more than men, women dominate the small-scale fish trade and make the decisions on selling and buying fish (**Table 5**).

Table 2. Gender roles in anguillid eel fisheries in Sukabumi Regency, West Java Province, Indonesia

Eel fishery activity	Activity profile	Access and control profile	Factors and trends
Capture	<ul style="list-style-type: none"> Men are the main actor in capture fishing, while women play a significant part in fish handling and trading Some women capture glass eels using the scoop net in the river mouth No children are engaged in fishing activities Fishing activities are done in the Cimandiri River 	<ul style="list-style-type: none"> Women play important roles as fishing partners with men, but women's works are still limited Men's works are oriented toward extensive or medium-scale commercial activities, while women do small-scale activities 	<ul style="list-style-type: none"> Women's involvement in fishing activities is slightly augmented
Marketing	<ul style="list-style-type: none"> Women dominate in marketing including making decisions on selling and buying fish, especially glass eels 	<ul style="list-style-type: none"> Women have more responsibilities in fish marketing including making decisions on buying and selling fish as well as involving in buying and selling activities 	<ul style="list-style-type: none"> Women dominate in fish marketing more than fishing
Financial management, decision making, and planning	<ul style="list-style-type: none"> Women have the responsibility of keeping the money earned from fishing activities and aquaculture Based on Indonesian culture, wives control the money of the family including spending and saving Both men and women do fishing and fish growing techniques, but men do heavier work 	<ul style="list-style-type: none"> Both men and women have equal rights to access/borrow money in the family 	<ul style="list-style-type: none"> Women dominate in the bookkeeping of money

Table 3. Gender roles in anguillid eel fisheries in Cilacap Regency, Central Java Province, Indonesia

Eel fishery activity	Activity profile	Access and control profile	Factors and trends
Capture	<ul style="list-style-type: none"> Men are the main actor in capture fishing, while women play a significant part in fish handling, trading, and processing No children are engaged in fishing activities Fishing activity is carried out in the Serayu River and its tributaries 	<ul style="list-style-type: none"> Women are the fishing partners of men Women do little work in fishing Men do medium or large-scale, and more visible and commercially oriented activities Women are involved in the small-scale, subsistence, and non-commercial sectors 	<ul style="list-style-type: none"> Women's involvement is relatively increased in fishing activities
Aquaculture	<ul style="list-style-type: none"> Mostly men plan the aquaculture activities Mostly men dominate in the decision-making of ponds and culture species Mostly men are engaged in seed rearing, seed nursery, fingerling releasing, and harvesting Mostly women are involved in feed preparation and keeping the water quality 	<ul style="list-style-type: none"> Men have more access to and control of resources Women prefer to be involved more in aquaculture Women have low participation in decision-making in the fisheries management process 	<ul style="list-style-type: none"> Women dominate in fish feeding and keeping the water quality of ponds
Marketing	<ul style="list-style-type: none"> Women dominate in marketing including making decisions on selling and buying fish 	<ul style="list-style-type: none"> Women have more responsibilities in fish marketing including making decisions on buying and selling fish as well as involving in buying and selling activities 	<ul style="list-style-type: none"> Women dominate in fish marketing than in fishing
Processing	<ul style="list-style-type: none"> Women dominate fish processing activity Women play a role in the processing work, mainly small-scale or family fish processing Women with children work together but they have greater responsibilities in ingredient preparation, fish cleaning and drying, and marketing 	<ul style="list-style-type: none"> Women prefer to work in fish processing work; nonetheless, both women and men are working together 	<ul style="list-style-type: none"> Women dominate in fish processing
Financial management, decision making, and planning	<ul style="list-style-type: none"> Women have the responsibility of keeping the money earned from fishing activities and aquaculture Based on Indonesian culture, wives control the money of the family including spending and saving Both men and women do fishing and fish growing techniques, but men do heavier work 	<ul style="list-style-type: none"> Both men and women have equal rights to access/borrow money in the family 	<ul style="list-style-type: none"> Women dominate in the bookkeeping of money

Table 4. Gender roles in anguillid eel fisheries in Denpasar City, Bali Province, Indonesia

Eel fishery activity	Activity profile	Access and control profile	Factors and trends
Trading	<ul style="list-style-type: none"> Women dominate the small-scale fish trade Women involve in making decisions on selling and buying fish Women know the value of the different sizes of anguillid eels more than men 	<ul style="list-style-type: none"> Women have more responsibilities in fish marketing including making decisions on buying and selling fish and involving in buying and selling activities 	<ul style="list-style-type: none"> Women dominate fish marketing and trading activities more than fishing



Presentation of gender issues in fisheries and gender analysis of the anguillid eel fishers in Cilacap Regency, Central Java Province, Indonesia

Table 5. Gender roles in anguillid eel fisheries in Poso Regency, Central Sulawesi Province, Indonesia

Eel fishery activity	Activity profile	Access and control profile	Factors and trends
Trading	<ul style="list-style-type: none"> Women dominate the small-scale fish trade Women involve in making decisions on selling and buying fish Women know the value of the different sizes of anguillid eels more than men 	<ul style="list-style-type: none"> Women have more responsibilities in fish marketing including making decisions on buying and selling fish and involving in buying and selling activities 	<ul style="list-style-type: none"> Women dominate fish marketing and trading activities more than fishing



Women as eel collectors in Denpasar City, Bali Province

Conclusion and Recommendations

The participation of women in anguillid eel fisheries is significant. Nevertheless, there is a need to improve their knowledge and skills in modern techniques for capturing, culturing, processing, and marketing. The marketing skills of women should be improved to sustain their livelihoods and income. Better tools and skills in the marketing of fish and fishery products should be developed to address the barriers that women face in entering markets. One intervention is enhancing access to information and communication technologies such as radios, mobile phones, and television regarding updated information on fish prices, banking services, and new fishing technologies.

Moreover, the gender roles in anguillid eel fisheries in Indonesia could be strengthened by enhancing the ability (*e.g.* selling skills) of women to access markets, promoting equal access and rights in the utilization of eel fish resources, and adapting to local wisdom that recognizes men (leading actor) as a partner and not as competitors with women, and women are not considered as supplementary actors in the management and utilization of eel.

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