

UC Irvine

UC Irvine Previously Published Works

Title

Water, Women and Fishing Livelihoods in South and Southeast Asia

Permalink

<https://escholarship.org/uc/item/7kq6t8t2>

ISBN

978-0-367-60763-0

Authors

Hapke, Holly M

Gopal, Nikita

Kusakabe, Kyoko

et al.

Publication Date

2025

DOI

10.4324/9781003100379-27

Copyright Information

This work is made available under the terms of a Creative Commons Attribution-NoDerivatives License, available at <https://creativecommons.org/licenses/by-nd/4.0/>

Peer reviewed

Authors' Final Version

Water, Women and Fishing Livelihoods in South and Southeast Asia

Holly M. Hapke, University of California-Irvine, USA

Nikita Gopal, ICAR-Central Institute of Fisheries Technology, India

Kyoko Kusakabe, Asian Institute of Technology, Thailand

Gayathri Lokuge, Centre for Poverty Analysis, Sri Lanka

Abstract

This chapter explores the relationship between gender, water resources, and fishing livelihoods through three case studies in South and Southeast Asia: the Vembanad Lake region in Kerala State, India; Trincomalee, Sri Lanka; and Banteay Meanchey province in Cambodia. In South and Southeast Asia, fishing-based livelihoods are characterized by distinct gendered divisions of labor that situate men and women in water access rights regimes in different and often disparate ways. Women often lack formalized rights of access to water resources on which their fishing and gleaning livelihoods depend. Further, they are also often excluded from fisher organizations and water resource governance institutions that could represent and ensure their rights. When economic development or ecological change unfold, women are thus impacted by such developments in particular ways. The three case studies collectively reveal how urbanization, commercial real estate development, pollution, agricultural development, and military occupation, have reconfigured water resource access rights in ways that are gendered and further shaped by class, caste, language, ethnicity, religion, and age.

Introduction

This chapter considers issues of gender, water resources, and water governance in the context of fishing livelihoods in South and Southeast Asia. Fishing and gleaning-based livelihoods are highly dependent on both fresh and marine water resources and ecologies. Yet these resources and ecologies are under pressure from climate change and coastal and reservoir area developments such as urbanization, tourism, aquaculture and agriculture, dam and port development, and industrialization (Gownaris et al., 2016; Dugan, Dey & Sugunan, 2006; Adeyemo, 2003; Jenson, 2001). Warming ocean waters, pollution from industry and port activity, dredging, and over extraction or mismanagement of water from reservoirs, rivers, ponds, and lakes all adversely impact water ecologies and degrade water resources that support fishing and gleaning livelihoods. The livelihood implications of these impacts are necessarily gendered and as will be illustrated later, are further informed by other intersecting social identities – class, caste, religion, language/ethnicity, and age.

The chapter explores the relationship between gender, water resources, and fishing livelihoods and asks: in what ways are political, economic, and ecological developments

impacting water resources and fishing livelihoods, and how are these gendered? How might different groups of men and women be impacted differently? What are the political, economic, cultural, and social implications of women's changing relationships to water resources and fishing livelihoods? We consider these questions through an exploration of three case studies. The first case study is from the Vembanad Lake region in Kerala State on the southwest coast of India, where urbanization and related economic development are polluting the lake and creating competition for access to water. We examine how these developments have affected women's access to water resources which support the small-scale fishing activities in which they have historically engaged. Second, we consider the impact of militarization and identity politics in Sri Lanka on women of different ethnicities and their relationships to diverse spaces in and around water linked to fishing and gleaning livelihoods. Third, we look at the case of inland Cambodia, where a changing economy and the emergence of new livelihood options are reworking women's relationship to the fish economy. Each of these cases demonstrates the close intersection between gendered livelihoods, gendered access to water resources and the norms that govern these resources.

A growing body of literature illustrates how access to water is gendered and how differentiated access enjoyed by men and women is often mediated by gendered labor practices, socio-cultural expectations (e.g., related to notions of masculinity and femininity), as well as intersectional differences (e.g., race, religion, class, age, and so forth) (Fröhlich et al., 2018; Harris et al., 2017; Meinzen-Dick et al., 1997). Intersectionality is used here to refer to the interconnected nature of social categories and identities such as race, class, caste, religion, gender, sexuality, nationality, and age as they apply to an individual or group, that create overlapping and *interdependent* systems of discrimination or privilege. As an analytical framework, intersectionality describes how different systems of inequality "intersect" to create unique dynamics, effects, and experiences for different individuals and groups (see Runyon 2018).

In South and Southeast Asia, fishing-based livelihoods are characterized by distinct gendered divisions of labor that situate men and women in water access rights regimes in different and often disparate ways. These differences become significant in the context of economic and ecological change, as men's and women's livelihoods are impacted in different ways. In the case of Vembanad Lake, urbanization, commercialization and other development activities are rewriting traditional access rights and creating barriers to women's access to water resources, which they use for small-scale fishing operations. In Trincomalee, Sri Lanka, the failure of the State to recognize women's work in gleaning as part of the fisheries sector, alongside legacies of ethnic and religious strife and war, effectively denies them the right to access water bodies. In the context of military occupation, this lack of rights undermines women's ability to negotiate access to lagoons and earn a living from gleaning. Finally, Cambodia's case shows how the competing interests between agriculture and fishing, along with changing regimes of property ownership, commercialization, and water resource

mismanagement degrade water resources and undermine fishing-based livelihoods in gendered ways.

Case Study: Women Fishers in Vembanad Lake, Kerala, India¹

Vembanad Lake is part of one of the largest wetland ecosystems in the country and includes the deltaic regions of rivers flowing into the lake and the adjoining wetlands. This wetland supports multiple activities, including agriculture and fisheries. The lake flows through three districts (Alappuzha, Kottayam and Ernakulam) and is fed by several rivers (Manimala, Meenachil, Pamba, Achenkovil and Muvattupuzha). The fisheries in the lake and in the wetlands are small in scale, with capture fishing carried out using small canoes and nets, many of which are made by the fishers themselves. Women especially use various indigenous fishing methods that are uniquely ingenious in fabrication and operation. The alternate rice-fish culture system is a traditional practice in this wetland, and farmers in the region practice the only below sea-level rice cultivation in India (in the Kuttanad region, Alappuzha district).

This case considers women's access to water in two villages in the Vembanad wetland system situated in Ernakulam district. The first is village 'V', which occupies an island close to Kochi-Ernakulam city. The village has about 45 families all belonging to the Pulaya caste, traditionally agricultural laborers. This village, like several other in the region, had '*paadams*' or rice paddies on which *pokkali* rice, a tall rice variety suitable for water-logged areas, was cultivated organically and alternated with fish. Over time agriculture saw a decline and the *paadams* came to be used only for fish culture. Today in the village there is no rice cultivation. After several years of the land lying fallow, a few families got together and tried to re-start the *pokkali* paddy cultivation in 2018 (mainly the men decided). Different people owned the land, but *cultivation* was carried out collectively in an area called a *padashekham* - a collection of *paadams*. However, in 2018 the region experienced significant flooding which inundated the area, and ever since there has been no cultivation of rice. Several streams of the Vembanad lake also crisscross this village. Village women utilize fish resources in the *paadams* and streams mainly for household consumption and for additional income when there is surplus catch.

In earlier days, women of the village gleaned for fish, shrimp and crabs in the inundated *paadams*, using their hands and legs to assemble the fish and then capture them live. They stored the fish in arecanut leaf spathes, and later began using more durable aluminum pots that were kept afloat in the water. After taking a share for household "curry" (consumption) purposes, they stored the rest of the fish in a small, enclosed net that was tethered to a pole and kept under water until it was marketed. Older women of the village performed this type of fishing when they were younger, but there are very few women in the village doing this type of fishing now because of the physical effort that this activity entails. Instead, they use small dip nets, cast nets, gill nets and hook-and-lines to capture fish from the streams and from *paadams*. Women in groups also

¹ This study funded by Indian Council of Agricultural Research (ICAR) was carried out by Nikita Gopal with the assistance of Jiswin Joseph (Field Assistant), Sruthi P and Rakesh M Raghavan (Technical Assistants), ICAR-CIFT.

pull woven tender coconut leaf fronds working from one end of the *paadams* to the other and push the fish with their feet and assemble them before capturing. The women also assist their husbands in fishing in the lake. The cast nets that the men use are heavy, and women find it difficult to deploy the net, but they assist by holding the canoes steady when the nets are cast by men.

The village is very close to the city, but families in the village can access it only by small canoes that all families own. The proximity to the city has also meant that this area has become prime real estate. Several acres of land in the village were procured by private realtors, though no construction has been started as yet. However, there is uncertainty with regard to potential legal issues that may arise, making any investment in fish culture precarious. Through close proximity to the city, the lake is more prone to pollutants, both from domestic and commercial establishments. This pollution has permeated the water bodies in the village and the waterways that are connected to the lake. The resulting decline in fish catches in the lake and *paadams*, impacts the incomes of village families and livelihoods of the women in particular, as the men still go fishing in the lake. Pollution of the waters in the streams has also resulted in health issues, mainly skin rashes, that make the women reluctant to enter the waters.

In another village, 'E', women glean and fish in '*kettus*'. *Kettus* are also fields where a rice-fish system of cultivation is followed. Water for the culture is usually from the extensive backwater system that reaches the *kettus* through a sluice gate mechanism. The rice season is usually from May-June to September-October and the shrimp/fish season follows from November to April. Women have access to these fields in between the two activities, i.e., rice cultivation and fish/shrimp culture. However, they must give a share of what they catch to the owner of the *kettu*. When the owners begin to cultivate rice, *kettus* become out of bounds for women and they move to the streams or canals that feed the *kettus* for fishing. In earlier times, owners allowed women to glean even when the rice crop was standing, but this is a rare occurrence now. In the fish/shrimp season, between November and April, women manage to find some seasonal employment in these fields. Since the *kettus* are private property, women have little or no access to these potential fishing areas, even if the *kettus* are near their residences. They need the permission of the owners to fish in them. After the fish/shrimp is harvested, in about mid-April, there is the *kettu kalakkal* (*kalakkal* loosely translates to mixing up or churning). At this time, the *kettus* are opened up to whoever wants to glean in them for any unharvested fish or fish that enters through the sluice gates. During *kettu kalakkal* the catch need not be shared with the owner.

Over time the area under paddy-cum-fish/prawn culture has declined, leading to access restrictions and shrinkage of water bodies. This has forced women to either find alternate *kettus* or move on to feeder canals to glean and fish. The *kettus* are increasingly being used for monoculture of prawns and this has impeded women's hitherto open access to these resources, thus impacting their livelihood. A *kettu* owner interviewed who still practices the rice-fish/prawn system allows women to glean in his land, "as was the practice in these areas" but also opined that "this should not be continued as all produce in my property belongs to me rightfully". In the

years to come, women (and men) might lose this traditional access, as there is no legal provision supporting such practice and it is only a form of traditional access right that is still honored in the village. Already several owners are reluctant to open up the *kettus* to the women for. The shift from alternate rice-fish/prawn to the more profitable year-round culture of prawn, a development that appears to encourage privatization at the expense of traditional rights and livelihoods, was one of the major causes of this shift.

Case Study: Women gleaners of Trincomalee on the east coast of Sri Lanka²

This case focuses predominantly on Muslim fisher women from low socioeconomic classes who glean for clams and mussels, engaging in ‘marginal’ livelihoods, working hard, smelling of the lagoon, mud and fish, and earning a lower income in comparison with men. Gleaning is passed down over generations: participants stated that “our mothers and grandmothers used to do this” and young girls helping their mothers and aunts clean and extract the meat from the shells once the catch is taken to the lagoon shores is common practice. Often, these women sell their own catch, or market it in the neighboring villages through mobile vendors.

Women gleaners’ marginality derives from where they live and work: most live close to the low-lying lagoon areas of the Provincial capital city Trincomalee, on the east coast of Sri Lanka; areas that are flooded during the rainy season and smell of drying mud during the rest of the year. Their marginality also comes from their socio-economic status: gleaning for clams and mussels (*matti* in Tamil) is traditionally associated with lower-income Muslim women in Trincomalee, who represent the second largest ethno-religious minority group in Sri Lanka. There are a few Tamil women, from the largest minority group in the country, who engage in gleaning, but there were none from the majority ethnic group, Sinhalese. While there is a general sense of social stigma attached to women who engage in fishing related activities in Sri Lanka, as they are looked down upon by men and women of higher classes, especially Sinhalese (Stirrat, 1988, Lokuge & Hilhorst, 2017), this stigma is more pronounced towards the Muslim women discussed in this case, as shown by the extract below.

“People look down upon those who are doing the *matti* [clam and mussels] collection, as they collect the *matti* in the muddy area. Others say that there will be a mud smell coming from the *matti* collectors. As we are the poorest people; rich people don’t respect us.” (Female gleaner, Muslim)

Those who manage to achieve a higher income level, in some cases through migration to the Gulf region as domestic workers, stop gleaning in the lagoon and strive to support their relatives financially, so that their relatives can also stop gleaning.

² Data was collected by Gayathri Lokuge for her PhD thesis, with the assistance of Tharshini Kugan and Sathiyavani Subramaniyam (Research Assistants) in 2013-2014.

The kind of fishing women gleaners perform reinforces their marginality. Fishing is a gendered activity in Sri Lanka, with men largely working in capture fisheries in the coastal and deep seas, while women work in fish processing and marketing to a limited extent. However, in the lagoons and shallow seas, gleaning for clams and mussels and catching small fish, prawns and crab using hands, legs and cages, for both home consumption and sale is common practice for women who live close to the lagoon systems on the east coast.

Despite engaging in gleaning for generations, these women are not recognized by state authorities to be fishers and are not formally registered. The system which frames fisheries management and governance as a relationship between the government and a rights holder, who is usually male (Jentoft, 2000), renders these women invisible. Official statistical data collected by the Department of Fisheries and Aquatic Resources of Sri Lanka is not disaggregated by sex and these women are not part of any fisheries registries.

Additionally, none of the women who glean stated that they belong to a fisheries society. This lack of membership in fisher collectives results in a lack of representation in decision-making spaces at the community level. On top of their invisibility in government fisheries structures, they do not have identity cards (which are generally issued to male fishers and members of fisher societies) to prove their identity as fishers and therefore as users of coastal and lagoon spaces and resources. This invisibility and marginality, in turn, mediates their access to often contested and restricted water systems such as lagoons, forest areas and shallow seas in Trincomalee.

The areas where these women engage in gleaning in Trincomalee were fiercely contested by the government of Sri Lanka military and the Liberation Tigers of Tamil Ealam (LTTE) for about three decades until the war ended in 2009 with the military defeat of the LTTE. This fighting resulted in several waves of mass scale displacement in the area, with the latest taking place in 2006. After 2009, there has been no overt war-related violence in the area, but the military maintains a heavy presence, concentrated around military bases and smaller outposts and especially around forested areas, lagoons and along the coastal belt of Trincomalee, which are seen as important for strategic security of the country. As a result, women (and men) who access these spaces for their livelihoods have to engage in constant negotiations with the military. Given the history of violence attached to the military and memories of displacement as a result of the war, Muslim women reported feeling apprehensive about engaging with the military, which is largely made up of majority ethnic Sinhalese:

“Since last Friday we haven’t gone to the forest for any purpose because the Navy has come to the forest. We don’t know the reason why they are there. We are scared to go now. They are bad people, and women can’t trust them.”

(Female gleaner, Muslim)

The lack of official recognition by the government of these women who engage in fishing, combined with their lack of membership in community-level fisher collectives further impedes their ability to negotiate access to these water spaces to engage in their livelihoods. For example,

after a young man drowned in the adjacent seas, the Navy banned a group of about nine Muslim women who collected clams in the shallow seas off Trincomalee from using their *vallam* (non-mechanized craft) for gleaning. Women, who are not part of a fisheries society, had to negotiate with the military, whom they do not “completely trust”, for access to these shallow sea areas. Furthermore, they had to speak in the Sinhalese language, which for many is not their mother tongue. In this case, the women resorted to conducting their negotiations through their male relatives, bowing down to the gendered and ethnic social hierarchies and power dynamics in order to continue their livelihood. In another similar incident, a group of Tamil gleaning women explained how they were arrested by the police for damaging the mangroves, which they felt could have been prevented if they had an identification document that stated they were engaging in fisheries-related activities.

Working in marginal geographical spaces, belonging to marginal social spaces, rendered invisible by both state and community structures and institutions, these women continue their struggles to access their livelihood spaces.

Case Study: Inland Fisheries, Cambodia³

In inland Cambodia, fishing is an important secondary source of income. Often, farmers are not able to produce enough rice for the whole year, and fishing and the income it provides have been a crucial source of food security. However, access to fish has become contentious with the introduction of intensive agriculture to the area. This is the case for a village in Banteay Meanchey province near the Thai border, with around 150 households, of which 50 households were full time fishers as of 2016. There is a 20 km-wide reservoir in this village, which used to be surrounded by forest, but with deforestation, it has disappeared. Until the 1990s, both women and men fished in the reservoir. Women fished mainly in the forest area using scoop nets and fishing rods, catching fish for home consumption, while men fished for larger fish destined for sale in the deeper water using gill nets and cast nets. Men sell fish at the market in the village; from there fish are often sent to other villages. Seventy percent of women process fish, mostly for home consumption but also for selling. Only six women in the village are professional fish processors who process fish for sales. These women also sell fish in Thailand to Cambodian workers working in Thailand. The village produces wet season as well as dry season rice. In years past, they planted rice three times a year, but more recently the commune advised them to plant only twice a year due to water shortages.

Around 2014-15, the reservoir began to dry up due to increased production of dry season rice. A Thai company bought about 100 ha of land from farmers in this village, dug a canal and

³ This study took place between 2016 to 2019, under the research project Migration and Collectives/Networks as Pathways out of Poverty: Gendered Vulnerabilities and Capabilities amongst Poor Fishing Communities in Asia, led by Ragnhild Lund and funded by Norwegian Research Council. The Cambodian study was conducted by Kyoko Kusakabe together with researchers from Cambodian Institute for Research and Rural Development (CIRD).

rented some of the land back to farmers for dry season rice cultivation. Previously, reservoir water was used only as supplementary irrigation, but the increased intensity of dry season rice cultivation has put pressure on the reservoir. At the same time, the canal dug by the Thai company was not well constructed, and some paddy fields did not get enough water. Water management was poorly implemented: paddy fields were flooded when the water level was high and dried up when it was low. In addition to the Thai company's land, a Chinese company also bought up land to produce rice farther away from the reservoir. However, the company built a large canal around its land and transports water through the canal using a large water pump, ensuring consistent availability of water for dry season rice.

Rice farmers did not passively observe this depletion of water: villagers went to the government-run water management committee to voice their concerns. The water management committee did not include villagers but was composed only of commune/village authorities. The complaint became violent, and vehicles were set on fire. After this incident, the committee began to listen to people's complaints and release water when requested.

All these developments mean that there is less water in the reservoir and consequently, fewer fish. Reduced water levels are compounded by deforestation around the reservoir, decreasing spawning sites for fish, and an increased number of fisherpeople because of population growth. Moreover, some fishers have resorted to using illegal fishing methods, such as the use of electricity, to make up for the lower catch. By 2017, the decrease in fish catch was felt keenly by all the fishers. Before, fishers said that they could earn 30,000 riels (USD7.5) per day from fishing; now, villagers report earning only 10,000 riels (USD5) per day. Still, fishing remains an important income source, as many reported they can earn at least 5000 riels (USD1.25) per day.

When there is less water, less forest, and less fish, women are not able to fish at the edge of the reservoir as they used to. In general, fishers need to go to deeper areas of the reservoir to secure a catch, but many women stopped fishing because going far away from the shore to fish was too time consuming for them, as they need to juggle their time with household work and other care work. Women also said that the middle of the reservoir is too windy, and they feel scared to go by boat.

Such changes in fish availability and the way women are involved in fishing created differentiation among women. Women whose husbands fish in the reservoir will wait at the shore with food for their husbands, who are out on the reservoir the whole night to fish. They will wait to receive fish and then go to sell the fish. Some poor women who do not have men in the house to fish continue to glean, collecting snails and crabs along the edge of the reservoir. Such gleaning activities are done only by women. The prices of such snails are low, and only a few lower income women without other options sell the snails, such as those women whose husbands are sick. Women who have other sources of income only collect such snails for home consumption. The villagers said that if they were not desperate, they would not be collecting snails for sale, demonstrating that many villagers feel that such gleaning is degrading.

Still, even households that have male members to go fishing in the reservoir face difficulties in making ends meet. Around 10% of women support the household income through tailoring and weaving, and both women and men perform construction work to supplement their household income., but women are paid only 20,000 riels per day, while men are paid 30,000 riels.

A major way to compensate for the loss of income from fishing is labor migration. There are around 10-20 households that have members who migrated to Korea, and many have migrated to Thailand.

“Even if they release fish in the reservoir, if water level is low, fish do not increase. So, again, people have to go to Thailand to earn. Nowadays, when there are not many fish, people just go for labor migration. Migration started to increase around two years ago. In 2015, the water level was low, and since then, labor migration increased. Before, people did not want to go to Thailand to work. But since the income in the village has decreased, they started to go. If they go to Thailand, they will earn cash income. They will come back during the New Year, and then go again.” (Focus group discussion with men fishers)

Often, couples migrate for labor together. Women expressed that they did not want to send their husbands alone for migration, since men are not able to save money. One woman complained that after her husband went to Thailand, he stopped remitting, so she is thinking of going to Thailand to join him.

With the decrease in water in the reservoir and the decrease in fish catch, both women and men struggle to do various things to make up for the loss. However, the possibilities are quite limited. Especially for women, there are less options compared to men. The woman vice head of the village said that the problem is that the fishers do not have enough information to cope with and adjust to the changes. Especially for women, such lack of access to resources and information is evident. Women do not attend trainings or field trips to visit other villages as much as men. As she said:

“Men will criticize women for going to meetings and go to various places to learn and participate and say those who travel around are bad women. Such criticism makes women feel discouraged or scared to go out of the house and make women not able to get information. Women do not go out to study. If husband gets angry or becomes jealous, women quickly quit participating. Men will say that women going here and there are bad women. Women are afraid to be divorced for this, so they quit [participating in training]. Such lack of knowledge and information makes women vulnerable.”

She herself had problems with her husband- he was not agreeable to her traveling. However, she persevered and now he is supportive of her seeking out training. He stated, “It is a problem if

women do not have any information and do not know anything. When a woman is widowed, then she does not know anything and does not know what to do.”

This case shows how the decrease in water in the reservoir combined with other factors lead to difficulties for fishers continuing their livelihoods as before. Women are pressured to explore other income sources to make ends meet but have fewer options to cope with change because of their lack of access to information and knowledge. Poorer women are more affected, since they lack other sources of income and depend on gleaning around the fringes of the reservoir for their everyday survival.

Conclusion

The foregoing case studies illustrate the different ways women’s fishery-based livelihoods are tied to water resources. Collectively, they reveal the complex manner in which water resources and ecologies, resource rights, and livelihoods are intertwined in uniquely gendered ways. In each case study setting, gendered divisions of labor assign women specific tasks, which along with patriarchal social, cultural, and institutional norms, shape women’s mobility, livelihood options, rights and access, situating them in water ecologies in particular gendered ways. Therefore, when economic development or ecological change unfold, women are impacted by such developments in particular ways. Urbanization, commercial real estate development, pollution, agricultural development, and military occupation, have reconfigured water resource access rights in ways that are gendered and further shaped by class, caste, language, ethnicity, religion, and age.

In the Vembanad Lake region of Kerala, pollution has degraded water resources, damaging the health and sustainability of fishery resources. Real estate development, privatization, and commercialization have further impeded women’s traditional access to water resources that provide the foundation for their fishery-based livelihood activities. In Trincomalee, Sri Lanka, military occupation, fear of violence, minority social status, and lack of formal rights to lagoons and waterways for fishing and gleaning, have deprived women of access to water resources to pursue their traditional livelihood of gleaning for mussels and clams.

In Banteay Meanchey province, Cambodia, agricultural development, namely intensified dry season rice cultivation relying on reservoir fed irrigation, combined with deforestation, inefficient infrastructure and poor water management practices, have reduced reservoir water levels, adversely impacting fishing and gleaning activities by reducing fish stocks. Women, who fish and glean at the edge of the reservoir, feel these effects most severely.

In all three case studies, women engage in a form of fishing known as gleaning, which takes place in rivers, streams, and on the edges of larger bodies of water. Although some of this activity goes toward commercial exchange, most is primarily for household consumption. As a result, women’s involvement in the fisheries sector is ignored, undervalued, and in fact rendered “invisible”. Thus, women enjoy few, if any, formalized rights of access to water resources on which fishing and gleaning livelihoods depend, a situation further compounded by exclusion

from fisher organizations and water resource governance institutions that could represent and ensure their rights.

A third theme that emerges from these case studies is the way gender is intersected by other identities such as caste, ethnicity, religion, class, and age. In Kerala and Sri Lanka, fishing is a caste- and/or ethno-religious-based occupation. This means women from different caste or ethno-religious groups are connected to water resources in particular ways. In all three countries, poor women and elderly women are the most reliant on fishing and gleaning activities as they have fewer alternative livelihood options. When water resources are degraded or impacted by economic change, the impacts of such change are felt most acutely by particular groups of women – in these case studies, by poor, elderly women and women from particular caste or ethno-religious groups. These situations point to the strong relationship between gender, water resources, and fishing livelihoods, and the way relationships with and access to water can be said to be gendered.

References

- Adeyemo, O.K. (2003). Consequences of pollution and degradation of Nigerian aquatic environment on fisheries resources. *The Environmentalist* 23, 297–306.
- Dugan, P., Dey, M.M., & Sugunan, V.V. (2006). Fisheries and water productivity in tropical river basins: Enhancing food security and livelihoods by managing water for fish. *Agricultural Water Management* 80, 262-275.
- Fröhlich, C., Gioli, G., Cremades, R., and Myrttin, H. (Eds). (2018). *Water Security Across the Gender Divide*. Springer. DOI 10.1007/978-3-319-64046-4.
- Gownaris, N.J., Pikitch, E.K., Aller, J.Y., Kaufman, L.S., Kolding, J., Lwiza, K.M.M., Obiero, K.O., Ojwang, W.O., Malala, J.O., & Rountos, KJ. (2017). Fisheries and water level fluctuations in the world's largest desert lake. *Ecohydrology* 10, e1769. doi: 10.1002/eco.1769.
- Harris, L., Kleiber, D., Goldin, J., Darkwah, A. & Morinville, C. (2017). Intersections of gender and water: comparative approaches to everyday gendered negotiations of water access in underserved areas of Accra, Ghana and Cape Town, South Africa, *Journal of Gender Studies* 26(5), 561-582. DOI: 10.1080/09589236.2016.1150819.
- Jensen, J.G. (2001). Managing fish, floodplains and food security in the Lower Mekong Basin. *Water Science and Technology* 43(9), 157-164.
- Jentoft, S. (2000). The community: a missing link in fisheries management. *Marine Policy* 24(2), 53-60.

- Lokuge, G. & Hilhorst, D. (2017). Outside the net: Intersectionality and inequality in the fisheries of Trincomalee, Sri Lanka. *Asian Journal of Women's Studies* 23(4), 473-496.
- Meinzen-Dick, R., Brown, L.R., Feldstein, H. Sims, & Quisumbing, A.R. (1997). Gender, property rights, and natural resources. *World Development* 25(8), 1303-1315.
- Runyan, A.S. (2018). What is intersectionality and why is it important? *Academe* 104(6).
- Stirrat, R.L. (1988). *On the beach: fishermen, fishwives, and fishtraders in post-colonial Sri Lanka*. Hindustan Publishing Corporation.