



Gender Analysis and Mainstreaming
in the **Indonesian Tuna Pole and Line**
and **Blue Swimming Crab**
Fishery Improvement Projects



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List of Acronyms

AP2HI	Asosiasi Perikanan Pole & Line dan Hand line Indonesia
APRI	Asosiasi Pengelolaan Rajungan Indonesia (Blue Swimming Crab Processors Association)
AW	Archipelagic waters
BAPPENAS	Ministry of National Development Planning
BSC	Blue swimming crab
CEDAW	Convention on the Elimination of All Forms of Discrimination Against Women
CR	Control rules
CSO	Civil society organisation
EEZ	Exclusive economic zone
ETP	Endangered, threatened, protected
FAD	Fish aggregating device
FIP	Fishery improvement project
GEF	Global Environment Facility
GMC	Global Marine Commodities (Project)
GT	Gross tonnage
HCR	Harvest control rules
HS	Harvest strategy
IPNLF	International Pole & Line Foundation
MMAF	Ministry of Marine Affairs and Fisheries
MPDI	Yayasan Masyarakat dan Perikanan Indonesia
MSC	Marine Stewardship Council
NFI	National Fisheries Institute
NGO	Non-governmental organisation
NTT	Nusa Tenggara Timur Province
P1	Principle 1-target fish stocks
P2	Principle 2-ecosystem components
P3	Principle 3 -management system
PL	Pole and line
PL FIP	Pole and Line Fishery Improvement Project
Rp	Indonesian rupiah
SDGs	Sustainable development goals
SFP	Sustainable Fisheries Partnership
SJT	Skipjack tuna
spp.	Species
TCT	<i>Tuna cakalang tongkol</i> (tuna, skipjack tuna and neritic tuna)
UNDP	United Nations Development Programme
UoA	Unit of assessment
USD	United States dollar
WCPFC	Western and Central Pacific Fisheries Commission
YFT	Yellowfin tuna

Executive Summary

Background of the Study

Indonesia is one of the world's principal fish producers. Tuna and blue swimming crab (BSC) are two of its main export commodities originating in fisheries. In the last decade, demand for both environmentally and socially responsible seafood has increased. This has led to sustainability certification and seafood rating initiatives that provide consumers with evidence that measures are being applied to deliver a quality product while protecting the viability of Indonesia's tuna and crab fisheries. These and other fisheries have been successful in this effort as a result of the Fishery Improvement Project (FIP), which focuses on three matters: ensuring the health of fish stocks, minimizing environmental impacts and managing fisheries effectively.

The success of a FIP relies on the full contribution and support of its stakeholders, especially all actors in the supply chain. However, despite their participation in a range of activities related to fisheries, both paid and unpaid, women's roles in the sector are still poorly recognized. This is a serious oversight; when gender disparities go unrecognized, women stakeholders remain vulnerable to even further gender disparities and lose the opportunity to address gender discrimination.

This study was conducted in response to the need to better understand and recognize gender considerations along the tuna and BSC value chains. Its objective is two-fold: (1) assess the division of roles between men and women, access to resources and participation in decision making in the fisheries; and, (2) map the linkages across project activities to identify critical points for integration of gender in FIP implementation. Case studies were carried out in the yellowfin and skipjack tuna pole and line (PL) fisheries, the blue swimming crab (BSC) fishery, and the associated Indonesian Western and Central Pacific Yellowfin and Skipjack Tuna Pole and Line, and the Indonesian Blue Swimming Crab FIPs. This analysis is part of the Global Sustainable Supply Chain for Marine Commodities (GMC) project in Indonesia, led by the Ministry of National Development Planning (BAPPENAS), with technical support from the United Nations Development Programme (UNDP). The GMC project is an interregional initiative implemented by the Ministries and Bureaus of Fisheries and Planning of Costa Rica, Ecuador, Indonesia and the Philippines, with technical support from the UNDP, facilitated by the Sustainable Fisheries Partnership (SFP) and funded by the Global Environment Facility (GEF).

Right: Milkfish cultivation for tuna bait, Indonesia

Methodology

Data collection was based on interviews and a review of the literature (publications and reports). Interviews were conducted in Madura (Sumenep, Pamekasan and Bangkalan). Other sources include a preliminary gender profile of a BSC fishery conducted by the Indonesian Blue Swimming

Crab Association (APRI) in 2019 and a preliminary gender profile conducted by the Indonesian Pole & Line and Handline Fisheries Association (AP2HI) in 2019. Data analysis was based on the six domains of the gender dimension framework: access, beliefs, practices, time and space, rights, and power.



Findings

In the pole and line tuna fishery there exist opportunities to increase the representation and participation of women in all stages of the FIP

Over the past 20 years, the tuna industry has grown together with people's acceptance of equal participation by men and women in the tuna production supply chain. Women play important roles in the pole and line fishery at every point along the supply chain. Women prepare nets and other supplies, manage activities at landing sites, and process fish at plants. Women sell fish, dealing directly with markets and buyers. Women assure that tuna catches and processing meet quality standards. Women assume accounting and reporting tasks. Nevertheless, in tuna PL fisheries, women seldom work on fishing vessels due to cultural norms which prohibit them from fishing in the open sea related, in turn, to family obligations and limited physical capacity.

Few women own fishing boats or tuna fish processing businesses. Men dominate decision making in almost all production lines of pole and line tuna, including the use of fish production facilities. Despite their significant roles in the tuna supply chain, few women contribute to decision making in the areas of markets, financing and distribution.

Women have limited access to information that would advance their capacities and skills, such as market standardization, seafood standard certification processes, the condition of tuna markets, traceability, buyers, policy and regulations. Most fishery training and other public events are dominated by

men. In addition, though some women own vessels, they are rarely members of fishing organisations.

The study reveals that women who have paid positions in the tuna fisheries sector assume a double burden: care of home and family as well as their jobs in tuna production lines. In addition, women tend to spend time doing unpaid tasks in the tuna sector in support of their husbands.

The absence of a sex disaggregated database on fishers and suppliers across tuna production lines is an obstacle to implementation of improvement programme activities, such as capacity strengthening, that can lead to policy interventions that improve the situation of women.

The Indonesian Yellowfin and Skipjack Tuna Pole and Line Fisheries Improvement Project (FIP) in the Indonesian Western and Central Pacific Ocean has implemented 16 actions to improve sustainability. These involve data collection and the development of a harvest strategy and control rules. No barrier exists for men or women to access the FIP, depending on their tasks and competence (e.g., fisheries observer, expert, etc.). But FIP implementation needs to consider adjustments in fishing vessels so that women can be observers. Participation of men and women as information sources and research participants should be encouraged.

Women perform crucial activities in all stages of the blue swimming crab fishery, a fact that needs to be reflected in the FIP

In the BSC fishery supply chain, women play key roles in the input process, such as preparing supplies, fishing gear and bait, and at the post-production stage. Men dominate crab production, but findings in Sumenep, Pamekasan, Bangkalan and Talango Island, show that women also work in the inputs, production and post-production phases. Both men and women are involved in trading activities and can own miniplants. Crab fishers would prefer to link with women suppliers to run their businesses. Thus, these women are key actors for transformation and improvement in this fishery.

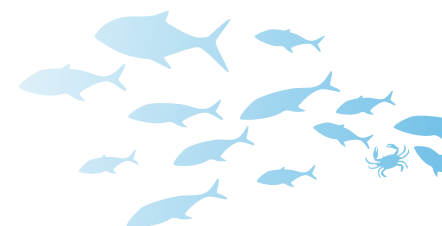
As in the case of pole and line tuna fisheries, in crab fishery communities, cultural beliefs regarding gender stereotypes have limited

women's access to resources for their social and economic welfare. In addition, fisher organisations are dominated by men, and important information is not shared with women. Women are left out of social institutions, capacity building, information gathering and other public events. Women remain the exclusive care-givers in households and their roles in the fishery lead to a double burden.

The study proposes that 28 actions be implemented in the BSC FIP. These include access by men and women to assets and resources, more involvement by women in governance and associations, and scheduling of meetings based on women's needs, among others.



Left: Indonesian blue swimming crab enumerator.





Multiple opportunities exist to increase gender mainstreaming in FIPs.

Laws eliminating discrimination against women exist in Indonesia, as do policies intended to mainstream gender in national development. Nevertheless, the implementation of mechanisms to assure equality and equity for women in policies, programmes and activities remains a challenge. This is due, in part, to the fact that sex disaggregated data analysis has yet to become standard in the development of policies and programmes. Collection and analysis of this data is key to the development of policies and programmes that eliminate discrimination against women.

Without an understanding of gender, FIPs could create impacts on women, men, fishers' families or other actors along the value chain. This study proposes the promotion of gender sensitive and responsive FIPs through gender analysis and mainstreaming and assuring that women's roles in sustainable fisheries are recognized. To achieve this outcome a gender action plan for FIPs should be created, with a focus on: (1) changing stakeholders' perceptions of women's roles in sustainable fisheries, (2) promoting the collection of sex disaggregated data along the value chain and assessing the contribution of each group of actors, (3) developing gender responsive actions and indicators in a FIP work plan, and (4) ensuring representation and participation of men and women in the entire FIP process.

Right: Woman working at the Jumiang Indah processing plant.



Chapter 1

Introduction



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Indonesia is the second largest fish producer from capture fisheries in the world (FAO 2019). The Ministry of Marine Affairs and Fisheries (MMAF) recorded production from marine capture fisheries at 6,603,631 tonnes in 2017. Tuna, skipjack tuna and neritic tuna, known nationally as tuna cakalang tongkol (TCT), and blue swimming crab (BSC), locally known as *rajungan*, are the main contributors to overall volume (MMAF 2019a).

TCT contributed 18.6%, or 1,232,268 tonnes (MMAF 2019c), and 19.7% of total export volume in 2018 (BKIPM-MMAF 2019). Indonesia was the second largest producer of crab globally, with production between 100,000 and 200,000 tonnes, valued at around USD200 to USD350 million from 2014 to 2018 (APRI 2019b, MMAF 2019b). Blue swimming crab (BSC) contributed 17% of total fish exported from Indonesia; around 84% of BSC is exported to the United States market (APRI, 2019).

However, there are concerns about potential overfishing in both fisheries. Firdaus *et al.* (2018) noted a depletion of tuna and skipjack tuna resources in Indonesia. There are also reports of problems related to BSC sustainability.

There is a growing movement to address sustainability in fisheries through market-based incentives, including sustainability

certification for seafood products, such as Marine Stewardship Council (MSC) certification as well as seafood rating. To meet the sustainability standard, the Fishery Improvement Project (FIP) has been developed as a bridge mechanism to propose ways to improve fishery health and thus enable the fishery to supply a sustainable product. In addition to demand



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Above: Women working at a tuna processing plant.

for environmentally sound seafood, demand for socially responsible seafood is growing. In fact, MSC condemns the use of forced and child labour (MSC 2018). However, mechanisms for promoting gender equality in certifications and FIPs are still rare.

Gender Mainstreaming in Fisheries Management



Gender equality and the empowerment of women and girls are central to the 2030 Sustainable Development Goals (SDGs). Countries are encouraged to mainstream gender and women-targeted actions as a strategy for the achievement of gender equality in the agricultural and rural sector, which includes the fishery sector (FAO 2019). Thus, the UNDP, through its Gender Equality Strategy 2018-2021, has outlined four priority areas for mainstreaming gender (UNDP 2018):

1. Removing structural barriers to women's economic empowerment, including unpaid work.
2. Preventing and responding to gender-based violence.
3. Promoting women's participation and leadership in all forms of decision making.
4. Strengthening gender-responsive strategies in crisis (conflict and disaster) prevention, preparedness and recovery.

The aim of the UNDP gender mainstreaming framework (UNDP 2007) is for women and men to have equal roles and responsibilities, equal access and control over the environment and energy services, equal voice in decision making and information, and equal power relations (figure 1). Ability and opportunity to acquire resources do not necessarily imply that people will control the benefits that derive from these activities. Therefore, it is important to distinguish "use of" and "control over" a resource. The person who has control over a resource also tends to be the decision maker. The person who has decision-making power might reinforce the existing unequal power relation, which could then further strengthen socially constructed roles and responsibilities, leading to a vicious cycle reinforcing gender inequality.

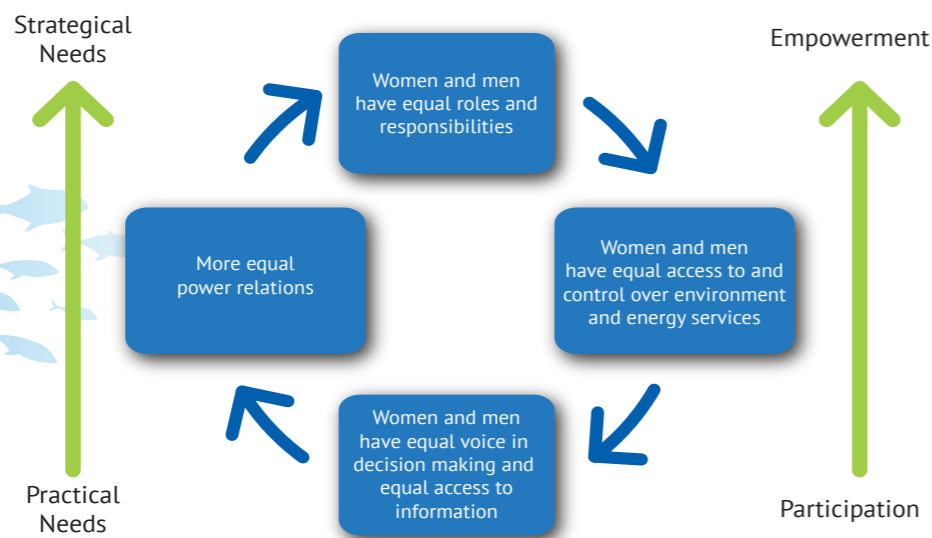


Figure 1. Desirable Outcomes in Gender Mainstreaming (UNDP 2007).

Managing fisheries is about managing people. Thus, we need to know how men and women engage in fisheries, and what motivates them to do what they do. With full information available to women and men regarding resource use and management, and full access to stewardship, both women and men can be meaningfully engaged in fisheries planning, implementation and management.

The FIP, as a tool to address fishery sustainability, should be designed to benefit both women and men while producing no negative impacts. Gender mainstreaming in the FIP is meant to be a strategy for promoting the empowerment of women by enabling them to critically assess their own situations, gain skills, build confidence, move into decision-making roles, and organise with others to effect change in fishery sustainability. In addition, it is also meant to prepare best strategies for implementing the FIP.

This analysis is based on a case study from the Indonesian Yellowfin and Skipjack Tuna Pole and Line FIP and the Indonesian Blue Swimming Crab FIP, supported by the Global Sustainable Supply Chain for Marine Commodities (GMC) project in Indonesia, led by the Ministry of National Development Planning (BAPPENAS), with technical support from the United Nations Development Programme (UNDP). The GMC project is an interregional initiative implemented by the Ministries and Bureaus of Fisheries and Planning of Costa Rica, Ecuador, Indonesia and the Philippines, with technical support from the UNDP, facilitated by the Sustainable Fisheries Partnership (SFP) and funded by the Global Environment Facility (GEF).

Below: Sri Yanti, Director of Marine Affairs and Fisheries at BAPPENAS, during the Multistakeholder Platform launch.



Objectives

1. To assess the division of roles, access to resources, and participation in decision making in fisheries by men and women.
2. To map linkages across project activities in order to identify critical points for integrating gender considerations in fishery improvement projects.

Outputs

1. A situational analysis of the national fisheries context covering the roles/ tasks assumed by women and men in the fisheries sector in the country.
2. Analysis of gender differences in contributions, division of labour, employment, access to resources, and participation in decision making in fisheries.
3. Identification of gaps, weaknesses and barriers that limit gender equity and equality in the promotion of fisheries that are both environmentally sustainable and economically profitable.

Gender in the Context of Indonesian Fisheries

Gender in Fisheries

According to “The State of World Fisheries and Aquaculture Report,” 59.6 million people engaged in capture fisheries and aquaculture in 2016 (FAO 2019). Women represent nearly 14% of all people directly engaged in the capture fisheries and aquaculture primary sector. Asia has the highest employment of women in fisheries and aquaculture at the global level, accounting for 15% of total employment in capture fisheries.

In Indonesia, around two million people depend on fisheries; 128,396 are women who own and operate businesses in the sector (MMAF 2018). As of 2019, there were 62,430 women with national identification cards as fishers, 39,635 as fish traders and 26,331 as fish processors (MMAF 2019). Although the number of women involved in fishing is lower

than that of men, women do fish, especially in shallow water. In fact, women are involved throughout the value chain, beginning with input or pre-production, and continuing through production, middlepeople, processing and retailing. For instance, women are involved in fisheries in Nusa Tenggara Timur (NTT) Province (Fitriana and Stacey 2012, Fitriana 2017), on the northern coast of Java (Anna 2012), in Aceh, the Riau Archipelago, Central Java, Nusa Tenggara Barat, West Papua, Papua (Adhuri 2018), West Sumatra (Zein 2006), in Riau Kepulauan (SS Production 2018), and in Kei, Maluku, Merauke, Maluku and NTT (Simatau 2013).

Both men and women are involved in fisheries, though in different roles and activities (Williams 2008). In small-scale fisheries in Indonesia, women play critical roles in every stage of the value chain,

from pre-production, production and processing, to marketing and sales. Despite their participation in a range of fishery-related activities, both paid and unpaid, that contribute to individual, family and community well-being, women are poorly recognized in the sector (Fitriana and Stacey 2012). In addition, society expects that women assume household roles, especially when men are at sea. Because their participation is often informal, part-time and considered an extension of their roles in the home, women are largely invisible in the fishery sector workforce, where direct, formal and paid fishing activities are dominated by men. Given that women’s contributions are not equally valued or recognized, they are largely excluded from decision-making processes (Koban *et al.* 2017, Widiarti and Hiyama 2007, Fitriana and Djohani 2016, Stacey *et al.* 2017).

The Legal Background for Gender Mainstreaming in Indonesia’s Fisheries

Indonesia recognizes the role of women in its fisheries through several legal instruments, especially Law No. 7/1984 ratifying The Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW). The ratification of CEDAW provides the basis for a long-term commitment to protect women’s rights and prevents all forms of discrimination against women in Indonesia. Following passage of the law, regulations relevant to fisheries have been enacted:

1. Presidential Decree No. 9/2000 concerning Gender Mainstreaming in National Development.
2. Decision No. B.55/Menteri PP/Dep.II/VI/2002 by the Ministry of Women’s

Empowerment establishing itself as a focal point for all ministries and institutions at national and sub-national levels for dealing with matters related to this issue.

3. Decision No. B.110/Menteri PP/Dep.II/IX/ 2003 by the Ministry of Women’s Empowerment establishing a working group in all ministries and institutions at national and sub-national levels.
4. A Letter of Agreement signed by four ministers (Minister of National Development Planning / BAPPENAS, Minister of Home Affairs, Minister of Finance, Minister of Women’s Empowerment and Child Protection) on a strategy to mainstream gender, with a gender responsive budget and planning.
5. Agreements No. 06 MEN-KP/III/2011 and No. 12 between the Minister of Marine Affairs and Fisheries (MMAF) and the Minister of Women’s Empowerment and Child Protection, signed in 2011, on improving the effectiveness of gender mainstreaming in marine and fishery sectors.
6. Regulation No. 4/PERMEN-KP/2014 of the Ministry of Marine Affairs and Fisheries concerning guidelines for a gender responsive budget and planning in the Ministry of Marine Affairs and Fisheries.
7. Regulation No. 28/PERMEN-KP/2016 of the Ministry of Marine Affairs and Fisheries on Guidelines to Implement, Monitor and Evaluate Gender Mainstreaming in the Ministry.
8. Regulation No. 51/PERMEN-KP/2016 of the Ministry of Marine Affairs and Fisheries on Guidelines for Mapping Gender Mainstreaming in the Ministry.
9. Decision No. 67/KEPMEN-KP/2016 by the Ministry of Marine Affairs and Fisheries

on a Roadmap for Gender Mainstreaming in the Ministry of Marine Affairs and Fisheries.

10. Decision No. 49/KEPMEN-KP/SJ/2018 by the Ministry of Marine Affairs and Fisheries on establishing a Working Group to Implement Gender Mainstreaming in the Ministry.

In brief, these regulations address several aspects related to gender mainstreaming:

1. Commitment: the document on gender mainstreaming is a commitment by the ministry to integrate gender into its program.
2. Policy: the gender perspective is to be integrated into relevant policies.
3. Institution: the establishment of a working group is expected to accelerate the process of gender mainstreaming.
4. Human resources: it has been revealed that limited human resources are available in the ministry to implement gender-sensitive policies and to conduct gender analysis.
5. Financial resources: it is expected that a gender-responsive budget will facilitate the mainstreaming process.
6. Sex disaggregated data: data disaggregated by sex has not met programmatic needs.
7. Tools of analysis: tools are required and need to be disseminated.
8. Participation: participation in fishery development needs to be improved.

Since the regulations indicated have gone into effect, mechanisms to include gender in

policies, programmes and activities remain unclear. Guidance and capacity building for sub-national level governments as well as technical directorates in the Ministry on how to implement gender mainstreaming in policies, programmes, projects and activities are needed. In addition, policies and programmes must integrate sex disaggregated data.

Two major laws for the fishery sector define fishers as gender neutral. Law No. 31/2004, concerning fish resources, which has been amended by Law No. 45/ 2009, defines a fisher as a person whose means of living is catching fish. Similarly, Law No. 7/2016, concerning the protection and empowerment of fishers, fish farmers and salt producers, also defines a fisher as a person whose means of living is catching fish. Despite this gender-neutral definition, people tend to forget that women also fish, as described in the section on gender in fisheries.

The only article in the law mentioning the involvement of women is article 45 of Law No. 7/2016 which indicates that the empowerment of fishers, fish farmers and salt producers should consider the involvement and roles of women in fishing, fish farming and salt production households. However, when the law discusses actors at the production level, the roles of women are not addressed. It is unclear which law protects the roles of women in pre- and post-production activities in the fishery value chain. There is a clear and immediate need to reform existing laws to include the gender perspective in fisheries.

Fishery Improvement Projects

The Conservation Alliance for Seafood Solutions (2015) defines a fishery improvement project, or FIP, as a multi-stakeholder effort intended to improve the sustainability of a fishery. A fishery improvement project must draw upon market forces, which include suppliers, retailers, food service providers, fishing industry actors, etc., to motivate fishery improvements. The FIP identifies the environmental issues that need to be addressed, sets the priority actions that should be undertaken, and oversees implementation of the action plan adopted.

Although not mandatory, fishery improvement projects, ultimately, work to achieve a level of performance consistent with the Marine Stewardship Council (MSC) Fisheries Standard. MSC recognizes the important contribution of FIPs in improving the overall health of fisheries and in promoting sustainable seafood. A credible FIP often involves four key stages, each with associated tools and support mechanisms:

1. A pre-assessment, an analysis of conditions according to the MSC Fisheries Standard, carried out by an MSC-approved assessor.
2. Development of an action plan for improvement by someone with MSC expertise using the MSC Action Plan Tool in order to achieve compliance with the MSC Fisheries Standard.
3. Implementation of actions and progress tracking, using the MSC's Benchmarking and Tracking Tool, with progress publicly reported on an annual basis.
4. Full MSC assessment to validate improvements in the fishery toward sustainability through the comprehensive,

transparent and independent MSC assessment process, carried out by an accredited certification body.

The MSC Fisheries Standard applies to wild-capture fisheries and is comprised of three core principles (MSC 2018a):

Principle 1 (P1): Sustainable target fish stocks. A fishery must be conducted in a manner that does not lead to overfishing or depletion of the exploited populations and, for those populations that are depleted, the fishery must be conducted in a manner that demonstrably leads to their recovery.

Principle 2 (P2): Environmental impact of fishing. Fishing operations should allow for the maintenance of the structure, productivity, function and diversity of the ecosystem (including habitat and associated dependent and ecologically related species) on which the fishery depends.

Principle 3 (P3): Effective management. The fishery is subject to an effective management system that respects local, national and international laws and standards and incorporates institutional and operational frameworks that require responsible, sustainable use of the resource.

All principles include components and performance indicators, for a total of nine components and 28 performance indicators. It must be noted that there are no gender-related components or performance indicators in any of the principles. There are two components in P1 and P3 and five in P2 (figure 2).



The Default Assessment Tree

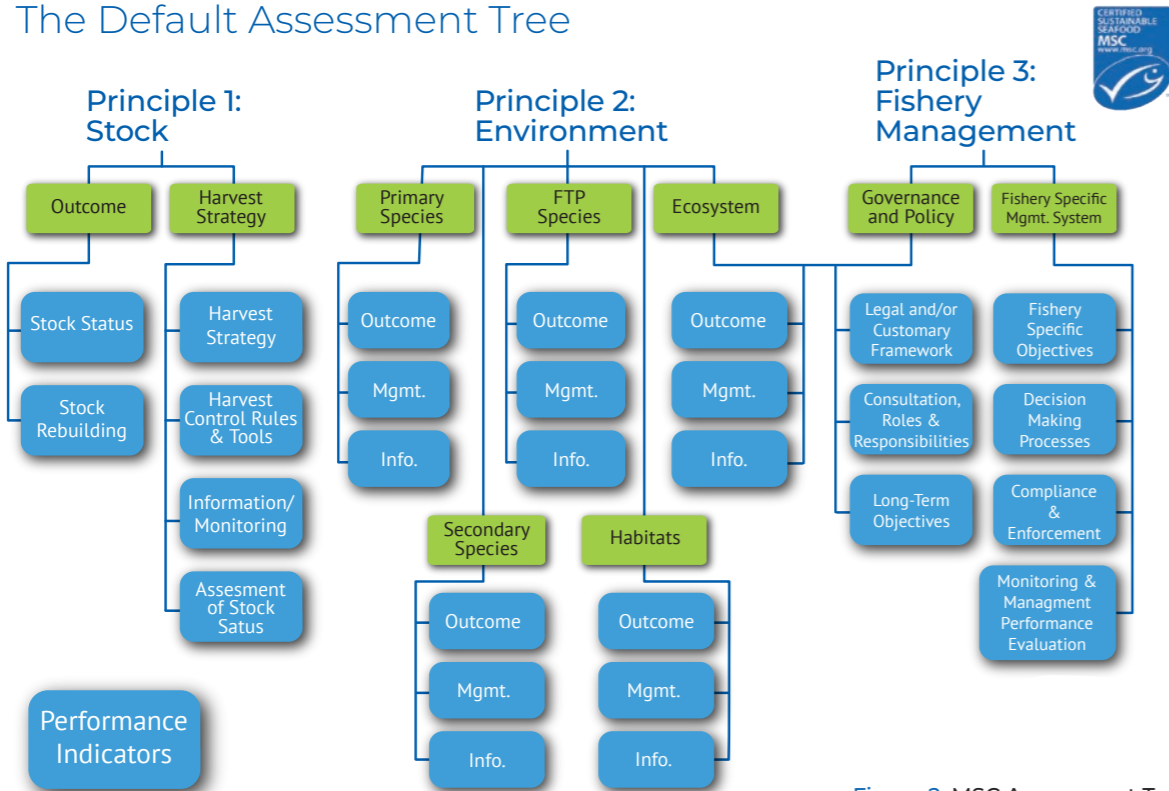


Figure 2. MSC Assessment Tree

The FIP is an opportunity to involve fishers and primary key players on the ground in the governance process. Improved understanding of the heterogeneity of key players on the ground will improve understanding of the socio-economic impact and drivers of actions, including those concerning gender. Changes on the ground will only happen by interacting with key players on the ground and understanding their motivations. The FIP, within the MSC certification process, is intended to ensure ecological sustainability and make changes leading to a more socially responsible seafood initiative.

The Tuna Pole and Line Fishery Improvement Project

The Indonesian Western and Central Pacific Yellowfin and Skipjack Tuna Pole and Line Fishery

Improvement Project (Tuna PL FIP) is led by the Asosiasi Perikanan Pole & Line dan Hand line Indonesia (AP2HI) and the International Pole & Line Foundation (IPNLF). These two organisations work together with partners, such as the Ministry of Maritime Affairs and Fisheries (MMAF) and Yayasan Masyarakat dan Perikanan Indonesia (MDPI), to assist the Tuna PL FIP. An assessment of AP2HI member supply chains identified at least 14 Units of Assessment (UoAs) for Indonesian one-by-one tuna fisheries¹ to move towards MSC certification. The aim of the Tuna PL FIP is to improve the Indonesian one-by-one tuna fishery's sustainability and to meet criteria for MSC certification. This certification will provide local fishers with access to markets and also meet the demand of retailers seeking sustainable products. The FIP started in November 2017 and activities are expected to be completed in June 2023.

¹ In which fishers catch tuna one at a time, using pole and line, handline and troll techniques.

The Tuna PL FIP seeks to achieve the following objectives by the end of 2023:

1. Implement the work plan developed in order to transition Indonesian one-by-one tuna fisheries to MSC Full Assessment within the prescribed five-year period.
2. Establish and promote industry best practices for Indonesian one-by-one tuna fisheries.
3. Support cross-sectorial collaboration that advances the implementation of national and regional sustainable management measures.
4. Increase transparency of Indonesian one-by-one tuna fishery supply chains.
5. Improve market demand and market access for Indonesia's one-by-one tuna fisheries.

6. Demonstrate the benefits of well-managed fisheries that support the livelihoods of coastal communities and sustainable businesses.

To achieve these objectives, 16 actions are planned to improve fishery sustainability, with two actions in P1, 10 actions in P2 and four actions in P3 (table 1). The Tuna PL FIP focuses on 16 of 28 MSC performance indicators; the remaining 12 are already above a score of 80 (unconditional pass), and therefore do not require intervention. In addition, a social impact analysis was conducted in March 2017 (McClean 2017). The FIP progress rating is currently at A, or Advanced Progress.

Actions	Principle 1. Target stocks	Principle 2. Ecosystem components	Principle 3. Management system
1. Target species			
1.1 Support HS development within the Western and Central Pacific Fisheries Commission (WCPFC)	●		
1.2 Support HCR development within WCPFC	●		
2. Secondary and Endangered, Threatened and Protected (ETP) Species			
2.1 Deploy onboard observers / data collection on first tranche UoAs: aiming to get information on catch and bait composition		●	
2.2 Deploy onboard observers / data collection on first tranche UoAs: ETP interactions		●	
2.3 Carry out review of measures to minimize unwanted catch of and interactions with ETP species on first tranche UoAs		●	
2.4 Deploy onboard observers / data collection on second tranche UoAs: aiming to get information on catch and bait composition		●	
2.5 Deploy onboard observers / data collection on second tranche UoAs: ETP interactions		●	
2.6 Carry out review of measures to minimize unwanted catch of and interactions with ETP species on second tranche UoAs		●	

Table 1. List of Actions in Tuna Pole and Line FIP. Source: Fishery Progress 2020.

Actions	Principle 1. Target stocks	Principle 2. Ecosystem components	Principle 3. Management system
3. Habitats and ecosystems			
3.1 Map FAD usage for first tranche UoAs and habitat (or depth as proxy) types and extent		•	
3.2 Map FAD usage for second tranche UoAs and habitat (or depth as proxy) types and extent		•	
3.3 Archipelagic water populations managed using HS that are compatible with WCPFC (see 5.1)		•	
3.4 Estimation of effects of FAD fields on species distributions		•	
4. Enforcement (MCS)			
4.1 Review of national and provincial regulation requirements and the current status of UoAs compliance in the first tranche of UoAs			•
4.2 Review of national and provincial regulation requirements and the current status of UoAs compliance in the second tranche of UoAs			•
5. Management and governance			
5.1 Develop harvest strategy for Indonesian archipelagic waters (AW) including defined objectives			•
5.2 Develop Harvest CR and Tools for Indonesian AW			•

Table 1. List of Actions in Tuna Pole and Line FIP. Source: Fishery Progress 2020.

The Blue Swimming Crab Fishery Improvement Project

The Indonesian Blue Swimming Crab Gillnet Trap Fisheries Improvement Project (BSC FIP) is led by APRI-Asosiasi Pengelolaan Rajungan Indonesia (Blue Swimming Crab Processors Association) with the support of the National Fisheries Institute Crab Council (NFI Crab Council) in the US, which is the destination for most of Indonesia’s blue swimming crab. APRI – whose members include 33 of 39 seafood industry businesses and processors – accounts for more than 85% of purchased crab in Indonesia. The BSC FIP is meant to have a lasting impact on the sustainability of the fishery’s supply chain, on blue swimming crab resources, and on the ecosystem where the species is harvested. The FIP started in January 2012 and is expected to be

completed in December 2022. The proposed unit of assessment in the BSC FIP in Java Sea 712 includes Demak, Pemalang, Pati, Rembang and Madura (Sumenep, Pamekasan, Sampang and Bangkalan).

The BSC FIP has four objectives:

1. Develop a work plan and transition Indonesia’s blue swimming crab fisheries to MSC Full Assessment within the prescribed three years.
2. Change practices (no capture of small crabs/juveniles, no capture of egg-bearing females), increase the stocks, develop policies that protect and sustain crabs (including protection of nursery ground, spawning area) by the end of December 2022.
3. Develop a management plan for Indonesian blue swimming crabs that includes

community resources management that protects nursery grounds; produce a control document by the end of December 2018.

4. Implement the FIP work plan that includes development of the management plan, community-based management, communication and awareness, nursery and spawning grounds protection projects, as well as a hatchery project by the end of December 2018.

To achieve these objectives, APRI developed 28 main activities in the action plan, which cover all FIP performance indicators. There are six

main activities under P1, 15 main activities in P2 and seven main activities in P3 (table 2).

The FIP’s activities are managed according to six focuses (APRI 2019a):

1. Stock assessment and enhancement.
2. Collaborative management.
3. Modified traps.
4. Enforcement and compliance.
5. Fisher empowerment and organisation.
6. Traceability through control document, which records catch from fisher to processor.

	Indicators	Main activities	Main Steps
Principle 1: Sustainability of Fish Stock			
1.1.1	Stock Status	Stock assessment <i>Portunus pelagicus</i> in Indonesia	a. Hire and train enumerators b. Data collection and analysis c. Online database d. Scientists’ meeting
1.1.2	Stock Rebuilding	Stock Enhancement and Restocking Rajungan (<i>Portunus pelagicus</i>)	Spread seed of blue swimming crab at several locations
1.2.1	Harvest Strategy	Contribute to development of harvest strategy for Indonesia BSC	Conduct workshop on harvest strategy and harvest control rules
1.2.2	Harvest Control Rules and Tools	Fishing effort studies	a. Data collection of fishing gear b. Online database c. Scientists’ meeting
1.2.3	Information and Monitoring	Contribute to development of harvest strategy for Indonesia BSC	Conduct workshop on harvest strategy and harvest control rules
1.2.4	Assessment of Stock Status	Stock assessment <i>Portunus pelagicus</i> in Indonesia	a. Hire and train enumerators b. Data collection and analysis c. Online database d. Scientists’ meeting

Table 2. Main Activities in Indonesia’s Blue Swimming Crab FIP.



	Indicators	Main activities	Main Steps
Principle 2: Minimizing Environmental Impacts			
2.1.1	Primary spp.: Outcome Status	Stock assessment <i>Portunus pelagicus</i> in Indonesia	a. Hire and train enumerators b. Data collection and analysis c. Online database d. Scientist meeting
2.1.2	Primary spp.: Management Strategy		
2.1.3	Primary spp.: Information/Monitoring		
2.2.1	Secondary spp.: Outcome Status	Non-target Species Field Assessment - Using the Marine Stewardship Council's Risk-Based Framework for Data-Limited Fisheries	a. Hire and train enumerators for doing ecological impact survey and census b. Data collection and logbook c. Data analysis d. Fishing gear exchange e. Data collection for crab habitat distribution f. Data collection for fishing ground g. Seagrass and coral reefs monitoring h. Establish habitat protection
2.2.2	Secondary spp.: Management Strategy		
2.2.3	Secondary spp.: Information/Monitoring		
2.3.1	ETP spp.: Outcome Status		
2.3.2	ETP spp.: Management Strategy		
2.3.3	ETP spp.: Information/Monitoring		
2.4.1	Habitat: Outcome Status	Habitat and Ecosystem Impact: Genetic <i>Portunus pelagicus</i>	a. Sample collection b. Genetic analysis c. Data collection for crab habitat distribution d. Seagrass and coral reefs monitoring e. Establish habitat protection
2.4.2	Habitat: Management Strategy		
2.4.3	Habitat: Information/Monitoring		
2.5.1	Ecosystem: Outcome Status		
2.5.2	Ecosystem: Management Strategy		
2.5.3	Ecosystem: Information/Monitoring		
Principle 3: Effective Management			
3.1.1	Governance and Policy: Legal and/or Customary Framework	Establish Indonesian BSC fisheries co-management at local level	a. Conduct meetings at national provincial, district and village levels b. Develop and implement agreed-upon action plans
3.1.2	Governance and Policy: Consultation, Roles and Responsibilities		
3.1.3	Governance and Policy: Long- Term Objectives		
3.2.1	Fishery Specific Management System: Fishery-Specific Objectives	Implement control document to improve compliance and traceability	a. Miniplant mapping b. Trial control document c. Control document implementation to improve compliance and traceability etc.
3.2.2	Fishery Specific Management System: Decision-Making Processes		
3.2.3	Fishery Specific Management System: Compliance and Enforcement		
3.2.4	Fishery Specific Management System: Monitoring and Management Performance Evaluation		

Table 2. Main Activities in Indonesia's Blue Swimming Crab FIP.

Chapter 2

Methodology



In this study, a gender analysis is applied to every stage of the tuna PL and the BSC value chain (value chain analysis). Value chain analysis is a method to analyse how the market works by identifying core processes, range of activities (e.g., production, processing and distribution) conducted by actors, their relationships and the values produced; those values are transferred along the chain to final consumers (Kaplinsky and Morris 2001, M4P 2008, Hempel 2010).

There are several factors contributing to how the value chain works: 1) core process in the value chain, 2) activities conducted along the chain by actors, 3) key actors, 4) governance in the form of relationships, competition between actors and concentration of power, 5) benefit sharing, and 6) assets and resources. The core process in the value chain involves input, production, collection, intermediary trade, and wholesale and retail marketing. In this analysis, activities in every stage of the core process were identified, along with the actors and relationships among actors, in order to determine gender relationships, gender disparities and gender-differentiated impacts of inequalities in the value chain.

Gender is a concept that deals with the roles and relationships between women and men that are determined not by biology but by social, political and economic contexts (Razavi and Miller 1997). Unequal power relations between women and men in many cultures mean that women are disadvantaged in terms of their control over resources (Reeves and Baden 2000), their access to services, and their ability to take advantage of new opportunities and deal with ongoing changes affecting their lives.

Mainstreaming gender into project planning should begin with the collection and analysis of sex disaggregated data (UNDP 2007). Such data will highlight significant social and economic variables. It also helps in understanding the different roles a man or a woman takes in a society, reflecting different interests and needs.

This study used the following guiding questions:

1. *Who performs the work and how does the work differ for men and women?*
This is related to degree of participation by women along the value chain of the tuna and BSC fisheries, including number of participants, extent of participation and challenges; answers to these questions also permitted an assessment of how women perceived the FIP will benefit them.
2. *Who has access to and who has control over resources and benefits?*
Factors that enable or inhibit access to and control over resources, and power relations at the production, household and community levels, include knowledge (who knows what), natural and productive resources, income, services, employment, information and benefits.
3. *Who participates in decision making?*
4. *What are the consequences of gender differences and relations in achieving development objectives, and what are the implications of FIP interventions for changing relations of power between women and men?*

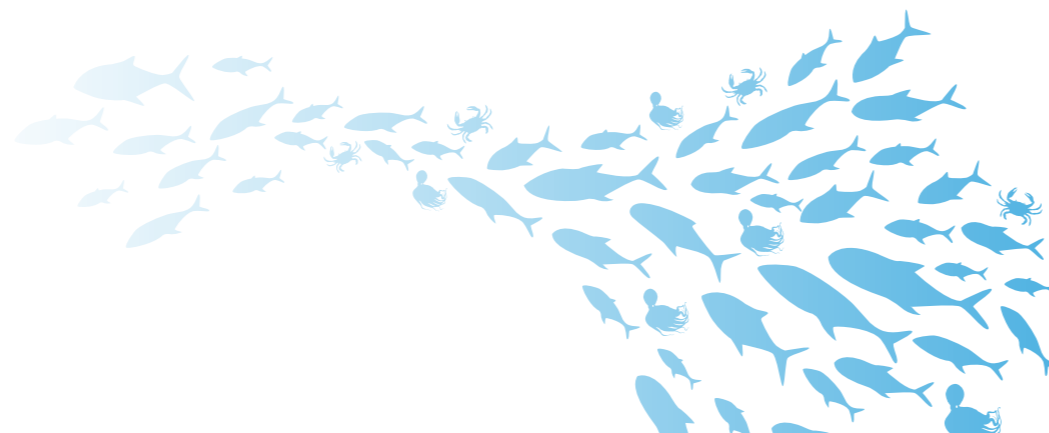
Data Collection

Data collection combined a review of primary and secondary data (table 3). For the Tuna PL FIP, data were collected from available reports, publications and interviews with AP2HI officers. Reports and publications were used to assess insight into issues related to integrating gender in the FIP, especially the preliminary report on gender profiles in tuna PL fisheries (AP2HI 2019). Interviews with AP2HI officers were conducted to gain insight into the situational context and the results of previous research.

Primary and secondary data collection were used for analysis of the BSC fishery. Primary data was collected in Sumenep, Pamekasan and Bangkalan, in East Java. These districts represented varied methods in catching BSC, geographical areas and FIP activities. Site and respondent sampling were used to ensure the sampled sites represent characteristic BSC. Sumenep was selected as a representative site on the eastern side in Madura, where

fishery data collection is conducted by enumerators from APRI. Pamekasan was selected because there was a BSC fishing group whose members implemented a program involving temporarily caging egg-bearing crabs. Lastly, Bangkalan was selected as a representative western site on Madura near Surabaya, a large city, in addition to being a site where a fishing group recently formed. The three sites visited in Sumenep are Pakandangan, a village in the Bluto sub-district, the village of Padikeh, and Lobuk, a village in the Soranggi sub-district on Talango Island. Pamekasan, Pegagan and Berantan are the sites that supply bait. Also visited were Bangkalan, Tengket, a village in the Arusbaya sub-district, and the Bangkalan sub-district. Secondary data were collected from a preliminary gender study for the BSC fishery, conducted by APRI in 2019.

Below: Women participate at the Indonesian Multistakeholder Platform launch.



Factors	BSC		Tuna
	Primary data	Secondary data	Secondary data
Core process along the value chain/stage in the value chain	Interview with APRI	Gender study report by APRI	<ul style="list-style-type: none"> Interview with AP2HI in 2019 Gender study report by AP2HI (2019) UNSRAT (2018)
Main activities: Who does what?	<ul style="list-style-type: none"> Interview with APRI Interview with enumerators Interview with village leaders (e.g., government officials) Discussion with actors along the value chain 	Gender study report by APRI	<ul style="list-style-type: none"> Interview with AP2HI in 2019 Gender study report by AP2HI (2019) UNSRAT (2018)
Actors: persons, organisations, companies	<ul style="list-style-type: none"> Interview with APRI Interview with enumerators Interview with village leaders (e.g., government officials) Discussion with actors along the value chain Key informant interviews 	Statistics reports Gender study report by APRI	<ul style="list-style-type: none"> Interview with AP2HI Gender study report by AP2HI UNSRAT study on gender 2017 Statistics report
Benefit sharing	<ul style="list-style-type: none"> Interview with enumerators Interview with village leaders (e.g., government officials) Discussion with actors along the value chain Key informant interviews 	-	<ul style="list-style-type: none"> Interview with AP2HI Gender study report by AP2HI UNSRAT study on gender 2017
Assets: knowledge and skills, physical, natural, financial, social networks	<ul style="list-style-type: none"> Interview with enumerators Interview with village leaders (e.g., government officials) 	-	
Livelihood outcomes: cash income and food and other family needs	<ul style="list-style-type: none"> Discussion with actors along the value chain Key informant interviews 	-	
Access and control over resources	<ul style="list-style-type: none"> Observations 	-	
Governance: basic rules for participating along the value chain Performance Decision-making process in the household and community		-	
Gender Concern	<ul style="list-style-type: none"> Interview with APRI Interview with village leaders (e.g., government officials) Discussion with actors along the value chain Key informant interviews Observations 	-	Interview with AP2HI

Table 3. Methods Used to Collect Data and Information.

Whenever possible, selected interviewees were women, including a fisher's family members, women fishers, women fish traders/suppliers and women workers in miniplants/fish processors. A woman who makes food snacks based on BSC was also interviewed. In addition, interviews were conducted with

the line manager in the fish processor, the village leader, APRI and academics from the University of Trunojoyo in Bangkalan, to gain a general perspective on fishing family life. A total of 69 persons were interviewed (table 4). Key questions were used to lead discussions with actors in the field.

Sites	Inputs		Fishers		Traders		Mini plant		Mini plant workers/Processors		APRI/Enumerators		Village gov.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Jakarta	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Sumenep	-	5	7	1	2	3	2	-	-	2	1	-	1	-
Pamekasan	-	2	6	1	-	3	1	-	-	-	1	1	-	-
Bangkalan	-	7	8	2	1	3	1	-	-	1	1	-	-	1
Total	-	14	23	4	3	9	4	-	-	3	4	1	1	1

Table 4. Number of Respondents for the BSC FIP.

Analysis Approach

The data presented below follow the value chain, with contributing factors disaggregated by sex. Qualitative data were sorted into themes prior to studying the interrelations among variables to build a logical chain of learning. Analysis started with the core process in the value chain, resulting products, and activities involved in production sorted by sex, actors and benefit sharing. All contributing factors along the value chain are used to assess gender concerns according to six domains from the gender dimension framework: access, beliefs, practices, time and space, rights and power (figure 3).¹

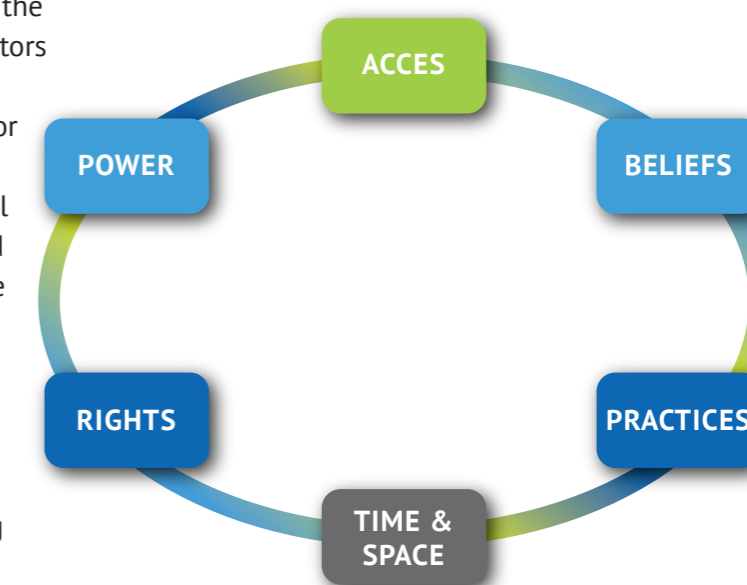
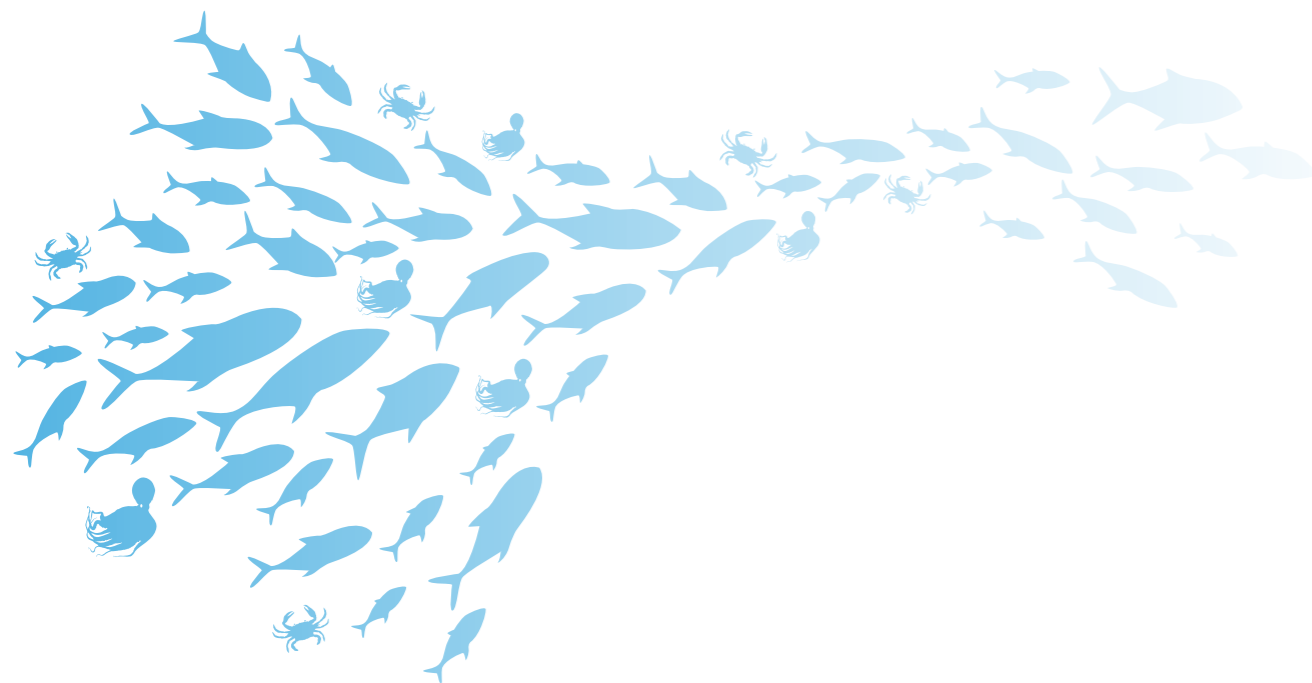


Figure 3. The six domains in the gender dimension framework. Source: USAID 2018.

¹ https://www.seafdec-oceanspartnership.org/wp-content/uploads/USAID-Oceans_Gender-In-Fisheries_Training-Guide_October-18.pdf

1. Access to resources refers to the capacity to use the resources necessary to be a fully active and productive (socially, economically and politically) participant in society.
 2. Beliefs shape gender identities and behavior, the way men and women and boys and girls conduct their daily lives.
 3. Practices describe how gender structures people's behaviors and actions—what they do—and the way they engage in development activities.
 4. Time and space explain the division of both productive and reproductive labour; how time is spent during the day, week, month or year, and in different seasons; as well as how space is used by women and men.
 5. Rights cover laws, legal rights, policies and institutions; they show how gender affects the way people are regarded and treated by both customary law and the formal legal code and judicial system, for example, ownership and inheritance, legal documents and identity cards.
 6. Power refers to the ability to have control over material, human, intellectual and financial resources. Gender norms and relationships influence people's access to power.
- A gender division of labour approach was used along the value chain to highlight the “invisible” work of women in fisheries. Data were collected based on contributing factors in the value chain and disaggregated by sex. Assets were assessed according to the five assets in the Sustainable Livelihood Approach (SLA) (DFID 1999):
1. human assets (knowledge and skills, health status),
 2. physical assets, including producers' goods,
 3. natural assets, including a person's perception of natural assets,
 4. financial assets, including the use of cash income, and
 5. social assets, including social bonding, local institutions and how one is related or unrelated to another.



Ethical Considerations

Ethical considerations were applied during data collection in the following manner. Prior to the interview and discussions with all actors along the value chain, the study team was introduced and members explained the purpose of the research and the participants' rights; they then asked if the persons addressed agreed to participate. Participants were informed on how the data would be collected, such as by taking notes and photos and recording proceedings. Before taking photos, permission was requested verbally. When permission was denied, the photo was not taken. Prospective discussion participants were informed that participation was voluntary and that there were no consequences for those who chose not to attend or to withdraw from the

discussion. The discussions and interviews were conducted in a relaxed manner. The participants were allowed to indicate if they felt uncomfortable or needed a break, and that if the discussion had to be interrupted, it could be continued at another time. Participants were informed of the date and time of the interviews and discussions. Contact details for project team members were provided in the event participants wanted to lodge complaints or discuss any matter privately. Confidentiality of participants was maintained. The identity of participants was available to no one beyond the study team. Information about participants was used exclusively for this study.

Below: Woman working at a tuna processing plant.



Chapter 3

Gender

in the Tuna Pole and Line FIP



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Tuna Pole and Line Fishery Overview

The pole and line tuna fishery is one of the main tuna fisheries in Indonesia. In this fishery, tuna is caught usually by boats with a gross tonnage (GT) smaller than 10, known as *funae*, an Indonesian term, and by boats larger than 10 GT, called *huhate*. The tuna PL targets, yellowfin tuna (YFT) and skipjack tuna (SJT), are caught in the archipelagic waters (AW) of Indonesia, as well as in the exclusive economic zone (EEZ) and international waters under the jurisdiction of the Western Central Pacific Fisheries Commission and the Indian Ocean Tuna Commission. Fishing is done with anchored fish aggregating devices (FADs). The pole and

line operations use bait bought from separate *bagan* (bait station) operations. Dominant bait species include various species of anchovy, sardine, sprat and Indian mackerel, with typically a few species dominating volumes caught. Post-harvest involves both small-scale and large-scale fish processors, with about 15,000-25,000 workers in processing (AP2HI 2019). Furthermore, AP2HI recorded 405 pole and line fishing vessels owned by their members. Large pole and line vessels employ as many as 15-20 crew members; less than 10 people work on smaller vessels. There are about 5000 fishing crews in pole and line fishing (AP2HI 2019).

Gender Roles and Benefit Sharing in the Tuna Pole and Line Fishery

Activities and gender roles along the value chain

In the tuna fishery, men and women assume different roles along the tuna value chain. Women participate primarily at the input and post-production stages while men dominate the production stage (table 5).

At the input stage, women provide supplies (coffee, snacks, cigarettes) for small scale fishery vessels, while crews normally prepare refreshments in larger vessels. Women are employed in the kiosks that sell fishing gear, and maintenance and refreshments. In the fishing organisations, men prepare fishing gear, fuel and vessels while women prepare refreshments (AP2HI 2019b). In fishing companies, a similar pattern is found, with activities related to preparation of fishing boats, gear and fuel, as well as meals, carried

out by men. Men dominate at the production stage in the tuna fishery, as fishing masters, members of fishing crews and vessel crews, and as captains (UNSRAT 2018, AP2HI 2019b). Similar findings have also been reported in Eastern Indonesia (Duggan 2017), General Santos in the Philippines (Sumagaysay *et al.* 2018), Fiji (Sullivan and Ram-Bidesi 2007), Maldives (Wessel 2017) and Sulu Sulawesi (Wanchana *et al.* 2015). However, some women own fishing vessels and about 7.35% of total fishers are women (UNSRAT 2018).

In the large-scale fish processing plants, most of the workers are women whose activities include beheading, skinning and loining, packing, weighing and filling cans with oil or brine and seaming/washing them (UNSRAT, 2018). Men also engage in activities such as sterilization or retorting, cooling, casing

and storing. Both men and women work in labeling. Activities related to fish recording are conducted by both women and men (AP2HI 2019b).

Activities related to paperwork and catch recording are fully dominated by women (AP2HI 2019b). Activities that focus on payment arrangements tend to be dominated by women, as do the purchase and sale of catches. For small traders, women play a significant role in sorting and selling fish, while men transport the fish within and out from fish landing sites. An equal percentage of men and women work in the sorting and selling process (AP2HI 2019b). UNSRAT (2018) found that at the wholesaler or trading stage, around 42% of total actors are men and 58% of total actors are women.

Activities related to fish transportation, receiving and storage are dominated by men (AP2HI 2019b). AP2HI also found that activities related to negotiation with buyers are dominated by men, but this could reflect the fact that negotiations with buyers are carried out by vessel owners, who are mainly men.

Actors along the value chain

Actors in the input stage are invisible or part of another industry, thus it is difficult

to determine numbers of women and men. Actors at this stage include those who provide logistics for fishing, fishing equipment (poles made from bamboo, lines and hooks), prepare live bait or providers. Actors at the production stage are owners of vessels and fishing crews or bait suppliers. However, there is no sex disaggregated data for actors in the production stages. In the tuna fishery in Bitung, tuna was caught by pole and line vessels at a scale of 50-80 GT; there were 7,319 fishers working in the fishery in 2018 (DKP Sulawesi Utara 2018). The number of boats was recorded at 159 in Bitung in 2004. Moreover, the processing stage involved 3,691 people, including 3,272 men and 419 women at canning and freezing companies in 2012 (MMAF 2013).

Supporting actors are indirectly involved in the tuna fishing operation. For example, boat agents, fishing-vessel handlers, quarantine clearance and other administrative personnel. Indirect actors also involve providers of packaging materials, and canteen operators and personnel in port and at plants, who are mostly women. Other supporting actors include business membership organisations and associations (i.e., AP2HI), workers' associations, non-government organisations and government entities (central and sub national governments).

Input		Production		Traders		Processing		Source
Men	Women	Men	Women	Men	Women	Men	Women	
Fishing preparation (i.e., boats, gear and fuel) and transporting catches	Preparing meals and refreshments for the fishing crew and paperwork for licensing	Owners	Owners	Buy and sell catches and sort catches	Payment arrangements, buy and sell catches, sort and record catches, and do paperwork for licensing	Owners, transportation, receiving and storage, control of fish and end products	Fish recording and processing control of fish and end products	AP2HI, 2019

Input		Production		Traders		Processing		Source
Men	Women	Men	Women	Men	Women	Men	Women	
Preparation of supplies and documentation, fishing gear, fuel, ice, bait, food, cigarettes, first aid, over-the-counter drugs, and complete permits and other administrative requirements	Preparation of supplies and documentation, fishing gear, fuel, ice, bait, food, cigarettes, first aid, over-the-counter drugs, and complete permits and other administrative requirements	Owners of fishing vessels, catching and handling fish, landing fish on the vessel deck, unloading and transporting fish, storing fish with ice in the cold storage	Owners of fishing vessels, sorting, icing, selling, record keeping	Unloading the catch, procuring block ice, crushing ice into smaller pieces and loading fish onto transport vehicles	Working as both wholesalers and retailers, book-keeping, selling fresh or processed fish at market or retail sales points; peddling fish in residential neighborhoods on foot or using motorcycles	Large-scale processing: workers in smoked skipjack tuna, receiving and sorting tuna, thawing fish (soaking fish in running water), butchering fish, washing fish using clean water, pre-cooking fish at temperatures below 100°C, skinning and loining, spraying water on fish using mist sprayer, sterilization or retorting canned fish, cooling canned fish, packing canned fish, storing packed canned fish, labeling the product	Large-scale processing: owners, workers in large scale companies, beheading, skinning, loining, removing fish head, tail, skin, bones and brown meat, washing empty cans, putting fish meat into cans, weighing fish in cans, heating and washing cans, labeling product	UN-SRAT, 2018
						Small-scale processing: transportation	Small-scale processing: owners buy fish, supervise fish processing performed by men or women, sell products	

Table 5. Gender Roles along the Tuna Value Chain.

Benefit sharing

Fishers sell tuna at IDR 30,000/kg. Processing companies sell to exporters at IDR 60,000-120,000, depending on product type and quality (table 6). Actors' benefits at the production stage vary, with owners of vessels receiving 40-50% of profit while captains receive 12.5% of profit. The rest of the profit is divided among crews. On average, a crew can receive IDR 4.8

million/month or equal to IDR 192,783/day during peak season, and IDR 1 million or equal to IDR 42,653/day during a normal situation (Wijaya *et al.* 2012). In addition, at the landing site, labour can receive around IDR 12,800/day (Wijaya *et al.* 2012). At the processing stage, the company pays workers the minimum regional income, IDR 118,000/day as of 2017. There is no information on gender discrepancies related to benefits along the value chain (table 6).

Input	Production	Traders	Processing	Source
Selling price	30,000/kg	40,000/kg	60,000/kg 120,000/kgx	Doaly, 2019
Benefits	Owners 40-50% of profit Captain: 12.5% of profit Fishers: 40% of profit divided among number of fishers, equal to IDR 4.8 million/month or equal to IDR 192,783/day during peak season; and IDR 1 million or equal to IDR 42,653/day during normal situation (Wijaya <i>et al.</i> 2012)	Labour at landing IDR12,800/day/person (Rawung <i>et al.</i> 2018)	Minimum wage in Bitung IDR 118,000/day in 2017	Wijaya <i>et al.</i> 2012; Rawung <i>et al.</i> 2018

Table 6. Benefit-sharing Actors along the Value Chain.

The Six Domains of the Gender Dimension Framework in the Tuna Pole and Line Fishery

Access to assets and resources

There are nine types of resources relevant to the PL fishery: relationship with buyers (e.g., negotiations, networks), financial institutions (e.g., loans, etc.), knowledge about the tuna market (e.g., prices, quality needs), facilities (e.g., production gear), marketing skills (e.g., buying and selling, negotiations), capture fishing training (e.g., capacity building), knowledge about government regulations (e.g., updated knowledge about rules and regulations), knowledge about traceability, and knowledge about seafood product certifications.

Men and women have varied access to these assets and resources (AP2HI 2019b). All men were knowledgeable about the nine resources while women had less information. The main constraint faced by women in accessing fishery resources is due to the involvement by fewer women at the production stage because of domestic roles and cultural norms that limit/prohibit their participation as fishers. Men control fishing equipment resources in Bitung as they dominate at the production stage, despite the absence of legal barriers to women's involvement in capture fisheries (UNSRAT 2018).

In terms of access to capital, there is no difference between men and women. Access to the banking sector was challenging for both men and women at the production stage (UNSRAT 2018). At the processing stage, owners, both men and women, had access to

and control over resources such as processing units and equipment. It was also found that men and women have equal opportunities in accessing community organisations. However, women who work at landing sites and as small-scale retailers experienced lack of access to public transportation (USAID 2018).

Beliefs and Perceptions

In Bitung, there are cultural beliefs about the unsuitability of women as workers in the capture fishery. These beliefs dictate that a woman's role is in the domestic sphere, caring for the home and family. At the small-scale business level, involvement of women was considered an extension of their domestic role. Also, because it is believed that working at

Below: a woman working in milkfish cultivation for tuna bait recording monthly harvest.



sea is more dangerous than on land, women's involvement is discouraged (UNSRAT 2018).

Practices

As men and women have different roles, they have different interests, needs and practices. In the pole and line tuna fishery, women perform work that is less intensive physically but requires persistence and often requires more time (UNSRAT 2018).

Time and Space

The production stage usually involves long periods of time, from departure to arrival from the sea. During this time, participants have to stay on a vessel; this is a constraint for women due to social norms that require that they take care of their family. As women and men have different roles along the value chain, they have different spaces. For instance, in the capture fisheries, men's space is at sea, while women's space is the landing site (UNSRAT 2018). In the processing stage, women dominate processing plant space in small- and large-scale processing. Meanwhile in marketing, women dominate small-scale marketing while in large-scale marketing, both men and women work at the port and in the plant.

Rights

There are no gender-discriminatory laws preventing women from going out to sea or participating in production activities (UNSRAT 2018). However, due to social perceptions and expectations, women prefer to work on land. Women's responsibility for raising children and taking care of the family are also barriers to engaging in an activity that requires extended periods away from home. Meanwhile, women who work in processing plants, especially

large-scale operations, are protected under the labour laws. Their rights, benefits and safety are regulated by the law, which also establishes the minimum wage.

Power

AP2HI (2019b) explored three types of decision making: purchase and sale of fish, financial allocation and distribution, and use of production facilities. The study indicates that men dominate the decision-making processes related to the use of production facilities. However, women may have power equal to that enjoyed by men regarding decision making in financial allocation and distribution (AP2HI 2019b). Meanwhile, women's knowledge relevant to fisheries management is rarely utilized (UNSRAT 2018). Women participate in land-based activities, from administrative matters to trading and processing activities. Due to these roles, women's knowledge of catch fluctuation and fish quality and size is beneficial for fishery management.

At the production stage, the decision to fish is made by boat owners, both men and women, or captains, who are men. At the processing stage, in small-scale processing operations, the decision to produce smoked skipjack tuna and *katsuobushi* is made by business owners, who are primarily women; the decision includes procurement of raw fish, labour recruitment, fish processing and sales. At the marketing stage in both wholesaling and retailing, power and decision making are generally the province of business owners, who can be men or women. Fish wholesalers, both men and women, generally buy a large quantity of fish directly from fishing vessel owners; their power is based on their purchase of fish in high volumes. (See table 7 for a summary of the six domains of the gender dimension framework.)

	Input		Production		Traders		Processing	
	Men	Women	Men	Women	Men	Women	Men	Women
Access to assets and resources	Both men and women have access to prepare supplies and documentation.		All men were knowledgeable about resources and information.	There are no discriminatory rules restricting women's involvement in capture fisheries; constraints are due to domestic roles.	Access resources.	At the landing site and in small-scale retailing, women lack access to public transport.	Owners, both men and women, have access to and control over resources, e.g., processing units and equipment.	
		- Capital: both men and women experience challenges in getting bank loans. - Community organisation: there are no barriers to equal opportunities for either men or women.						
Beliefs and Perceptions	Prepare for the fishing operation.	Work on land and in administration.	Men work at sea for fishing operations.	Work at sea is believed to be unsuitable for women due to the social expectation that women have to assume domestic roles. It is also believed that work at sea is more dangerous for women.	Men work at port.	More women are involved in small-scale pre-production and post-production activities; these are considered an extension of domestic roles.	Work requiring persistence is considered unsuitable for men.	More women are involved in either pre-production or post-production activities. Women are also perceived to be more suited to repetitive tasks.
Practices	Men and women have different roles, as described in table 5.		Men dominate work at the production stage.	Fewer women work in production.	Men labour at the seaport, which is physically intensive.	Women are more engaged in land activities and activities requiring less physical strength but requiring persistence and often lengthy periods to complete.	-	Women are engaged in activities requiring less physical strength but greater persistence and more time to complete.
Time and Space	Prepare for fishing operation.	Fishing supplies and operation documentation.	Men's space is at sea, requiring long periods away from home.	Women are more involved at the landing site rather than in fishing operations at sea because the latter require long periods of time away from home, a limitation for women.	Men work at seaport.	Women dominate small-scale marketing.	Men also work in processing.	Women dominate the processing plant space in small- and large-scale processing.
Rights	In general, men and women have an equal right to engage in fisheries.		No gender-discriminatory laws prevent women from working at sea.		In large-scale trading, both men and women are protected by labour laws. In small-scale trading, there are no gender discriminatory laws regarding access to resources.		Women who work at processing plants, especially large-scale plants, are bound by and protected under the labour law.	
Power	Both men and women own fishing vessels.		Men dominate decision-making processes related to the use of production facilities. Decisions on fishing operations are made by boat owners (men and women) or captains who are mostly men.	Women have power regarding decision making in financial allocation and fishing operations (women can own boats).	At the marketing stage, both wholesale and retail, power and decision making are generally in the hands of business owners.	The decision to process or sell is made by business owners, who are predominately women. At the marketing stage, both wholesale and retail, power and decision making are generally in the hands of business owners.	Decisions, including buying raw fish, labour recruitment, fish processing and selling, are made by business owners. At the marketing stage, decisions are in the hands of business owners. However, women generally have less power.	

Table 7. Gender Analysis in the Tuna Value Chain, Based on the Six Domains of the Gender Dimensions Framework.

Gender Analysis of the Tuna Pole and Line Fishery Improvement Project

Activities in Principle 1 of the Tuna Pole and Line FIP focus on supporting the development of harvest strategy (HS) and harvest control rules (HCR) in the Western and Central Pacific Fisheries Commission (WCPFC). In the **access domain**, there is no barrier for men or women in AP2HI or its partners to access resources and information, depending on their tasks. In the **beliefs and perceptions domain**, although women are not as involved as men in fishing, discussion of the management impact and risk of HS and HCR should consider the impact on women fishers as well as other fishers who will be affected most and directly by management measures selected. In the **practices domain**, women own fishing vessels, and engage in activities at landing sites and in retailing. Therefore, representation by and the participation of women who own fishing vessels should be ensured in the meetings. In the **time and space domain**, meetings of HS and HCR are normally conducted in the city, and only those who have certain roles/positions are usually invited or participate (e.g., scientists, association members, large-scale companies and government), while fishers are rarely involved. In the **power domain**, government has power in organizing and imposing management rules. AP2HI is one stakeholder that could provide advice on the scenario and ensure that women are not negatively impacted due to the selection of any scenario. Also, vessels owners (men and women) and captains have the power to support the implementation of HS.

All activities in Principle 2 are related to data collection. Data is collected from records of production and data compiled by onboard observers. In the **access domain**, women should be allowed to be onboard observers. In the **beliefs and perceptions domain**, people believe that activities on board are not suitable for women. In the **time and space domain**, since men's space is at sea while women's is at landing sites, onboard observers are considered the domain of men. In data compilation and analysis, both men and women can access and conduct these tasks, depending on competence. In the **rights domain**, women have the right to be observers. In the **power domain**, the power to assign data collection and the deployment of observers onboard belong to fishing vessel owners, either men or women; associations (AP2HI) are also strategic in encouraging members to collect data.

For activities in Principle 2, on habitat and ecosystems, mapping the impact of FADs on the ecosystem is mostly conducted by scientists and sometimes local stakeholders are engaged. Scientists can be men or women depending on their competence. Women might own FADs; thus, information should be obtained from both men and women. In the **access to assets and resources domain**, men and women can access the FAD map. In the **beliefs and perceptions domain**, men appear to dominate FAD-related aspects. Women owners tend to be ignored and left out of mapping FADs. In the **practices domain**, both men and women should be involved in mapping FADs. In the **time and space domain**,

the fact that men dominate activities at sea means that FADs are their business, and access to FAD-related information is a barrier for women. In the **rights domain**, women have a right to information about FADs, especially those involved in fishing, such as vessel owners. In terms of **power**, the owners of FADs, whether men or women, have the power to encourage FAD mapping. Although FADs are controlled by owners, who are mostly men, the product is sold in the local market. Therefore, women distributors might be impacted by restrictions related to FADs, and thus must be involved in the discussion.

In Principle 3, on activities related to the management of archipelagic water populations using HS that are compatible with the WCPFC, gender analysis is focused on formulating management measures and the dissemination of information. In the **access to assets and resources domain**, there is no barrier to men or women, especially fishers and other actors in the supply chain, to participate in meetings, depending on interest and competence. In the **beliefs and perceptions domain**, women are rarely invited to meetings or asked to participate in discussions about aspects of fishing. In the **practices domain**, discussion about HS takes place among scientists; actors along the value chain, especially the fishers themselves, who will implement and experience the impact of management measures, are left out of discussions. In the **time and space domain**, as the discussion is limited to specific participants and meetings are usually conducted in the city, only certain actors participate (e.g., scientists, association members, large-scale companies, government). In the **rights domain**, women and men have equal rights to information and to discuss HS strategy.

In Principle 3, on enforcement, gender analysis is focused on the review process of national and provincial regulations and compliance. In the **access to assets and resources domain**, the review process can be conducted by men or women, depending on interest and competence. The organizer should make sure to provide equal access to information for all actors along the value chain. In the **beliefs and perceptions domain**, as the tuna fishery is believed to be dominated by men, it is believed that the reviewer should be a man. However, this task has nothing to do with gender but, instead, with competence and interest. In the **practices domain**, those who conduct the policy review, either men or women, need analytical skills in policy and knowledge of the tuna fishery value chain. In the **time and space domain**, meetings are conducted in a city, which limits participation; AP2HI is usually represented by its members. Organizers should assess whether the time chosen is suitable for key actors, both men and women. In the **rights domain**, men and women have similar rights in accessing policy and regulations; they also have the same right to participate in meetings. In the **power domain**, government, and industry associations such as AP2HI have the greatest power to review fisheries policy to ensure that it contains no negative impacts on men or women.

In Principle 3, on management and compliance, gender analysis is focused on the development of harvest strategy and control rules for Indonesian archipelagic waters (AW) and how information is shared. In the **access to assets and resources domain**, women and men have equal access to meetings and to information. The organizer should be aware of the risk and impact of a policy for men and women. In the **beliefs domain**,

women are believed to be uninvolved in production, while harvest strategy focuses on regulating activity; this might prevent women from taking part. In the **practices domain**, men and women can participate in meetings, depending on competence and interests. In the **time and space domain**, discussions about harvest strategy are usually conducted in cities, e.g., Jakarta, while key fishing actors are in Bitung. This might hinder participation by men and women in fishing. In the **rights domain**, women and men have an equal right to discuss the HS. In the **power**

domain, the government has the power to initiate discussions, while vessels owners and captains have the power to support HS implementation (see table 8 for a summary of the six domains of the gender dimension framework).

Below: Harvesting bait for pole and line fishing.



Actions	Access to Assets and Resources	Beliefs and Perceptions	Practices	Time and Space	Rights	Power
1. Target species						
1.1 Support HS development within WCPFC	There is no barrier to participation by men and women in meetings. Men and women at landing site have recorded data apart from observer on-board data.	Women are less involved in fishing and therefore are not invited to attend or participate in discussions about fishing.	HS and HCR discussions/decision making take place far from fishers. Fishers experience the impact due to this management measures. Women own fishing vessels. Women engage in activities at landing sites and in retailing. These actors might affect fishing practices. Therefore, women fishing vessel owners should be invited to meetings	Meetings of HS and HCR are mostly conducted in the city (i.e. Jakarta); only "big guys" are invited (e.g., scientists, association members, large-scale companies, government). No fishers are involved.	Women and men should have the same right to discuss strategy and be familiar with the HS.	AP2HI is a stakeholder in the development of HS and HCR that might have the power to advocate for policy. Government has the power to invite both men and women to development meetings of HS and HCR. Vessel owners and captains have power in supporting the HS.
	In relation to data collection, women should be able to be observers as they should also be allowed to go fishing; but adjustments on fishing vessels might be needed. For compiling and analysing data, both men and women should have access to resources.	A challenge for women observers is the belief that activities at sea are not suitable for women.	Women should be observers on board as women also go fishing, though this is rare. This will require some adjustment to vessels due to women's presence. Both men and women can compile and analyse data, depending on competence.	As long as men's space is at sea while women's is at the landing site, onboard observer will be considered men's domain. Data compilation and analysis is suitable for any gender.	Women have the right to be observers, therefore vessels' facilities need to be adjusted.	Women who are fishing vessel owners and administrators could have the power to encourage the deployment of observers on board. The association is also strategic in encouraging its members in collecting data.
1.2 Support HCR development within WCPFC	Similar to HS development	Similar to HS development	Similar to HS development	Similar to HS development	Similar to HS development	Similar to HS development
2. Secondary and Endangered, Threatened and Protected Species						
2.1 Deploy onboard observers / data collection on first tranche UoAs to get information on catch and bait composition.	Women could be observers as women also fish.	A challenge for women observers as people believe that activities on board are not suitable for women.	Women could be observers on board as women also fish, though rarely. Women on board will require some adjustment to vessel facilities.	As men's space is at sea while women is at landing sites, onboard observer will be considered men's domain.	Women can have the right to be an observer, therefore vessel facilities need to be adjusted.	Women fishing vessel owners and administrators have the power to encourage the deployment of observers on board.
2.2 Deploy onboard observers / data collection on first tranche UoAs: ETP interactions.	Idem to activity 2.1	Idem to activity 2.1	Idem to activity 2.1	Idem to activity 2.1	Idem to activity 2.1	Idem to activity 2.1
2.3 Carry out review of measures to minimize unwanted catch of and interactions with ETP species on first tranche UoAs.	Idem to activity 2.1	Idem to activity 2.1	Idem to activity 2.1	Idem to activity 2.1	Idem to activity 2.1	Idem to activity 2.1
2.4 Deploy onboard observers/data collection on second tranche UoAs to get information on catch and bait composition.	Idem to activity 2.1	Idem to activity 2.1	Idem to activity 2.1	Idem to activity 2.1	Idem to activity 2.1	Idem to activity 2.1
2.5 Deploy onboard observers /data collection on second tranche UoAs: ETP interactions.	Idem to activity 2.1	Idem to activity 2.1	Idem to activity 2.1	Idem to activity 2.1	Idem to activity 2.1	Idem to activity 2.1
2.6 Carry out review of measures to minimize unwanted catch of and interactions with ETP species on second tranche UoAs.	Everyone should have access to information.	Unwanted catches, discussion about sea resources is men's business.	Women own fishing vessels. Women engage in activities at landing site and in retailing. Women also review catches.	At the processing stage, women dominate the processing plant space in small- and large-scale processing operations. Meanwhile at marketing nodes, women dominate in small-scale marketing while in large-scale marketing men and women work equally at port and plant.	Women and men should have equal rights to discuss unwanted catch and ETP.	Vessel owners and captains have power in supporting the HS. Women traders have power to determine the price of fish, the determining factor in fish to be caught.
3. Habitats and ecosystems						
3.1 Map FAD usage for first tranche UoAs and habitat (or depth as proxy) types and extent.	Men and women could map FADs, depending on competence. This initiative should mean that actors have access to equipment and technical skills.	If women don't go out to sea, this would limit the involvement of women in mapping FADs. Women tend to be ignored as owners and left out of mapping the FADs.	Capacity in mapping FADs has nothing to do with gender.	Because men dominate at sea, women have no access to information about FADs.	Women have a right to know about FADs, especially those involved directly in fishing, such as vessel owners.	The owners of FADs, whether men or women, have the power to encourage FAD mapping.
3.2 Map FAD usage for second tranche UoAs and habitat (or depth as proxy) types and extent.	Idem to activity 3.1	Idem to activity 3.1	Idem to activity 3.1	Idem to activity 3.1	Idem to activity 3.1	Idem to activity 3.1

Table 8. Gender Analysis of the Tuna PL FIP Based on the Six Domains of the Gender Dimensions Framework.

Actions	Access to Assets and Resources	Beliefs and Perceptions	Practices	Time and Space	Rights	Power
3.3 Archipelagic water populations managed using HS that are compatible with WCPFC (see 5.1).	There is no barrier for men and women to participate in meetings. The organizer should consider not only scientists, association members and government but also engage key actors. Men and women participants should get equal prior information on the meeting's agenda and knowledge to support participating in meetings.	Women are less involved in fishing and only a few act as fishing vessel owners, therefore women are not invited or considered in discussions about fishing.	Discussions of HS and HCR take place far from fishers. In fact, fishers will conduct and experience the impact due to this management measure. Women own fishing vessels. Women engage in activities at landing site and in retailing. These actors might affect fishing practices. Therefore, women fishing vessel owners should be invited to meetings.	Meetings of HS and HCR are mostly conducted in provincial capitals, such as Jakarta, and only the "big guys" (e.g., scientist, association members, large scale companies, government) are invited. No fishers are involved.	Women and men should have equal rights to information and to discuss strategy and be familiar with the HS.	AP2HI is a stakeholder in the development of HS and HCR that might have the power to advocate for policy. Indonesian government has the power to involve both men and women in HS and HCR development meetings. Vessel owners and captains have power in supporting the HS.
	Information on the management of populations should be available to all fishers, both men and women, who are directly involved.	The fact that men dominate roles at sea might leave women out of fish population management issues.	Information on fish populations should be available to all stakeholders, both men and women.	Usually men are invited to meetings as production actors. However, women also have an interest in information about the harvest and how the populations are managed. Therefore, women also should be invited.	Women have a right to know about which species are managed.	Vessel owners as well as traders, who are mostly women, have the power to encourage the initiative.
3.4 Estimation of effects of FAD fields on species distribution.	Men and women should be encouraged as resource persons to participate in the FAD mapping process. The information should be available for men and women vessel owners, fishers and FAD owners.	The actors who conduct the modeling can be men and women, depending on competence.	Women are good at organizing and calculating. Therefore, these activities should involve women.	Women are also available for interviews and providing information (data collection) on FAD distribution.	There is no law that discriminates against involvement by women or men in estimating FAD usage.	Office work involves technical skills in fishery and modelling, therefore both genders could take part.
4. Enforcement (MCS)						
4.1 Review of national and provincial regulation requirements and the current status of UoA compliance in the first tranche of UoAs.	Regulation review could be conducted by men or women, depending on interests and competence. Men or women who review should have equal access to information. Those who organize the meetings for the reviewing process should be aware of impacts of the policy on men and women key actors. Regulation and policy should be made available for men and women actors.	As the tuna fishery is dominated by men, reviewers are also men; this has nothing to do with the key actors along the value chain but with competence. The reviewers should be aware that a policy might impact key actors, both men and women.	The organizer of the reviewing process should be aware of men and women actors along the value chain to get their views and understand impacts. Women have outdated information on policy and regulations.	Meetings are mostly conducted in Jakarta, with participation limited primarily to scientists, association members, large scale companies, government. In reviewing policy, all key actors should be involved, including in determining location and times that are suitable for them.	Men and women have equal rights to access policies and regulations. The ability to conduct reviews depends on competence. The organizer needs to be aware that men and women have an equal right to participate in meetings.	The most powerful party in conducting reviews is government. AP2HI could contribute to the reviewing process and ensure no negative impacts to men or women.
4.2 Review of national and provincial regulation requirements and the current status of UoA compliance in the second tranche of UoAs.	Idem to 4.1	Idem to 4.1	Idem to 4.1	Idem to 4.1	Idem to 4.1	Idem to 4.1
5. Management and governance						
5.1 Develop Harvest Strategy for Indonesian AW including definition of objectives.	The organizer should consider engaging not only scientists, association members and government but also the key actors, both men and women. Organizer should be aware of the impact of management or policy on women and men Men and women participants should get equal prior information on the meeting's agenda and knowledge to participate fully in meetings.	Women are not involved in capture fisheries while HS discussion about activity at sea might hinder participation by women.	Men and women can participate in meetings, depending on competence and interests.	Discussion about HS may be conducted in a big city, e.g., Jakarta, while key fishing vessels operate in Bitung. This might hinder participation by men and women fishing vessel owners.	Women and men should have equal rights to discuss strategy and be familiar with the HS.	The government has the power to initiate the discussion. Vessel owners and captains have the power to support the HS.
5.2 Develop harvest CR and tools for Indonesian AW.	Idem to 5.1	Idem to 5.1	Idem to 5.1	Idem to 5.1	Idem to 5.1	Idem to 5.1

Table 8. Gender Analysis of the Tuna PL FIP Based on the Six Domains of the Gender Dimensions Framework.

Chapter 4

Gender

in the Blue Swimming Crab Fishery Improvement Project



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Blue Swimming Crab Fishery Overview

Indonesia is the world's second largest crab producer (MMAF 2019a). In 2014, production reached 100,000 tonnes, valued at USD 313,000 (MMAF 2019b). Blue swimming crabs in Indonesia are primarily harvested by fishers using boats with a capacity of 5 GT. There are about 90,000 BSC fishers and 185,000 crab pickers who work in over 550 miniplants or cooking stations throughout Indonesia (APRI 2019a). People involved in trade at the village level are not included in this estimate. There is no sex disaggregated data for this information. However, APRI estimated that almost 100% of pickers are women.

When this study was conducted in the East Java province itself, there were 5,181 fishers, 2,194 pickers and 81 miniplants (APRI 2019). BSC are found along the entire coast of Madura, including the coasts of smaller, surrounding islands. Fishers use several kinds of fishing gear to catch BSC in Madura, most commonly, nets, traps and dredges (*garuk*). Fishers in Sumenep and Pamekasan use all the same gear, while fishers in Bangkalan use nets and traps. Fishers in Sumenep prefer iron-based traps, while fishers in Arosbaya Bangkalan prefer bamboo traps. A fisher may have 150-200 traps in Sumenep, while fishers in Arosbaya carry two to three ropes with 150 traps connected to each. In most cases, fishers purchase their traps and nets. They usually buy three to four sets of nets and use two while keeping the others at home as backup. Bullet weights and floating stones usually need to be added to the nets, which have to be replaced each week; torn nets are discarded on the beach or burned. In addition, bait is important for trap fishing, and usually consists of sun-dried fish generally caught during *payang* (pelagic seine net-like) fishing.



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Figure 4. Different trap models in Sumenep (top), in Pamekasan (center) and in Bangkalan (bottom).

Gender Roles and Benefit Sharing in the the Blue Swimming Crab Fishery

Activities and gender roles along the value chain

In the BSC fishery, the direct participation of women varies, depending on the nature of the work and the type of business operation (table 9). Women dominate at the input stage, preparing fishing equipment; this involves making and mending nets and traps, cleaning

nets and traps, preparing bait and, in places like Bangkalan, inserting bait in plastic bags for each trap. Bait suppliers are mostly women. Women also make new nets to replace those that are torn; this is a weekly chore in places such as Sumenep and Bangkalan and requires more than eight hours of work. In trap fishing in Pamekasan, women also repair or make new bamboo traps.

In Bangkalan city, most BSC fishers use nets. Nurkomariah, a wife of a fisher, has been knitting nets since her years in primary school. She finished primary school, while her husband graduated from junior high school. Every day she prepares coffee and cigarettes for her husband, which cost IDR 20,000; fuel costs IDR 20,000 for two liters, and nets cost IDR 20,000. When a boat lands, she takes the crabs, sells them to a local supplier and receives payment. She also makes new nets, fixes torn nets, cleans nets, and cuts the nets from the main ropes and weights. She had 12 sets, six on the boat and six at home as backup. The average length of a net is 30m. She buys a long net for IDR 175,000 and cuts it into 12 pieces; if she bought the net already cut, each piece is worth IDR 20,000. Weights for the nets cost IDR 50,000/kg and each set requires four kilograms of weights. The tool for knitting the net is a *chopen*; it is made from bamboo and costs IDR 5000. Nurkomariah's family has a boat they bought for IDR 15 million. The cost for making a set of nets is

around IDR 600,000; a ready-made set costs IDR 750,000. By making the nets, the family saves IDR 150,000/set. Repairing a net requires two days of work, from morning to evening.



Figure 5. A woman knitting nets.



Figure 6. A woman in Pamekasan repairs bamboo traps using bamboo that has been cut into small pieces and sanded.



For trap fishing, bait must be prepared each day, usually by women. For example, in Sumenep and Pamekasan women will sundry the fish to prepare it for the daily fishing. In Arosbaya Bangkalan, women have an additional task, which is to insert bait into plastic bags for the traps. Women, often fishers' spouses, mix fresh fish with salt, place the mixture in a big basket under the sun for a day, and then insert the salted fish into small plastic bags. Those who been interviewed said that they have used small plastic bags for around three to seven years.

There is much concern about the fatigue and stiffness women experience at the input stage, because they have to sit for long hours, knitting the nets, constructing traps or inserting bait into plastic bags. A woman in Bangkalan said that a health clinic doctor who visited her suggested that she drink a lot of water, work under good lighting and move

frequently. In Bangkalan, women who work on nets had their eyes examined.

Men dominate the production stage. They operate fishing boats, set the nets and traps in the fishing ground, and collect the crabs. Some also do the unloading, bring the catch to local suppliers and receive payment. However, some women are also involved at the production stage. The women on Talango Island, Sumenep, go fishing with their spouses/siblings and fish alongside the men. There are also women who own vessels but do not go out to sea in Madura.

At the trading stage, actors are both men and women. Activities include boat and catch landing, weighing, recording and payment. During the low season, fishers, mostly men, will bring the catch to local suppliers, who then sell the crabs to a miniplant. Occasionally, fishers sell their catch directly

to a miniplant. This depends on the relation among the fisher, the local supplier and the miniplant. After receiving the crabs, the local supplier will weigh, record and pay the man or woman who brought the crabs. A miniplant owner, in Soranggi Sumenep, said that fishers preferred to sell their crabs to his wife, as

they considered her to be more precise when weighing. Similarly, another local supplier, in the Bluto sub-district in Sumenep, said that fishers, who are mostly his permanent suppliers, always ask his wife to weigh the crabs. In many cases, local suppliers will also cook the raw crabs in their cooking stations



Some women specialize in preparing and selling bait for trap fishing. For example, Ms. Maria-mah in Bangkalan has sold bait for many years. She buys fresh fish for IDR 240,000/basket from *payang* fishers in Ketapang. Ms. Jum, a crab supplier in Bangkalan, buys fresh fish, about 20kg for IDR 130,000-150,000/basket, then mixes it with

Figure 7. Fish is placed in a small plastic bag and then attached to the trap. salt that costs IDR 15,000/25kg/sack, enough for two to three baskets, and sells the bait for IDR 50,000/kg or IDR 52,000/kg for bait packaged in plastic bags.

Women in fishing

In Bangkalan, Ms. Susi owns a boat that is operated by two fishers. She pays the operational costs. Every day she will wait on the shore to collect the crabs and sell them to a local supplier. She also has an official fisher ID, which she obtained because she could not provide her husband's ID to the village official who conducts registration because her husband was working on a cruise ship, so she registered as a fisher and received a fisher ID.

Umi Muyasarah, a fisher woman in Bangkalan, stopped fishing in February 2019, when her husband passed away. Her children do not allow her to go out to sea by herself. She owned a seven-meter boat and nets. She usually went fishing at four in the morning and returned

home at one in the afternoon, except during the low season, when she returned at seven in the morning. She usually fished about 30 minutes from the shore. During the high season she could go out to sea three times a day and catch around 20-30 kg, while during the low season, the catch was two kilos per trip. She never stopped fishing, except during the Eid celebration. She believes that lower catches nowadays might be due to warmer weather and to the fact that people overfish, not allowing the crabs to grow and reproduce.

Another fisher woman, Ms. Wiwin, also goes crab fishing and has been catching crab for more than 20 years. Ms. Wiwin goes fishing daily, including during the season of strong waves and wind.

Core process	Input		Production		Trading		Processing/ Miniplants in Madura	
	Men	Women	Men	Women	Men	Women	Men	Women
General activities	Preparing equipment and supplies	Preparing equipment and supplies	Operating the boats	Boat owners but do not go out to sea	Receiving crabs	Receiving crabs	Owners	Owners
	Boat building and maintenance	Making and mending nets	Setting nets and traps in the sea	Setting nets and traps in the sea	Grading	Grading	Negotiating with buyers	Negotiating with buyers
	Buying fuel	Buying fuel and supplies	Unloading crabs	Waiting for husband and unloading crabs, selling to suppliers	Weighing	Weighing	Documenta-tion/ recording	Recording
	Making and mending nets	Supplies/ selling bait	Taking catch to suppliers	Receiving payment	Paying those who brought crabs	Paying and receiving payment	Paying crab suppliers	Paying those who brought the crabs
	Making traps	Cleaning nets and traps	Receiving payment	Receiving payment	Receiving payment	Recording	Keeping crabs at a suitable temperature	Pickers
	Preparing bait	Drying bait			Sometimes boiling	Sometimes boiling and icing	Unloading and packing	Sorting
					Negotiating with buyers	Negotiating with buyers	Keeping crabs at a suitable temperature	Keeping crabs at a suitable temperature
							Loading crabs	
							Transporting from suppliers to plants	
							Cooking	

Table 9. Core Process and Activities by Sex along the BSC Value Chain.

Story of a Fisherwoman

Although most stakeholders, such as miniplant owners or government officials at the village level, believe that women do not fish, some do. On the Talango Islands of the village of Gapurana, Ms. Erni has caught crabs since she was in primary school (figure 8). She used to help her father with crab fishing, and now she helps her husband. In fact, she taught her husband how to fish for crabs. She said that when they fish together, they catch five to seven kilos, but If her husband goes by himself, he catches half of that. She only goes fishing during the high season, which is during the western monsoon, from December to February. However, only her husband has a fisher ID. She has never been invited to attend any meetings or discussions about fisheries.



Figure 8. Ms. Erni, a fisherwoman from Talango Island, with her husband's fisher ID.

before sending them to the miniplant. At the processing stage, there are women who are owners of miniplants and product recording officers, but most work as pickers and sorters (table 10). Pickers are provided

with tools, benches and uniforms, and they pick crab meat out of the shell. They are required to maintain personal hygiene and wash their hands frequently. A miniplant owner in Sumenep said that pickers choose

to work; he felt that they have more power than he does. If he were to complain about something, he said, the next day nobody would come to work at his miniplant. So, he always makes sure that he is on good terms with the pickers. He also provides transportation for the workers in his miniplant.

There are also women who process BSC into snacks as well as liquid paste, known as *petis*, in Sumenep and Bangkalan. They display their

products at micro enterprise exhibitions. In Bangkalan, Ms. Samsiah has made BSC-based snacks since 2010 (figure 9). She uses water that crabs have been boiled in, which would otherwise be thrown away and thus is free, to make a liquid crab paste. Then she mixes the crab broth with palm sugar and boils the mixture for another 12 hours over a small fire. She can make 10-12 bottles which she sells for IDR 14,000 for a 200-gram bottle (figure 9). She also makes crab-flavored crispy rice from crab broth which she sells for IDR 6500/bag.



Figure 9. Making food from crab broth produced during the boiling process.

Actors along the value chain

At the input stage, it is difficult to determine the actual number of actors. This is because many of those involved are perceived to be members of other sectors and/or because the activities they are engaged in are believed to be supporting tasks or an extension of their

domestic roles. However, estimates can be made based on the number of fishers, because the spouses of most fishers prepare supplies, bait, fishing gear (bamboo traps, nets and nylon string), and sundried fish as bait (figure 10). There is no fishing group for women who prepare sundried fish for bait in Madura. Actors at the production stage are primarily



Figure 10. Preparation of bait for trap fishing.

men, but women also fish in Sumenep, Pamekasan and Bangkalan. More fishers work in the rainy season than in the dry season. For instance, in Sumenep there are 40 boats at sea during the rainy season and nine boats during the dry season. Fishers form groups; for instance, a BSC group in Sumenep has 10 members, all men. In Pamekasan, a BSC fishing group has 13 members, all men as well. Suparman, leader of the group in Pamekasan, said that 10 members of the group have boats and the rest work as crew members, or *pandega*, a Madura term. The reason for creating a group, such as the one in Pamekasan, is to anticipate and manage the potential decline of the BSC catch. They currently manage at least 30 sets of temporary holding units for egg bearing crabs (figure 11). When a fisher catches an egg-bearing crab, the crabs will be placed in a holding unit until the eggs are released. Ms. Adaifa, a local supplier in Pamekasan, said she loses an ounce of weight for every crab that is carrying eggs. In the Tengket, Arosbaya area in Bangkalan, there is also a fishery community surveillance group, which rarely has women members.



Figure 11: Temporary holding unit for egg-bearing crabs (left). Blue swimming crab with eggs (right).

Actors at the trading stage are both men and women. For instance, in Talango Sumenep, there are eight women out of 14 local suppliers, while in Lobuk Sumenep, four of

the five local suppliers are women. Similarly, in Tengket Bangkalan, seven of the 20 local suppliers are women, as are four of the seven local suppliers in Bangkalan. There are no associations for local suppliers. Each supplier has at least 10 fishers who supply him or her with crabs. Sometimes the fisher is a permanent client, always selling to the same supplier, even though the fisher is not indebted to the supplier. It is difficult for a new supplier to enter the field, unless they offer fishers good service and higher prices. A supplier in Sumenep said that he is new compared with other suppliers in the area. However, he was able, through social bonding, to attract several fishers to sell to him.

At the processing stage, actors are pickers, miniplant owners and women's groups. A miniplant owner, a man in Soranggi, receives both fresh crabs from fishers and local suppliers and cooked crabs from suppliers. He hires 40 women to work in his miniplant as crab meat pickers. These women are provided with tools, uniforms and benches. He said that the pickers, all women, freely choose to work for him, and that they have more power

than he does. He also provides transportation for the pickers. One crab meat picker at a miniplant in Sumenep, said that she likes working at the miniplant as a picker because

she earns money and makes friends. She receives IDR 3000/hour.

The relationship between miniplant owners and suppliers may or may not be based on family ties. If it is simply a business relationship, not involving family ties, everything depends on price and service. Sometimes suppliers borrow money from miniplant owners. A supplier in Pakandangan-

Sumenep said that payment received is IDR 1000 lower than the market price if they are repaying a loan to the miniplant owner. During the study period, fishers received up to IDR 30,000, i.e., US\$1-2, per kilo; the loan payment thus represents between three and five per cent of the amount the fisher received for the catch. Besides miniplant jobs, there are also women who work on byproduct processing in Sumenep and Bangkalan.

	Input		Production		Trading		Processing/ Miniplants in Madura	
	Men	Women	Men	Women	Men	Women	Men	Women
# of actors	Hard to count given relationship of actors to other sectors: Kiosk where supplies and payang fishing gear are purchased	Sundried fish for bait	Sumenep: Rainy season: 40 boats Dry season: 9 boats Kapedi: 60 boats Bangkalan city: 625 boats on Bangkalan River, Tengket, Arosbaya: 100 fishers	Pamekasan owners: 2 persons Sumenep: 3 persons Bangkalan: 2 persons	Talango Sumenep: 6 persons Lobuk: 1 person Pamekasan Tengket: 13 persons Bangkalan River: 7 persons	Talango Sumenep: 8 persons Lobuk: 4 persons Pamekasan: 7 persons Arosbaya: 5 persons Bangkalan River: 4 persons	Sumenep Bluto: 1 miniplant hired @40 pickers. Used to be 5 miniplants now there are only 3 miniplants Kebun dadap: 7 miniplants Soraggi: 10 miniplants Talango: 2 miniplants	Bluto: 1 miniplant hired @40 pickers. Pickers: on average 40-50/ miniplant
Fishing group	No group	No group	Sumenep: 1 group Pamekasan: 1 group Bangkalan: 7 groups	No group	No group	No group	No group	Bangkalan: 1 "poklasar" group (post-harvest group, usually women)

Table 10. Actors along the BSC Value Chain in Madura.

Relationship between a supplier and fishers

One supplier can have links with 50 fishers in the high season and two fishers in the low season, according to Ms. Nur, from Talango. She said that her house was often full of fishers. She provides food and a place to rest. She used to boil but now simply receives the crabs and sells them to a miniplant.

Ms. Lin, a supplier in the Lobuk area of Sumenep, has 20 fishers during high season and one fisher during the low season. She said that each fisher could sell her 20 kilograms during the high season and two to three kilograms during the low season. She said that she doesn't boil anymore as the quantity of crabs has been limited for the last two years. She also gives loans to fishers but doesn't require that the fisher sell to her. In some cases, a fisher in this situation does not want to sell to others because of the emotional connection established. They simply ask that she pay a price similar to what they would receive from other suppliers. If she considers it reasonable, she increases the price.

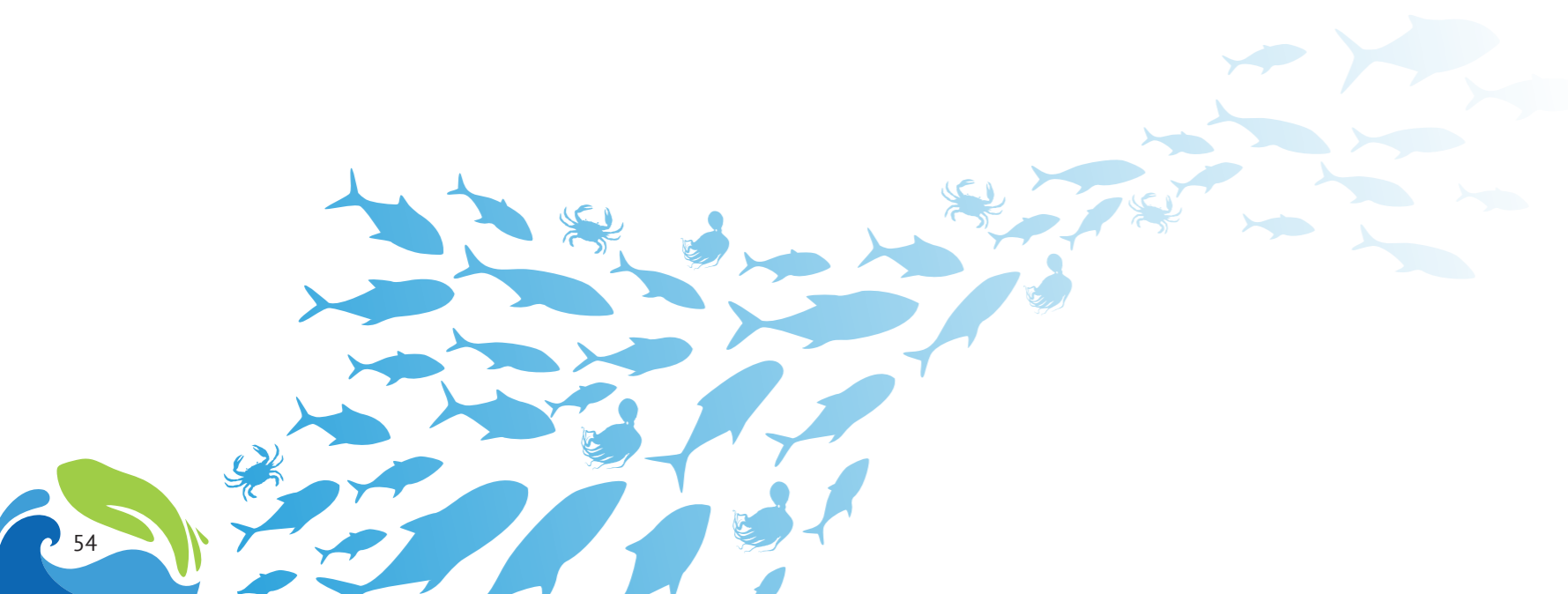
Ms. Suinah in Lobuk Sumenep has 30 fishers. She provides fishers with traps and nets. Nets cost Rp 150,000/set. Fishers have five to eight sets. She said that the harvest was around two tonnes during the high season and one tonne during the dry season.

Ms. Adaifa, in Arosbaya Bangkalan, has been a crab supplier in Pegagagan village since 2000. She said that there were around 54 fishers selling to her during the high season and 11 fishers during the low season. She said that many fishers have found jobs in construction or have migrated to cities like Surabaya and Jakarta. She said

that she boils each batch of crabs for 30 minutes. She receives Rp 1000/kg from miniplants for gas boiling. The boiled crabs are sent directly to MP Jumiang Indah. The fishers bring crabs in baskets with sea water from the boats, so she needs to strain them before weighing. She also buys crabs carrying eggs and keeps them in the crab temporary holding unit until it releases the eggs. She loses an ounce of weight when a crab releases its eggs. The temporary holding unit is managed by a crab fishing group, whose members feed the crabs 9 gr/day of dried fish.

Ms. Sufah, who is from Tengket Bangkalan, has been involved in the crab business since 1995. She said that a supplier could invest in fishers by providing nets and traps. She indicated that many people from Sampang also fish in this village area and sell to local suppliers. Ms. Musayama told a similar story, saying that nine boats from Sampang catch crabs in their villages. The number of fishers is two or three times the number of boats present. The villagers have agreed to limit boats from Sampang to nine, but the number of fishers could increase.

Ms. Musayama, a supplier in Bitheng Arosbaya, Bangkalan has a boat, operated by her husband. She has two fishers during the low season who harvest 38 kg/day, and six fishers during the high season who harvest a total of 150 kg/day. She buys small crabs (less than 5cm) priced at Rp 20,000/kg, and plant-size crabs priced at Rp 50,000. She sells fresh crab to five miniplants. Because she also boils, she has gas and transportation expenses. If transportation costs cannot be recovered, she prefers that someone from the miniplant pick up the crabs from her home.



Aknatun, a supplier in Sumenep

Aknatun, from the Lobuk area, Sumenep, has been a supplier for a long time. She has four fishers during the low season and 15 fishers during the high season. She also has a boat operated by her husband. She gives a set of nets to each of her fishers every year. She says that her clients include fishers from this village and from Gili Genting Island. She says that her activities include receiving crabs, paying fishers, boiling crabs and selling them to a miniplant



Figure 12. Ms Aknatun, a supplier in Sumenep.

Benefit sharing

Nets need to be equipped with weights and floating stones. Homemade nets cost Rp 600,000/set (table 11). Another option is to ask somebody else to make the net, at a cost of IDR 30,000/net or Rp 750,000 for a whole set in Bangkalan. Nets also need to be repaired. The tool for knitting nets is called a *chopen* and is made from bamboo; the cost is Rp 5000/*chopen*. Women buy pre-cut net material for Rp 15,000/piece in a kiosk or a length that costs Rp 175,000 and that can be cut into 12 nets. Weights attached to nets costs IDR 50,000/kg, and each set of nets requires four kilograms of weights. It takes about five days to finish a set of nets. A boat usually carries eight sets of nets when fishing in the Bangkalan River.

Ms. Rohana in Bangkalan city, specializes in knitting the nets. She can make a set of nets in the course of three to four days and receives Rp 100,000/set.

There are several types of traps for BSC fishing (figure 4). A set of iron traps (about 150 traps) can cost IDR 700,000 in Sumenep and IDR

18,000/trap when bought from suppliers on the Bangkalan River. Fishers in Arosbaya Bangkalan prefer bamboo traps, priced at IDR 9,500/trap. Fishers in Pamekasan use bait holders made of plastic that cost IDR 35,000/m and can be used for 45 traps.

About five kilograms of sundried fish are needed per trip; the price is about IDR 7,000-8,500/kg in Sumenep, and 12,000/kg in Pamekasan. In Arusboyo Bangkalan, the price of wet fish is IDR130,000/basket, which is enough for three trips, using 200 traps/trip. Buying sundried fish at the source is cheaper than buying in the fisher's village, but fuel for transporting the bait costs about 8,000/trip. The cost of supplies varies, coming to around IDR 70,000/trip (cigarettes, fuel, food and coffee); these inputs are usually prepared by women. The cost at trading posts or suppliers' shops are related to the costs of cooking and icing, including use of the gas stove, and are around IDR 1,000-2,000/kg; transport to a miniplant costs IDR 20,000-25,000/trip.

The cost of processing in a miniplant is about IDR 30,000/kg, which includes the fee for pickers and the cost of ice and other

operational inputs. A supplier in Talango who used to run a miniplant said that she used to have a profit margin of IDR 100,000/kg, but that has now dropped to IDR 10,000-15,000/kg. Sometimes a miniplant will accept a loss to maintain their suppliers and fishers or to compete with other miniplants.

Women net knitters receive IDR 55,000/set of nets in Sumenep, and IDR 100,000/set in Bangkalan. Women who build traps and nets for their husbands consider the work to be an extension of housework, and support for their

husbands and the family business. Suppliers of bait received IDR 7,000-8,500/kg in Sumenep, and IDR 12,000/kg in Pamekasan. At the production stage, fishers receive IDR 50,000-65,000/kg. Meanwhile, at the trading stage, local crab suppliers, both men and women, receive IDR Rp 2000/kg. Those who provide the cooking process can charge IDR 5000/kg. At a miniplant, the profits of men and women owners come to between IDR 10,000-20,000/kg and IDR 100,000-150,000/kg. The pickers, who are mostly women, receive IDR 3,000/hour.

	Input		Production		Trading		Processing/ Mini plants in Madura	
	Men	Women	Men	Women	Men	Women	Men	Women
Average cost	Boats: IDR. 15,000,000 - 25,000,000		Operational cost/trip (fuel, cigarettes, coffee): - IDR 40,000 in Sumenep and Pamekasan - IDR 70,000 in Bangkalan		Gas: IDR 1,000-2,000/kg Transport: IDR 20,000-25,000/trip Ice: IDR 15,000/block		230,000/kg Because considered a family business, women's involvement in managing miniplants is not taken into account Picker: IDR 3,000 for transport	
	Fishing nets: - IDR 55,000 in Pakandangan, Sumenep - IDR 150,000/set in Lobuk Sumenep - IDR 500,000-750,000/set in Bangkalan		Bait: - Sumenep IDR 42,500/trip - Pamekasan IDR 60,000/trip - Bangkalan: IDR 44,000/trip					
	Traps: - bamboo: IDR 9,500/trap - iron: IDR 18,000/trap							
	Bait: - IDR 7,000-8,500/kg in Sumenep - IDR 12,000/kg in Pamekasan							
	Men work as trap/net suppliers	For women, making traps considered an extension of domestic role						
Benefit sharing	Selling of bamboo and iron traps, nylon or nets	Bait: IDR 2,000/kg Knitting nets: 100,000/set	- Sumenep, Bangkalan city IDR 50,000/kg - Pamekasan IDR 55,000/kg - Bangkalan River: IDR 60,000-65,000/kg		Suppliers get IDR 2,000-5000/kg + IDR 5,000/kg if cooking is included Picker IDR 3,000/hour		Low season profit: 10,000-20,000/kg High season profit: IDR 100,000-150,000/kg Picker IDR 3,000/hour	

Table 11. Benefit Sharing along the BSC Value Chain.

The Six Domains of the Gender Dimension Framework in the Blue Swimming Crab Fishery

Access to assets and resources

Many women participate at the input stage and they require assets to perform their work (table 11). Overall, neither men nor women have difficulty in accessing tools to perform tasks at the input level. To prepare nets, they need net needles (*cophen*, the term in Madura), which are available in the market. A woman in Bangkalan said that she prefers to use a homemade bamboo net needle because she can fashion it to fit her hands. To make bamboo traps requires a hammer, nails and a knife, and these are readily available. Bait preparation for trap fishing requires a basket to mix fresh fish with salt and trays for sun-drying fish, inputs which are readily available. Access to production tools is not a problem.

At the production stage, both men and women fishers have access to resources as they face no regulatory barriers. However, there is competition between net and trap fishing on the one hand, and dredge and trawl fishing on the other. Men dominate the production stage, so organisations are mostly dominated by men. Consequently, only men have access to information and best practices to improve fishing. For instance, a woman from Talango Sumenep said that her husband always represents her family when they are invited to meetings. However, she sometimes does not receive the information disseminated at said events. Most information on new fishing methods/gear comes from other fishers. However, both she and her husband have knowledge about crab regulations, such

as size and fishing gear permitted. At the trading and processing stages, both women and men can access assets and negotiate with miniplants on price and bonuses. As women suppliers are perceived by fishers to be more precise in weighing compared to men, they are preferred by most fishers in the study areas in Sumenep, Pamekasan and Bangkalan. Although both women and men are recognized as actors at the trading and

A woman supplier in Pamekasan is widely known by fishers, but she rarely attends public meetings; instead, her husband represents her. She said that she is shy and therefore reluctant to participate in public discussions. The poster behind her includes a picture of her husband and guests who visited her miniplant. Despite being the owner of the business, she was not in the picture. She said she was busy in the kitchen.



Figure 13. An important supplier in Pamekasan.

processing stages, in public meetings women suppliers are, to some extent, left out. This is probably because women in general are less active in the public domain in Madura.

At the processing stage, women and men who own miniplants have similar access to price and market information. Women workers at miniplants have access to tools for picking crab meat out of shells. Tools, uniforms and benches are provided by the miniplant owner. In some areas, miniplants are easily accessible, either by public transportation or transportation provided by the miniplant owner. Workers receive information from miniplant owners.

Beliefs and Perceptions

Women in the study areas are believed to have domestic roles, while men's role is to provide income for the family (table 12). Therefore, women dominate pre-production stages, as tasks are considered an extension of household work; but women are also involved in the processing stage. A miniplant owner in Sumenep said that he had trouble finding women pickers. Therefore, he provided transportation to take pickers to and from work. At the trading and processing stage,

Below: Woman working in the preparation of bait for trap fishing.



both men and women have positive beliefs about women regarding their roles. Some fishers prefer to work with women suppliers rather than men. Women are discouraged from joining fishing trips, according to women in Talango-Sumenep, Pamekasan and Bangkalan, unless their husband or brothers are present.

Practices

Women dominate tasks at the pre-production stages, working long hours which can cause fatigue. Men are dominant at the production stage, but not in selling the catch and receiving payment. More men are involved

in public meetings and discussions at all levels than are women. At the trading and processing levels, women are assigned tasks requiring patience and attention to detail, while men are assigned work requiring physical strength. In addition, in all stages women have roles related to record-keeping and financial transactions.

Both men and women have knowledge about crab regulations, such as size and fishing gear permitted. Fishers understand the destructive impact of certain fishing gear, such as dredge fishing. They know that some tools are not good for resource sustainability. But they have not stopped using that gear, as they feel they

have no alternative. Instead, fishers in some study areas use those tools as additional gear, in order to make a living.

Time and Space

Women perform their work near the home in pre-production, landing and trading. There are no limitations on men and women for marine space. At the input stage, women, as spouses or members of a fishing family, spend around six to eight hours daily preparing supplies, making new gear and repairing damaged gear. Men spend three to ten hours at sea, depending on the season, as do women who

go out to sea. The only break women have is during the celebration of Eid, Indonesia's major national holiday. At the processing stage, working hours depend on crab supply. During the high season, both women and men have less time to rest. Community activities take up the least amount of time for both genders.

Rights

All fishers, men and women, have equal rights to assets and resources. Everyone can access the sea. However, this creates problems as all types of fishing gear can be utilized in the

	Input		Production		Suppliers/Trader		Processing			
	Men	Women	Men	Women	Men	Women	Men	Women		
Access to assets and resources	Women play a significant role at the input, pre-production stage. Men and women have no difficulty in accessing tools to perform the work at the input level.		Only men have access to organisations. All fishers have access to resources.		All fishers have access to resources. Women are rarely invited to workshops/training events/meetings. Women's knowledge of fisheries is limited as husbands find it difficult to transfer information to their wives.		Men are involved at the trading stage and can access productive assets and negotiate with miniplant owners. In public meetings, women suppliers have less involvement than men due to social perspectives according to which men are the main actors in the fisheries industry.		Women and men owners of miniplants have similar access to price and market information. Women workers at miniplants have access to tools to pick the crab meat out of shells; tools, uniforms and benches are provided by the miniplant owner. Access to miniplants is easy, either by public transportation or provided by miniplant owners; owners communicate information to miniplant workers.	
Beliefs Perceptions	Prepare fishing operations	As the extension of domestic work and assistance to husband	Men are believed to be more suitable to physical activity involved, main source of family income, main productive role, men work at sea (fishers).		Women are believed to be more suited for work involving less physical activity, focus on domestic role and only fish if with her husband or siblings.		Men are believed to have roles in fish landing and weighing that involve more physical effort.		Women are trusted as local suppliers.	
Practices	Women dominate tasks at pre-production stage. Women work long hours and experience fatigue.		Men dominate work at the production stage. Men understand impact of certain gear and practices on resources.		Women are not as involved at the production stage.		Men assume tasks involving physical strength and speed.		Women assume tasks requiring patience and attention to details, such as recording financial transactions.	
Time and Space	Work far from home	Work near home and spend more time, around 6-8 hours, preparing gear and repairing and making new fishing gear	Work at sea fishing		Work at landing site No limitation on men and women for marine space; however, if women are fishing, the timescale of the fishing operation for men and women is the same		Working time depends on crab supply.		Working time depends on crab supply, same as for men as regards time and space.	
Rights	Men and women have equal rights to engage in fisheries.		Open access for both genders No village regulations.				There is no gender-discriminatory law regarding access to resources.		Women who work at large-scale processing plants (industrial scale) are bound by and protected under the labour law.	
Power	Men decide on fishing activities.	Women's power is mostly related to domestic matters as part of family business.	Men make decisions on fishing-operations. Men make decisions on loans for boats and fishing gear, on organisation membership. Men feel powerless to address use of illegal fishing gear.		Women manage family budget. Women seek loans from relatives and neighbors through informal community links when household incomes are inadequate. Women feel powerless to address use of illegal fishing gear.		Men have connections to fishers and miniplants. Men suppliers have power to give loans to fishers.		Women have connections to fishers and miniplants. Women suppliers have power to give loans to fishers.	

Table 12. Six Domains in the Gender Dimension Framework for the BSC Fishery.

same areas, which can produce conflicts. No specific village regulations exist in Sumenep, Pamekasan or Bangkalan to manage fisheries. Fishers in Sumenep do not believe that village regulations will solve the problem, but they do believe that an agreement among villages might be helpful. Women who work at larger-scale processing plants are protected by labour laws.

Power

At the pre-production and production stages, women usually make decisions regarding domestic matters such as food and spending on fishing supplies. Men make decisions regarding fishing operations, except those involving sales where women's participation is recognized. Both men and women decide on matters related to children, school and social activities. Women's participation at the input or pre-production stage is considered part of their domestic duties. Men decide on

membership in organisations. As for financial matters, women are responsible for the family budget. However, men make decisions regarding loans for the purchase of boats and fishing gear. Women request loans from relatives and neighbors through informal community links when household incomes are inadequate. Both men and women feel powerless to address the use of illegal fishing gear. Among all actors along the value chain, suppliers, both men and women, have strategic relations with both fishers and miniplant owners. Suppliers provide loans which lead to near-permanent links with fishers, and they also live near fishers' neighborhoods. With their links to miniplants, suppliers have more power than fishers. Miniplant owners also depend on suppliers for their crab supply. Thus, suppliers are a key actor for transforming crab fisheries management.

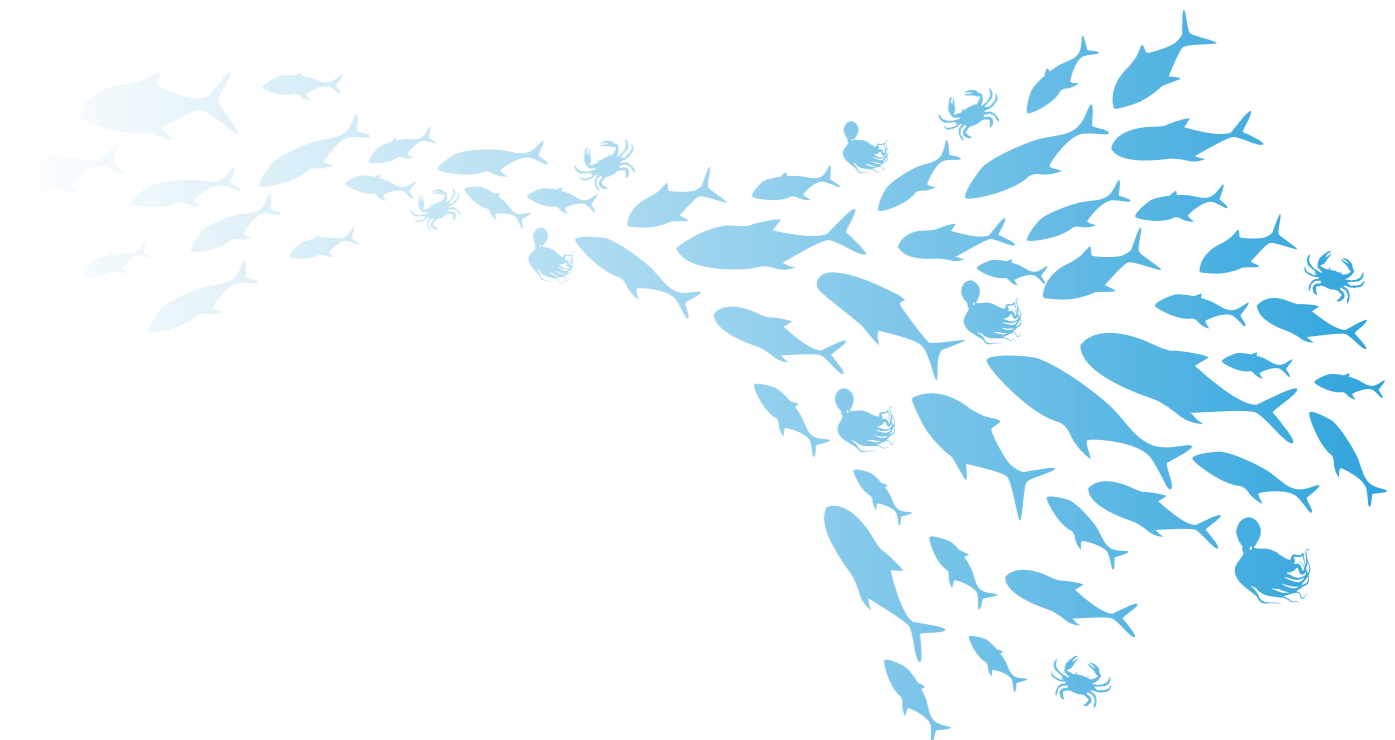
Below: Woman at a cooking station registering the blue swimming crab catch.



Women's Participation in the Public Domain in Crab Fishing Villages

As development policies traditionally target women as fish processors but not as fishers and managers of resources, women tend to be excluded from the sector in terms of public planning. Women are expected to assume the main role in the domestic domain, and less attention is thus paid to women in the public domain. This is the case despite their significant role in preparing fishing operations, fishing in several areas and involvement in miniplant operations. All women involved in the pre-production, production and trade stages said that they have never been invited to a meeting. For example, a woman from Pamekasan, who makes traps and prepares supplies for fishing, works almost six hours per day making preparations for fishing activities.

However, she has never been invited to a fishing meeting, though she said she would certainly attend if invited. Another woman from Pamekasan and two women from Bangkalan prepare bait for crab fishing. They, too, said that although their husbands were members of fishing groups, they never heard about what the groups discussed. A woman, who owns a boat and has a fisher ID, has never been invited to any fisheries-related meetings. Fisherwomen in Talango, Sumenep also said they have never been invited to crab fisheries-related meetings despite the fact that they fish. A woman fisher in Bangkalan, who stopped fishing in February 2019 when her husband passed away, was also never invited to participate in any discussions.



Gender Analysis of the Blue Swimming Crab Fishery Improvement Project

The plan for the Indonesian Blue Swimming Crab gillnet trap Fisheries Improvement Project (BSC FIP) contains 28 actions covering all indicators in the FIP. There are six main activities under P1, 15 main activities in P2, and seven main activities in P3 (table 13).

Activities in P1 involve data management that contributes to HS and HCR, and stock enhancement through restocking of crab seed. This activity is mainly conducted by APRI. In the **access to assets and resources domain**, opportunities for data collection and analysis are available to men and women. Thus, enumerators can be men or women. In the **beliefs domain**, the results of data analysis are available to men and women fishers, suppliers and processors, although discussion on crab stock is more related to marine resources, where men are said to dominate. In the **practices domain**, both men and women fishers and suppliers have similar interests and capacity in data management and restocking. In the **time and space domain**, work in restocking and data management is available for men and women. In the **rights domain**, there are no gender discriminatory laws or regulations regarding work in the fishery sector. In the **power domain**, suppliers have power in the supply chain, due to fishers' dependence on the market. Fishers also prefer to work with women suppliers as they are perceived to be more precise in their dealings with fishers compared to men suppliers.

Activities in P2 also involve data management for other marine life

associated with BSC fisheries, including secondary species, endangered, threatened and protected (ETP) species, as well as habitat and ecosystems. Activities in P2 consist of enumeration of catch, data analysis, monitoring, and distribution of information. Like P1, in the **access to assets and resources domain**, job opportunities in data collection and analysis are available to men and women. In fact, data recording can be conducted by working with suppliers, who are more likely to be women. In the **beliefs and perceptions domain**, the results of data analysis are available to men and women fishers, suppliers and processors, although discussions on non-target species, ETP species, habitat and ecosystems are more related to marine resources where men are believed to dominate. In the **rights domain**, no gender discriminatory laws exist for the fishery sector and enumerators need to work closely with suppliers. In management strategy, in the **practices domain**, enumerators and scientist who conduct analyses can be men or women and should have access to prior knowledge. In the **time and space domain**, discussions about management measures usually involve men who dominate production, while women are usually represented in other stages of the supply chain. Therefore, future meetings should be compatible with the time and space needs of women. For instance, measures to develop no-take zones or conservation areas must be accessible to both women and men in the supply chain, and not just to fisher groups likely to be

dominated by men. In the **power domain**, suppliers have power in the supply chain.

Activities in P3 focus on establishing BSC fishery co-management mechanisms at all levels of governance. Activities in P3 can improve integration of gender in governance. Key stakeholders, women and men, along the supply chain, such as fishers, suppliers and miniplant owners, should be adequately engaged. In the **access to assets and resources domain**, meetings and drafts of plans on the framework are available to men and women actors. Decision-making processes should be accessible to men and women fishers, suppliers and processors. Therefore, capacity building might be needed to ensure that all stakeholders (steering committees, fishers, suppliers and miniplants owners) are able to participate fully. In the **beliefs and perceptions domain**, men, as the head of the

household, attend meetings at the local level. Also, discussion on regulation is perceived as an area for the processing plant owners and managers, miniplant owners and scientists, not for fishers. In the **practices domain**, women are not likely to be invited to explore policy and decision-making processes as their role is perceived to be in domestic areas. In the **time and space domain**, all activities should be open to men and women. In the **rights domain**, no one should be left out of discussions about regulation, as both men and women have the right to know about fishery management matters. In the **power domain**, fisher groups and associations, which are mostly dominated by men, and suppliers are powerful actors who encourage discussion on the fishery management system.

Below: A crab supplier in Madura Island. Suppliers, mostly women, buy and collect crab catch from fishers.



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	Indicators	Main Activities	Main Steps	Access to Assets and Resources	Beliefs and Perceptions	Practices	Time and Space	Rights	Power
Principle 1: Sustainability of fish stock									
1.1.1	Stock Status	Stock Assessment <i>Portunus pelagicus</i> in Indonesia	a. Hire and train enumerators b. Data collection and analysis c. Online database d. Scientists' meetings	Data enumerators and analysts can be men or women; thus, opportunities should be made available to men and women. Scientists, men or women, can participate, depending on competence. Women and men have equal access to prior information.	Assessing stock is considered a public domain which is more suitable for men, as women are believed to be more suited for domestic roles.	Recording can be conducted by men or women. Repetitive work, such as recording, is suitable for women. Scientists' meetings can be attended by men or women scientists, depending on competence.	Data collection is conducted at landing sites and is suitable for men and women.	No gender discriminatory laws prevent work in the fishery sector.	Main actors who have power to support data collection are at the trading level, that is, local suppliers, either men or women.
1.1.2	Stock Rebuilding	Stock enhancement and restocking of <i>Portunus pelagicus</i>	Restocking of seed of blue swimming crab at several locations	Restocking seed should be available to men and women as both have the same interest in harvesting crabs.	Working at sea is considered men's domain; this means that women are not involved in restocking seed.	Both men and women have an interest in and the ability to restock seed.	Restocking seed does not need to be far from home, so men and women should be involved.	Men and women have equal rights to engage in fisheries.	Both men and women fishers can make decisions to improve crab stock and both have interest in doing so.
1.2.1	Harvest Strategy	Contribute to development of harvest strategy for Indonesia BSC	Conduct workshops on harvest strategy and harvest control rule	Both men and women should have the opportunity to be involved and have equal prior information. Workshops should be open to men and women fishers as they will experience risk and impact due to this HS.	Workshop invitees include scientists, government and big companies. There is less involvement from key actors on the ground, especially fishers.	Participants at workshops are scientists, business association members and government. Fishers, men and women, as key actors, are never or rarely invited.	Workshops should be organized according to time and space constraints for men and women fishers and suppliers, if they are going to be invited.	Men and women actors have equal rights to information and to be consulted on HS.	The most powerful actors in implementing the HS are fishers and suppliers; therefore, to increase their participation in implementing HS, they should be engaged. The organizer has the power to define who will be invited, men and women.
1.2.2	Harvest Control Rules and Tools	Fishing effort studies	a. Data collection on fishing gear b. Online database c. Scientists' meetings	Involves data management. Data enumerators can be men or women, depending on competence, and should have equal access to fishing gear. Men and women should be source of information about fishing gear. Activities on online data base can be conducted by men or women and should be available to all actors.	As fishing is dominated by men, men are usually hired to do this work.	Recording fishing gear and analysing data can be conducted by men and women; information about fishing gear should be sought from both men and women.	Recording on fishing gear is conducted on land and can be carried out by men and women.	No gender discriminatory laws exist barring work in the fishery sector.	Suppliers, men and women, are powerful sources of information; they have fisher clients and are knowledgeable about fishing gear used by clients; however, getting information directly from fishers is important.
1.2.3	Information and Monitoring	Contribute to development of harvest strategy for Indonesia BSC	Conduct workshop on harvest strategy and harvest control rules	Idem to 1.2.1	Idem to 1.2.1	Idem to 1.2.1	Idem to 1.2.1	Idem to 1.2.1	Idem to 1.2.1
1.2.4	Assessment of Stock Status	Stock Assessment <i>Portunus pelagicus</i> in Indonesia	a. Hiring and training enumerators b. Data collection and analysis c. Online database d. Scientists' meetings	Idem to 1.1.1	Idem to 1.1.1	Idem to 1.1.1	Idem to 1.1.1	Idem to 1.1.1	Idem to 1.1.1
Principle 2: Minimising Environmental Impacts									
2.1.1	Primary spp.: Outcome Status	Stock assessment <i>Portunus pelagicus</i> in Indonesia	a. Hiring and training enumerators b. Data collection and analysis c. Online database d. Scientists' meetings	Idem to 1.1.1	Idem to 1.1.1	Idem to 1.1.1	Idem to 1.1.1	Idem to 1.1.1	Idem to 1.1.1
2.1.2	Primary spp.: Management Strategy	Stock assessment <i>Portunus pelagicus</i> in Indonesia		Management strategy should be available to men and women fishers, suppliers and processors. The enumerators can be men or women. The results should be available to men and women fishers and their families.	Men mostly involved in the development of management strategy for primary species because men are believed to be the main actors in the BSC fishery.	Management strategy should be discussed with all parties.	Women also play key/strategic roles in the BSC fishery; thus, time and space should be consistent with women's needs.	No gender discriminatory laws barring work in the fishery sector.	Main actors who have power to support the formulation and implementation of management strategy are suppliers at the trading level, either men or women.

Table 13. Gender Analysis of BSC FIP Based on the Six Domains of the Gender Dimensions Framework.

	Indicators	Main Activities	Main Steps	Access to Assets and Resources	Beliefs and Perceptions	Practices	Time and Space	Rights	Power
2.1.3	Primary spp.: Information/Monitoring	Stock assessment <i>Portunus pelagicus</i> in Indonesia	a. Hiring and training enumerators b. Data collection and analysis c. Online database d. Scientists' meetings	Idem to 1.1.1	Idem to 1.1.1	Idem to 1.1.1	Idem to 1.1.1	Idem to 1.1.1	Idem to 1.1.1
2.2.1	Secondary spp.: Outcome Status	Non-Target Species field assessment - using the Marine Stewardship Council's Risk Based Framework for data limited fisheries	a. Hire and train enumerators to do ecological impact survey and enumeration b. Data collection and logbook c. Data analysis d. Fishing gear exchange e. Data collection for crab habitat distribution f. Data collection for fishing ground g. Seagrass and coral reef monitoring h. Establish habitat protection	Idem to 1.1.1	Idem to 1.1.1	Idem to 1.1.1	Idem to 1.1.1	Idem to 1.1.1	Idem to 1.1.1
2.2.2	Secondary spp.: Management Strategy	Non-Target Species field assessment - using the Marine Stewardship Council's Risk Based Framework for data limited fisheries		Idem to 2.1.2	Idem to 2.1.2	Idem to 2.1.2	Idem to 2.1.2	Idem to 2.1.2	Idem to 2.1.2
2.2.3	Secondary spp.: Information/Monitoring	Non-Target Species field assessment - using the Marine Stewardship Council's Risk Based Framework for data limited fisheries		Idem to 1.1.1	Idem to 1.1.1	Idem to 1.1.1	Idem to 1.1.1	Idem to 1.1.1	Idem to 1.1.1
2.3.1	ETP spp.: Outcome Status	Non-Target Species field assessment - using the Marine Stewardship Council's Risk Based Framework for data limited fisheries		Idem to 1.1.1	Idem to 1.1.1	Idem to 1.1.1	Idem to 1.1.1	Idem to 1.1.1	Idem to 1.1.1
2.3.2	ETP spp.: Management Strategy	Non-Target Species field assessment - using the Marine Stewardship Council's Risk Based Framework for data limited fisheries		Idem to 2.1.2	Idem to 2.1.2	Idem to 2.1.2	Idem to 2.1.2	Idem to 2.1.2	Idem to 2.1.2
2.3.3	ETP spp.: Information/Monitoring	Non-Target Species field assessment - using the Marine Stewardship Council's Risk Based Framework for data limited fisheries		Idem to 1.1.1	Idem to 1.1.1	Idem to 1.1.1	Idem to 1.1.1	Idem to 1.1.1	Idem to 1.1.1
	Indicators	Main Activities		Main Steps	Access to Assets and Resources	Beliefs and Perceptions	Practices	Time and Space	Rights
2.4.1	Habitat: Outcome Status	Habitat and ecosystem impact: genetic <i>Portunus pelagicus</i>	a. Sample collection b. Genetic analysis c. Data collection for crab habitat distribution d. Seagrass and coral reefs monitoring	Information on habitat can be sought from men and women fishers. The enumerators can be men or women depending on competence. Scientists, men or women, can participate depending on competence and equal access to prior information. The results should be available for men and women fishers.	Fishing is considered men's work, while women are believed to be uninvolved in fishing. In establishing habitat / ecosystem protection, women are not consulted due to the perception that the sea is men's space.	Women are also involved in the fishing activity; thus, women also have knowledge about this and women should be involved as resource persons.	Women also have knowledge about the BSC fishery; thus, time and space should be consistent with their needs	No gender discriminatory laws bar working in the fishery sector. Men and women have similar access to habitat.	Associations have the power to conduct the survey.
2.4.2	Habitat: Management Strategy	Habitat and ecosystem impact: genetic <i>Portunus pelagicus</i>	e. Establish habitat protection	Management strategy should be available to men and women fishers. Enumerators can be men or women Results should be available to men and women fishers and their families.	Men are mostly involved in the development of management strategy for marine habitat because they are believed to be the main actors in the BSC fishery and women are believed to be uninvolved in fishing.	Men and women fishers and suppliers have interests and concerns in habitat protection.	Women also have knowledge about the BSC fishery; thus, time and space should be consistent with their needs.	No gender discriminatory laws bar work in the fishery sector. Men or women have similar access to habitat.	Main actors that have the power to support the formulation and implementation of management strategy are suppliers at the trading level, both men or women.
2.4.3	Habitat: Information/Monitoring	Habitat and ecosystem impact: genetic <i>Portunus pelagicus</i>		Idem to 1.1.1	Idem to 1.1.1	Idem to 1.1.1	Idem to 1.1.1	Idem to 1.1.1	Associations have power to conduct the survey.
2.5.1	Ecosystem: Outcome Status	Habitat and ecosystem impact: genetic <i>Portunus pelagicus</i>		Idem to 2.4.1	Idem to 2.4.1	Idem to 2.4.1	Idem to 2.4.1	Idem to 2.4.1	Idem to 2.4.1
2.5.2	Ecosystem: Management Strategy	Habitat and ecosystem impact: genetic <i>Portunus pelagicus</i>		Idem to 2.4.2	Idem to 2.4.2	Idem to 2.4.2	Idem to 2.4.2	Idem to 2.4.2	Idem to 2.4.2
2.5.3	Ecosystem: Information/Monitoring	Habitat and ecosystem impact: genetic <i>Portunus pelagicus</i>		Idem to 1.1.1	Idem to 1.1.1	Idem to 1.1.1	Idem to 1.1.1	Idem to 1.1.1	Associations have power to conduct the survey.

Table 13. Gender Analysis of BSC FIP Based on the Six Domains of the Gender Dimensions Framework.

	Indicators	Main Activities	Main Steps	Access to Assets and Resources	Beliefs and Perceptions	Practices	Time and Space	Rights	Power
Principle 3: Effective Management									
3.1.1	Governance and Policy: Legal and/or Customary Framework	Establish Indonesian BSC fisheries co-management at the local level.	a. Conduct meetings at the national provincial, district and village levels. b. Develop and implement agreed upon action plans.	Meetings and draft of agreed-upon plans on the framework should be available to men and women fishers, suppliers and processors, especially discussion at the local level. No one should be left out of the activity. Men and women business representatives, scientists and governments should participate in meetings and have prior knowledge of information related to the meeting agenda.	Attendees at meetings can be men or women, depending on who is invited. Talking about fisheries is considered men's business as women are uninvolved in fishing; meetings are considered to be in the public domain. Exploring regulations is the work for scientists and plant owners, not the fishers.	Women are seldom invited or involved in the fishery management system.	Women also have knowledge of the BSC fishery; thus, meetings should be consistent with their time and space needs.	No one should be left out of the discussion about regulation.	Peer groups, associations, suppliers are powerful actors in encouraging discussion about regulation. At the local level, suppliers are a bridge for fishers' access to markets. It is in everybody's interest to comply with the law.
3.1.2	Governance and Policy: Consultation, Roles and Responsibilities	Establish Indonesian BSC fisheries co-management at local level.		Idem to 3.1.1	Idem to 3.1.1	Idem to 3.1.1	Idem to 3.1.1	Idem to 3.1.1	Idem to 3.1.1
3.1.3	Governance and Policy: Long Term Objectives			Idem to 3.1.1	Idem to 3.1.1	Idem to 3.1.1	Idem to 3.1.1	Idem to 3.1.1	Idem to 3.1.1
	Indicators	Main Activities	Main Steps	Access to Assets and Resources	Beliefs and Perceptions	Practices	Time and Space	Rights	Power
3.2.1	Fishery-specific Management System: Fishery-Specific Objectives.	Establish Indonesia BSC fisheries co-management at local level.	a. Conduct meetings at national provincial, district and village levels.	Idem to 3.1.1	Idem to 3.1.1	Idem to 3.1.1	Idem to 3.1.1	Idem to 3.1.1	Idem to 3.1.1
3.2.2	Fishery-specific Management System: Decision-making Processes.		b. Develop and implement agreed upon action plans.	Decision-making process should be accessed by men and women fishers, suppliers and processors; therefore, it requires improved capacity of all stakeholders; everyone should have access to all information.	Idem to 3.1.1	Women are unlikely to be invited to or involved in decision-making processes.	Idem to 3.1.1	Idem to 3.1.1	Idem to 3.1.1
3.2.3	Fishery-specific Management System: Compliance & Enforcement.	Implement control document to improve compliance and traceability.	a. Miniplant mapping b. Trial control document c. Control document implementation to improve compliance and traceability, etc.	Information on control document and approach to improve compliance should be available to men and women along the supply chain.	Miniplants are believed to be owned exclusively by men; in fact, women are also involved in miniplants as owners or pickers.	Men and women in miniplants have interests and concerns in compliance and enforcement; testing of control document should be practical for everyone.	Discussions should take place at the local level and be open to women and men actors.	No gender discriminatory laws bar participation in discussions about compliance.	Testing of control document should be implemented with support from mini plant owners or suppliers.
3.2.4	Fishery-specific Management System: Monitoring and Management Performance Evaluation.		Implement control document to improve compliance and traceability.	Monitoring and performance evaluation should be conducted and should be available to men and women.	Idem to 3.2.3	Men and women in miniplants have interests and concerns in monitoring and performance evaluation.	Meeting time and place should be compatible with actors' needs.	Idem to 3.2.3	Control document should be implemented with support from mini plant owners or suppliers.

Table 13. Gender Analysis of BSC FIP Based on the Six Domains of the Gender Dimensions Framework.

Chapter 5

Gender in Fishery Improvement Projects



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The Indonesian Western and Central Pacific Yellowfin and Skipjack Tuna Pole and Line FIP and the Indonesian Blue Swimming Crab FIP analyses indicate that gender concerns have not been a priority. Without understanding the gender aspect, FIPs might lead to unexpected impacts experienced especially by women but also by fishers' families and other actors along the value chain. Most important, when implementing the work plan, the interests and participation of both women and men must be taken into account throughout the FIP

process in order to assure the contributions by and support for everyone in the process.

A fishing improvement project is a tool that aims to ensure the sustainability of fisheries by providing a strategic action plan for fishing and governance, aligned with Marine Stewardship Council (MSC) certification standards. MSC recognizes the importance of socio-economic considerations, respect for human rights, and legal and policy instruments which provide the opportunity for improving gender consideration in FIPs.

The Gender Sensitive Fishery Improvement Project

Markets and consumers demand seafood that is environmentally and socially responsible. These case studies of FIP implementation in tuna pole and line and BSC fisheries indicate that gender mainstreaming is dependent on lead organisations, in this case, APRI and AP2HI. Said organisations are key in developing a work plan, consolidating stakeholder participation, data collection, enumerator recruitment, data analysis and liaising with government. Encouraging gender balance in the FIPs' lead organisations is a good place to start.

It is important for the FIPs' lead organisations to be aware of their respective key actors and, specifically, to determine who will assume the risks and experience the impacts of a management approach resulting from the FIP. Equally important is that the management approach be realistic and effective. This includes identifying potential gender disparities and burdens due to management

intervention/implementation proposed in the FIP. Thus, the FIP implementer needs to understand the entire core process in the value chain, the key actors and roles, with sex disaggregated data.

Exploring gender is about actors. As was discussed in the analysis of the role of gender in the tuna and BSC fishery sections, the fisheries involve multiple actors. Those who participate directly along the value chain, and who are called key actors, include input providers, fishers, suppliers, miniplant owners and workers at miniplants, including pickers. There are also actors who participate indirectly, including shipping agents, quarantine clearance and other administrative-related actors. Indirect actors might also include those involved in indirect business links in the processing stage, such as packaging providers and canteen workers in ports and plants, who are mostly women. There are also actors in the support system

who do not engage directly in the value chain but who affect how the chain works, including how the market works in terms of rules and regulations, both formal and informal, as well as agreements and norms. These actors include business organisations, associations, workers' associations, NGOs/CSOs and government. They all influence the sector as well as the FIP and are thus important to developing gender mainstreaming strategies.

FIP actions in P1 and P2 have a strong a focus on biological and environmental aspects, which is unsurprising given that the FIP's main aim is to ensure the sustainability of certain fisheries. However, managing a fishery is about managing people. Involvement of people is a key to success in managing fisheries. Nevertheless, P1 and P2 seem to lack a human focus and, especially, a gender focus. Data collection and monitoring are conducted by enumerators or observers.

The data is analyzed by scientists or other experts, and this process might leave out key actors in the supply chain. At this point, a set of effective mechanisms to gather input and feedback from key actors is crucial. This information should be collected at times and in spaces that are convenient for key actors, both men and women, and take into account their various roles. It is also important that information on stock status and other environmental matters be made available to key actors, both men and women.

of traceability). Consequently, overall sustainability issues that in fact impact women are overlooked. Understanding pre-production will provide a clearer picture on motivation and the pressures to fish, as well as challenges related to the operation of fisheries (i.e. fishing gear and bait). For instance, bait in BSC fisheries is procured from *payang* fishing, where increased demand may affect the income of bait providers, who are mostly women. Also, an increase in bait price or a decrease in bait availability will affect the BSC fisheries in various ways.

Principle 3, with a focus on effective management, such as compliance with relevant national regulations and international agreements, can improve the roles of fishers and key actors in the supply chain through the governance process. For instance, the BSC FIP can provide a platform to enhance fishing groups' capacity and participation in information gathering and dissemination on stocks, environmental impacts and policies. However, it is important to highlight that key actors are not only fishers in the production stage, but also actors in the pre-production stage, suppliers and participants at the processing stage, all of which involve more women than men. This is important because most fisher groups are dominated by men or only allow men as members. A business-as-usual approach will leave women out of the supply chain in the fishing, pre-production and trading stages and they will therefore be left out of discussions, decision making and management.

Another example of the importance of understanding pre-production is the use of small plastic bags to package and insert bait in BSC traps. This is done in Arosboyo Bangkalan and women usually assume this task. Plastic used for bait will have an impact on the environment, not to mention the cost of plastic bags and the time women invest in this task. Addressing the bait issue would aid in decreasing the burden on women, the impact on the environment in P2, and the cost of fishing. Similarly, women, as the spouses of fishers, make and repair nets for crabs. This requires hours of work every day, which can contribute to fatigue and eye problems. In addition, torn nets are usually thrown away or burnt. Thus, addressing the use of nets will have various benefits for fisheries, women and the environment.

In small scale fisheries, women's involvement the pre-production and production stages is considered an extension of household chores or support for spouses. In fact, in BSC, women are also fishers. However, they are not recognized as such and therefore likely to be ignored, leading to a lack of access to information, a lack of involvement in public meetings and a lack of workplace protection.

Because FIPs focus heavily on sustainability and compliance along the supply chain regarding how fish are managed, harvested and moved, emphasis is on the production and processing stages (mostly in terms

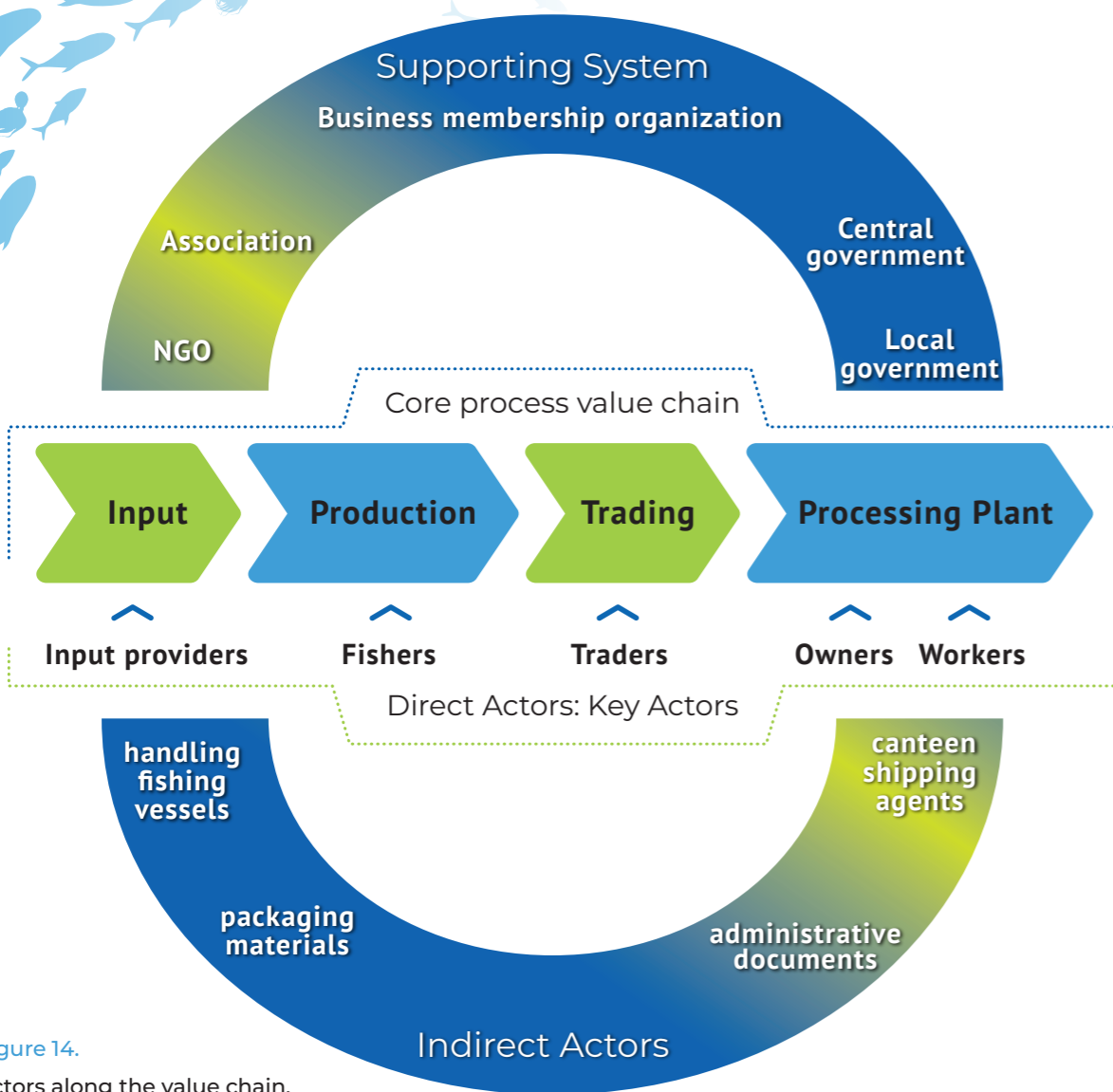


Figure 14. Actors along the value chain.

Men, considered the heads of households, also fail to share information with their spouses at times. Therefore, it is important to recognize the pre-production stage as part of the supply chain, and women as actors in pre-production, production, trading and processing.

Principle 3, which also covers compliance with regulations, should not be limited to fishery-related regulations. For instance, fisheries should also comply with the

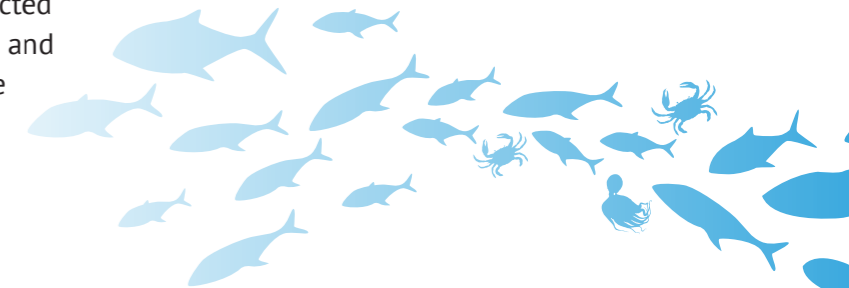
UN Convention on the Elimination of Discriminating Against Women (CEDAW) that has been ratified by Indonesia through Law No. 7/1984. In addition, national policy and regulation in the fishery sector should ensure gender mainstreaming. Thus, in the context of gender, a FIP should be carefully designed and implemented to comply with all regulations, policies and agreements intended to ensure gender mainstreaming.

Below: Woman holding a blue swimming crab trap.



Gender Mainstreaming in Fishery Improvement Projects

The theory of change for gender mainstreaming in FIPs (figure 16) is expected to ensure that the FIP is gender sensitive and responsive. Indicators to be measured are presented in table 14.



Gender Mainstreaming Theory of Change

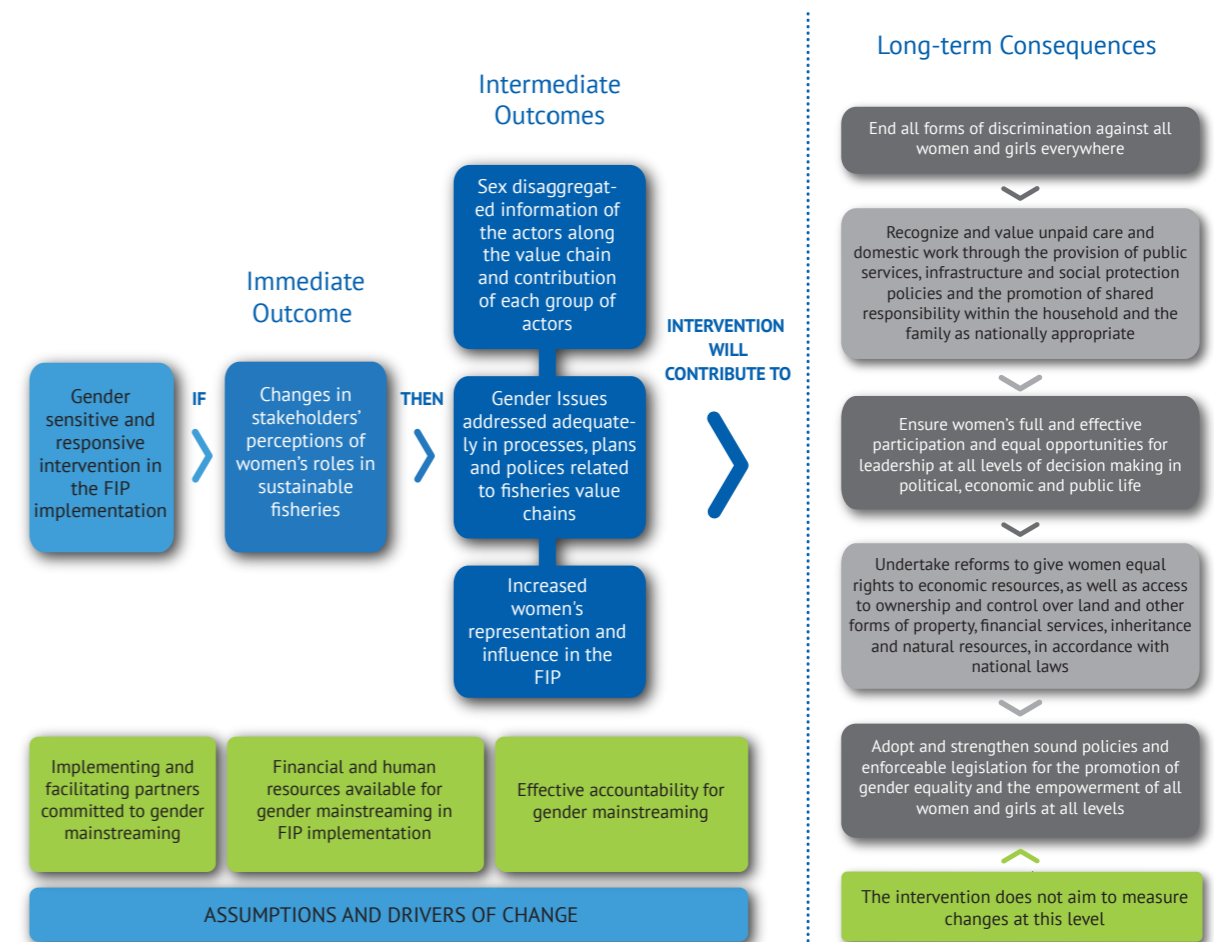


Figure 15. Theory of Change for Gender Mainstreaming in FIPs.

Outcomes	Outcome indicators	Activities	Output	Output indicators
Main Objective: Gender sensitive and responsive FIPs				
Changes in stakeholders' perceptions of women's role in sustainable fisheries	Recognition of gender-differentiated roles and equality, and gender issues along the value chain, and impact of FIP actions on gender	Carry out trainings, sensitization sessions and/or targeted discussions on the importance of gender equality in participation, roles and decision making for sustainable fisheries	Improved awareness of FIP participants on the role of gender in fisheries and a gender sensitive and responsive FIP	# of fisheries stakeholders, men and women, trained and with increased awareness that women and men have the capacity to undertake the same work Community members recognize that women should participate in making decisions
Sex disaggregated data on the actors along the value chain and the contribution of each group of actors	Updated gender equality information on FIPs	Support the collection of sex disaggregated data points Develop a gender profile of the fishery, i.e., describe actors and actions disaggregated by sex	Improved understanding of the roles and contribution of each actor based on gender in the fishery	Fisheries database with sex disaggregated data A gender profile of the fishery available online Recommended actions/checklists/standards with reference to comprehensive data of fisheries/actors in value chain disaggregated by sex
Gender issues addressed adequately by the FIP in processes, plans and policies related to fisheries value chains	Incorporation of gender responsive actions and indicators in FIP work plans	Designate a Gender Focal Point to ensure gender concerns are acknowledged in the processes, plans and actions implemented	Gender Focal Point designated	Gender Focal Point designated for each FIP
		Conduct a gender analysis for the fisheries as part of the FIP socio-economic assessment	Gender analysis is available for the fisheries	Gender analysis document used as supporting document for the FIP
		Review proposed actions in Principles 1 and 2 to ensure they have no negative impacts on women at the input, fishing and trading levels Instead actions should increase benefits, decrease workload and cause no negative impact due to actions by women's groups along the value chain	FIP actions in Principles 1 and 2 consider the gender analysis (e.g., using six domains: access to assets and resources, beliefs and perceptions, practices, time and space, rights and power) in the activity and impact analysis	Actions in Principles 1 and 2 updated to incorporate gender considerations
		Review actions in principle 3: incorporate gender analysis especially in law enforcement and management	FIP actions in Principle 3 consider the gender analysis (e.g., using 6 domains: access to assets and resources, beliefs and perceptions, practices, time and space, rights and power) in the activity and impact	Actions in Principle 3 updated to incorporate gender considerations
Increased women's representation and influence in FIPs	Change in the representation of men and women participating in the development and implementation of the FIP	Adequately engage with public institutions and non-governmental organisations working on gender related issues	Public institutions or non-governmental organisations working on gender-related issues have the opportunity to provide inputs in the implementation of FIP	Memorandum of agreement or participation of organisations working on gender-related issues
		Define and implement mechanisms to encourage women to actively participate in and influence the development and implementation of the FIP (i.e. time and location of events designated by women, invitations to informal/formal women-dominated groups, etc.)	FIP has mechanisms and measures to encourage participation of women to influence the FIP	# of women and men participating in and contributing to fishery improvement project actions/activities
		Building capacity (communication, negotiation, decision-making, public policy, etc., skills) of women who are key actors in participating in public domain activities	Women have increased capacity to participate in public domain activities	# of women with improved self-confidence and with information related to fisheries having bargaining power in discussions and participating in decision-making processes

Table 14. Guidance Matrix for Mainstreaming Gender in FIPs.

Chapter 6

Conclusions



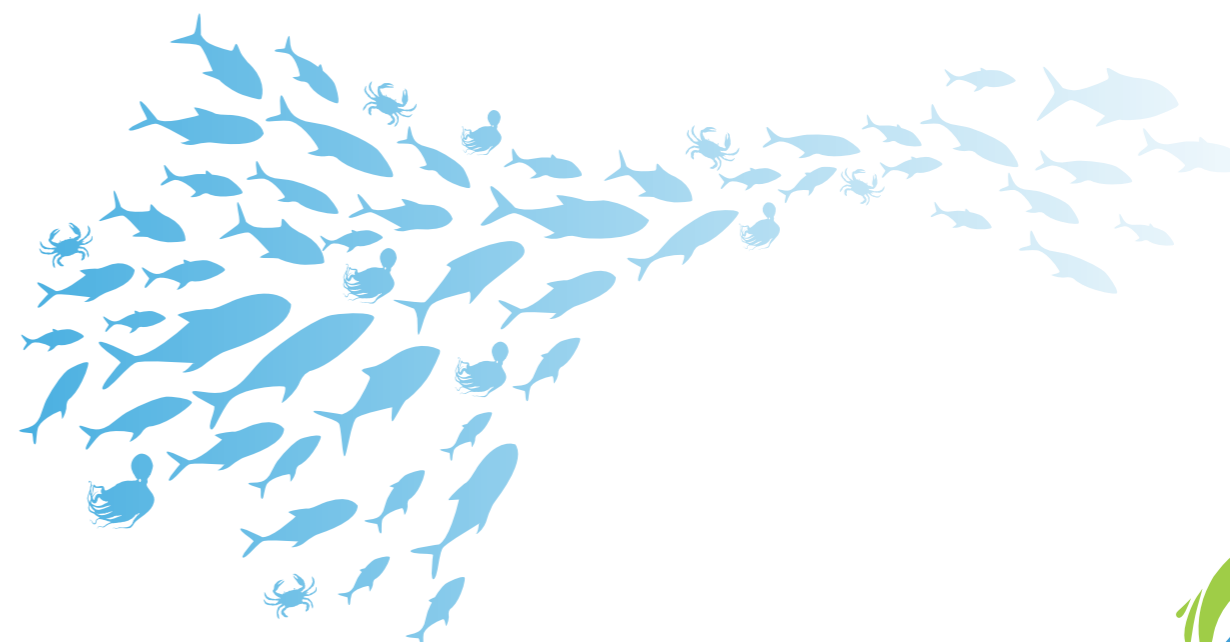
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Gender equality implies a society in which women and men enjoy the same opportunities, outcomes, rights and obligations in all spheres of life. In the fishery sector, product quality depends not only on the fish, but also on the ecosystem and the socioeconomic impacts of the fishery, including impacts on gender equality and equity.

Gender analysis in tuna and blue swimming crab fisheries reveals that both men and women are key actors in the value chains. In fact, women contribute significantly at pre- and post-production points, in trading and/or as workers in miniplants. Examining actors by sex along the value chain provides lessons on the different roles and challenges involved in performing tasks. Fewer women are involved at production in blue swimming crab and it is hard to find women engaged in tuna fishing production. However, several women were found acting as small business entrepreneurs and boat owners. Looking beyond the technical issues clarifies who does what and who takes responsibility for what, and also affects how the fishing industry works. The tuna and blue swimming crab fisheries show that women play significant roles. Thus, the participation and contribution of women should be ensured.

A gender neutral FIP could neglect women's roles in the implementation of the action plan. Women have special roles that differ from those assumed by men, and therefore women need to be recognized in the FIP action plan. All actors along the value chain, men and women, should be able to participate, especially those who work on the ground, in order to be meaningfully engaged. Women also need to be encouraged to participate in management. Focusing too much on the production stage or on fishing groups risks leaving women out because they are rarely registered as members of such groups. Therefore, mechanisms to enable women to participate in the management discussion should be provided; this includes building their capacity to be effectively involved.

This study recommends that an action plan for mainstreaming gender in a FIP be focused on (1) changing stakeholders' perception of women's role in sustainable fisheries, (2) promoting sex disaggregated information of actors along the value chain and the contribution of each group of actors by sex, (3) developing gender-responsive actions and indicators in the FIP work plan, and (4) ensuring representation and active participation of men and women in all stages of the FIP.



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