Gender in coastal and marine resource management: A literature review

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26 March 2018

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Introduction

Coastal and marine resources

Much of humanity depends on the rich resources of the Earth's coasts and seas for its survival and wellbeing. Coastal communities hold deep ties with local resources and ecosystems, which they have relied on for their food security and livelihoods for generations. Mangrove forests, seagrass meadows and coral reefs provide important environmental services, acting as nurseries and protective environments for fish and other sea life, sequestering carbon, and protecting coastal areas from storm surges. At the same time, marine capture fisheries and aquaculture products have become highly tradable commodities, with complex value chains expanding the globe and driving the economies of developing and developed countries alike. People are also moving to the coasts at unprecedented rates, attracted to the opportunities of its mega cities and the beauty of its tourist destinations.

The intensified use of coastal and marine resources is causing their decline. Overfishing in is a key concern for marine fisheries, with one-third of all fish stocks overfished (FAO 2016). Rapid coastal development and climate change are threatening the health and survival of crucial coastal ecosystems. The realization that the degradation of coastal and marine resources has severe social, economic and environmental implications for communities and economies around the world has contributed to a growing emphasis on sustainable resource management.

Why a gendered approach to coastal and resource management?

The management of natural resources focuses on the dynamics between natural resources and people. Our use of natural resources, and decision making regarding natural resources, is not shaped purely by biophysical characteristics of the resources, but in large part by who can use and manage them. Unequal relations – usually defined by social differences of gender, ethnicity, socio-economic class, age, and so on – translate into inequalities among people in their access to and control over resources, and thereby influence the benefits and adverse effects that different people, and nature, experience.

There is growing recognition that natural resource management (NRM) requires a diversity of stakeholders in the decision-making process to meet sustainability objectives and address inequalities. Programs that employ participatory approaches have risen in popularity in response to this. However, contrary to its aim, participatory NRM may build on and reinforce social inequalities unless there is a conscious effort to address them. There is therefore a need for analyses of the power dynamics and socio-cultural norms that give rise to social inequalities.

Studies on gender issues in coastal and marine resource management have revealed deep gender and social inequalities. Fishery studies and management have been largely gender-blind, despite the highly gendered nature of the sector. Although women are crucial to the fisheries sector, their roles are often undocumented and therefore rendered invisible to researchers and policy makers. This is because national policies, driven by production targets and concerns with overfishing, prioritize the primary production of fish over other parts of the supply chain that women dominate, and other gender and social issues around fish production, such as decision making and access to productive resources such as credit and skills upgrading. The lack of recognition of women's contributions to the sector's economy and to food security undervalues the economic and social benefits they provide. It also marginalizes women in the implementation of sectoral policies and increases their vulnerability, especially in small-scale capture fisheries which are already marginalized within the fishing industry (Bennett 2005; Harper

et al. 2013; Williams 2008). The inclusion of women's roles and contributions in research and practice in the sector is therefore essential to addressing inequality.

With growing awareness of gender inequalities within NRM, gender mainstreaming has recently become an approach of many NRM practitioners to address and correct gender inequalities. To enable gender mainstreaming, conducting a gender analysis is needed to examine the differentiated roles and challenges faced by, and the power relations between, women and men[1], governed by social and cultural norms. In the context of NRM, gender issues often examine women and men's access to and control over resources, and decision making regarding resource use and conservation at different levels of resource governance.

A focus on women, however, provides an incomplete picture and insufficient means to address inequality. A gendered approach also needs to consider power relations and changing gender roles as people in fisheries and aquaculture strive to attain food security and socio-economic advancement (Bennett 2005). Using a gender lens to analyze the differentiation of roles and access to resources provides a more comprehensive understanding of gender and other social inequalities, and helps the viewer consider appropriate actions to address them (Bennett 2005; Harper et al. 2013; Williams 2008). Integrating intersectionality into a gender analysis further allows us to embrace the diverse life experiences of different women, especially the most marginalized. Such an analysis goes beyond stereotypical wife-husband gender relations that dominate gender discussions, to other power relations faced by women because of factors other than their gender: age, class, social status, nationality and migration status, etc. (Kusakabe and Prak 2015). The negative impacts of excluding masculinity and the vulnerability of men in studies on fisheries and coastal resource management also requires attention (Allison 2013).

Furthermore, analyzing gender issues in coastal and marine resource management necessitates the consideration of larger socioeconomic, political and environmental changes, such as the expansion of global fishery markets, the intensification of resource commodification and exploitation, and climate change. These far-reaching and rapid changes have imposed livelihood pressures on women and men who depend on coastal and marine resources, and the challenges and impacts they face differ due to gender and other social differences and dynamics (Elmhirst and Resurrección 2008), which will be explored in the next section. In developing countries, there is relatively little analysis on how globalization and other trends affect women and men's incomes, social status and wellbeing differently (Weeratunge et al. 2010). In addition to reducing social inequality, a gendered approach also contributes to more sustainable and economically beneficial outcomes for the sector. Understanding how different genders interact with coastal and marine resources differently helps evaluate impacts on resources and the environment over time (Bennett 2005; Schwerdtner Máñez and Pauwelussen 2016). For example, overlooking poor, rural women's roles had led to substantial underestimations of fishing pressure in coastal areas (Harper et al. 2013). A gendered approach also makes economic sense because it encourages an integrated value-chain approach in managing fisheries and aquaculture, which is essential to the success of those industries (Lentisco and Lee 2015).

[1] This binary categorization predominates in many societies, as well as in gender studies regarding environment and development; however, it excludes and discriminates against people with non-heteronormative and cis-gender identities. The relatively new field of queer ecology challenges these norms (MacGregor 2017).

This literature review explores key gender issues in coastal and marine resource management in Asia and beyond. It is split into two main sections. In the first section, it provides an in-depth discussion of known gender issues in the fisheries and aquaculture sector. It looks at the roles and livelihoods of women and men, and how these are changing in the context of globalization and resource degradation, giving rise to gender-differentiated impacts. It also briefly examines gender issues in fisheries resource governance. The second section gives an overview of gender issues in the context of broader coastal development trends, such as the increasing concentration of people in the coastal zone, and the rapid growth of coastal tourism. In addition, it examines the integration of gender dimensions into coastal zone management. Finally, the review summarizes key knowledge gaps within the area of gender and coastal and marine resource management.

The review was developed as part of a regional gender study to improve understanding on the state of women and men in environmental decision making and the structural challenges preventing equal opportunities for men and women in relation to coastal and marine resources in South and Southeast Asia. The regional study was supported by IUCN's Mangroves for the Future program and the Southeast Asian Fisheries Development Center (SEAFDEC).

Gender and fisheries

The political economy of fisheries and aquaculture resources

In 2011 and 2012, 18 countries (including 11 Asian countries) contributed to over three-quarters of worldwide harvests in marine capture fisheries. Over the past decade, marine capture fisheries have grown significantly in certain regions of the world, such as in the eastern Indian Ocean, the eastern central Atlantic, and the northwest, western central and eastern central Pacific, while fisheries in many other regions have been in decline (Hazin et al. 2016).

Small-scale fisheries are key contributors to livelihoods at the household and community levels, especially for the poor. Fisheries contribute to both poverty reduction through local economic development, and poverty prevention by being a safety net that provides a minimum standard of living. Seasonal and occasional fishing activities are important supplementary livelihoods in times of crisis. For some, fishing is a livelihood of last resort. In fact, increased fisheries employment in developing countries reflects not only an increase in fish production, but also a growing number of people who turn to fisheries work after exhausting other livelihood options, or in combination with them. Many small-scale fishery workers are employed in commercial fishing activities in addition to subsistence fishing for their families and local communities (Chuenpagdee et al. 2016; Arnason et al. 2009).

On the other hand, fishery products are one of the most highly traded commodities within the food sector. In addition to strong growth in trade, there have also been large structural changes in fishery supply chains due to factors such as the globalization of food supply chains, trade liberalization, better transportation and logistics, technological innovations, distribution and marketing changes, and geopolitics (FAO 2016). Aquaculture is the world's fastest growing food sector, forecast to supply over half the fish consumed by 2020. Asia supplies over 90 percent of aquaculture production, most of which is carried out by small-scale family farms and relies on family labor (Veliu et al. 2009). One of the most

significant trends in the fisheries trade has been the growing share of developing countries in global trade. Many developing economies rely heavily on fishery exports for foreign currency income, employment, and food security (FAO 2016).

Fish processing has become more integrated into global supply chains over the past few decades to meet the quality and food safety requirements of importing countries, typically developed countries, increasingly passing through large retailers such as supermarket chains. Processing is also becoming more concentrated in certain regions as more processing is outsourced from developed to developing countries. For example, European and North American countries send whole frozen fish to China, India, Indonesia and Viet Nam to be filleted, packaged and re-imported (FAO 2016).

Most fishery catch statistics do not report disaggregated data on large-scale and small-scale fisheries. Small-scale fisheries are under-represented in official fishery statistics because of poor coverage due to the small, remote and scattered nature of small-scale operations, and the focus on macroeconomic statistics that exclude household-level data. The first disaggregated study of fisheries in developing countries by the WorldFish Center (2008) estimated that small-scale marine fisheries produce over half of the catch in those countries, equivalent to 28-30 million MT per year. Over 90 percent is for domestic human consumption. Small-scale fisheries are therefore an important contributor to food security in developing countries (WorldFish Center 2008; Chuenpagdee et al. 2016).

Catch statistics also tend to be underestimates in general because of they do not account for illegal, unreported and unregulated (IUU) fishing. IUU fishing has been on the rise over the last couple of decades and is a large threat to fishery sustainability and the livelihoods of small-scale fishers. IUU fishing has also been linked to issues of poor labor conditions, and drug and human trafficking (Hazin et al. 2016).

There are varying estimates of employment in fisheries and aquaculture. According to FAO (2016), in 2014 over 56 million people around the world participated in capture fisheries and aquaculture, 84 percent of whom were in Asia. Another estimate by Arnason et al. (2009) reported that at least 120 million people were employed directly and indirectly in capture fisheries worldwide. It is difficult to obtain accurate data for small-scale operators because of their participation in multiple livelihoods, the temporal nature of fishing, and their dynamic and often scattered locations (FAO 2016; WorldFish Center 2008).

Employment trends vary by region. Employment in capture fisheries in most low- and middle-income countries has increased steadily, while employment in most developed countries has been in decline. Asia has the largest share of the world's fishers and fish farmers, and has experienced strong growth in the number of people employed in capture fisheries and aquaculture at least occasionally, with a three-fold increase from 1970 to 2000 (Arnason et al. 2009).

Around 90 percent of people who depend on fisheries for their livelihoods (fishing, processing, trading, and other fishery-related activities) are in developing countries (WorldFish Center 2008). In developing countries, the WorldFish Center (2008) estimated that there are 43-45 million people employed in small-scale marine fisheries, including 11-12 million fishers and 32-33 million people employed in processing and marketing. In these small-scale fisheries, 1,500 people are employed per 1,000 tonnes of fish caught, in contrast to 200 people in large-scale fisheries.

Fishers in developing countries earn substantially less income than those in developed countries. The average output per fisher in 2000 was valued at around US$19,000 in Europe, US$2,231 in Africa, and US$1,720 in Asia. It has been estimated that almost 6 million small-scale fishers worldwide earn less than US$1 a day (Arnason et al. 2009).

On a global scale, marine fisheries production has been in decline since 1996. Around one-third of all fish stocks are overfished, which in addition to causing ecological harm also creates negative economic and social impact from reduced fish production. Reducing overfishing could potentially increase fish production by US$32 billion (FAO 2016). Many countries have therefore focused on policies to limit the growth of fishing capacity to increase resource sustainability and livelihood viability, although often with little success (Arnason et al. 2009).

The impacts of globalization of fishery value chains and the depletion of resources on the livelihoods of women and men involved in fisheries are not yet well understood, but studies point to a troubling trend. Industrialized fishing has been found to displace small-scale fisheries in developing countries by diminishing the catch on which small-scale fishers, processors and traders are dependent. Overall, the growth in value and productivity of the fish trade and aquaculture do not seem to be benefiting women and other socially vulnerable groups like ethnic groups. Increasing transnational investments, resource commodification, infrastructure development and market access are changing power and gender relations, and consequently access to and control of resources, in ways that exclude many women, and the poor, from supply chains (Weeratunge et al. 2010).

Gender issues in fisheries

Gender and development studies within the realm of coastal and marine resources in the Global South has mostly been confined to fisheries and aquaculture, which are economically important sectors. Such studies have existed for over 30 years. However, gender and social equality issues have been greatly overshadowed by technical, ecological and economic aspects that are the mainstay of most research and monitoring in the sectors. Sociologists and anthropologists, recognizing that fisheries management concerns are not only technical but also social issues, have paid more attention to gender equality issues than fisheries managers and policy makers (Lentisco and Lee 2015; Campling et al. 2012; Williams et al. 2016; Bennett 2005).

Most studies on gender issues in fisheries have also focused on women. These studies have highlighted the roles of women by describing the gendered division of labor in small-scale fisheries, and women's contributions to the processing and trade of fishery products (Lentisco and Lee 2015). The focus on women has largely been a response to the little knowledge that exists on women's roles within the sector. In addition, it is associated with the tendency of women, gender, and development research to address inequalities, where focus inevitably turned to women, as well as their roles in early studies on gender and the environment (Schwerdtner Máñez and Pauwelussen 2016; Bennett 2005). These studies, however, focus largely on one-dimensional views of women *as women*, and rely on less on intersectional analyses that view multiple and embedded identities of women in class, ethnic, racial and generational terms.

More recently, research on gender and fisheries from its focus on roles and livelihoods, has expanded to include wider gender issues, although these are still in the minority. Gender analysis also considers issues of resource access, rights, use and governance and their impacts on the environment as they change over time (Schwerdtner Máñez and Pauwelussen 2016). While some studies still focus on livelihood roles, they address the contribution of women outside of their traditional roles in fish processing and trade, and the participation of women in resource governance and management (Schwerdtner Máñez and Pauwelussen 2016; de la Torre-Castro et al. 2017; Lentisco and Lee 2015). Research has also started to address the lack of engagement with masculinity concepts in fisheries, which has occurred despite most social research on fisheries concerning men. This research not only addresses the vulnerability of men caused by the reinforcement of masculine identities, but also encourages analysis of gender and power relations between men and women in fishing communities (Allison 2013). The emergence of these themes reflects shifting perspectives within studies on gender and the environment, from a focus on fixed gendered assumptions to the analysis of dynamic power relations between genders within specific contexts (Elmhirst and Resurreccion 2012).

The sections below elaborate on gender issues in fisheries and aquaculture from the research literature.

Labor, livelihoods and employment

Fish as a male domain

Despite the involvement of both men and women in the sector, fisheries are largely perceived as a male domain, for several reasons. First, there is a limited understanding of what constitutes "fishing". Fishing is commonly perceived as the use of gears such as nets, lines and spears in catching aquatic organisms. These activities are dominated by men. On the other hand, women who glean shellfish and other organisms from shores and reefs are considered to be "gathering" rather than fishing, even though they are also harvesting aquatic organisms from the coastal and marine environment (Schwerdtner Máñez and Pauwelussen 2016; Harper et al. 2013).

Second, the sector focuses on public fishing activities, which men dominate, and therefore on men's roles in fisheries. This is partly from the perception of many societies that consider men as providers who interact with the public sphere, and women as family and home caretakers. Women are perceived as "fisher wives" in some societies. It also derives from assumptions that fisheries activities occur in the public domain and not the private domain. However, in reality, many activities that are essential to running a fishing operation, such as fish processing and finance and logistics management, occur in the household. This is especially the case in small-scale fisheries. The fishing sector therefore tends to overlook women's roles that are less publicly visible but no less essential to its operation (Schwerdtner Máñez and Pauwelussen 2016; Weeratunge et al. 2010; Harper et al. 2013)

Employment

Employment statistics can shed some light on women's involvement in fisheries and aquaculture. However, sex-disaggregated data on fisheries is limited, especially in the Asia-Pacific region and Africa and for small-scale fisheries in general (Harper et al. 2013). There are currently varying estimates of women's employment in fisheries and aquaculture, depending on source, locality, and sector definition.

The FAO (2016) estimated that women comprise over one in five people "directly engaged in the fisheries and aquaculture primary sector", but that they represent half the labor force when the primary

and secondary sectors are combined. The Big Numbers Project study on small-scale fisheries in developing countries estimated that women comprise almost half the labor force of the fisheries sector. If gleaning and aquaculture activities were taken into account, women could make up even more of the work force, so that the sector might even be considered a "female sphere" (WorldFish Center 2008; Weeratunge et al. 2010). For example, in Cambodia, China, India and Nigeria, women outnumbered men in terms of employment in small-scale marine fisheries. In many cases this was because women dominated the post-harvest sector, which provides over nine in ten of all fisheries jobs in small-scale fisheries (WorldFish Center 2008). Women also comprise 70 percent of the total workforce in large-scale marine fisheries (WorldFish Center 2008).

Catch

Official catch statistics do not provide a complete picture of women's share of the catch in fisheries. This is especially the case when a large proportion of the catch is for subsistence, such as in the Pacific. Women are predominant in reef gleaning, which is the collection of fish as well as crabs, shellfish, octopus, and other invertebrates along the shore. This catch forms a large part of the local everyday diet, and therefore contributes substantially to nutrition, especially in small island states and densely populated countries. In Bangladesh, Cambodia, Ghana, Indonesia, Sierra Leone, Sri Lanka, and some small island states, fish makes up at least half of the total animal protein intake. In 2013, over three billion people obtained almost 20 percent of their animal protein intake from fish (FAO 2016; Harper et al. 2013).

However, data on the subsistence portion of the catch is not collected by the FAO. Harper et al. (2013) estimated that women are responsible for 80 percent of the subsistence catch in Melanesia, and around 20 to 25 percent in Micronesia and Polynesia. By including these estimates, the authors proposed that women brought in over half of the combined small-scale fisheries catch in 16 Pacific Island countries, equivalent to 110 million USD in revenue and 363 million USD in economic impact through the value chain. This assessment contradicts the assumption that women are minimally involved in capture fisheries, and has large implications for management and policy making in the sector (Harper et al. 2013).

Division of labor

Studies of gender in fisheries and aquaculture have focused on the gendered division of labor, especially the dominance of men in fish production, and of women in gleaning, processing and trading (Schwerdtner Máñez and Pauwelussen 2016; Weeratunge et al. 2010; Bennett 2005). This generalization is largely true, as women do disproportionately make up more of those who glean, process and market the catch, and are less involved in catching fish, especially large fish. In Asia and West Africa, women market over 60 percent of seafood (Lentisco and Lee 2014). They comprise most of the labor in seafood processing plants, especially in Asia, Africa and the Pacific. For example, they comprised 90 percent of cannery workers in Fiji and the Solomon Islands, and up to 80 percent of the work force in other processing plants in the Pacific Islands (Harper et al. 2013). In Viet Nam's shrimp aquaculture value chain, women make up most of the labor force in processing and packaging factories (Veliu et al. 2009).

However, gender studies literature have also advocated for a shift away from the focus on traditional gender roles (Lentisco and Lee 2014; Lentisco and Lee 2015; Weeratunge et al. 2010). For example, Lentisco and Lee (2015) argued that the emphasis on the sharp division of labor between men and

women in small-scale fisheries has led fisheries to overlook the input of women in parts of the value chain other than their perceived roles as processors and marketers.

Focusing on traditional gender roles is also limiting because gender roles and social relations are not fixed over time, especially with economic globalization (Campling et al. 2012; Harper et al. 2013). Gender and development studies have revealed changing gender roles in small-scale fisheries as a result of these changes. In Asia, the expansion of aquaculture has led to more and more women becoming involved in fish farming. Women who traditionally gleaned shorelines and reefs are migrating to neighboring countries or the Middle east to work as laborers (Harper et al. 2013). In the Sundarbans of Bangladesh, the shift from a subsistence to an export-oriented economy has given rise to a shrimp industry that has changed gender roles and social relations. There, fishing for shrimp fries is one of the only economic opportunities for poor, landless women, and although it has become more socially acceptable for them to work as wage labor, they have faced physical and social oppression from shrimp farm owners and others in power (Guhathakurta 2008).

Traditional gender roles have also been changing in Oceania. With increased commercialization, more women in the Republic of Palau, Fiji, the Solomon Islands and the Northern Marinas are fishing from boats beyond the reef using nets and lines, which is traditionally a men's activity (Harper et al. 2013; Williams 2008). In some islands they are the predominant shellfish fishers in reefs and seagrasses (Williams 2008). Women's roles have also shifted from nearshore subsistence activities (such as gleaning) to selling catch on the market and bartering with local communities, thereby contributing to household economies as male-dominated fisheries are becoming less important sources of income (Williams 2008; Harper et al. 2013).

Livelihoods

Rapid changes in global seafood value chains affects women's and men's work differently (Williams 2016). Gendered employment statistics and division of labor are limited in describing the gender-differentiated impact of increased commercialization, economic degradation, and other trends affecting the sectors. This is because women and men in the sector are not uniform groups of people whose experiences can be accurately captured by their gender alone; they are a diverse group of people socially, economically, and in many other ways. They are also not all from fishing communities that are poor, rural and isolated, as some communities are located near large cities. But many studies tend to generalize based on gender and other stereotypes, and therefore fail to account for the diversity of experiences by women and men within the fisheries and aquaculture sectors (Porter 2012; Weeratunge et al. 2010).

Different women and men also employ differing strategies to navigate livelihood challenges. Those strategies are influenced by their gender, class, race, and other aspects of their identities, which also define their differentiated access to resources such as social and financial assets (Weeratunge et al. 2010). Such strategies can include alternative livelihoods, improving technology, changing to less profitable fish species, migration (willing or forced), the use of credit, forming and strengthening associations, lobbying and awareness raising (Bennett 2005). Understanding differentiated impact and vulnerability requires analyzing women and men's broader livelihoods portfolios within larger social, environmental, economic, and other contexts (Weeratunge et al. 2010).

Women in the fisheries and aquaculture sector often take on fisheries- and non-fisheries related roles concurrently. Stereotypical gender identities and roles associate women with reproductive roles in the

household, such as caring for children and the elderly and providing food for the household (Weeratunge et al. 2010; Harper et al. 2013; Lentisco and Lee 2015; Veliu et al. 2009). In addition, women are often the *de facto* heads of household as men are frequently out at sea for extended periods of time (Allison 2013; Schwerdtner Máñez and Pauwelussen 2016). At the same time, they are often involved in direct fishing and indirect contributions to fisheries. The latter includes earning income from selling fish and growing crops at home. These activities are becoming more important in the maintenance of small-scale fisheries, as wives' incomes are used to subsidize their husbands' increasingly unprofitable fishing activities (Weeratunge et al. 2010; Harper et al. 2013). In small-scale aquaculture, women often contribute to farm operations as part of the family, while being expected to also fulfil domestic roles (Veliu et al. 2009). The juggling of work inside and outside the household places large burdens on women, while much of their contribution to the household and family livelihoods remains unacknowledged (Lentisco and Lee 2015).

Remuneration and access to resources

The gendered division of labor mutually reinforces economic inequality, as fish production is more highly valued than processing and gleaning (Williams 2008). Women are often poorly paid, or not paid at all given their "unofficial" status in the sector. Their lesser positions in the value chain have led to income disparities between men and women, with women often facing poverty as a result. Women also have limited access to financial resources, assets, and policy support because of their informal status, customary beliefs, norms and laws, and discriminatory state regulation (FAO 2016; Weeratunge et al. 2010). Women seeking to run independent small-scale aquaculture farms in Nigeria and Viet Nam have found it difficult to gain access the capital necessary for investing in inputs that are often imported and expensive, such as feed, chemicals and fish smoking technology. Women also own limited land; family aquaculture farms in Viet Nam are usually registered under men's names, while in Nigeria control over land is customarily male-dominated (Veliu et al. 2009). It is unknown how development interventions such as micro-finance have affected men and women differently. Some technological shifts have been found to disfavor women due to reasons such as unequal access to the technology, or the technology shifting women's roles away from income earning toward support functions and processing (Weeratunge et al. 2010).

Weeratunge et al. (2010) contends that economic inequality affects not only women but also households and communities, because women's earnings can be invested in the household and local economy, and in some cases augment male producers' capital for improving productive assets. Gender-disaggregated data on fisheries wages are lacking (Harper et al. 2013).

In addition, industrial fishing is displacing women and men in developing countries from small-scale fisheries into subsistence and unpaid work. For example, women who made nets and fished using hand nets were displaced by mechanization in West Bengal, thereby losing their incomes and social status (Weeratunge et al. 2010). Industrial fishing has also increased employment in processing factories. Women who have been displaced from micro and small-scale processing due to hygiene and quality standards for exports migrate to large processing factories for work. Most factory processing employees are women, and many of them are paid less than men for the same jobs, and work with low levels of social protection. The commodification of aquatic products that are usually harvested and traded by women, such as shellfish, sea cucumber, octopus, seaweed and jellyfish, is also resulting in men displacing women as these products become in demand and fetch higher prices on the market (Weeratunge et al. 2010).

Migration and mobility

Seasonal labor migration within and across countries for alternative sources of fish, trading grounds and jobs is a common phenomenon in Asia and Africa (Weeratunge et al. 2010). The ASEAN region contains countries with the largest numbers of migrant fishers in the world fishing under a single flag. Irregular or undocumented migrants make up most of the unskilled workforce of trawl and purse seine fishing. The ASEAN fisheries sector has shown increasing concern for the working conditions of migrant labor in the sector (SEAFDEC 2017). Foreign fishing crew in marine fisheries are often remunerated very poorly and face harsh working conditions. Vietnamese crew workers on fishing vessels flying under the flag of more developed countries earn less than US$200 per month and have work days of 16-18 hours (Arnason et al. 2009). The widespread abuse of male migrant labor on Thai fishing vessels has been documented in recent years. According to a study by the Issara Institute and International Justice Mission (2017), almost 90% of Burmese and Cambodian migrant fishing labor in southern Thailand are estimated to have been exploited and/or trafficked in the last five years. Most of the fishermen interviewed were overworked and paid below the minimum wage level, and almost one in five was a victim of physical violence. Three-quarters had experienced debt bondage. Thailand is the third largest exporter of seafood globally and employs over 170,000 fishermen, four out of five who are migrant workers (Issara Institute and International Justice Mission 2017).

As seen above, fisheries institutions have focused on issues concerning male migrant workers because of their large numbers and revelations of abuse by international media. Information on women migrants in the sector is sparser. There are cases that show more women migrating for seafood processing jobs from Cambodia to Thailand, and from Kerala to other Indian States (Weeratunge et al. 2010). Others work as labor on fish farms in Asia, particularly Thailand (Resurrección 2009). The differentiation in the types of jobs done by men and women migrants is influenced by the gendered nature of labor markets (Resurrección and Sajor 2010).

Even in the same job, migrants face gender-differentiated working conditions, remuneration and terms of employment. In a study on southern Thai shrimp farms, where low-skilled migrant workers are in demand, migrant couples from Lao PDR, Myanmar and northern Thailand earned joint wages that were less than the combined wages of two individuals, because the woman was not considered a “real worker”. However, in addition to their pond operation duties, women were also expected to carry out domestic work for their employers, unremunerated, because of gendered social norms and the informality of domestic work. While the Thai women migrants were able to supplement their incomes with livelihoods outside the shrimp farms, the Burmese women migrants were restricted from doing the same due to stringent immigration policies (Resurrección and Sajor 2010).

Fishermen in Asia and Africa with high mobility have be found to be more vulnerable to HIV from sex with female sex workers. They can also spread HIV regionally and internationally, and to their wives (Smolak 2014).

Vulnerability to shocks

Little is known about gender inequalities in terms of health, education, and social safety nets, and their implications for women and men in terms of economic opportunities, poverty, and vulnerability to shocks, especially in marginalized fishing communities. However, it is important to analyze gendered coping and adaptation strategies as the fishing sector is increasingly exposed to climate change and

other risks. Women tend to be more vulnerable to these risks because they have less access to the resources needed to cope with them (Weeratunge et al. 2010).

Environmental degradation can limit women's access to resources even further. Dwindling marine resources makes certain livelihoods unviable. For example, on the east coast of the Malaysian peninsula, women in small fishing families can no longer catch, dry and sell fish to inland trade as industrial fishing has grown to dominate the scene, inshore fish catches have dropped by 90 percent, and retail competition has increased. Most of these women turned to contribute unpaid processing labor for their husbands' catch, increasing these households' dependency on a single fishing income (Williams 2008). This can change the balance of gender relations within households and communities (Harper et al. 2013). Increased competition for fish and other resources can increase women fish traders' exposure to HIV/AIDS from sexual transactions done to increase access to fish from fishermen (Weeratunge et al. 2010; Lentisco and Lee 2015).

The pressures to be economically competitive have associated seafood processing with job precariousness and high occupational health and safety risks for women. One study showed that black women and older women, who comprised most seafood processing workers in South Africa and Eastern Canada respectively, were particularly exposed to occupational allergies and asthma. Although they had limited support and compensation, when faced with the jobs-or-health dilemma, they preferred to continue working over joblessness. Occupational health and safety in seafood processing in general has been understudied (Howse et al. 2012).

Networks, status and identities

Social networks can help people and households access material and non-material resources to mitigate risk, increase wellbeing, and increase success and status in fishing and trading. In general, more men in the fishing sector are members of fisheries associations and cooperatives than women. However, poor men can be left out of formal associations (Weeratunge et al. 2010).

Women's organizations and networks can be financially and socially powerful, such as those in Senegal and Benin, but these strengths do not result in greater decision-making power compared to men's groups (Bennett 2005). Other instances of women in associations include fish trader associations in Ghana and diver associations in South Korea. Self-help groups for women mussel farmers in Kerala, India have increased and expanded production and created processing, trading, and rope-making jobs for them (Weeratunge et al. 2010).

Studies on gendered identities in fishing communities of developing countries are relatively few. Weeratunge et al. (2010) cautioned against assuming that because fishing is deemed an occupation of last resort, it carries no prestige. People who engage in fishing and other activities in the sector have expressed satisfaction and pride in their work and identities and fishermen, fisherwomen, and fish traders and processors. Stratification within fishing communities based on a complex interplay gender, age, class, ethnicity and other factors can contribute to these identities. In some communities, women have higher status as fish traders, such as the wealthy "fish mammies" in Ghana who run "small empires" (Weeratunge et al. 2010, page 412).

Social status and identity are also influenced by external factors and considered in relation to changing contexts. For example, women fish traders in Goa, faced with increasing commercialization, climbed the socioeconomic ladder from peddlers to market entrepreneurs, which helped maintain equal gender

relations in their households. However, they considered their work socially inferior for their daughters and granddaughters, whom they removed from the fish trade to pursue education and professional careers and disassociate from their lower caste. Therefore, the women fish traders' gains in power were offset by changing social notions of prestige, and restricted by caste association (Weeratunge et al. 2010).

Men have also expressed pride in their identities as "fishermen" with high-risk occupations (Weeratunge et al. 2010). The risk – both physical and in terms of production – can contribute to high job satisfaction among fishermen. The failure of alternative income projects for fishermen may arise from such attachment to the job. In one study, the majority of fishermen interviewed in the Philippines, Indonesia and Vietnam expressed that they would stay with their fishing jobs even if another occupation offering similar income were available (Pollnac and Poggie 2008; Pollnac et al. 2001).

A group of scholars has more recently focused on the negative impacts of risk-taking behaviors associated with "maritime masculinities" (Allison 2013; Westaway et al. 2007). For example, condom-less sex with female sex workers and alcohol use have been found common among fishermen in Africa, South Asia and Southeast Asia, such that fishermen have a high prevalence of HIV comparable to other at-risk groups such as truck drivers. This also increases the risk of transmission to their regular partners (Smolak 2014). The concept of a strong masculine identity in fisheries is seen as a consequence of several of factors: a marked gendered division of labor, with men at sea and women on land; the prevalence of young men on boat crews, who are away from families and society for long periods of time; and the reinforcement of a strong group identity by social marginalization and peer pressure (Allison 2013; Westaway et al. 2007).

Despite the high visibility of men in fisheries, gender and development studies have done little to engage with the social construction of masculinity. Studies have also often portrayed men in fisheries as a problematic group (e.g. violent, alcoholic and promiscuous), without also exploring the circumstances of their risks, vulnerabilities and choices, and differentiating between the experiences of different individuals (Allison 2013; Westaway et al. 2007). More research on masculinity would contribute to a better understanding of the positions of both men and women in fishing communities (Schwerdtner Máñez and Pauwelussen 2016)

Resource governance and development

Development discourse

There has been a shift in discourse from "women in fisheries" to "gender and fisheries" in the fisheries sector of development. The initial emphasis on "women in fisheries" was induced by the growing political agenda in the 1960s and 1970s to support the integration of women into development programs from which they had been excluded. The Global Workshop on Women in Aquaculture, hosted by the United Nations Food and Agriculture Organization (FAO) in 1987, was the first notable event in the sector. This was followed by the Workshop on Women in Fisheries in the Asia-Pacific region in 1995.

Within Asia, the Asian Fisheries Society (AFS) held two highly successful international symposia in 1998 and 2001 on women's roles in fisheries. However, wider gender issues were also brought up. Subsequent symposia on gender and fisheries have started to raise key gender concerns linked to poverty, health, and the dual roles of women in and outside the home (Williams et al. 2002).

Fisheries institutions

Gender and equity issues have historically taken backstage among established formal institutions in the fish sector such as governments, universities and research institutes. These institutions are preoccupied with issues perceived as more urgent, related to globalization, resource sustainability, aquaculture growth, and governance reform within the sector. They therefore give these issues more attention, intervention and funding (Williams 2016; Arnason et al. 2009). Overfishing has been given particular attention.

Gender and equity issues rarely feature in the work of formal institutions because these issues are not integrated into sector policies, strategies and standards (Williams 2016). Over the past few decades, attention to gender issues has arisen instead from new networks and institutions, sometimes informal, as well as individuals within networks and institutions who have led efforts toward greater gender equality. For example, the International Collective in Support of Fishworkers (ICSF) and the Asian Fisheries Society's gender in fisheries and aquaculture group have conducted studies, symposia and activities on gender issues, and attempted to bridge the gap between the fields of gender and fish studies (Williams 2016; ISCF 2017). Such networks have helped ensure the inclusion of gender in some global reports and policies, such as the FAO Voluntary Guidelines on Small Scale Fisheries. However, gender networks have also tended to stand in as "consultants" in formal institutions in addressing gender issues, reducing the priority of these institutions to build dedicated in-house gender expertise (Williams 2016, p. 42). In addition, many fisheries decision makers are unfamiliar with the qualitative nature and language of gender studies, and are unsure how to incorporate their findings into policies (Harper et al. 2013). Williams (2016) noted that resistance to formal gender mainstreaming in fish institutions has been much higher than in other expert fields, such as agriculture. At this rate, it will likely take decades more to establish gender issues professionally in the sector, and for those efforts to translate into results in the field (Williams 2016).

Within formal institutions, the sector is highly male-dominated. Women's representation in business, policy and advocacy networks in the sector is low, especially at leadership levels. As a result, women, and poorer men, are often marginalized in sector governance as the men and elite women in control of the sector are less cognizant of the impact of and need for greater gender equality. For example, the seafood industry has commissioned very few gender studies, compared to development-oriented organizations (Williams 2016; Monfort 2015; Harper et al. 2013).

Fisheries have started collecting gender-disaggregated data and providing them to managers and policy makers in the sector. However, this data currently still very limited (Lentisco and Lee 2015; Harper et al. 2013).

Resource governance systems

Women have long been excluded from multiple aspects fisheries resource governance, particularly decision-making, resource and market access, and gear and boat ownership, despite their undeniable presence throughout the value chain (Lentisco and Lee 2015).

A variety of reasons have been given to justify the inclusion of women in resource governance. One category focuses on the benefits of women's participation for their communities and the improvement of resource management:

- Women are thought to be more cognizant of household and community needs related to poverty reduction, food security, and wellbeing, and would therefore aim to manage resources with these aims in mind or raise these concerns when policy decisions have to be made (Lentisco and Lee 2015; Harper et al. 2013).
- Women in communities often care for natural resources, and are therefore knowledgeable about the state, use, and sustainable management of resources (Resurrección 2008). For example, Harper et al. (2013) proposed that because reef gleaning is done by women, they possess ecological knowledge of nearshore resources that can help monitor the state of those resources, such as the decline of yields and species.
- Women are involved in more informal resource management, using family and friendship ties, and cultural and spiritual traditions, that are out of the purview of formal institutions (Schwerdtner Máñez and Pauwelussen 2016).
- Women's resource use and management has an ecological impact that is often not accounted for in fish resource management. For example, fishery managers have underestimated fishing pressure in coastal areas because they overlook women's share of the catch (Harper et al. 2013). Women fish traders have been found to fuel resource over-exploitation through financing types of gear that lead to unsustainable harvests (Weeratunge et al. 2010). Economically, women subsidize their husbands' unprofitable fishing activities through subsistence and non-fishing work, leading to the continued exploitation of declining resources (Lentisco and Lee 2015).

Development programs have also sought to empower women and reduce inequality through gender mainstreaming in fisheries resource governance (Resurrección 2008). In general, research on the gendered effects of mainstreaming fishery policies and programs has been limited. However, it is known that these efforts have not always led to equitable outcomes (Weeratunge et al. 2010). Interventions have often overlooked women's multiple roles in and outside the household, thereby imposing an increased workload on an already full plate and failing to address the unequal gender relations that lead to such role imbalances in the first place (Resurrección 2008). Shifts to community-based approaches, while improving women's participation in some cases, have at times given women less significant roles and power than the local management regimes they replaced. In some communities, although presented with the opportunity, women have restricted them from taking on leadership positions due to traditional gender norms (Weeratunge et al. 2010). Social stratification can also favor more privileged women, such as the wives of community leaders, to take on leadership roles in resource management at the expense of more marginalized women and men who might benefit more from being involved (Resurrección 2008). There have been cases where assumptions that women are naturally collaborative have backfired by increasing tension instead of benefits in joint credit schemes and cooperative groups. Directing interventions at women have at times made men feel threatened economically, and increased tensions between women and men in those communities (Weeratunge et al. 2010). The assumption by governments and development projects that women mainly work in processing and marketing has benefited women in those sectors, for example by providing them with training, and with grants and credits to buy processing equipment and. However, in reality, women are often involved in active fishing and in pre-harvesting activities such as net and boat preparation, but support from fisheries policies and management has not extended to these lesser-known roles fish (Lentisco and Lee 2015).

To increase women's participation and influence in decision-making at all levels, Lentisco and Lee (2015) state that capacity building for women in different parts of the value chain. Women's control and access

over fish resources, tools and services is also needed to strengthen their rights as resource users. With few documented examples of women actively participating in fisheries management, enabling factors and processes and good practices should be identified and documented as gender is mainstreamed into governance policy and strategies (Lentisco and Lee 2015).

International, regional and national action

At the global level, the United Nations have acted to integrate gender equity into the fisheries sector. The 1995 UN Beijing Declaration and Platform for Action committed countries to develop and implement policies and programs to enhance women's resource and market access, capacity, and participation in decision making within the fisheries sector, and promote research, policy analyses and data collection on gender and fisheries, with the support of non-governmental organizations and the private sector (UN General Assembly 1995). In 2014, the 31st Session of the FAO Committee on Fisheries (COFI) endorsed the *Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication* (SSF guidelines) as the first international instrument focusing on small-scale fisheries. The SSF guidelines hold gender equality and equity as one of its guiding principles, and cite state obligations to the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW) and the Beijing Declaration (FAO 2015). In 2017, SEAFDEC convened a workshop with experts from countries in the Association of Southeast Asian Nations (ASEAN) and representatives from international organizations and academia to discuss a human rights and gender equity based approach to applying the SSF guidelines to their countries.

Although Sustainable Development Goal (SDG) 14 (Conserve and sustainably use the oceans, seas and marine resources for sustainable development) does not include gender equality in its targets, the role of women in the sustainable development of fisheries is acknowledged by UN Women, the FAO, and UNESCAP (UN Women 2018; FAO 2017; UN ESCAP 2017).

A number of countries, such as Ghana, the Gambia, and India have included fisheries and aquaculture in their national gender policies (MoWA 2010; MGCSP 2015; WCD 2016).

Gender and coastal development

Living in the coastal zone

Urbanization and migration

Many coastal areas around the world are densely populated. 1.2 billion people are estimated to live within 100 km of a shoreline and 100 m above sea level, where the average population density is almost three times as much as the global average (Small and Nicholls 2003). Urbanization is a key driver of population growth in coastal areas. Over the past 40 years, the coastal urban population has doubled to 88 million people, with high levels of rural-urban migration to coastal mega cities for economic opportunities (Pesaresi et al. 2016; Hugo 2011). Non-urban coastal areas are also growing in density as people seek to live near large cities, and in deltas and coastal plains that are prime locations for agriculture because of good water availability and fertile soils (Hugo 2011). Currently, most coastal zone residents live in densely settled rural areas and small and medium cities, not large cities (Small and Nicholls 2003).

Gender roles, relations and inequality influence rural-urban migration dynamics. In seeking better economic opportunities, women and men face gendered labor markets that affect the types of jobs they take, income, working conditions, and legal status (Jolly et al. 2005). For example, the rise of the labor-intensive and low-paying textile industry, which employs primarily women, is increasing the share of women among migrants to delta cities in Asia and Africa (Seto 2011). A study by Tacoli and Mabala (2010) showed substantial increases in young women migrating independently to large and small coastal urban centers and peri-urban areas in Nigeria, Tanzania and Vietnam. The jobs they took on tended to be work associated with women, such as domestic work, waitressing, tourist resort jobs, export-oriented factories, and prostitution, while men had more diverse employment opportunities. Part of this inequality may be due to lower education opportunities for women (Seto 2011). Women tended to move farther and for longer periods than men because men had greater and more secure access to land at home, and returned to look after their land. There were also differences in the social perceptions of migration. Migration to urban centers was seen as a rite of passage for young men in Nigeria, and those who did not migrate were looked down upon. The social acceptability of young women's migration increased through the sending of remittances to their parents' households. Women generally send home a higher share of their income than men, increasing their vulnerability to poor living conditions and risky work such as working in bars, sex work and domestic work. On the other hand, young women saw migration as a way of increasing independence from gender- and generational-related norms and power relations at home (Tacoli and Mabala 2010).

Climate change and disaster risk

Human-induced climate change is causing sea level rise, greater frequency and intensity of storm surges, and rising temperatures, with impacts on people in coastal and marine areas. People living in low elevation coastal zones (LECZs) are particularly vulnerable to risks from climate change. Around 10 percent of the world population and 13 percent of the urban population live in LECZs, which are areas along the coast that are less than 10 meters above sea level (McGranahan et al. 2007). Asia has the largest LECZ population, and will continue to do so into the future (Neumann et al. 2015).

Vulnerability to climate change impacts and disasters is disproportionately high in certain LECZs, such as those of small island states, and in the urban LECZ populations of Least Developed Countries (21 percent) compared to those of OECD countries (11 percent). Densely populated deltas contribute to large numbers of vulnerable people (McGranahan et al. 2007). China, India, Bangladesh, Indonesia and Viet Nam have the largest coastal populations exposed to flooding from severe storm surges (Neumann et al. 2015). Demographic shifts in coastal areas are exacerbating these vulnerabilities. Growing population densities drive urbanization and the development of impermeable surfaces that increase flooding, and coastal development that diminishes natural buffers to meteorological and climate change-related hazards. In coastal cities, people marginalized by poverty or migration are especially vulnerable to disasters. For example, low-cost housing is vulnerable to disasters. Bangladeshi migrants moving Dhaka to grow vegetables for the urban market live in the floodplains, which is prone to flooding (Donner and Rodríguez 2008). Dhaka is one of the coastal cities most vulnerable to coastal flooding, in addition to Shanghai, Manila and Calcutta (Balica et al. 2012).

Much of the literature on gender and climate change and disaster-related risks in coastal areas has focused on the vulnerability of women, especially that of poor women. This vulnerability is based on existing gender inequalities in society, which are made obvious during times of disaster, and gives rise to the prevalent view of women as victims of disasters (Ariyabandu 2009; Resurrección 2017). For example,

women comprised up to 80 percent of mortalities in parts of Indonesia, India and Sri Lanka after the 2004 tsunami because they could not swim and climb, their clothing prohibited quick movement, and they attempted to carry children and elderly people with them (Ariyabandu 2009). In the aftermath of the tsunami, and cyclone-related disasters in Bangladesh, women faced greater workloads and risks of being subjected to sexual violence, and challenges with accessing sanitation (Rahman 2013; Ariyabandu 2009).

On the flip side, the literature has also focused on women as knowledgeable agents of change in adapting to and mitigating disaster risk, and lamented the lack of their involvement in disaster prevention, emergency management and recovery as a "wastage of valuable human resources" (Ariyabandu 2009, p. 7; Rahman 2013).

Coastal zone management

Population growth and development in coastal areas has placed great pressure on natural resources. Urbanization, infrastructure development to prevent erosion, industrialization, and the expansion and intensification of agriculture have led to extensive land conversion and the destruction and fragmentation of coastal ecosystems. They have also led to more intensive resource use and pollution (Simcock 2016; Crossland et al. 2005). The degradation of coastal ecosystems such as wetlands, mangroves, sea grass meadows and coral reefs reduces their resilience and has led to negative ecological impacts such as the collapse of fisheries (Lotze et al. 2006).

Climate change is also affecting resources and ecosystems in coastal zones, with implications for food security. Climate change will impact aquaculture production in Asia, especially Bangladesh, Cambodia, China, India, the Philippines, Thailand and Viet Nam, with negative effects on food security in Asia by mid twentieth century (FAO 2016). Rising temperatures and ocean acidification are causing the bleaching and death of coral reefs, which are essential to livelihoods in coastal communities worldwide as fish nurseries and habitats, coastal protection, and tourism attractions. Each year, coral reefs contribute to around US$9.6 billion to tourism and recreation, US$9 billion to coastal protection, and US$5.7 billion to fisheries, in addition to other ecosystem services (Chen et al. 2015; Hoegh-Guldberg and Bruno 2010). Sea level rise is expected to reduce the extent of mangroves by 10 to 20 percent by the end of the century. Like coral reefs, mangroves are also important nurseries and habitats for large numbers of species, and provide protection against storm surges (Hoegh-Guldberg and Bruno 2010).

Recognition of the fragility and dynamism of coastal ecosystems and the tight coupling of social and environmental systems in the coastal zone gave rise to the parallel development of integrated coastal zone management (ICZM) and ecosystem-based coastal zone management in the 1980s and 1990s. While both are similar in terms of an integrated approach to management across natural and social systems, ICZM emphasizes multi-scale institutional and governance issues, while ecosystem-based management has a stronger ecosystem and biodiversity management perspective (Haines-Young and Potschin 2011; Crowder and Norse 2008).

In the past decade, coastal zone management has also expanded from the management of delimited marine protected areas to marine spatial planning (MSP), which applies geographic information systems to coastal and marine zoning and builds on ICZM principles. While applications of MSP have focused on mapping bio-physical landscapes, there have been efforts to encourage the integration of social

landscapes of resource use and impact into the same maps (St. Martin and Hall-Arber 2008; de la Torre-Castro et al. 2017). A seascape perspective that considers the mosaics of mangrove, seagrass and coral ecosystems and the links between these interconnected ecosystems and the human use of their resources has also been encouraged. The seascape approach has helped bring light to the contribution of seagrasses to local livelihoods and the roles of seagrasses in larger socio-ecological systems, which has been overlooked by greater scientific and management attention to coral reefs (de la Torre-Castro et al. 2014).

Within the history of considering social dimensions in coastal zone management, there is a marked void in the integration of gender issues (de la Torre-Castro et al. 2017; Diamond et al. 2003). This is despite clear signs of gendered use of coastal resources, as illustrated in the case of fisheries resources but also extending to larger coastal ecosystems.

In applying a gender analysis to coastal zone management in Zanzibar, Tanzania, de la Torre-Castro et al. (2017) found that the access, use and valuation of the seascape and its resources was strongly gendered, but that coastal zone management policies failed to account for women's use of the spaces and resources, identities, and knowledge and valuation of seascape goods and services. Women were restricted to accessing coastal forests, mangrove forests and seagrasses because of their proximity to the household (as women were also required to carry out their reproductive roles), and other restrictions such as the lack of access to boats and the inability to swim. In seagrass beds, women collected invertebrates and farmed seaweed. Through the latter, women contributed significant cash income to their households. Women also collected firewood from coastal and mangrove forests. Men, on the other hand, focused more on fish-associated services for mangroves and seagrasses. Coastal management plans focused on male-dominated deep-sea capture fisheries, while addressing coastal forests and seagrasses poorly, despite their important subsistence and income-earning services that were used mainly by women and contributed greatly to exports and reducing household poverty. Managers also considered women as having limited and static roles in resource use; for instance, managers had the view that seaweed farmers could not learn to carry out other activities. Coral reefs, used mainly by men, dominated ecosystem-focused management and conservation. The authors expressed concern regarding the clear gender inequality in coastal zone management, and urged similar studies in other coastal regions.

Studies on the social dimensions of MPAs have considered the power dynamics between different stakeholders, but this has not extended to gender-related dynamics (Baker-Médard 2017). A small number of studies have applied a gender lens to MPA management, demonstrating the limited participation of women in community-based MPAs (Di Ciommo and Schiavetti 2012; Baker-Médard 2017; Smith 2012). Gender blindness has led to MPA establishment displacing livelihood activities and reducing access to and control over resources along gendered lines (Di Ciommo and Schiavetti 2012; Baker-Médard 2017; Walker and Robinson 2009). In community-based MPA that emphasized women's participation in monitoring invertebrate resources essential to household income and food security, Weiant and Aswani (2006) found that evaluating the MPA's impact on women helped the project consider the challenges faced by women in adapting to the MPA, especially during the 'closed season', and its consequences on household wellbeing.

Coastal and marine tourism

Tourism and recreation have grown immensely in coastal zones worldwide. Coastal and marine tourism is now the global travel industry's largest sector, and its popularity will likely continue to increase as people in an increasingly urbanized world seek refuge in nature along the coast (Honey and Krantz 2007). Income from tourism has become important to many national and local economies, especially those of small island states (Simcock 2016).

Despite the strong links between tourism development, gender and poverty reduction, there is still little understanding of these complex links (Tucker and Boonabaana 2012). Given the importance of coastal and marine tourism in many developing countries, whether commercial or development-oriented, and what is known so far on the highly gendered nature of work and benefits derived from tourism, development actors and researchers are encouraged to pay attention to often overlooked gender issues when working with local communities who engage with coastal and marine tourism for their livelihoods.

Mass tourism development

Tourism development was initially driven by real estate developers who acquired and transformed natural coastal zones into tourism infrastructure (e.g. chain hotels and resorts) and land use. Governments embraced these foreign investments and employment creation opportunities as development tools. Development banks concurred, financing tourism development in many developing countries. For example, during the 1970s, the World Bank provided $450 million in loans to governments for tourism projects in 18 developing countries, giving rise to coastal tourism destinations such as Bali in Indonesia, Zihuatanejo in Mexico, and Puerto Plata in the Dominican Republic (Honey and Krantz 2007).

However, it became clear that mass tourism was not bringing in the economic benefits to the host countries that it had promised. It also has high social and environmental costs. For instance, the installation of facilities, pollution, and direct interaction of tourists with natural ecosystems have degraded coastal resources (Simcock 2016). Although mass tourism employs large amounts of labor, much of that employment is for low-paid service jobs (Honey and Krantz 2007).

The tourism industry is highly gendered (Ferguson 2010a). Women comprise up to 70 percent of the tourism labor force (ILO 2010). The gendered distribution of tourism work follows the local social and cultural norms on gender relations and division of labor. In places where there is a clear division of labor, women may be more involved in hospitality, cleaning and retail work (Tucker and Boonabaana 2012; UNWTO and UN Women 2011).

Despite the gendered distribution of work in the sector, the development of mass tourism has been gender-blind (Ferguson 2010a). In general, the distribution of benefits from tourism development have reflected existing social inequalities, with the elite (usually men) dominating decision-making and benefiting more from the industry (Tucker and Boonabaana 2012). In a review of its tourism development experience, the World Bank noted the "gender pyramid" of tourism jobs, in which men hold more managerial positions and women hold jobs lower in status (Markandya et al. 2011, p. 9).

Evidence has shown that by not accounting for the structural gendered division of tourism work, mass tourism driven by foreign investments can exacerbate these gender and social inequalities. Women and young workers employed in large-scale tourism are concentrated in low-paid jobs. These jobs are often also temporary, part-time and casual, given the seasonal nature of tourism that draws on large amounts

of labor during times of high demand. Women working in global hotel chains often face poor working conditions (Ferguson 2010a). Low-skilled women are more likely to take on more vulnerable jobs in tourism with poor working conditions, discriminatory treatment, stress, sexual harassment, and violence (ILO 2010). In a study on coastal tourism in the Dominican Republic, women occupied mainly jobs with limited career development prospects, such as waitressing, chambermaid and kitchen work, while men did not face the same occupational mobility restrictions because they occupied a greater variety of positions; those types of positions also allowed them to receive more tips (León 2007). These observations show that women, especially young women and women of lower social status, receive low remuneration for precarious work in poor conditions, with little possibility of climbing up the career ladder. Ethnicity and migrant status create further inequalities among women. For example, despite the increasing employment of local women, migrant women have taken on jobs considered unsuitable for local women; while indigenous women face barriers to mainstream tourism employment because of their ethnicity, and instead take on ethnic tourism roles that commodify their culture (Kinnaird and Hall 2000). Mass tourism has further relied on gender inequalities in its development by assuming that women would continue their reproductive roles of caring for the household while being increasingly involved in the labor force. This has increased the work burden of women and girls (Ferguson 2010a).

Gender and power relations have also influenced women's roles and involvement in mass tourism. Women in local communities have been found to be restricted from working tourism-related jobs because their husbands disapproved of their working outside of the household and socializing with other men, especially foreigners. In some cases, men have perceived their wives' increased economic independence as a threat to their power, and retaliated by bringing in less income and increasing the burden on their wives to perform both domestic and productive roles (León 2007; Tucker and Boonabaana 2012). The placement of women in subordinate positions within the industry, as domestic workers or in front line jobs to attract men to various establishments with their physical attributes, follows and reinforces male-constructed stereotypes of women, and further diminishes the status and power of women in relation to men (Ferguson 2010a). Sex tourism in particular has labeled a key example of negative host-guest interactions, involving the forced or voluntary participation of poor women in roles conforming with the socialized perceptions of male tourists (Kinnaird and Hall 2000). Mass tourism is associated with sex tourism in developing Asian countries, where Asian women are stereotyped as passive (Honey and Krantz 2007). Many informally employed children in hotels, restaurants, and street peddling, particularly girls, are victims of sexual exploitation, made particularly vulnerable by the lack of social protection and safety networks (ILO 2010).

Because sex tourism is a highly visible case of gender-based exploitation, many people perceive it as representing the extent of gender issues in tourism (Ferguson 2010a). Sex tourism receives more attention globally because of the attention paid to it by Western governments and media, reflecting cases of high-profile child sex abuse scandals in Western countries. The outrage toward sex tourism is greater when the victim is male (Kinnaird and Hall 2000). However, (Ferguson 2010a) posits that the focus on the obvious gendered exploitation of victims in sex tourism obscures less visible gender inequality issues, such as the gendered distribution of benefits from tourism described above.

Small-scale tourism development

In light of the negative environmental and social impacts of mass tourism, development actors have turned to support pro-poor, eco and sustainable tourism. A study in 2005 found that top international donor agencies gave $10 billion to over 300 tourism-related development projects (Honey and Krantz

2007). Examples of such tourism projects in coastal areas include the World Bank's Sustainable Coastal Tourism project in Honduras, and a Coral Reef Rehabilitation and Management Program in Indonesia (Markandya et al. 2011).

These types of tourism development have focused on increasing benefits for local communities, including to women in those communities. Scholars on gender and tourism development have noted that small-scale tourism development has paid more attention to the active inclusion and empowerment of local women. For example, some projects target women's economic empowerment as one of their aims, supporting women-run microenterprises such as food and drink businesses and artisanal shops with crafts made by indigenous women (Ferguson 2010b).

Despite their good intentions, tourism development projects targeting gender issues have not considered and acted on those issues effectively, because of the way they conceptualize gender and gender equality (Ferguson 2010a). Often, women's economic empowerment has not been a gender equality goal per se, but a means for poverty reduction and other development goals. This mindset is typical of microenterprise policy (Ferguson 2010b). In reality, the economic empowerment of women from these projects is limited, because the desire to empower women economically has not been accompanied with an understanding of *how* economic empowerment occurs. Ensuring equal participation in economic activities does not ensure equally beneficial outcomes for the different women and men participating (Tucker and Boonabaana 2012; Ferguson 2010b). For example, a World Bank project that aimed to integrate indigenous women into tourism development through microenterprises in Honduras was unsustainable and provided limited benefits to those women because they faced gender, class and ethnicity-specific barriers that prevented access to markets and limited the types of activities they could participate in, based on perceptions of what was socially acceptable - for example, working at home or in their local communities (and not where the markets were), and producing "simple and authentic" products that appealed to tourists but faced intense competition from other types of products (Ferguson 2010b).

Although assumed to reduce environmental impact and concentrate benefits within local communities better than mass tourism, the smaller scale of sustainable, eco and pro-poor tourism business does not automatically increase gender equality or change gender norms and relations. Some small-scale tourism businesses perpetrate the inequalities associated with existing gender roles and relations. For example, in family tourism enterprises, women still carry out much of the unpaid work load. These women therefore subsidize community-based tourism without gaining economic benefits from community development (UNWTO and UN Women 2011). Women are also still expected to carry out their domestic roles in addition to tourism work, whether paid or unpaid (Tucker and Boonabaana 2012).

This is not to say that small-scale tourism opportunities have not benefited women in terms of income and status. The proportion of women-owned businesses is higher in tourism than in other sectors. In Indonesia, Malaysia, the Philippine and Thailand, women run over half of tourism businesses. Women are also much more likely to be employers in the tourism sector. There is therefore real potential for improving women's economic power through entrepreneurial businesses (UNWTO and UN Women 2011).

Renegotiating gender roles and relations

In places where societal norms have restricted women's involvement in tourism more severely, Tucker and Boonabaana (2012) have illustrated cases of women renegotiating their roles and power through tourism development. Women have actively changed the way they position themselves in the household and in society to be included in and benefit from tourism activity, compelled partly by economic pressure. For example, in the two cases described in Turkey and Uganda, women negotiated for permission from their husbands to engage in community-based tourism by demonstrating savings from having them work in family shops lining the street instead of hiring external labor, or generating additional income for the household in socially respectable ways (e.g. in the kitchens of formal boutique hotel establishments). Although they contributed to household income in times of economic difficulty, they faced shame and gossip, often from other women, for working in public. Over time, boundaries around social norms and expectations shifted as society became more accustomed and appreciative of women's involvement in tourism. The shifts have been aided by larger societal changes, such as the increased education of women and girls. The economic benefits toward women were undetermined at the time of the study, although in the cases of widows, divorces, and economically struggling households, the additional income significantly aided their households (Tucker and Boonabaana 2012).

Renegotiation in these cases was sought not to suit Western ideals of feminism, empowerment and gender equality (e.g. economic independence). The women challenged established practice in gradual and socially appropriate ways, being wary of their constraints and the potential backlash of changing social norms regarding gender roles and relations. For example, while seeking to perform a more productive role in tourism, women perceived the maintenance of good marital relations and fulfilling household duties as both desirable and needed – hence the asking of their husbands' permission and the continued fulfillment of their reproductive roles. They therefore faced increased workloads and challenges involving childcare. These cases of renegotiation illustrate that there is no "quick fix" for empowering women, as social and cultural norms governing gender roles and relations are complex and pervasive, and cannot be changed quickly and radically without negative consequences toward the women seeking change (Tucker and Boonabaana 2012, p. 452).

Conclusion and key knowledge gaps

While some progress has been made in advancing gender equality in coastal resource management, a weak understanding of gender issues in coastal resource management impedes further progress. From this review of literature, the following knowledge gaps emerge:

- There is a clear lack of gender-disaggregated data on women and men's participation in resource use, management, and decision making. Fisheries statistics need to include these data to fully acknowledge women's contributions to the sector, design policies and programs to address inequalities at different levels, and gain clearer understanding of the gendered impacts of policies and programs.
- Our understanding of gender-differentiated impacts of globalization and environmental change linked to coastal resources - including fisheries value chain developments, migration, urbanization, and tourism development - is still in its early stages. A more comprehensive understanding of how these swift and fundamental social, economic and ecological changes are transforming power relations and affecting the lives of the most vulnerable groups of women and men is essential to being able to support them.
- The study of masculinities, the vulnerability of men, and the engagement of men in transformative action in the sector is still limited. Encouraging these studies is key to understanding and addressing gender relations and inequalities.
- Integrated coastal zone and ecosystem-based management has yet to integrate gender and social dimensions sufficiently to account for the impacts of management plans and practices on different groups of women and men.

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