

Water, Food, and Gender Equality Synergies

Exploring the water security, fisheries and gender equality nexus learning brief



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Source: Finn Thilsted, WorldFish

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Acronyms

Acronyms	Full term
AWP	Australian Water Partnership
FFI	Flora and Fauna International
GEDSI	Gender Equality, Disability and Social Inclusion
SES	Social-ecological systems
SDG	Sustainable Development Goals
SSF	Small-scale fisheries
NGO	Non-governmental Organisation
IGO	Intergovernmental Organisation

Introduction

The relationship between gender equality, water security and fisheries are seldom studied, however, the interconnections are critical to the livelihoods and well-being of millions of people, especially those who rely on rivers. A dammed or diverted river may cut off the flow to downstream communities and stop fish from migrating upstream. Dams and changes to river flows (caused by drought, over-extraction, and climate change) impact women and men differently, given the different but equally important roles they play in water management, food production (crops, fisheries, riverine food sources) and water-dependent livelihoods (business, small scale farming, industry). Yet, water storages also play important roles in securing water for certain communities, producing electricity and mitigating floods. All these interrelated and mutually dependent factors presented in this scenario are often considered separately. In this learning brief, we consider them together – as a system.

In fisheries, we can think about these systems as dynamic social-ecological systems that have feedback and change in non-linear ways (Fischer, 2015). Changes can occur because of human-derived impacts, such as overfishing, and climate change impacts, such as changes in water availability and quality. Adaptive measures and actions are developed in response by local communities and governments who have been impacted by these changes in water and fisheries systems. Regional and national agencies that govern the resources also need to respond to these changes and challenges. If gender equality and inclusion is not considered, unintended negative outcomes, particularly for minority groups and women, can occur. Gender equality and the advancement of women and gender-discriminated people is essential to progressing sustainable development in fisheries and water management. This learning brief will demonstrate this with practical examples, applied frameworks and a range of primary and secondary evidence sources.



Figure 1. Local fisher helping to clear a fishway catch (Source: Jim Holmes Photography)

Overview

This learning brief provides an overview of the fisheries, gender and water security nexus issues, drawing on case studies from Southeast Asia and relevant literature. In Part One, an introduction into the nexus is explored, including how each of the three areas (water, food, gender) are interrelated; a synthesis of the current ideas and themes of gender equality research in fisheries is presented; and a framework that investigates and evaluates gender equality, sustainable fisheries, and water security is also provided. The synthesis of gender research is by no means exhaustive but gives a brief look into the main issues that the industry, communities, and decision-makers face when managing fisheries. This sets the scene and gives the reader some groundwork for the next part of the learning brief. Part Two provides two case studies to explore the nexus issues and policy and practice implications. Case Study 1 presents the ‘FishTech Project,’ which integrates technical fisheries solutions into river development programs in Southeast Asia, with consideration of gender equality and inclusion. By applying a gender equality, disability and social inclusion (GEDSI) approach (a framework presented in Part One), individuals, families, and communities can equally benefit from technical solutions to fisheries solutions, not just industry. In Case Study 2, gender equality issues in small-scale fisheries in Myanmar are explored in more depth to show that fisheries occur against the backdrop of cultural and societal processes that differentially impact women’s and men’s ability to participate, benefit from, and govern equitably together.

We offer principles and recommendations, along with the identification of gaps in the literature, to support policy and resource managers in an effort to guide fisheries and water management decisions.

This learning brief aims to provide a better understanding of women’s role in fisheries, and to explore how the interconnections of water, food and gender need to be considered holistically for the benefit of waterway health, fisheries health, and fishing communities themselves. The brief aims to provide a better understanding of the nexus to a wide range of key actors (e.g., consultants, government officials, international agencies, and non-government organisations) that are involved in fisheries, water, and gender, but not necessarily experts in all three. This learning brief aims to provide a clearer pathway towards ensuring more sustainable and gender-equal fisheries and water sectors.

Freshwater fisheries make up a large proportion of subsistence and industrial fisheries globally, accounting for 43 per cent of the total fish harvested in 2020 and 33 per cent of the total aquatic animal production (FAO, 2022). There has been increased focus on gender and fisheries in the last two decades, and this learning brief reflects the diversity of fisheries (marine, freshwater, aquaculture) and the importance they play in communities using gender as a lens. Furthermore, marine and freshwater fisheries and aquaculture are tightly interlinked both ecologically and socially (i.e., contributing significantly to food and nutritional security while generating incomes and employment opportunities and contributing to a nation’s economy) as well as economically (e.g., through linked supply chains). Thus, the lessons from this learning brief are applicable to inland fisheries in South East Asia and beyond (FAO, 2018).

Part One: Understanding and framing gender equality in fisheries and water security

Overview of the fisheries, gender equality and water security nexus

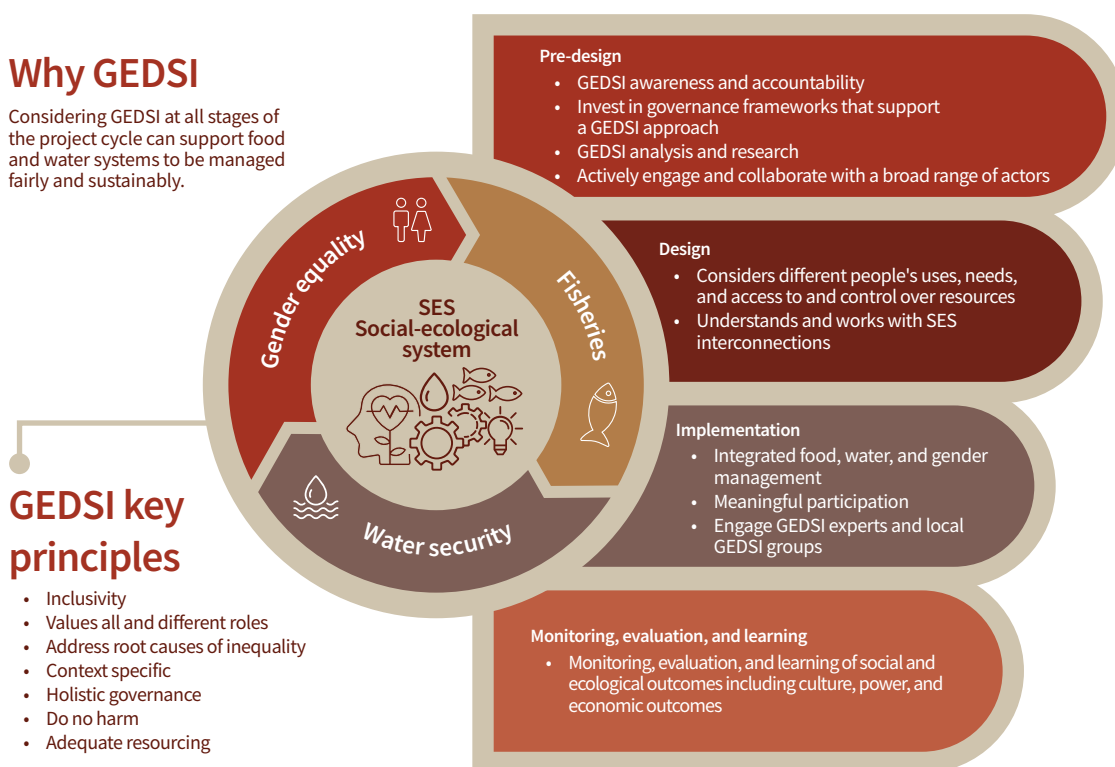


Figure 2. Fisheries, gender equality and water security nexus: considerations for the project cycle

For more detail on practical ways to consider gender equality inclusion across the project cycle, please see [Appendix 1](#) and [Table 3](#).



Figure 3. Women Fisher, Myanmar (Source: WorldFish, Myanmar)

Why consider gender in fisheries?

Rationale

Gender equality and the advancement of women and gender-discriminated people is essential to progressing sustainable development in fisheries and water management forums (See Box 1) (Agarwal, 2018; Harper et al., 2013). Women play important roles in fisheries; however, these roles are often 'invisible,' and there has been little attention paid to these roles and contributions in the industry and most countries (Fröcklin et al., 2013; Resurreccion, 2006; Weeratunge et al., 2010). A lack of understanding of women's roles indicates their social and political marginalisation, leaving them socially and economically disadvantaged (Bavington et al., 2004). Misunderstanding and lack of awareness of gender issues in fisheries policy continues to reinforce the status quo due to deep-rooted rules, rights and roles that structure gender inequalities. For example, development projects that focus on financial and technical developments to improve gender equality arguably fall short of empowering women (Underhill-Sem et al., 2014).

It can also cause maladaptation in the efforts to insert mainstreaming policies, for example, climate change adaptation plans, leaving individuals, communities, and villages less resilient, more vulnerable, and at risk of climate change impacts. Moreover, little research has been carried out that considers intersectionality, other genders and the impacts of multiple cross-cutting issues in fisheries policy (e.g. the impacts of climate change on women in small-scale fisheries) (Samuels et al., 2021). There is also relatively less attention to men's equally gendered experiences through generalised masculinity, often resulting in gender-based violence and stereotyping (Syddall et al., 2022). As such, a more nuanced approach to gender in fisheries, beyond descriptive accounts of women's (and men's) contributions to national economies, is sought. An approach that considers gender enables greater recognition of the diverse ways women participate in and contribute to fisheries on multiple scales (Syddall et al., 2022).

Gender norms and inequalities are increasingly becoming a core component of natural resources policy, more specifically in fisheries and aquaculture (see Box 1 for a snapshot of gender and development in research) (Barclay et al., 2021b; Fortnam et al., 2019; Gallardo-Fernández, 2018; Lau et al., 2021; Prügl & Joshi, 2021; Rocheleau, 2008; Rocheleau & Edmunds, 1997; Sultana, 2011). Fisheries are generally described by gender scholars and practitioners as 'women-intensive but male-dominated,' with women workers consistently over-represented in low-skilled, poorly-paid and undervalued positions, while men dominate more powerful (higher-skilled, better-paid, more-valued) positions (Barclay et al., 2021b; de la Torre-Castro et al., 2017; Syddall et al., 2022). Little academic attention has been paid to women's roles and contributions in the industry and most countries. Within this context, stories circulate of the empowerment of women as fisheries managers, but there are equally negative stories of sex work, slavery and disenfranchisement (Biswas, 2011; Gallardo-Fernández, 2018; McNamara & Westoby, 2014; Shannon et al., 2009; Syddall et al., 2022; Teh et al., 2019).

Box 1. Gender and development

Gender equality and the advancement of women is essential to progressing sustainable development in fisheries and water (Agarwal, 2018; Harper et al., 2013). Gender norms and stereotypes relate to the socially constructed expectations and roles allocated to people in society. Gender norms relate to social systems, structures, expectations, and institutions, and how they impact members of society differently. Analysis of gender issues seeks to identify and address inequalities that are perpetuated against particular groups who may be discriminated against based on their biological sex and self-identified gender. While sex is the biological trait people are born with, gender is an acquired or self-defined identity. Social systems have underlying biases and norms that lead to the attribution of specific roles, relationships, and types of power to different biological sexes. All of these interacting factors impact gender equality, which is a human right principle and precondition for sustainable development, as per the United Nations Sustainable Development Goal 5. Gender inequality also intersects with other forms of inequalities. “Intersectionality” is a critical feminist theory and method and relates to the other forms of marginalisation that may not be gender-related, for example age, ethnicity, disability, and class, which expose people to multiple and compounding types of inequalities (Grant et al., 2019). These multiple axes of difference (and the uneven power relations associated with those differences) give rise to different forms of oppression (Thompson, 2016). The complexity of intersections between age, socio-economic status, as well as hereditary rank, can give rise to new forms of inequality and obscure others as a result of gender interventions (Alexeyeff, 2020).

Traditional approaches to understanding gender dynamics have focused on sex-disaggregated data and analysing the different impacts of development interventions on men and women (Oberhauser, 2017). While these are useful differentiations, they fail to analyse how formal institutions, governance arrangements and norms and attitudes perpetuate gender inequalities. Development programmes that are considered technologically and infrastructure-oriented do not often include gender-related differences because they are not considered relevant or important (Grant et al., 2019). For example, the growing interest in climate-smart agricultural interventions continues to be framed in traditional technology transfer models. Without gender analysis, however, they may inadvertently perpetuate gender inequalities if there is no adequate analysis of the different ways different groups can adopt new technologies (Lawless et al., 2021).

Gender and fisheries research

Women in fisheries are often labelled as ‘invisible’ given that they often assume roles that are unpaid, unrecognised, or underrepresented (Fröcklin et al., 2013; Resurreccion, 2006; Weeratunge et al., 2010). Policies and practices tend to exclude women’s participation onshore (pre- and post-harvest activities) and in reproductive (cooking, cleaning, caring for elderly, disabled and children) and unpaid support roles. Indeed, an approach that considers gender enables greater recognition of the diverse ways women participate in and contribute to fisheries on multiple scales (Syddall et al., 2022). Researchers have compared women’s roles in historical and contemporary fishing contexts as part of this transition. For example, research in Oceania revealed varied roles across Melanesia, Micronesia and Polynesian cultures, including women who fished and dived with equal abilities to men in the 1920s (Manez & Pauwelussen, 2016).

The male-centric nature of fisheries, the gendered division of roles and how gendered roles are differentiated spatially and according to resource use are key areas explored in gender and fisheries research (de la Torre-Castro et al., 2017; Fortnam et al., 2019; Prieto-Carolino et al., 2021; Williams, 2008). General assumptions that men fish ‘far and deep’ while women stay close to shore (e.g. via gleaning, handlining) are progressively contested (Fortnam et al., 2019). In the most recent exploration of masculinity, age and generation is useful for characterising different expressions of masculinity and determining women’s participation (Salguero-Velázquez et al., 2022).

To achieve gender equality, Angeles et al. (2019) argue that stereotypes that bind people to certain choices, opportunities, roles, lifestyles and behaviours (e.g. stereotypes that see men as ‘masculine’ breadwinners who engage in risky and dangerous livelihoods, and women as ‘feminine’ as timid, nurturing, closely connected to nature, caregivers, vulnerable to domestic violence and limited in life choices) must be dismantled. However, care must be taken when considering equality. Fredman (2016) argues that efforts to achieve equality may reinforce or entrench differences, for example, the lack of consideration of social, economic and political situations that are deeply intertwined and determined by colour, religion, ethnic origins, gender or other characteristics. A more substantive interpretation is required (see Box 2 and Table 1 for an overview of Sandra Fredman’s framework and its application to fisheries).

Box 2. Substantive equality: A useable framework for assessing human rights, allocation and more in fisheries

Sandra Fredman’s Four-Dimensional Substantive Equality Framework exemplifies such an interpretation (see Table 1; (Fredman, 2016)). It explicates how:

- **Redressing disadvantage** requires a fundamental re-examination of the structures that perpetuate the discrimination and the removal of obstacles.
- **Redressing stigma, stereotyping and humiliation** based on gender, race, disability, sexual orientation or other identities is a major issue in fisheries (Barclay et al., 2021b; Bavington et al., 2004; Syddall et al., 2022).

Fredman argues that individuals should rather be judged on merit, for example, when applying for fisheries positions or carrying out small-scale fisheries (SSF) roles through:

- **Anticipating** and giving women a voice in fisheries decisions that impact them.
- **Accommodating differences** by redesigning roles to fit in with or to change women’s expected responsibilities in their individual, community, and productive and reproductive roles.

Table 1. The Four-Dimensional Substantive Equality Framework, and examples of relevance to gender and fisheries (Source: Fredman, 2016)

Dimension	Interpretation
Redressing disadvantage	<ul style="list-style-type: none"> • Redressing disadvantage by removing obstacles to genuine choice (e.g., choices about roles and responsibilities within the fishing sector – i.e., women choosing to work on offshore vessels without gender-based stereotyping, on board conditions, or the risks of gender-based violence). • Asymmetric and focuses on the group that has suffered disadvantage and its negative consequences (e.g., low pay rates or no pay for work done, high risk of unemployment, poverty and social exclusion).
Redressing stigma, stereotyping, humiliation	<ul style="list-style-type: none"> • The social consequences of stigma, stereotyping, humiliation, and violence based on gender, race, disability, sexual orientation, or other reasons may be experienced regardless of relative disadvantage. • These factors are rife in fisheries where, for example, so many jobs are stereotyped by gender, and stigma often applies to women (and men) entering atypical occupations, such as women going to sea to fish, and men undertaking processing tasks usually associated with women.
Participation: social inclusion, political voice	<ul style="list-style-type: none"> • For small- and industrial-scale fisheries, this includes women being recognised as part of the very fabric of fisheries itself, from fishing customs and daily routines to having a voice in more organised work representation and formal memberships.
Accommodating differences, structural change	<ul style="list-style-type: none"> • To respect and accommodate differences by removing the detriment but not the difference itself. Therefore, existing social and economic structures need to be changed to accommodate differences. • When women cannot manage to work during present work hours and places, how can the structures be redesigned so that women and men can both participate in the labour market and parenting?

Gender and fisheries policy: Getting gender issues on the table

Diffusion of gender into national-level fisheries policy is challenging, often experiencing a watering down process because of a lack of willingness, interest and importance placed on gender equality in fisheries (Acosta et al., 2019; Song et al., 2019). Here, gender equality policy diffusion is referred to the spreading of gender equality policy within multi-lateral agreements that seek to achieve GEDSI goals (e.g. the United Nations Sustainable Development Goal 5). Diffusion of global equity norms (such as social meta-norms like human rights, gender equality, equity and environmental justice) rely on the extent to which norms align with neoliberal ideas and structures and are driven by compliance mechanisms, economic benefits, functional interactions, normative institutional environment, norm source, norm issue framing, cultural resonance and social norms (Lawless et al., 2020). For example, compliance mechanisms (treaties, policies and regulations) alone can be overly ambiguous and lack specific obligations, but are powerful when coupled with soft laws, advocacy, encouragement, raising awareness, benchmarking, codes of conduct or voluntary guidelines, which are easier to establish and change (Lawless et al., 2020; Okereke, 2008). Soft regulatory approaches alone have also been reported in the education sector to successfully promote gender equality (Casey et al., 2011).

Even with the more recent attention given to gender in fisheries management and governance, fisheries lags behind other fields, such as development studies (Desai & Rinaldo, 2016; Nightingale, 2017; Oberhauser, 2017); agriculture (Acosta et al., 2019); education (Manion, 2016); water management (Khalid Md & Huq, 2018); and feminist political ecology (Paulson et al., 2003; Rocheleau, 2008; Rocheleau & Edmunds, 1997; Rocheleau et al., 1996; Sultana, 2011). Fisheries can learn and apply certain lessons from these areas, such as the need for policy and practice to be flexible and allow for context (meaning the multiple ways gender can be contextualised through intersections with age, marital status, poverty, and health status). With more understanding, awareness, and active efforts to address these complexities, interactions that might deepen fishers' and their families' vulnerability within fisheries sectors and industries may be avoided.



Figure 4. Fish market in Vietnam (Source: Getty Images)

Gender Equality, Disability and Social Inclusion (GEDSI) Framework

What is the GEDSI Framework?

Integration of gender equality can be considered to different extents, based on varied motivations. Issues related to gender can be considered from an instrumental perspective (focused on involving women [for example] as a *means* to strengthen water security or fisheries and food security outcomes) or from a transformative perspective (focused on equitable water and food security outcomes that also transform gender relations and structures towards equality for all). The Gender Equality, Disability and Social Inclusion (GEDSI) Framework was adapted by Department of Foreign Affairs and Trade’s Water for Women Fund (2021) to help build a common understanding around gender equality and social inclusion in water management and WASH programs (Figure 2). It shows that a programme can be unaware of gendered differences and, therefore, harmful without a concerted effort to consider a range of stakeholders and actors across genders, ages, cultural and racial backgrounds. With an explicit focus on social norms and decision-making power, a programme has the potential to be transformative, including in the fisheries and water management arenas.

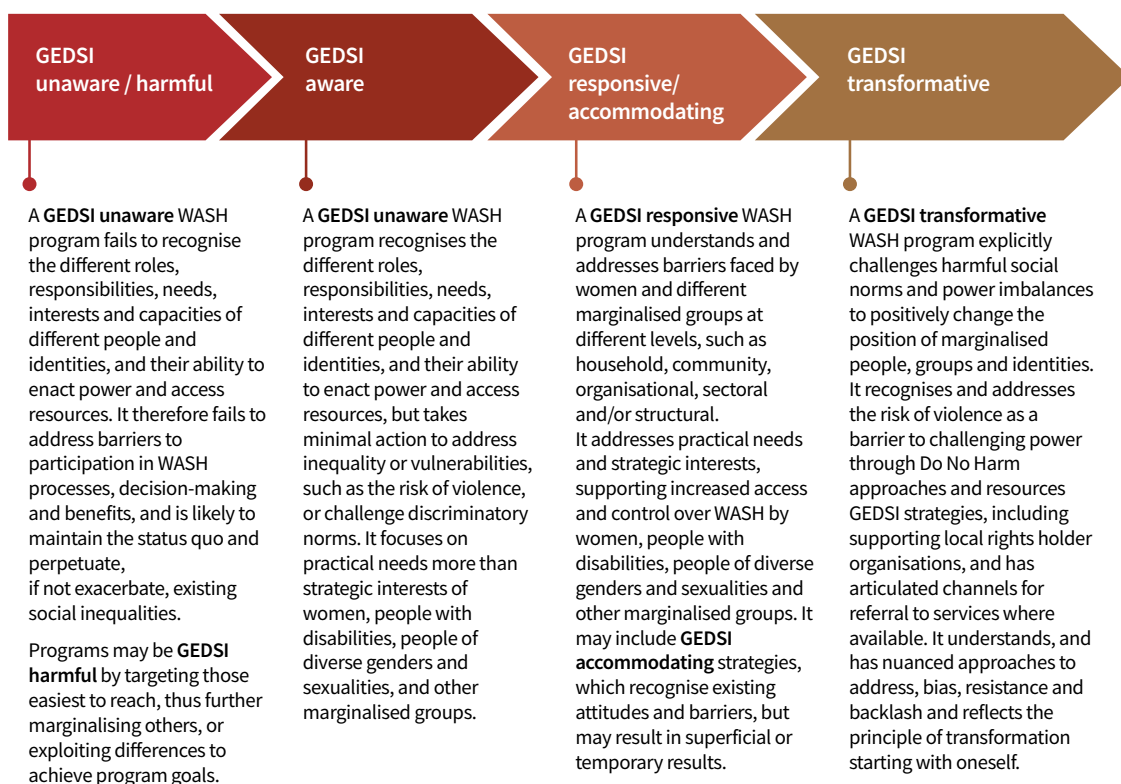


Figure 5. GEDSI framework (Source: Water for Women, 2021)

Applying a GEDSI framework to understand and respond to social aspects of fisheries

If considered and applied, the GEDSI framework (Figure 2) can support fisheries and water management systems to be fair, just, and sustainable.

Firstly, carrying out a GEDSI analysis creates a better understanding of actors and their roles within the fishery, including their needs, what drives behaviours, and inequalities that cause individuals or groups of individuals to miss out on opportunities. This way, interventions can be better targeted.

Currently, and unfortunately, many fisheries’ plans and programs run into a “business as usual” technocratic approach centred on managing biological and economic factors, which often exclude women (and other groups) in planning, design, and implementation (e.g. tuna fisheries (Syddall et al., 2022) and fisheries generally (Williams & Syddall, 2022)). This ignores the unique perspectives and knowledge that women and minorities hold – particularly when they play key roles in fisheries value chains.

As this learning brief shows, women play vital roles in fisheries within the supply chain and alongside them in wider social-ecological networks. However, because of the cultural and social norms within many fishing communities, their equitable participation can be difficult, facing multiple and varied experiences and disadvantages. For example, norms often challenge women’s participation in Fiji due to their expected family responsibilities (e.g., care of children, the elderly, and the home) and community commitments (e.g., church, fundraising, catering for social events); these all limit their time (Singh-Peterson & Carnegie, 2020).

Genuinely addressing these equity and inclusion issues in fisheries programs using responsive and transformative approaches will provide for better water, biodiversity, fisheries, and community outcomes. As the research cited above has shown, approaches that seek to include women can identify innovative solutions and improve the outcomes for all involved in fisheries, not just the supply chains.

Table 2 provides examples of fisheries from around the world that are GEDSI unaware, aware, and responsive. Examples of ‘gender responsive’ fisheries are few and far between, but they are growing due to the increasing research and advocacy around the importance of gender equality efforts. As for examples that are GEDSI and fisheries “transformative,” these are yet to be seen and evaluated because they require time, diverse partnerships, adequate budget allocation, investment in GEDSI analysis, and commitment from project partners and funders.

Table 2. Examples of GEDSI considerations in fisheries

GEDSI Framework	Fisheries Programme(s)	Case examples
GEDSI and fisheries unaware	Input and/or output controls (e.g., total allowable catches, gear restrictions) and access agreements under rights-based regimes.	Fishing access agreements in the tuna fishery off the coast of East Africa (Andriamahefazafy & Kull, 2019) and in the Okavango Delta fishery in north western Botswana (Ngwenya et al., 2012).
GEDSI and fisheries aware	Strategies such as data gathering, education, and outreach programs.	FishTech (see case study 1). Small-scale fisheries policy instruments, e.g. Pacific (Lawless et al., 2021).

GEDSI Framework	Fisheries Programme(s)	Case examples
GEDSI and fisheries responsive	Policy interventions such as disaster relief programs, industry-led interventions in processing factories, gender-based data collection to uncover contributions and impacts of small-scale fisheries, development of women’s fish, processors, and traders’ networks, women’s collective groups.	<p>Post 2004 Indian Ocean Tsunami assistance to women in Lake Pulicat, Tamil Nadu, India (Shanthi et al., 2017).</p> <p>SolTuna IFC tuna processing factory gender intervention (Barclay, 2019).</p> <p>Illuminating Hidden Harvests (IHH) study and report (FAO et al., 2023).</p> <p>AWFishNET (African Women Fish Processors and Traders Network; On Our Radar, 2023).</p> <p>The Gambia, Africa’s TRY Oyster Women’s Association (Patterson, 2022).</p>

GEDSI unaware

A **GEDSI-unaware fisheries programme** fails to recognise the different roles, responsibilities, needs, interests and capacities of different people and identities and their ability to enact power and access resources. It, therefore, fails to address barriers to participation in fisheries supply chains (and wider networks where roles are invisible to policy and development actors), decision-making, and benefits. This programme is likely to maintain the status quo and perpetuate, if not exacerbate, existing social inequalities. Programs may be GEDSI-harmful by targeting those easiest to reach, thus further marginalising others. It may also exploit differences to achieve programme goals.

A GEDSI-unaware fisheries programme example might be the use of input and/or output controls (e.g., total allowable catches, gear restrictions) put in place based on fish biological stock assessments and access agreements under rights-based regimes, thus shaping access to marine resources. Regulations can thereby restrict the traditional uses by local coastal communities that harvest fisheries to meet their cultural and food security needs (e.g., artisanal and subsistence fisheries). In this instance, the regulations fail to recognise the interests of the local coastal communities and the impact of such regulations on the different needs of individuals and their roles. Furthermore, industrial-scale fishing may be displaced to other areas, shifting benefits, such as jobs, away from those that rely on them (markets, waged employment on boats, pre- and post-harvest). For example, researchers on tuna fishery off the coast of East Africa revealed that rights-based mechanisms such as fishing access agreements are highly questionable for their fairness and sustainability in the coastal communities of Madagascar, Mauritius and Seychelles (Andriamahefazafy & Kull, 2019). This was also the case in the Okavango Delta fishery in north western Botswana, where policy and programme interventions led to the entrenchment, rather than the minimisation, of gendered disparities between women and men fishers’ access to and control over fish resources, asset accumulation and employment opportunities (Ngwenya et al., 2012). In this case, 96 basket fisherwomen from five villages along the Panhandle area of Okavango River recalled how fisherwomen’s ecological knowledge, interests and concerns were excluded from zoning and closed season regulations and co-management structures. Basket fishers argued that seasonal closers and other regulations violated their cultural rights to basket-fish, which is part of the HamBukushu culture, and that it impacted their dependence on fish for food (Ngwenya et al., 2012).

GEDSI aware

A **GEDSI-aware fisheries programme** recognises the different roles, responsibilities, needs, interests and capacities of different people and identities and their ability to enact power and access resources. However, it takes minimal action to address inequality or vulnerabilities, such as the risk of violence. It also does not challenge discriminatory norms. It focuses on practical needs more than the strategic interests of women, people with disabilities, people of diverse genders and sexualities, and other marginalised groups.

A GEDSI-aware fisheries programme could include strategies such as data gathering, education, and outreach programs, for example, to increase the literacy level of women involved in fisheries as part of programs that seek to create sustainable livelihoods at the community level. While it is hoped that providing opportunities to educate women will enhance participation with institutions and organisations, help them run their businesses more efficiently, and build confidence in their entrepreneurial skills, programs that do not challenge entrenched gendered norms and practices are token and will ultimately fail. In an examination of small-scale fisheries policy instruments, Lawless et al. (2021) found gender policy to be synonymous with women in the Pacific and that it rarely looked into men and masculinity or other intersectional identities. Lawless et al. (2021) stated that conflating gender with women masks the diversity of experiences and perceptions of gendered identities, while reinforcing the status quo and ignoring power imbalances.

GEDSI responsive

A **GEDSI-responsive fisheries** programme understands and addresses barriers women and different marginalised groups face at different levels, including the household, community, organisational, sectoral and/or structural levels. It addresses practical needs and strategic interests, supporting increased access and control over fisheries resources by women, people with disabilities, people of diverse genders and sexualities and other marginalised groups. It may include GEDSI-accommodating strategies, which recognise existing attitudes and barriers, but may result in superficial or temporary results.

An example of a GEDSI responsive fisheries programme includes the post-2004 Indian Ocean Tsunami assistance to women in Lake Pulicat, Tamil Nadu, India. In early 2005, this programme, led by Dr B. Shanthi, followed the Dec 26, 2004, Indian Ocean Tsunami. The programme brought together experts in mud crab (*Scylla serrata*) and sea bream (*Lates calcarifer*) culture, plus aquafeed experts from ICAR-CIBA to work with the women's self-help groups in the area. When helped with technology, women were able to make better use of brackish waters for small-scale fishing and aquaculture. The programme noted that women were able to "regain their dignity and respectability through increased employment and income" (Shanthi et al., 2017, p. 214).

A diagnosis undertaken at SolTuna's tuna processing factory in Noro, Solomon Islands, by a team led by Kate Barclay prompted the implementation of several recommendations by SolTuna, who apparently are still taking a transformative approach to women's work in the factory at Noro (Barclay, 2019).

The overall Illuminating Hidden Harvest (IHH) report (FAO et al., 2023) was a major upgrade in methods from its earlier predecessor, the Hidden Harvest study and report (2012). The methodology involved local teams from selected case study countries and gender experts/teams from 28 of the case study countries. A multi-disciplinary approach to understanding small-scale fisheries' impacts and contribution to food security, livelihoods, poverty eradication, and healthy ecosystems reveals gender equality aspects and key pathways through which gender considerations support the contributions of small-scale fisheries to sustainable development (see Figure 6.1 of the report, (FAO et al., 2023, p. 129).

Networks such as the AWFishNET (African Women Fish Processors and Traders Network), established in 2017, gather support regionally and in certain African countries as the voice for African women in fish processing and trading. The network is supported by various donors and other agencies seeking partners for women's organisations in African fisheries.

The Gambia Women's Oyster Harvesting Collective began in 2007 and is now receiving support from the EU-FAO FISH4ACP project that has helped the women develop a 10-year plan.

GEDSI transformative

A **GEDSI transformative fisheries** programme explicitly challenges harmful social norms and power imbalances in a bid to positively change the position of marginalised people, groups, and identities. It recognises and addresses the risk of violence as a barrier to challenging power through Do No Harm approaches and resources, GEDSI strategies, including supporting local rights holder organisations (such as women's organisations, organisations for people with disabilities, and sexual and gender minorities organisations), and has articulated channels for referral to services where available. It understands and has nuanced approaches to address bias, resistance and backlash, and reflects the principle of transformation starting with oneself and one's organisations (Patterson, 2022).

Integrating gender and social inclusion into all elements of the project cycle (including tools for project design, planning, and implementation) requires a multi-faceted approach as offered in the Pacific Handbook for Gender Equity and Social Inclusion (Barclay et al., 2021a), USAID Oceans and Fisheries Partnership Regional Document on Gender Integration in the Fisheries Workplace (USAID Oceans and Fisheries Partnership, 2020), and Wildlife Conservation Society's (WCS) Gender Equity and Social Inclusion Analysis For Coastal Fisheries by Mangubhai and Cowley (2021). WCS' guide provides valuable insights into when and how to carry out a GEDSI analysis and specific GEDSI considerations throughout the fisheries management and policy cycles (e.g., fisheries stock assessments, market surveys). It offers a framework that "conceptualises change as requiring complementary interventions at three levels to create the personal, social and structural conditions that enable people to realise their rights." The framework includes building the capacity of individuals (e.g., knowledge skills), changing relations (i.e., power relations), and transforming the structures (e.g., norms and values) required for a transformational approach to GEDSI.

As the cases show in this learning brief and the examples provided in Table 2 of GEDSI considerations in fisheries, fisheries-unaware programs can fall into the trap of reinforcing the status quo and exposing women to less equitable outcomes. However, those that tackle the root of the problems, engage in meaningful partnerships with rightsholder organisations, and conduct robust GEDSI analysis show promise for transforming fisheries into more equitable and sustainable sectors.

Key Principles in considering GEDSI in the fisheries sector

Drawing on and building upon FAO's *Towards Gender-Equitable Small-Scale Fisheries* handbook and the learnings from the investigations presented in this learning brief, the following key issues, principles, and recommendations are provided in the following section to guide efforts towards more gender-equal fisheries. They are multi-dimensional and consider social and economic equity and equality, environmental sustainability, and local food security. More importantly, gender equality principles must be harmonised with international principles of sustainable development, human rights, and gender rights.

A value chain analysis can provide a wide variety of data and information to support sustainable fisheries management. As shown in the following Figure 3, women and men play many roles in the value chain both formally and informally. Some of these roles, particularly those performed by women, are often invisible, not understood, or considered as important as others, although they are all needed and interrelated.

Predominant gendered roles in small-scale fisheries									
Pre-fishing		Fishing		Fish Processing		Trading		Governance, Finance, Household	
Women	Men	Women	Men	Women	Men	Women	Men	Women	Men
<ul style="list-style-type: none"> Mend fishing gears Assist in boat & fishing preparation & cleaning Prepare food for fishers 	<ul style="list-style-type: none"> Prepare boat & fishing gears Bait preparation Boat maintenance Boat stocking 	<ul style="list-style-type: none"> Foot fishing Nearshore fishing Assist fishing operation 	<ul style="list-style-type: none"> Captain / manager Boat fishing (usually finfish and higher value species) 	<ul style="list-style-type: none"> Cleaning fish Grading Salting / drying fish Source & purchase of raw materials (e.g. salt) 	<ul style="list-style-type: none"> Sorting fish on-board Loading & unloading fish Assist in processing 	<ul style="list-style-type: none"> Retail & wholesale trade of fish at local market, door-to-door, or on street 	<ul style="list-style-type: none"> Sell to distant markets as intermediaries & exporters Packaging & transporting 	<ul style="list-style-type: none"> Science & technical administration Management & decision making in conservation and use Run household, carers (e.g. of children, elderly) & supporters of fishers Household finance management Owners of processing businesses 	<ul style="list-style-type: none"> Management of science & technical advice Decision-making in conservation & use Ownership & access to boats, other fisheries capital, & permits
Prepare fishing gears and boat		Catch fish and manage fishing operations		Sort fish on landing, make fish products, clean fishing gears		Retail and wholesale trade of fish		Fisheries management decision making, science and technical support, finance and accounting of fisheries businesses, running household	

Figure 3 shows predominant roles acted by gender in small-scale fisheries. The top row shows how women and men's roles are divided from the generic roles listed in the bottom row based on multiple case studies from South-east Asia (see Kusakabe & Thongprasert (2022) for more information on gender division of labour in Southeast Asian fisheries). There are differences, however, between fisheries and locations. There are also differences in timing of roles undertaken (women predominately carry out roles at night e.g. markets and fishing due to gendered constraints faced during the day), how they are undertaken (men use motorised boats they own to fish and to transport fish to markets, while women fish in nearshore and use public transport), also in access to resources (for example, men have direct access to fish for example to sell directly in markets, while women must buy fish or collect from their husbands to then sell at local markets) as well as variations depending on age, household circumstances/marital/kin status, and ethnicity. There are instances where women and men may act outside the norm due to necessity, differing contexts, or changing norms. In addition, it is important to note that a woman involved in a particular role may not necessarily equate to gender inclusion, however, where fishermen might see women as substitutes for themselves in fishing and other activities including attendance at management meetings.

Figure 6. Roles of women and men in fisheries value chain (adapted from Sornkliang et al., 2018)

Summary of gender equality issues in fisheries and water sectors

- Fisheries are women-intensive but male-dominated
- Women remain invisible in fisheries and policy
- Gender research on fisheries remains narrow and focuses on binary genders and roles
- Women have limited access to fisheries resources, property, funds, capital, and decision-making roles
- Gender equality faces compounding threats such as climate change.

Transformative change in fisheries cannot be achieved by addressing the symptoms of gender inequality. Rather, it must tackle its root causes, including understanding drivers that cause marginalisation and exclusion, developing specific programs and strategies to overcome them, and challenging norms and stereotypes. Based on the lessons from current research, a GEDSI fisheries programme should include good governance principles for sustainable development comprising gender equality; a multi-scalar governance approach; contextualised/place-specific policies that are appropriate for the level and scale of fisheries (e.g. SSF, industrial-scale); consideration of how individuals are linked to their environment and fishery to allow fishers, processors, marketers, carers to adapt and build resilience in the face of social and environmental change (e.g. climate change). Guiding principles on GEDSI within fisheries must endeavour to address the root causes of inequality and marginalisation, as shown in the following Table 3.

Table 3. GEDSI Principles Guiding the Transformation of Fisheries

Principles	GEDSI transformed fisheries
Benefits of inclusion	Inclusive approaches will lead to better environmental, nutritional, community outcomes in fisheries and water security programs.
Women’s roles in fisheries need to be valued	Women’s work within the aquatic foods value chain needs to be recognised, documented and valued for their contribution to the incomes, food security, health and resilience.
Endeavour to address the root causes of inequality and marginalisation	Transformative change requires that efforts towards gender equality through, for example, gender equality policies, must consider and challenge the ingrained socio-cultural processes, political landscapes, and economic processes that dictate the rules, rights, and roles that structure gender inequalities. This will help to avoid reinforcing unequal power imbalances at the individual, household, and village level.
Marginalised groups’ voices are included	In fisheries, women are a particular marginalised group and are the focus of gender equality research. The perspectives, experiences, knowledge, and interests of women must be incorporated in sustainability and development programs, as well as in decisions made on the everyday management of fisheries and water security.

Principles	GEDSI transformed fisheries
Consider that each context is unique	Fisheries operate in dynamic and complex social-ecological systems such that each place, fishery, and individual has a specific context with differential opportunities and challenges. That is why it is important for gender research in fisheries to understand and tailor policies and programs based on the intersectionality of individuals and the social-ecological interrelations of that specific fishery. This requires data for GEDSI analysis to be disaggregated by sex, age, ethnicity, and other relevant social categories (drawing on GEDSI frameworks and tools).
Ensure and enable multi-scalar governance	To address sustainability and well-being concerns of fisheries and the individuals that operate within them, governance must be collaborative across scales and levels, including ensuring and enabling cross-sectoral approaches to mainstreaming gender equality along with other mainstreaming policies such as climate change.
Avoid reinforcing status quo and apply a do no harm approach	At a minimum, efforts towards gender equality in fisheries must not cause discrimination to marginalised groups or reinforce the barriers to participation or negative stereotypes that keep people excluded from participating in the social and economic life of their fishing communities. A zero-tolerance approach must be applied to discrimination on any grounds.
Resourcing	Policy, research and interventions for sustainable resilient aquatic food systems need to commit resources and funding to address the structural inequities in the informal and formal, individual and systemic gender dimensions at intervention/project, institutional and policy levels.

When to include gender equality and social inclusion in fisheries and water management programs

Gender analysis is the first step in considering GEDSI in fisheries and water management programs. Gender analysis is a critical examination of how differences in gender roles, activities, needs, opportunities and rights/entitlements affect women, men, girls and boys in a given policy area, situation or context.

GEDSI needs to be considered at all stages of a program and project lifecycle, as shown in Figure 1. For more information, please refer to Appendix One.

The following case studies explore the themes and principles noted here in Part One in fisheries in South East Asia and demonstrate the importance of considering women, children, the elderly and other minorities in the design and construction of waterway infrastructure and in efforts to support fish biodiversity.

Part Two: Case Studies

Case Study 1: Considering fisheries and inclusion in river development programs across Southeast Asia

The 'FishTech Project' integrated technical fisheries solutions into river development programs in Southeast Asia, with consideration for gender equality and inclusion. In Cambodia, Indonesia, and Lao PDR, FishTech aims to boost livelihoods, food security and climate resilience for communities dependent on river systems. The initiative works to integrate fisheries into irrigation projects for mutual benefits as per livelihoods, biodiversity, and water management by reconnecting upper and lower river ecosystems. Fisheries in Southeast Asia are contending with the expansion of hydropower (dams), roads, culverts, and large-scale irrigation development that disconnects social and ecological river systems. Despite its intended benefits of increased rice production, agriculture and energy generation, this water control infrastructure impedes fish passage and migration pathways, which are critical for breeding and nursery habitats. Fish are a vital source of protein and micronutrients for communities in Southeast Asia, as well as income generation, especially for rural and remote populations. Fish are also an important commodity for barter and trade and can be stored to offset food availability fluctuations in seasons and harvests. The depletion of fish stocks due to hydropower and large-scale irrigation, therefore, poses threats to nutritional status, income generation, poverty reduction, and livelihoods for people who live along Southeast Asia's many rivers. This can lead to challenges in meeting international (SDGs) and national food security targets.

Building fishways are a way to support river connectivity. It allows for fish to migrate and travel up and down rivers, or laterally onto floodplains, which is necessary for spawning, fish health, biodiversity within the river, and overall fish stocks (Figure 4).



Figure 7. Pak Peung Demonstration Fishway (left) and fishway concept (right)

The FishTech project seeks to demonstrate that irrigation projects can and should consider fisheries and associated social processes, such as GEDSI. As such, FishTech developed a *FishTech GEDSI strategy*. The FishTech GEDSI strategy is twin-tracked in terms of incorporating mainstreaming and targeted activities, as explained in Table 4. A two-pronged approach ensures that all projects apply a GEDSI lens, while tailoring a more targeted intervention to each specific case. This allows flexibility and adaptivity in such dynamic social-ecological systems as well as ensuring the foundational change required for transitional outcomes.

Table 4. FishTech GEDSI strategy

Mainstreamed	Targeted
<p>Ensuring that people who are marginalised in society (e.g., women, people with disabilities) have access to their basic needs in all projects on an equal basis. Considering GEDSI at each and every stage of a project to ensure that people are not unintentionally excluded.</p>	<p>Addressing specific needs of individuals and groups to empower and support them in their situation and to ensure that they benefit from management interventions. May require specific programs, support, and adjustments to shift norms and circumstances that maintain harmful norms.</p>

Meaningful consideration of fish migration as part of irrigation and hydroelectricity projects, as well as applying an evidence-based GEDSI lens can improve outcomes for local communities (including women, children, people with disabilities and the elderly) and the overall irrigation investment. Fishways inevitably became community-owned and managed, showing that it is important that all people are able to derive benefits from increases in fishery productivity.

Why inclusion is important to designing, implementing and maintaining fishways

Women, people with disabilities (many impacted by Unexploded Ordnance (UXO)), ethnic minorities and indigenous groups have different needs, values, and knowledge with respect to the use of river and fish stocks. Therefore, their views are essential to understanding, planning and building any infrastructure related to the rivers on which they depend. Three examples are provided to illustrate this. Firstly, the FishTech team spoke to community members who explained how children use the river and how the vertical concrete design of the fishway might negatively impact them and their safety. As a result, the design was modified to flatten slopes and remove rocks to minimise harm to children when swimming in that section of the river (e.g., Pak Peung, Laos). Children can now use these as a place to socialise, play and, importantly, refine their fishing skills. Secondly, there was also the example of a hydropower project in Indonesia that inadvertently led to a decline in the local eel population. Glass eels are lucrative exports and are sold to the Japanese market for a high price. Local people highlighted their need to reinstate the glass eel population for their livelihoods. This consideration was factored into the fishway design to ensure that families dependent on glass eels continue to prosper. Thirdly, smaller fish are important for subsistence in this community and are often collected by women, children and the poorest members of the community. Thus, designing fish passages that consider these types of fish also helps to support vulnerable communities. These three examples show how designs of fish passages can better respond to a broader range of health, safety, and livelihood needs when local community needs and knowledge are drawn on.



Figure 8. Provincial fisheries officer helping with data collection in Pak Peung, Lao PDR (Source: Jim Holmes Photography)

Examples of targeted activities that FishTech is building into the programme to address GEDSI mainstreaming include:

Examples of mainstreamed GEDSI activities:

- Promote diversity in the team roles while engaging advisers and external presenters who offer different perspectives.
- Integrate GEDSI into MRL plan logic, indicators and key reporting questions.
- Maintain a balance of men and women being supported with scholarships, and explain ‘if not, why not.’
- Conduct a GEDSI baseline assessment of one FishTech site and monitor it over the life of the project.
- Ensure mention of GEDSI in the description of FishTech’s technical and development scope; review core masterclass content to enhance reference to GEDSI (text, visuals).
- Develop standard design criteria to ensure that all community members benefit from future fishways.

Examples of targeted GEDSI activities:

- Connect with local organisations and networks that represent women, people with disabilities and indigenous and ethnic minority groups to consult with a cross-section of community members in a given site. This could explore interactions with the river for livelihood, recreation and cultural practices, as well as practices relating to the life cycle of fish in the area.
- Fisheries and fishways masterclass to involve people with disabilities or representative organisations (as participants and/or as content specialists on universal design principles), women and representatives from local ethnic minority groups.

During the FishTech project, a case study on GEDSI considerations for fish passages will be developed and provided on partner websites.



**Figure 9. Vietnamese woman rowing boat in the Mekong River Delta, Vietnam
(Source: Getty Images)**

Case Study 2: Fisheries and gender issues in Myanmar

Fisheries are intrinsically dependent on water, as is agriculture. Water management provisions in agriculture directly impact the sustainability of the fishery sector and, hence, the food security of Myanmar. For instance, Conallin et al. (2019) illustrate the negative consequences of water-blocking infrastructure for irrigation on the migration of in-land fish, underpinning the need for close cooperation between the different sectors.

This section presents a case study of fisheries, gender, and water issues in Myanmar. Like agricultural systems, fisheries occur against the backdrop of cultural and societal processes that differentially impact women's and men's ability to participate, benefit from, and govern equitably together.

The case study was undertaken through desktop analysis of academic literature, grey literature, and questionnaires (n = 8) by Flora and Fauna International Myanmar.

The following sections provide a brief review of the literature on fisheries and gender equality and gender research and application in Myanmar, followed by a discussion on research gaps.

Exploring the fisheries, gender, and water nexus

Myanmar's marine and freshwater fisheries contribute significantly to food and nutritional security while generating income and employment opportunities, and contributing to the nation's economy (Silvester et al., 2020; Soe et al., 2020; Tial et al., 2020). The country's recent economic and political disruptions and the neoliberal efforts towards opening the country present new challenges to the equitable and sustained growth of its fisheries. Until recently, fisheries worldwide have focused primarily on biology, stock assessment, and environmental and climate research, with scant attention to gender or the gendered dimensions of fisheries (Evans et al., 2015; Keen et al., 2018; Moore et al., 2020). To date, social research with particular attention to gendered roles within fisheries remains a key gap in many fisheries. However, a growing body of evidence in Myanmar and worldwide reveals that women play key roles in contributing to food security, the economy and livelihoods through the harvest and processing of fish, linking poverty reduction and food and nutrition security to Agenda 2030 (Agarwal, 2018; Angeles et al., 2019; Gender Equality Network, 2015b; Harper et al., 2013).

The literature reviewed and cited in this learning brief provides a rapid overview of the importance of water resources, food security and gender equality for sustainable development in Myanmar. As a relatively abundant natural resource, water continues to provide essential livelihood, cultural and ecosystem services to communities throughout the country. Large-scale government agencies working with both water and land resources offer an opportunity for greater connection to be made between the sectors, and between the interrelated SDGs. The country's natural resource base is increasingly impacted by seasonal variability (the wet and dry seasons), climate change-related variability and impacts, pollution, over-extraction, and increased hydropower development. The agricultural sector underpins Myanmar's rural economies and is a major user of groundwater in the Central Dry Zone. As one of the most vulnerable countries to climate change, both agriculture and water are in urgent need of innovative solutions that support communities and the development of the country (Eckstein et al., 2021). Since most people live in rural areas and are employed in the agricultural sector (49 per cent), these people are especially vulnerable to climate change (World Bank, 2021).

The Global Climate Risk Index (2021) lists Myanmar as one of the top three countries most affected by extreme weather events between 1999 and 2018.

While women always have, and continue to play, important roles in water resource management, water access and household food security, they remain marginalised from legal and political processes. Due to the interdependencies of food security, sustainable water management and advancing gender equality and inclusion, developing strategies to improve gender equity in the water and agriculture sectors requires methodologies that support critical thinking and active engagement across the different sectors. Synergistic thinking and practices bring a diversity of knowledge to the fore. In support of this approach, the following sections focus on how systems-based integrative research, learning and policy development can support synergies across the SDGs in Myanmar.

Women and gender issues in Myanmar

Myanmar ranks 106th out of 189 countries in the Gender Inequality Index (United Nations Development Programme, 2022)

While women have increased their role in governance and policy processes, and new laws and strategies supporting women in Myanmar have been developed, multiple challenges remain (as is the case in most contexts). Available information points to considerable gender disparities in terms of labour market access, employment, wages, access to education and establishment of property rights (Baran et al., 2017). Social norms related to the different roles that men and women play in society lead in Myanmar, especially in terms of the role of women in farming and fisheries and within households (Belton & Filipinski, 2019; Lamb, 2018).

Like many other countries in Southeast Asia, rural development and social relations are heavily influenced by the cultural norms and structures that influence gender relations between people. Myanmar is home to over 135 officially recognised ethnic minority groups. The majority of these groups live in remote areas that are often prone to conflict and natural disasters (Kramer, 2015). While data disaggregated for ethnicity and gender are largely absent, it is to be expected that such cultural diversity will reflect on gender norms and that generic statistics mask the gender realities on the ground.

While women are not the only group affected by gender inequalities, they make up half of the population and experience gender norms in specific ways. Focusing on women's access to legal rights, training and education and understanding their role in agriculture and water management is essential for sustainable development in any context, including Myanmar. For instance, women perform most tasks related to crop cultivation, such as planting, weeding, harvesting and marketing, and bear the brunt of domestic and care work related to fetching drinking water, preparing meals and caring for children and other household members (Asian Development Bank et al., 2016).

The United Nations' 2019 Gender Inequality Index (GII) ranked Myanmar 106 out of 162 countries. The GII value varies from 0 to 1, with a value closer to 0 indicating high equality and a value of 1 indicating extreme inequality. In 2019, Myanmar's value was 0.458. In addition, the Organization for Economic Cooperation and Development (OECD)'s 2019 Social Institutions and Gender Index (SIGI) placed the country 92 of 180 countries and 7 of 11 countries in Southeast Asia. In 2019, Myanmar's SIGI value was 42 per cent, where higher values indicate higher inequality.

There are a number of other telling statistics in Myanmar that demonstrate gender inequality, especially in regard to full and equal participation in the economy. Gender differences in access to economic opportunities are frequently established in relation to labour market participation. In Myanmar, there is a substantial gap between females and males in the labour force, at 50 and 85 per cent, respectively (Asian Development Bank et al., 2016). Also relevant to gender inequality in the labour force, women are estimated to earn 30 per cent less than men on average for their labour and only 10 per cent of national Parliament seats are held by women, limiting women's decision-making power (International Women's Development Agency, 2023). A recent United Nations Conference on Trade and Development (UNCTAD) report (2020) indicates that the legal and institutional frameworks for gender equality, including the 2018 – 2030 Myanmar sustainable development plan, present many opportunities for the social and economic empowerment of women; however, the realisation of the gender equality goals is challenged by lack of political will, resources, and adequate mechanisms.

In recent years, various initiatives driven by local and international NGOs in Myanmar have advanced gender equality thinking, planning and project implementation. Youth engagement programs like the Myanmar Young Water Professional Program, which includes a one-year training and mentorship programme to create the next generation of water leaders (The Australian Water Partnership, 2021), have also supported a significant number of young water professionals, including women. Additionally, a situation analysis of gender equality and women's rights in Myanmar documented some of the gender progress made in the country, notably since some recent policy reforms and the implementation of the National Strategic Plan for the Advancement of Women (2013–2022) (Asian Development Bank et al., 2016). For example, women have a higher level of secondary level education completion in Myanmar overall than men in Myanmar (United Nations Development Programme, 2022). Interestingly, 52.4 per cent of staff at the ministerial level in government work in 2010 were women, although they are found less in senior or senior-most management positions (Asian Development Bank et al., 2016). For the Ministry of Science in particular, 74 per cent of total employees were women, with 65 per cent of them at the management level (Asian Development Bank et al., 2016). Despite growing awareness and some progress toward achieving gender parity, global and regional indices continue to reflect gender inequalities in Myanmar.

Overview of gender and fisheries research in Myanmar

Myanmar mirrors many of the global trends and statuses of women and men and the gender inequalities in fisheries. These trends are mainly tied to social and cultural traditions, values, and norms, and also to global, political and economic forces. Many fishing households are characterised as extremely economically and socially vulnerable due to the seasonal nature of fishing and the resulting irregular flows of income (Khaing et al., 2018). However, as will be reported below, there are outliers where women go outside the norm and assume more typically male-dominated roles. This occurs in villages where it is more socially accepted for women to fish, or where certain circumstances require a wife or daughter to fish with their husbands or fathers because they cannot afford to pay for crew.

Gender and fisheries research in Myanmar includes cases from Mon Stat and Tanintharyi Region, Ayeyarwaddy Delta Region (Ichikawa, 2019; Khaing et al., 2018), Sagaing Region, and a region-wide report that investigated culture, power and gender equality more broadly across seven states (Chin; Kachin, Kayah, Kayin, Mon and Rakhine and Shan) and four regions (Ayeyarwady, Sagaing, Tanintharyi and Yangon) (Angeles et al., 2019; The Gender Equality Network, 2015). As with global fisheries research that explores through a gender lens, research into Myanmar includes descriptive narratives of women's and men's roles, with investigations into how culture and power influence

them, as well as preliminary assessments and scoping activities across markets and supply chains, rights and policies, impacts of development and access to fisheries and investments. At present, research is in an incipient state, with research gaps requiring attention. These are further examined below. The following provides an overview of gender research in fisheries in Myanmar, drawing on these studies. The results are based on common political ecology and economic themes, including labour and labour markets, resource allocation, property rights and regulation, globalisation and trade, investment and finance and institutions and interests. Research gaps and opportunities for further work are then provided.

Key themes and issues in fisheries and gender

Labour and labour markets

Like other research elsewhere, women's and men's roles remain a key focus of gender and fisheries research in Myanmar (Barclay et al., 2021b; Nishchith, 2001; Peterson, 2003). In Myanmar, a strong gendered division of labour (GDL) exists, even more so in rural communities (Gender Equality Network, 2015b; Ichikawa, 2019). Based on the existing research and questionnaire surveys conducted in Myanmar (n = 8), a summary of the roles that women and men occupy in fisheries across Myanmar is presented in Table 5. It is important to note that gender research thus far remains binary; therefore, the reporting here is restricted to women and men. Moreover, reporting is silent on other identities, such as religion and age.

Table 5. Gendered division of labour in Myanmar

Role	Gender <i>(women (W); men (M) bolded to emphasise gender more commonly associated with roles)</i>
Pre-harvest (preparing for fishing)	M ,F
Fishing	M ,F
Fishing partner (throwing and lifting the fishing nets)	M ,F
Post-harvest (collectors, selling, marketing, processing, household consumption)	F, M
Production of dried fish and fish paste	F, M
Resource management / leadership	M , F
Fisheries management	M , F
Supporting roles (care work such as house chores, raising children)	F



Figure 10. War Kyun makerel processing (Source: WorldFish, Myanmar)

In an FAO working paper that tests the Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries on gender equality in several SSF communities in Mon State and Tanintharyi Region, Angeles et al. (2019) report entrenched gender roles and gendered impacts for women and men, including labour participation, community roles and access to resources. Women play an important yet invisible and unacknowledged role in community life (Angeles et al., 2019; Ichikawa, 2019). A female participant in the Angeles et al. (2019) study noted that “Girls cannot go fishing. If they do not have a husband, they have to do other jobs like washing clothes, working for other people or gardening.” Furthermore, this study shows that women lack deeper and more involved participation at the community level and tend to make decisions over household expenses, children’s education, health and sanitation. Without a voice in decision-making, women’s issues are not heard and are, thus, invisible. Equally, in the Khaing et al. (2018) study of the Hilsa fishery in the Ayeyarwady Delta Region, access to markets is gendered in terms of mode of transport and distance. Figures 5, 6, and 7 below from Khaing et al. (2018) show transportation to market by type of market, fish market usage by gender, and means of transportation to market by gender. Generally, most households access markets on foot or by boat; men predominately use boats to nearby villages or the township fish collector, and women walk to the local village markets. These findings follow the regional trend that women are under-represented in public life and government at local and central levels, where leadership is considered a male entitlement (Gender Equality Network, 2015a).

However, the Ichikawa (2019) study on the roles of multiple actors in the Myanmar fisheries value-chain alerts to the complexity and diversity of gender issues and challenges, and report on surprising results that contradict main-streamed assumptions about the term ‘gender.’ For example, rather than remaining close to home, some women fish processors were found to be the most mobile and reach the central market in Yangon. A questionnaire participant from the Bago and Sittaung Regions noted that while men traditionally and more commonly hold harvesting roles, more women are now participating in these roles and that “there are boats with women fishers only.” The respondent also noted that women may join their husbands or fathers on board to fish if labour is not available due to a lack of funds.

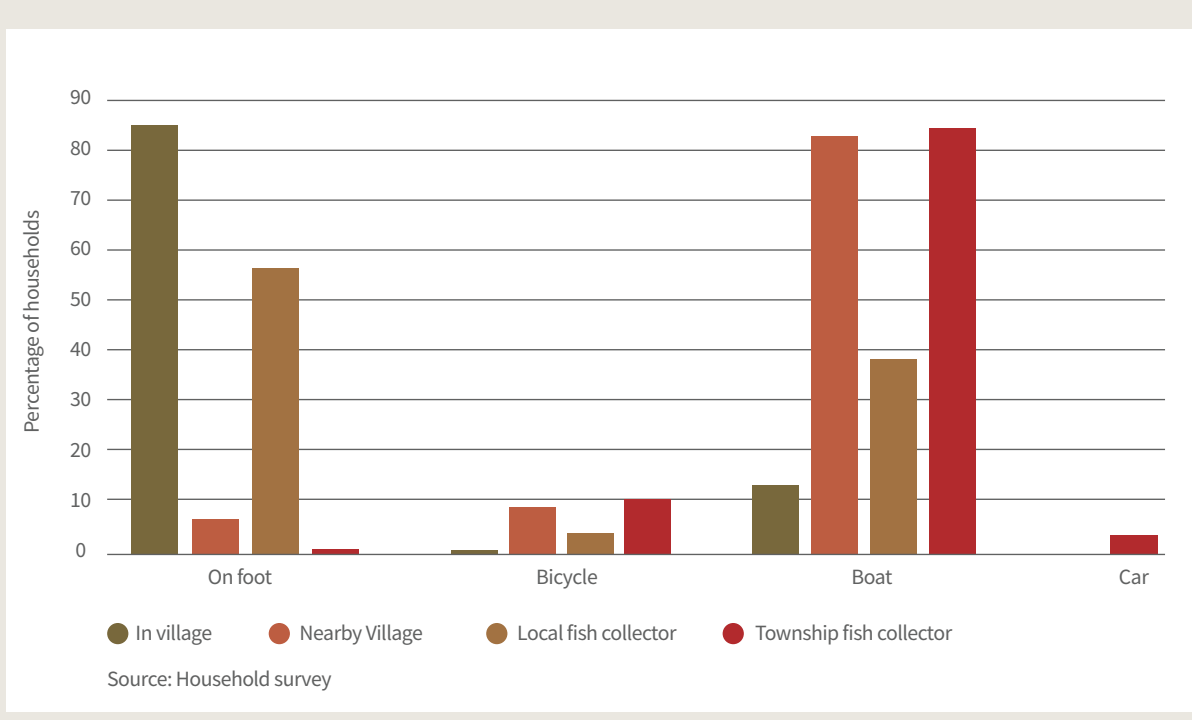


Figure 11. Means of transportation to market by type of market (Source: Khaing et al., 2018)

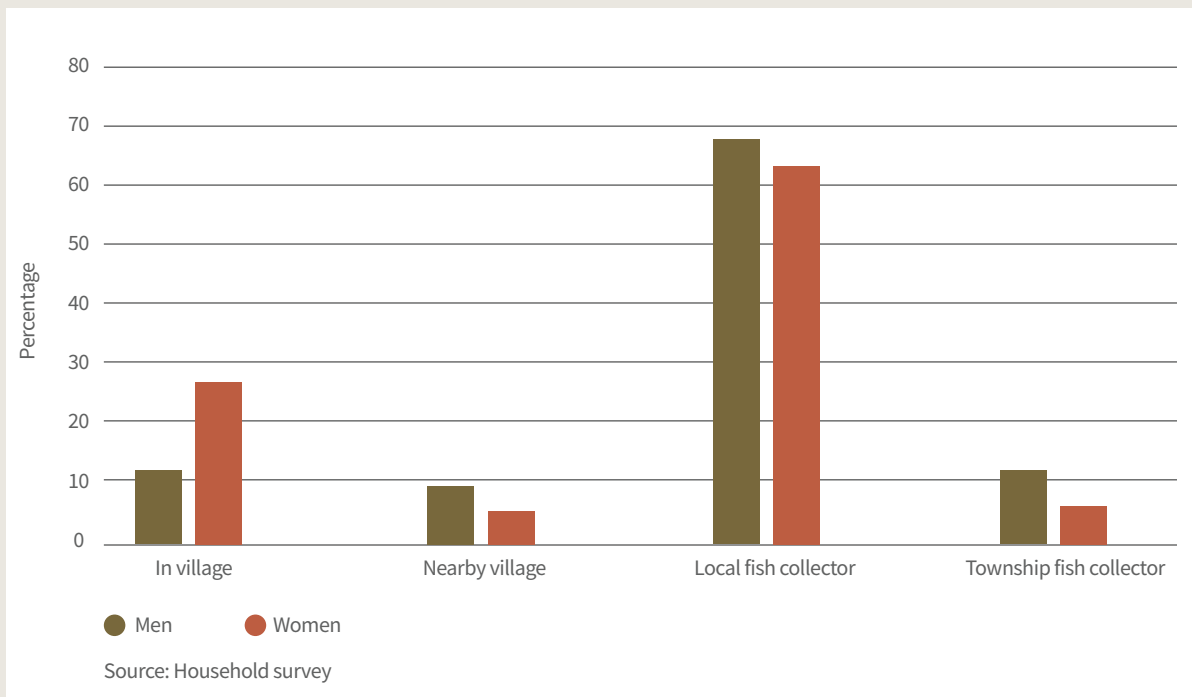


Figure 12. Fish market usage by gender (Source: Khaing et al., 2018)

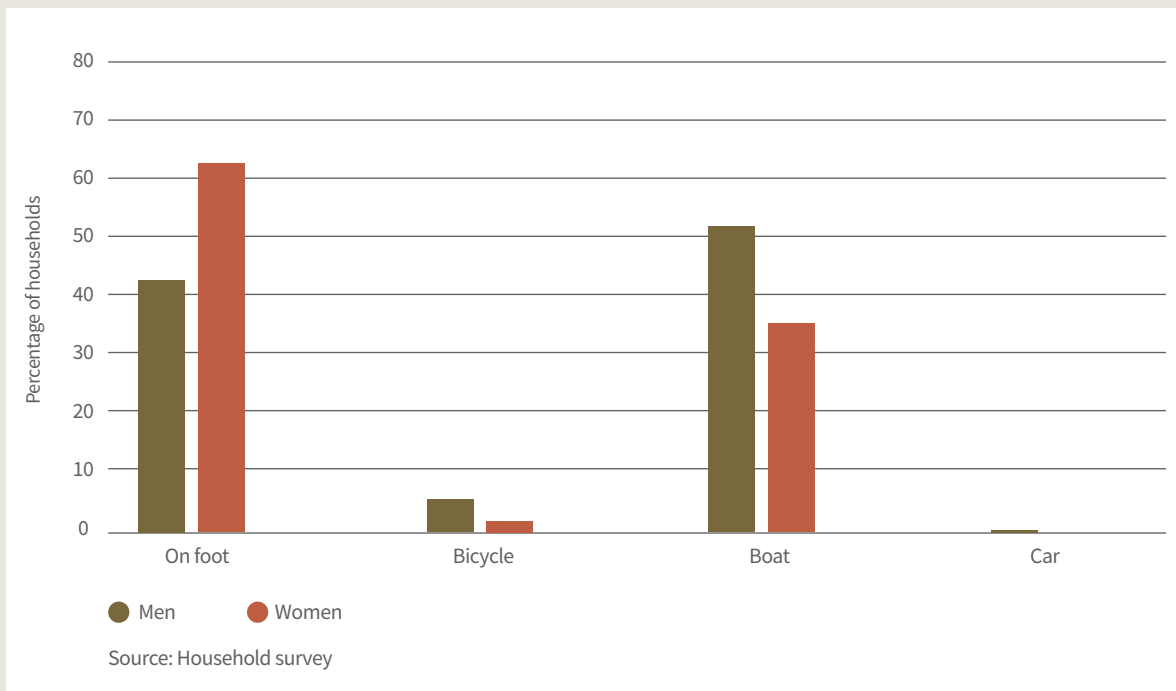


Figure 13. Means of transportation to market by gender (Source: Khaing et al., 2018)



Figure 14. Fish drying Ngapali beach Gyeiktaw Myanmar (Source: Finn Thilsted, WorldFish)



Figure 15. Women fishing with nets by the river (Source: Getty Images)

Women hold multiple roles in informal and formal sectors, including household roles, fishing and pre- and post-harvesting roles, and part-time roles to supplement household incomes (Soe et al., 2020). Moreover, women are reported to work longer hours in lower-paid, less-skilled roles (Soe et al., 2020). These findings are demonstrated as being the case for women in the Hilsa fishing communities of the Ayeyarwady Region (see Figure 8 below). Besides post-harvest activities, women also fish with their husbands and other women or alone around Inle Lake, Gulf of Mottama (Soe et al. 2020). The Moken ethnic minority group in the Andaman Sea (Lampi Island) has many women fishers fishing from open wooden boats, trolling and giggering for squid that are towed out in a flotilla of up to ten canoes to sea by a ‘mother’ boat and left for 12 hours (NGO representative, August 25, 2022). Nonetheless, their dominant role remains in post-harvesting, including value-added activities such as salting, drying, pickling, fermenting and smoking (Ichikawa, 2019) (Figure 8). The separation of roles is described by The Gender Equality Network (2015) as “women’s double burden,” where women must work hard at home and in the markets, selling fish for very little benefit, while “men spend all the money for the alcohol.” Guérin et al. (2013) discuss the complexities of women’s agency, empowerment, power and economic relations. Women are primarily dependent on the fish caught by men, with little decision-making power outside of the household (Angeles et al., 2019). In the community, men hold leadership positions, and women are more often involved in support activities, such as organising and facilitating monastery and church activities, local markets or religious festivals (Angeles et al., 2019).

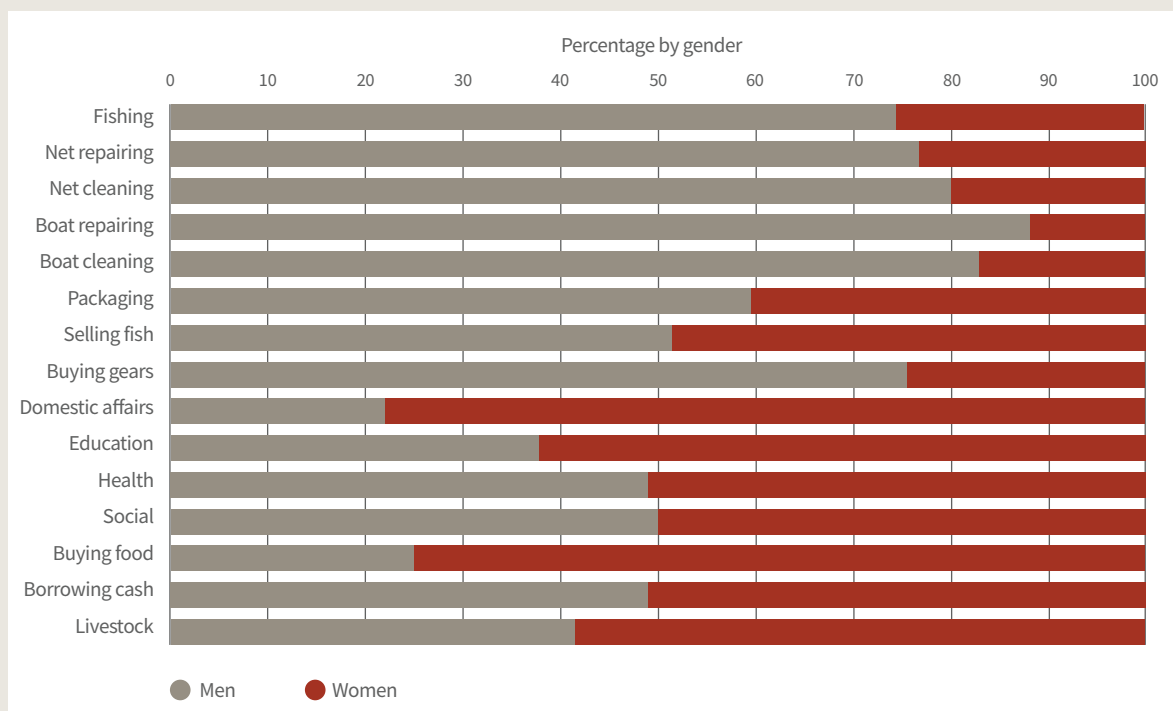


Figure 16. Distribution of household tasks by gender in the Hilsa fishing communities of Ayeyarwady Region (Source: Khaing et al., 2018)

These cases corroborate the global trend and are explained by the deeply intertwined political economy, cultural practices, norms and power relations across multiple scales (household, community, village, region) and involving layers of intersectionality such as age, culture and religion (Barclay et al., 2021b; Syddall et al., 2022; Williams & Syddall, 2022). Owing to practices reaching back to the Industrial Revolution, women’s low- and high-skilled labour (productive, reproductive, care) has become a low-cost (even free) commodity for the sector, as in other international trade sectors (garment industry, electronics, agriculture), drawing on new labour markets (migrants, labour recruiters) and lately being reached by social dimensions (at least in fishing) of corporate social responsibility (Williams & Syddall, 2022). Macroeconomic growth policies, although gender-blind, impact women. These effects may differ, depending on the development stage of the economies, for instance, during times of no growth or even degrowth. However, gender values and norms can change over time and are influenced by many factors. For example, advances in women’s education, and mixed and changing attitudes toward women’s paid workforce participation, have increased women’s participation and paid work in fish value chains (as described by research participants from the Bago and Sittaung Region and explored in Salguero-Velázquez et al. (2022)). Yet, there is little change in underlying social attitudes to and practices in reproductive and care work. Strong gender divisions of labour (stereotyping, disadvantage, lack of participation and structural issues) and gender pay gaps still exist (Syddall et al., 2022). Dominant institutions involving labour and labour markets are governed by capitalist markets and corporations, of which governments are enablers through labour policies and regulations, including for migrant labour (Desai & Rinaldo, 2016).

Women’s collective action in Myanmar has been weak. However, there is a shift, and stronger groups are emerging, including women’s movements through NGO- and intergovernmental organisation (IGO)-led programs, such as FAO’s FishAdapt project and various women’s self-help groups.

There is still a gap in the research that looks at larger-scale fisheries' supply chains, as this is where women often dominate roles in post-harvest production as a source of low-cost labour. In addition, a clear outline of each major fisheries supply chain and region is absent. It would be helpful for researchers to explore wider social-ecological systems and their impacts on gender (and vice-versa).

Resource allocation, property rights and regulations and transitions of governance

Generally, women's right to access and own land tends to be highly insecure (Asian Development Bank et al., 2016). Land must be registered to the head of the household, and households are predominately male-headed. In a 2010 data, 84.9 per cent or 4 million agricultural households were headed by males, whereas 15.1 per cent or 816,000, were headed by females (Asian Development Bank et al., 2016). This data has negative impacts for women and their access to finance and decision-making capacities in fisheries. For example, a recent study on women's participation in decision-making in small-scale aquaculture in the Ayeyarwady Delta Region found that male-headed households have higher technical efficiency than women-headed households due to the social and cultural norms that favour the participation of men in social networks (Aung et al., 2021). However, the same study found that women's participation in decision-making correlates with improved technical efficiency. Prevailing challenges are reported in a recent WorldFish report (WorldFish, 2021) and include land access, ownership issues, distance from ponds and lack of technical and business management skills, all affecting the confidence to lead. Conversely, the report noted the improvement of confidence, leadership skills, experience and income in 19 per cent of women farmers of the 215 women recruited in the Fish for Livelihoods activity to support small-scale aquaculture farmers, households, fish value chains and market actors throughout Myanmar (WorldFish, 2021).

Development aspirations have also unevenly impacted women and men in small-scale fisheries in Myanmar (Angeles et al., 2019). For example, development in the hotel and tourism industry has impacted fisheries by way mangroves and fishing grounds and displacement of villagers through rezoning areas as tourism zones. Additionally, the prioritisation of international companies to access new markets through exports and develop the fishery sector has reshaped the sector itself (see Belton et al. (2019) for a review of Mon State's fishery). There are clashes between SSF and large-scale fisheries to access deeper, more bountiful waters (Angeles et al., 2019). A 2019 FAO study explored the implementation of the SSF Guidelines in Mon State and Tanintharyia Regions and reported that men have been negatively impacted through loss of control of resources like licensing, conflicts with large-scale fisheries, high costs of maintaining boats and equipment and lower fish catch (Angeles et al., 2019). On the other hand, women were concerned with reduced fish catch to process into fish paste, lower bargaining power with intermediaries and pressures for children to leave school to earn income for their family (Angeles et al., 2019).

Recent economic trends in Myanmar, informed by neoliberal economic policies, have led to changing access and rights to fisheries. The impacts are widespread. Importantly, those in SSF are less understood (Angeles et al., 2019). There are, however, transitions to co-management approaches (e.g., community-based fishing management (CBFM)) to achieve more environmentally- and socially-just outcomes, yet these are at an incipient stage. NGOs are working to promote both CBFM and fisheries co-management (NGO representative, 2022). More research is required to explore these transitions in the context of gender equality implementation.

Research gaps

Overall, research on gender and fisheries is limited in terms of contextual studies but is increasing more generally in terms of the lessons learned that are applicable across the sector. There is no full picture for understanding gender issues and geographic representation across each of the major fisheries in the world and their supply chains. Furthermore, legal frameworks and policies are usually fragmented (across sectors and scales of a fishery) with different gender equality and women’s rights standards, as well as policy-practice gaps. There are also gaps in understanding the compounding environmental, social, political, and economic impacts on gender, and how implementing multiple SDGs could be done through an integrative approach targeting gender, climate change, COVID-19, and disaster recovery.

Fisheries development programs, such as international trade agreements and development movements for “aid for trade” deals, happen without understanding social and environmental implications. Governments and businesses have focused disproportionately on international fish trade, largely controlled by large-scale companies, in which women play an important but powerless role providing labour, and relatively less attention to domestic trade in which women (still largely stratified by scale) have more power and agency. This gap is important in the literature (for Myanmar and also for fisheries concerned with impacts on gender equality). Currently, research is dominated by NGO grey literature, and there is a lack of peer-reviewed literature. Nevertheless, these reports provide a rich account of some fisheries in certain locations with some salient recommendations for gender mainstreaming.



Figure 17. Buying fish from roadside sellers Pantanaw Ayeyarwady delta Myanmar (Source: Worldfish, Myanmar)

Conclusion

Achieving sustainable development of fisheries, water, and gender equality depend on considering gender relations and inequalities across the full spectrum of fisheries, water and other sectors, such as agriculture and related decisions and activities. This move will require political will, gender and sex-disaggregated data, a better understanding of the intersectionality challenges, and transitional shifts in cultural beliefs in the acceptance towards women having agency over their roles and participation in fisheries and fisheries management. Furthermore, the analysis of inequality needs to consider historical and socially constructed differentiations between groups and individuals in order to work towards more equitable futures.

The following is a list of key recommendations for greater progress on gender issues in fisheries based on the literature review, the case studies provided in this learning brief, and the FAO's guidance on gender equality in small-scale fisheries (FAO, 2017).

Education, capacity building, and support need to be provided to those in charge of implementing gender equality programs and policies related to natural resources management, such as fisheries.

Research: Based on the gaps identified in this learning brief, more research is needed to understand the barriers women and men face to participate equally in fisheries better. This includes:

- Contextual studies, as each fishery and community hold different social and ecological challenges. This includes understanding the political economy of GEDSI (e.g., processes and relations of labour, technology, capital accumulation, governance of fisheries).
- Qualitative as well as quantitative research to capture more than just sex-disaggregated data, including intersectional gender research.
- Coupled research on cross-cutting issues, themes, and sectors such as climate change-fisheries-gender; water-fisheries-gender; or other sectors that impact on, or compete for, space and resources, such as deep-sea diving, forestry, or agriculture.
- Gender-based violence in fisheries faced by all but are gendered because of their masculinities or femininities (such as those termed as slavery at sea, but that should be explored as gender-based violence because of the strong gendered-based roles).

Monitoring and evaluation: Policies and programs implemented must be monitored and evaluated to learn from wins and losses towards gender equality.

Responsible fisheries and sustainable development need to be considered through a **gender lens** which can be done by incorporating **gender mainstreaming** across multiple scales of governance (government, non-governmental organisations, from local to global levels). Such strategies need to be incorporated in a well-supported and informed GEDSI strategy or gender action plan outlining roles, responsibilities, funding, work plans and accountability measures to ensure that GEDSI considerations do not fall off inadvertently.

Responsibility to progress gender equality lies with multiple stakeholders across local, national and even international scales of governance (both within fisheries and in other sectors such as water and agriculture). Therefore, governance must be structured in a way that enables multi-scalar collaboration, not just of policy but also research and on-the-ground support, such that there is an applied cross-sectoral as well as contextual approach.

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Appendix: Key recommendations in considering GEDSI and fisheries sectors

Specific to applying the GEDSI framework in fisheries research, analysis, management, and policy decision making, across all stages of the project cycle, the following actions are recommended (see Figure 1):

Project Phase	Recommendations for practitioners and policy makers
Pre-design	<ul style="list-style-type: none"> • Invest in GEDSI awareness and personal transformation for staff and communities. • Increase investments in GEDSI aware labour rights and laws relevant to the fisheries sectors. • Conduct robust GEDSI analysis and research to identify diverse knowledges and expertise, roles and responsibilities in fisheries – disaggregated by gender and other social identities (e.g. ages, abilities/disabilities). • Ensure all technical projects and roles are also informed by GEDSI analysis (e.g. fishways, water management infrastructure, technologies). • Establish clear and open communication with community stakeholders to form collaborative partnerships. • Identify diverse knowledges and expertise of different groups in communities and their respective roles in water management and fisheries, which are critical for the sustainable use and management of fisheries resources.
Design	<ul style="list-style-type: none"> • Form partnerships with rights holder organisations (women’s groups, organisations for people with disabilities (OPDs) for example) to help with design, implementation and monitoring of projects. • Conduct robust GEDSI analysis including roles and responsibilities in fisheries and water management – disaggregated by gender and other social identities (e.g. ages, abilities/disabilities). • Consider needs of community members in designs (e.g. safety in infrastructure for children, people with disabilities). • Ensure design considers different people’s access to and control over resources including political economy analysis of water and fisheries in the context. • Ensure designs consider connections between fisheries and the wider ecosystem including water resources – uses, and patterns of those uses (including the different ways the resources are used including benefits, opportunities, costs, risks and impacts).

Implementation	<p>Improve coordination between government agencies, especially those related to food, water, and gender issues (working beyond silos).</p> <p>Deliver meaningful participation activities for whole of the community, and across the whole fisheries value chain.</p> <p>Engage GEDSI experts and local GEDSI groups in implementation processes to ensure that GEDSI strategies are carried out well and safely.</p>
Monitoring, evaluation and learning (MEL)	<ul style="list-style-type: none"> • Disaggregate data by sex, age, ethnicity, and other relevant social categories to ensure that fisheries projects and programs are inclusive. • Design inclusive monitoring, evaluation and learning (MEL) processes for projects, programs and infrastructure with GEDSI experts and rights holder organisations. • MEL should examine both water, fisheries and social ecosystems and consider benefits to culture, issues of power, and impacts on the economy. • MEL should seek to identify the benefits and who bear the costs- who is being left out due to unequal access to fisheries resources? Who is being empowered or supported financially, and whose voices and opinions are being heard, and not heard in decision-making with respect to these resources.

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The Australian Water Partnership is an Australian Government international cooperation initiative helping developing countries in the Indo-Pacific region, and beyond, work towards the sustainable management of their water resources.

