

Innovation and gendered negotiations: Insights from six small-scale fishing communities

Catherine Locke¹  | Paramita Muljono¹ | Cynthia McDougall² | Miranda Morgan³

¹International Development Studies (DEV), University of East Anglia, Norwich, UK

²WorldFish, Batu Maung, Penang, Malaysia

³Independent Researcher, London, UK (formerly at WorldFish)

Correspondence

Catherine Locke, International Development Studies (DEV), University of East Anglia, Norwich, UK.

Email: C.locke@uea.ac.uk

Funding information

Aquatic Agricultural Systems (AAS) CGIAR Research Program

Abstract

There has so far been limited investigation into gender in relation to innovation in fisheries. Therefore, this study investigates how gender relations shape the capacity and motivation of different individuals in fishing communities to innovate. We compare six fishing communities in Cambodia, the Philippines and the Solomon Islands. Our findings suggest that gendered negotiations mediate the capacity to innovate but that wider structural constraints are important constraints for both men and women. Our findings show that men's and women's capacity to innovate is strongly mediated by the behaviour of their marriage partner. Consequently, we argue that gender research from a social relational perspective has an important contribution to make in understanding poor fishing communities where new ways of doing things or new technologies are being promoted.

KEYWORDS

development, gender, innovation, poverty, small-scale fisheries

1 | INTRODUCTION

Fisheries play a significant role in human well-being, particularly for the poor in developing countries where 97% of fishers live (Allison & Ellis, 2001). However, they are under extreme pressure from over-fishing, suffer from poor governance and face new threats as a result of climate change (Allison *et al.*, 2009; Beddington, Agnew, & Clark, 2007; Coulthard, 2012). Meeting these challenges effectively is intrinsically reliant on fostering adaptation and innovation amongst fishing communities. Whilst there has been growing recognition of the importance of gender to developing resilient fisheries, there are as yet relatively few empirical analyses of gender and innovation in fisheries (Bennett, 2005). This study contributes to addressing this gap.

We offer qualitative analysis of the ways in which women and men perceive that their capacity to innovate is gendered in six fishing communities in Cambodia, the Philippines and the Solomon Islands. Specifically, our research objectives are to explore what men and women within fishing communities see as innovation, how they value

it, how far they feel able to pursue it, and what they feel that it means for their lives and the resource on which they depend. We begin by outlining debates about gender and innovation, before describing our methodology. We then present the key findings, focusing on changing gender relations, gendered perceptions of innovations, and gendered negotiations around innovation. We conclude that theoretically informed gender research has an important contribution to make in understanding development efforts targeting poor fishing communities.

2 | GENDER AND INNOVATION IN SMALL-SCALE FISHERIES

Gender is concerned with the unequal power relations between men and women in different societies (see Bennett, 2005 for a brief introduction to gender theory for fisheries). Gender analysis for fisheries and development has often pivoted around men's and women's roles

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in fishing and related financing, processing and marketing activities, combined with a newer interest in women's inclusion in governance of fisheries and fisheries-related institutions (Elmhirst & Resurreccion, 2008; Sze Choo, Nowak, Kusakabe, & Williams, 2008). These point to women's capacity to innovate being constrained by gender inequalities in: access to resources, particularly credit; gender discriminatory institutions, particularly markets; and in decision-making. These studies have been valuable for targeting interventions (Carr & Thompson, 2014; Meinzen-Dick *et al.*, 2011).

We follow a "social relational perspective" on gender relations (Kabeer, 1989; Razavi & Miller, 1995) because gender frameworks that focus only on roles, resources and decision-making do not adequately capture the complexity of gendered social change (Locke & Okali, 1999). The social relational perspective on gender gives attention to structures of discrimination (such as gender norms that frame fishing as a man's role or prevent women from holding property) as well as to women's and men's ability to negotiate within (and around) the expectations arising from these structures (namely their "agency"). This approach means focusing on men as well as women and illuminating the tensions and trade-offs that they make in their everyday lives (such as Cole, Puskur, Rajaratnam, & Zulu, 2015). Not only do women (and men) have shared (joint) as well as separate gender interests, both are also adept at manoeuvring in the face of what may appear to be "insurmountable" obstacles (Moore & Westley, 2011) to improve their lives. Importantly, some women or men can negotiate more effectively than others within the same structural constraints, leading potentially to incremental changes in gendered roles and expectations (such as Overå, 2011). So, although gender ideologies about what roles are appropriate for women (and men) do play a powerful role in resisting change towards equality (Brickell & Chant, 2010; Kabeer, 2000), gender relations from a social relational perspective are complex, dynamic and open to renegotiation (Bennett, 2005; Elmhirst & Resurreccion, 2008).

There is an extensive literature on innovation, entrepreneurialism and technology in natural resources management, particularly in relation to agriculture. Within small-scale fisheries, particular attention has been paid to technological innovations, such as improved fishing gear, and institutional innovations, such as developing local management organizations or market linkages, that are intended to contribute to more sustainable resource use and management (Pomeroy, Cinner, Nielsen, & Andrew, 2011). Increasingly such efforts have attended to the gendered division of labour within fisheries and to gender gaps in access to and control over resources and decision-making, with the dual objective of delivering more effective interventions as well as addressing poverty and gender inequality (Mills *et al.*, 2011; Williams, Awolowo, Hochet-Kibongui, & Nauen, 2005). The wider literature on innovation and technology adoption in agriculture and natural resources management concurs with that on fisheries and innovation: both see innovation as facilitated by examples of success, better access to ideas, credit and other resources, and good infrastructure and market linkages, and inevitably more likely to be taken up by more economically secure and better educated people, and by men rather than women.

Adoption is understood to be powerfully mediated by gender-specific constraints around particular innovations as well as by wider

gender discrimination with the result that women are generally less likely to be innovators (Gill, Brooks, McDougall, Patel, & Kes, 2010; Meinzen-Dick *et al.*, 2011). Gender norms, particularly those restricting mobility and the ownership of property, as well as gendered reproductive responsibilities, and gendered concerns about men's privileged breadwinner status compound material and economic disadvantages (Meinzen-Dick *et al.*, 2011). The International Centre for Research on Women (ICRW) note with respect to women that "early adopters tended to be women with some form of advantage either in the system or process" (Malhotra, Schulte, Patel, & Petesch, 2009:11). Whilst ICRW advocate strategically challenging structural discrimination to "leverage women's innovation," they acknowledge that it is extremely difficult to ensure that even the most exciting innovations are accessible to disadvantaged women (Malhotra *et al.*, 2009). The precarious nature of poor men's and women's lives privileges risk-averse strategies that meet basic needs (Fletschner, Anderson, & Cullen, 2010) and more recent studies have explored the important psychological and sociological roles of social networks and social expectations (Hapke, 2001), as well as the importance of understanding subjective priorities and the specific context of opportunities that all too often constrain their motivation to innovate (e.g. Galmiche-Tejeda & Townsend, 2006; Gill *et al.*, 2010).

Innovation in this study is understood from the perspective of men and women in fishing communities. As such, innovation here is about women and men in fishing communities doing something that they are already doing *differently*, or doing something *different* that they were not doing before, with the intention of improving their lives. We probe their understanding of what these innovations mean for their lives and the resources on which they depend and acknowledge that although these changes may be significant for these individuals, they may be neither "new" nor "transformative" in a wider theoretical sense. Additionally, we explore different views on innovation, focusing particularly on men and women from relatively poor or average households for whom innovation is expected to be more challenging. This allows us to engage with different people's motivations and aspirations to innovate, their understanding of their opportunities and individual capacities to innovate. In line with our social relational approach to gender theory, our epistemological standpoint is critical realism and involves a strong interpretive element. In this way, our study is able to situate their capacity to innovate within their experience of wider structural conditions, including those of gender relations resource depletion, and poverty. In short, our central research question is: How do changing gender relations mediate innovation in poor fishing community?

3 | METHODOLOGY

This research was conducted in 2014/15 by the CGIAR Research Program on Aquatic Agricultural Systems (AAS). The study focused on communities that served as learning sites for piloting innovations to enhance the social and ecological resilience of small-scale fisheries across five countries. It comprised literature reviews and the collection of qualitative data drawing on tools developed by GENNOVATE. GENNOVATE is global study of 11 CGIAR Research Programs which

uses a qualitative methodology to focus on how gender norms and agency shape women's and men's innovation in agriculture and natural resource management (see Badstue, Ktor, Prai, Ash, & Peteh, 2014). The in-country designs were led by AAS staff with each country team adapting their methods to accommodate contextual factors and their available skills and resources for implementing the study. For these reasons, despite broad methodological similarities, there are some differences in the data, its depth and its quality across the different locations.

We focus here on a selection of six communities from three countries in Asia and the South Pacific: two communities connected to Tonle Sap Great Lake in Cambodia, two in the Visayas Region of the Philippines and two from the Malaita Region of the Solomon Islands (see Figures 1–3). Our selection was driven by the desire to identify rural communities with a significant involvement in small-scale fisheries in a manageable number of contrasting settings.

This study focuses on analysis of the data from particular single-sex focus group discussions (FGDs) that were thematically focused to illuminate gender norms, gender dimensions of life trajectories and gendered aspects of innovation (see Table 1), as well as a limited number of semistructured interviews (SSIs) around life histories and/or with individual innovators (see Table 2). The FGDs and SSIs were loosely structured by thematically specific qualitative questionnaires (see Table 3). Participants were deliberately drawn from the poorer and to a lesser extent middle socio-economic groups, so the data over-represent the views of poorer

people but also capture the views of groups with more obvious scope to innovate.

Field research in these sites took place between March and October 2014. Each FGD aimed to include 8–10 participants but the numbers varied across sites (see Table 4). Most people were between 30 and 55 years of age, as specified by GENNOVATE, but in all cases younger and older people were also included (see Figures 4–6). Although each participant's number of years of education may well have proved to be useful for analysis of individual and couple behaviours, this was unfortunately not collected.

Verbal informed consent was obtained from all participants and participants were assured of their personal anonymity and their right to withdraw at any time. The FGDs lasted for approximately 2 hr and were conducted by facilitators whilst note-takers directly transcribed or recorded individual contributions. Where permission was given, SSIs were recorded; otherwise, notes were taken. Equal number of men's and women's FGDs and SSIs were undertaken in each community. The raw data were then translated into English and analysed using NVivo 10.

Our qualitative methodology saw the data as predominantly narrative with its value lying in its insights into how participants constructed their own accounts of their circumstances. The rigour of our study thus depends on the authenticity and trustworthiness of the accounts elicited and our interpretations of them. Accordingly, quality control involved building the capacity of research teams as well as careful and



FIGURE 1 Study villages in Tonle Sap Great Lake, Cambodia. Source: <http://asiapacific.anu.edu.au/mapsonline/base-maps/cambodia-base> accessed 27/10/2016—labels are ours



FIGURE 2 Study villages in the Visayas Region, the Philippines. Source: <http://www.mapsopensource.com/images/philippines-map-black-and-white.gif> accessed 10/01/2017

reflexive documentation of the research process that was deployed in the process of making sense of the data. Initial coding focused on looking for similarities and differences around individual experiences and perspectives on gender and innovation as suggested by our theoretical perspective, as well as being open to unexpected information and more emergent themes. Our methodology required a strong engagement with the wider contexts in which the data were generated and our analysis was informed by the country teams' literature reviews of these contexts and their research reports from the wider study. This iterative process of making sense of the data suggested three broad analytical themes—namely changing gender relations, gendered perceptions of innovation, and gendered negotiations around innovation—and we have used these to structure our presentation of the findings.

4 | THE CASES

There are important similarities and differences across the cases in terms of their wider social and economic dynamics, the pressures facing their specific aquatic and agricultural resource base and their gender norms and patterning of livelihoods. As such, they offer a rich set of cases in which to explore gendered understandings of the capacity to innovate.

The pace of change in Cambodia has been dramatic with important reductions in poverty and improvements in gender and development, albeit from a low starting point. There is a long tradition of women's involvement in agriculture and in managing household finances, but this has not translated straightforwardly into gender equity. The traditional code for women's behaviour (*Chhap Srei*) was banned by the Khmer Rouge but has been powerfully resurgent as Cambodia moves towards a market-orientated economy (Brickell, 2007, 2008). Around Tonle Sap Great Lake, the majority of people are comparatively poor and rely on fishing, rice cultivation and the collection of forest products. Diversification into agriculture is limited by access to land, in part due to protected areas and the legal prohibition on clearing flooded forests for agriculture, and is obviously constrained for floating villages. Women are engaged in their own fisheries-related activities as well as supporting husband's fishing, including in fish trading, processing, mending nets, collecting bait and keeping accounts (Hap, Seng, & Chuenpagdee, 2006). Although the lake was previously organized into fishing lots, fishing is now open to all, except in protected areas, but fishing gears are officially regulated. Few women are in the community-level fisheries committees (Resurreccion, 2006). We focus here on one lakeside village in which livelihoods are both land- and water-based and a floating village where livelihoods are entirely water-based. Here, the innovations promoted by government and other intervening agencies include improved drinking water supplies, improved rice and fish productivity through better land and water management, small-scale aquaculture and small-scale irrigation.

Whilst the Philippines is significantly more developed, it is more economically unequal and was badly affected by the global economic downturn between 2004 and 2014. Despite having the highest gender and development index (GDI) of the three countries, the predominance of Catholicism has important implications for gender norms and marriage practices: divorce is difficult and unusual, contraceptive technology is discouraged and men are seen as the primary breadwinners, and generally hold the land titles. As in Cambodia, women in the Philippines are heavily socialized into altruistic behaviour (Brickell & Chant, 2010). In the Visayas, women are mostly involved in pre- and post-fishing activities, particularly processing and marketing, although some also fish from the beach or nearshore (Ferrer, Cruz, & Agoncillo-Domingo, 1996; Israel-Sobritchea, 1994). Their participation in fishing is viewed as "helping out" and is often part-time and unpaid (D'Agnes, Castro, D'Agnes, & Montebon, 2005). Coconut and rice farming involve both men and women in gender-specialized tasks, as well as tasks in which they work together (Chiong-Javier, 2009) and women generally have vegetable gardens in which men help with land preparation (Ferrer *et al.*, 1996). We focus on two contrasting fishing *barangays*, one on the coastal plain, and one on a small island vulnerable to typhoons. Whilst the former is moderately well connected, the island is remote and inaccessible. The incidence of poverty is relatively high in the island barangay (where 90% of households depend on fishing) in comparison to the coastal village. Both barangays have seen decreasing profitability of agriculture and fisheries, and declining fish stocks, in the context of increasing commodity prices.

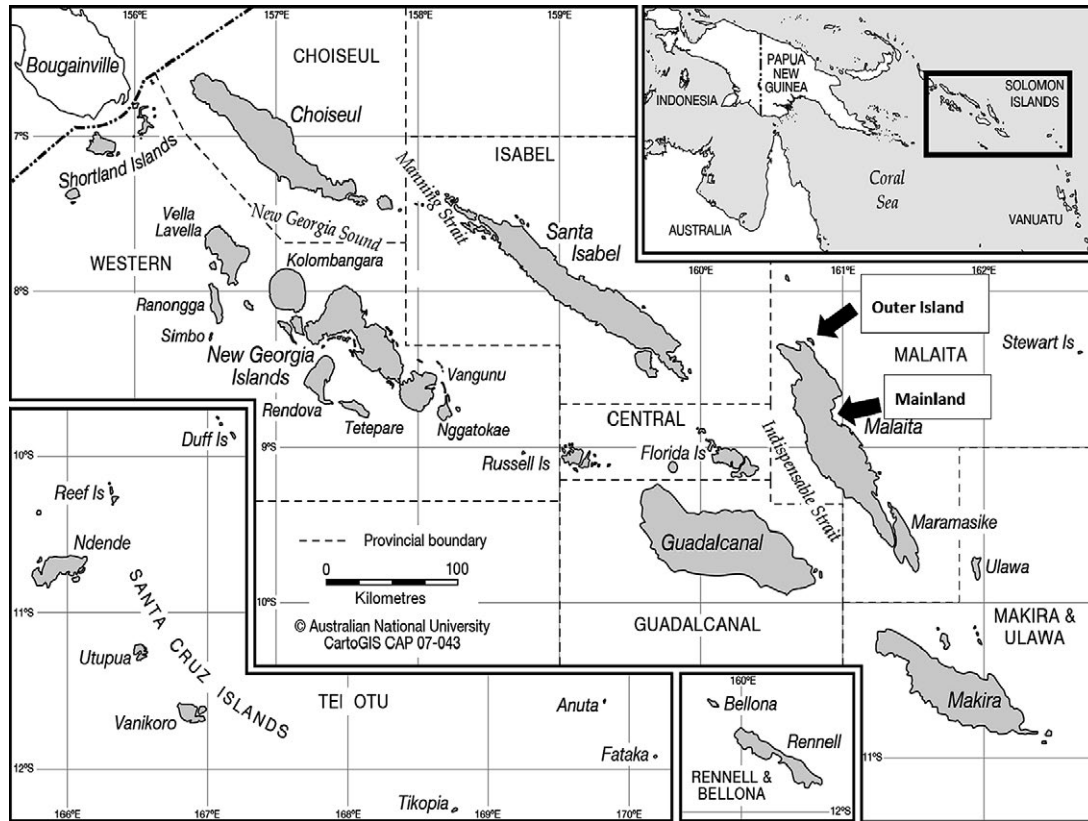


FIGURE 3 Study villages in the Solomon Islands. Source: <http://asiapacific.anu.edu.au/mapsonline/base-maps/solomon-islands-location-map> accessed 27/10/2016—labels are ours

The coastal barangay was badly affected by the decline of the *abaca* (pulp fibre) industry, whilst the island barangay has been hit by constraining local market structures, and natural calamities, in particular Typhoon Haiyan. Interventions supported by the AAS research programme focused on sustainable increases in productivity, value chain development and improving governance structures for small-scale fisheries.

The Solomon Islands remains a rural and subsistence-based economy and women’s average age at first marriage is lowest, and the number of children that women have across their lifetimes is highest, of the three countries. *Kastom* (custom) embedded in the ancestral worship of pre-colonial times has been successively influenced by the influx of Christianity and colonization by the British, and later Australian settlers, as well as Independence. This has institutionalized patrilineal

inheritance (Burt, 1994) and reinforced deeply held gender norms of male dominance, including in coastal and marine decision-making (Akin, 2003; Foale & Macintyre, 2000). Malaita Province is relatively disadvantaged, particularly in access to education, and over 80% of the population are involved in subsistence activities in which women dominate. Gardening and marketing remain a women’s prerogative and women are responsible for feeding their families through these activities. Although gender divisions of labour are loosening, women still have little access to paid work, economic opportunities and interventions promoting agricultural innovations. Whilst fishing is seen as primarily men’s work, women often gather shellfish, molluscs, sea urchins, mangrove seeds and small fish (Akimichi, 1991). We focus on two communities: one on the “mainland” and the other on an outer island.

TABLE 1 Number of women’s and men’s focus group discussions (FGDs) by theme

No. women’s: No. men’s	Cambodia		The Philippines		The Solomon Islands	
	Lakeside village	Floating village	Island barangay	Coastal barangay	Outer island community	Mainland community
Well-being FGDs	1:1	1:1	1:1	1:1	1:1	1:1
Gender norms FGDs	2:2	2:2	2:2	2:2	1:1	1:1
Capacity to innovate FGDs	1:1	1:1	1:1	1:1	1:1	1:1
Gendered capacity to innovate FGDs	1:1	1:1	1:1	1:1	1:1	1:1

Country	Cambodia		The Philippines		The Solomon Islands	
	Lakeside village	Floating village	Island barangay	Coastal barangay	Outer island community	Mainland community
Women: Men						
Innovator SSIs	2:2	2:2	2:2	2:2	2:2	2:2
Life histories SSIs			2:2	2:2		

TABLE 2 Semistructured interviews (SSIs) with individual women and men by type

TABLE 3 Themes for focus group discussions (FGDs) and semistructured interviews (SSIs)

Tool	Themes to probe
Well-being FGD	The culture of inequality in the village, factors shaping socio-economic mobility, poverty trends and their gender dimensions
Gender norms FGD	Gender norms and household and agricultural roles Gender norms and household bargaining over livelihoods and assets Intimate partner violence
Capacity to innovate FGD	Agency Community trends Enabling and constraining factors for innovation Opportunities for agriculture and entrepreneurship Social cohesion, networks and social capital
Gendered capacity to innovate FGD	Employment opportunities and their gender dimensions Enabling and constraining factors for innovation, and their gender dimensions Social cohesion, networks and social capital and their gender dimensions.
Innovator pathways SSIs	To explore in depth the trajectory of individual experiences with new agricultural and NRM practices, and the role of gender norms and capacities for innovation in these processes.
Life history SSIs	To understand the life stories of different men and women in the community who have moved out of poverty, fallen into deeper poverty, or remained trapped in poverty, and how gender norms, assets and capacities for innovation in agriculture/NRM, and other assets and capacities shaped these different poverty dynamics.

5 | FINDINGS

These are presented in three sections, beginning with an account of changing gender relations, proceeding to look at gendered interests in innovation, and concluding with gendered negotiations around innovation.

5.1 | Changing gender relations

A common theme across all six fishing communities is that women had become more involved in productive activities because “life was harder now” than it had been a decade ago. Below we review the changes that respondents perceive in gender relations around production.

In the Cambodian villages, the FGDs report that a major reason why life is harder than it was a decade ago is because fishing has become more difficult, referring to the decline in fish stocks, the use of illegal fishing gears, and the greater regulation of fishing and the greater cost of associated bribes. This has in turn driven an increase in aquaculture, changes in fishing gear, more processing of fish and the catching of shrimp. Whilst aquaculture is usually a family affair, processing fish and catching shrimp are mainly women’s jobs, indicating how central gendered family labour has been to responses to greater hardship. As Chea (a married man in his 30s) says, “A good woman

helps her husband. She takes care of her husband, knows how to make prahok [processed fish] to support the family. My sister smokes fish for the whole night and without her it would be hard for us and we would have no money to feed the children.” Many wives also developed work outside their homes including selling fresh produce at market, fish trading or becoming a *Moy* or “middle man.” The villagers’ perceptions of gender were complex, with tensions between ideas about equality in some domains and gender discriminatory norms in others. Whilst participants agreed that a good husband “helps” his wife and avoids drinking, gambling and infidelity, they accepted that as long as a husband provides for his wife economically, occasional infidelity can be overlooked. Similarly, whilst men prefer their wives to stay at home to avoid any “disorder,” both men and women think that they work “almost equally hard” even though men’s tasks are seen as requiring more physical strength whilst women are seen as busier with managing many different tasks simultaneously. Tellingly, male FGD participants said they welcomed women’s involvement in productive livelihoods if it generated extra income for the family. The contingency of men’s support for women’s earnings is also signalled by Kimsan, a married man in his 40s from the lakeside village, who argues that domestic violence arises when women lack the virtue of speaking “properly” to their husbands: “although the money is from her side; if she knows how to talk, violence would not happen.”

Gendered roles around productive livelihoods are also perceived to have changed in the Philippines as life has become harder over the

TABLE 4 Numbers of women and men participating in focus group discussions (FGDs)

FGDs	Cambodia				The Philippines				The Solomon Islands			
	Floating village		Lakeside village		Coastal barangay		Island barangay		Mainland		Outer Island	
	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
Well-being FGDs	11	7	10	8	8	5	9	6	13	12	8	5
Gender norms FGDs	18	16	23	18	9	5	22	15	11	16	8	5
Capacity to innovate FGDs	13	7	10	9	7	6	9	10	13	8	9	9
Gendered capacity to innovate FGDs	10	10	10	9	4	5	12	6				
Total FGDs	52	40	53	44	28	21	52	37	37	36	25	19

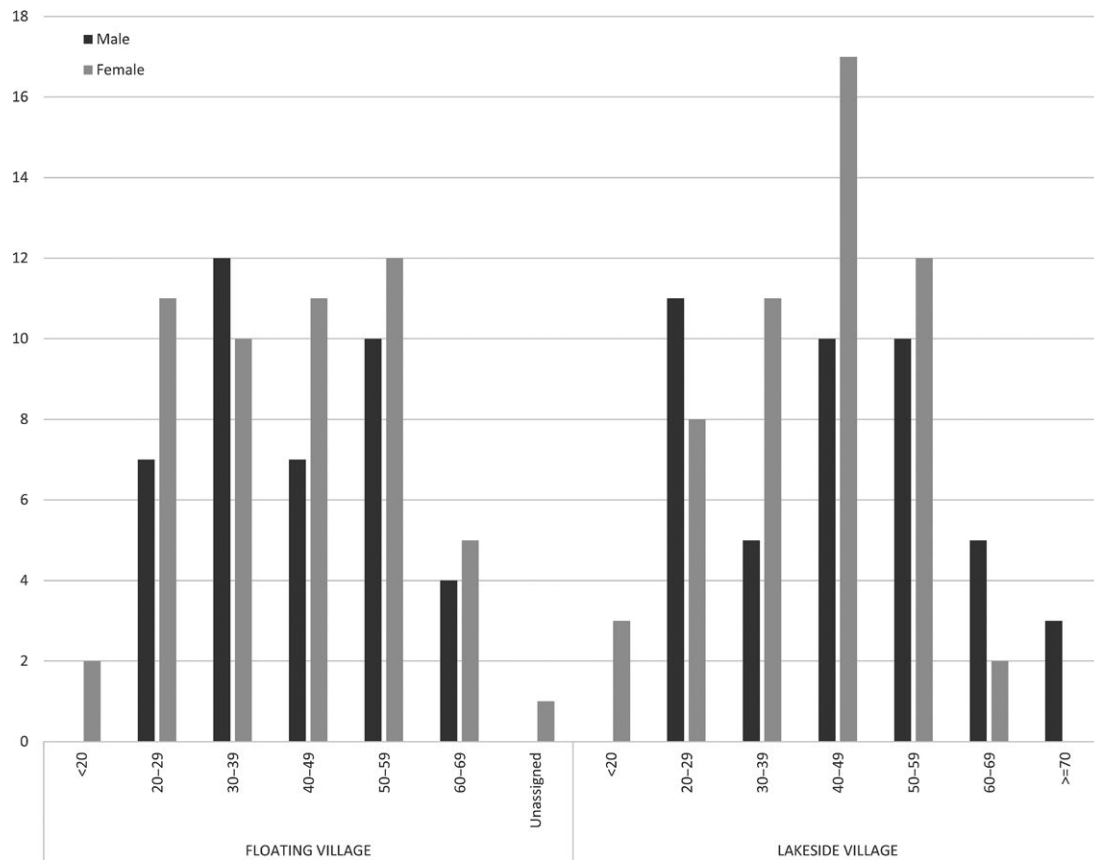


FIGURE 4 Age distribution of participants, Cambodia

last 10 years. This is particular the case in the coastal barangay where abaca and coconut are primary sources of income. Ten years ago, the abaca industry was thriving and Ricky (a man over 60 years old), notes that “our pockets never ran out of money” and there was little need for wives to earn or for daughters to migrate. However, “when the abaca was gone, that was when women started working hard to be able to help their husbands” (Felicity, a woman over 60 years old). Villagers in the island barangay also perceive that life has got harder, referring to increasing commodity prices and decreasing fish stocks and prices, and Typhoon Haiyan, and both men and women also associate this with an increasing involvement of wives in productive activities. Anna

(a married woman in her 30s) notes “[b]efore the catch was more plentiful... the prices of goods today are also more expensive... fishing is more difficult nowadays... for married couples, we realised that there is really a need to help the husband in earning money.” Christian (a single man in his 20s) agrees that “before the women didn’t need to find work and they just stayed at home” and Fernando (a married man also in his 20s) adds that “now they can already help us.” Tellingly, women in the island barangay said that husband’s approval for them to take on income generating work was key for moving out of poverty.

Life has also changed substantially in the Solomon Islands communities with increased pressure on resources, the increasingly monetized

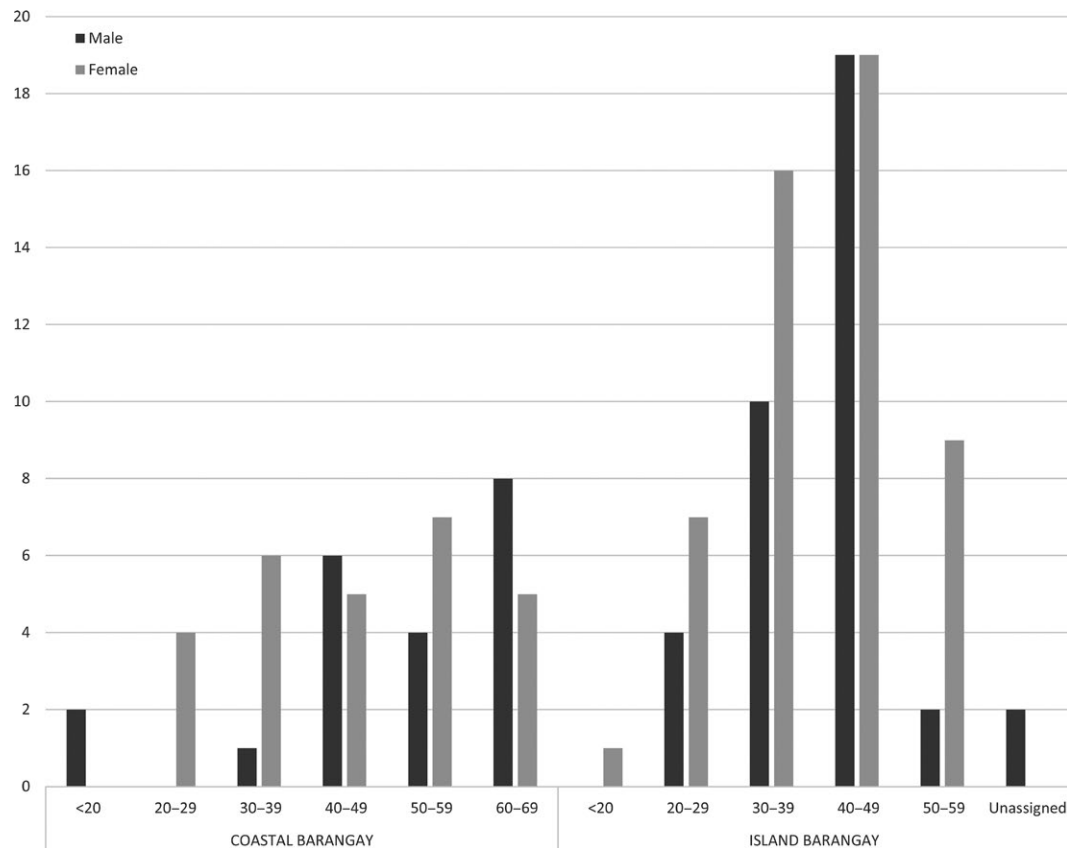


FIGURE 5 Age distribution of participants, the Philippines

economy and rising aspirations. As a woman from the mainland community puts it, “[n]ow the standard of living is high. Before everyone has to work hard and didn’t worry about the standard of living.” Now “life is slowly becoming good and changing” (outer island woman) as communities become more connected to new opportunities and there are more possibilities of a better life for their children. At the same time, communities also face increased demands for cash to pay school fees and rising aspirations for housing, clothing and diets. A loss of social cohesion and *kastom* is regretted by some, but is perceived by others to have freed men from the authority of community leaders and to have loosened traditional gender roles, including around domestic work. Food security is under threat from declining fish stocks in both communities and in the mainland community from declining availability of land. The increase in fish farming by men is valued by women as it helps “... families to have enough fish even though the husband is not a good fisherman” (according to a woman in the mainland community). Whilst there is agreement that women’s workloads have increased, some women attributed this to men’s laziness, whilst some men attribute this to the need to support the growing population. There is some resistance to changing gender relations as *kastom* requires men to be “a little bit on top” and a man who does household work may be seen as “spoiling *kastom* because he is washing clothes and plates” (according to Geraldine, a woman in her 50s in the mainland community).

Importantly in all six sites, men and women participants emphasize that “good” behaviour on the part of their marriage partner is

fundamental to being able to secure or improve well-being. Difficulty making ends meet, ambiguity over women’s increasing economic contributions, and increasing access to cash were all identified by male and female participants as being linked to men’s domestic violence, men’s alcohol abuse, other vices and strained marital relations. Whilst sometimes contradictory and often circular, these assertions reveal the intimate link for participants between a sound household economy and a “good” marriage. In the Philippines, Angela (a married woman in her 50s), offers an interesting insight into how some wives strategize in the face of an unreliable husband: “I deny to my husband that I have the money so that I can keep it safe for my children.” In the Solomon Islands communities, there was a surprising consensus over men’s lack of wisdom and untrustworthiness in money matters. As Alex, a man in his 30s in the outer island community, noted “it is the men who waste their wives’ money” (on alcohol and unnecessary things) and men’s poor decision-making over money was said to be a key reason why women struggled to improve their household’s well-being. Where domestic violence was felt to have declined, such as in the lakeside village in Cambodia, men attribute this to improved incomes, whilst tellingly women attributed it to better law enforcement and awareness-raising campaigns. In the Philippines, “vices” were also seen as powerfully shaping a household’s trajectory in the coastal barangay, but were not referred to by participants from the small island barangay.

To conclude, whilst women in all sites have made long-standing contributions to productive livelihoods, albeit often within the

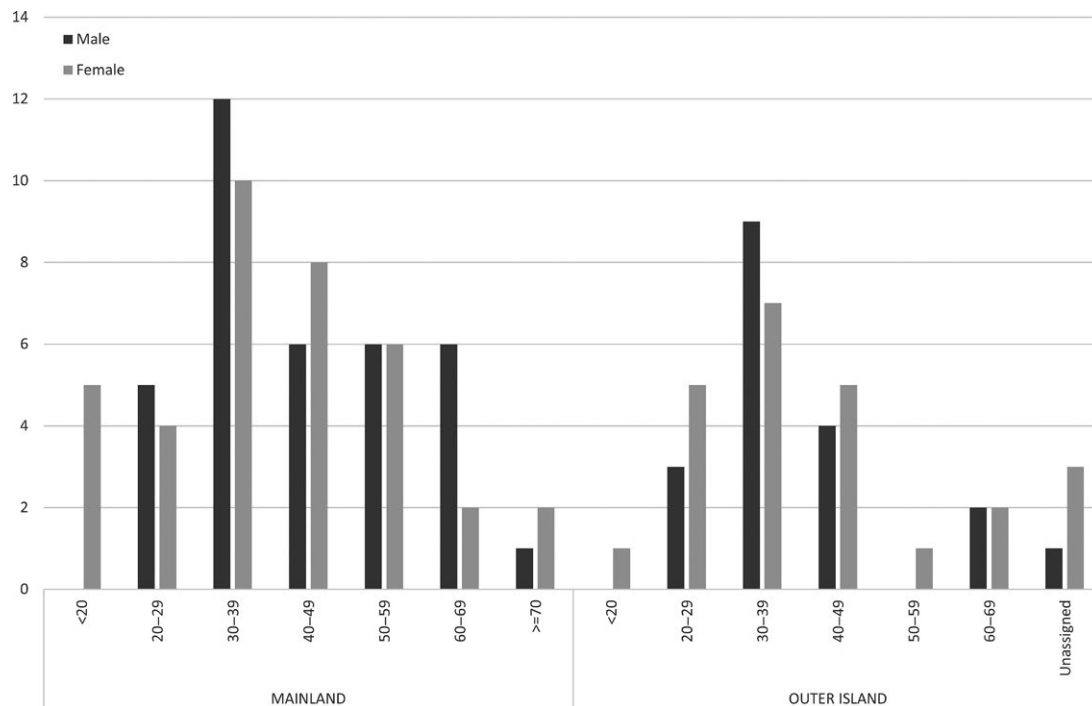


FIGURE 6 Age distribution of participants, the Solomon Islands

homestead, the nature of their involvement in generating own-account income or by adding value to men's enterprises and household businesses is reported as increasing and has become more visible in ways that may threaten existing gender norms. Respondents' account of the vices and virtues of husbands and wives are revealing of gendered tensions around changing livelihoods and, as we shall see, have a bearing on men's and women's capacities to innovate.

5.2 | Gendered perceptions of innovation

Men's and women's perceptions about innovation reflected both differences in the existing gender division of labour around productive activities and differences in gender-specific well-being priorities.

In the Cambodian sites, the decline of fishing stocks and profitability has led to gendered innovations in the catching and processing of fish. For instance, men expressed concern with investing in fibreglass boats and the capital investment required for this, and with fabric mesh nets and their efficiency and contribution to overfishing. On the other hand, women in both villages expressed that they have responded by getting increasingly involved in cultivating fish, harvesting shrimp and snails, repairing fishing gear, processing and trading fish: their concerns have revolved around markets for processed fish, with the bribes they must pay to set their lop traps, new seeds for gardens, and the investments needed for aquaculture. Whilst both wanted to improve their family's well-being through innovation, men emphasized that their goal was to increase their household income, whilst women were orientated to moving out of poverty and ensuring that their family has enough food to eat. Women stressed that they were motivated to do some activities, such as shrimp fishing, that might or might not earn more money, because at least they provided more food that could be consumed by the family.

Whilst men agreed that it made sense to switch from bamboo-based to net-based traps—they were easier to use, more efficient, easier to transport and store, and lasted longer—they were all highly ambivalent about them as an innovation as they credit these nets, and the increasingly small gauge used, as driving an increase in fishing effort that has led to a decline in fish stocks. Whilst men did not mention other illegal fishing innovations, women also talked about the electrification of gill nets and the use of *Kok Ngov* drug on hooks when discussing the tension between competing in the face of shrinking stocks and concerns about unsustainable fishing.

Women stressed the value of lop trap fishing for them over gill netting: when the gill net gets old or breaks, they do not have the money to replace it, and when the gill net is set, it needs guarding night and day. However, women in the floating village complained about the government's seasonal regulation of lop trapping as unfair because it created a situation where foresters demand bribes to turn a blind eye. The women made their case vocally claiming that "now we throw KhR millions in the middle of the lake..." They linked the foresters' actions to a general picture of a predatory state: "there are about ten ministries just coming to collect under-table money from local people... we simply work for them" and claim that as a result they are unable to buy corn for their children (Phan Dara, a married woman over 60 years old).

Whilst aquaculture was a key innovation being supported by agencies concerned about declining fish stocks in Tonle Sap Great lake, lack of capital to buy seeds, cages and feed was a key barrier for all participants. As Thy Chheang (a married woman in her 40s) puts it, "Without the money, there is nothing for the fish to eat." This is particularly the case for the floating villages, and for lakeside villagers without agricultural land, as some organizations require a land certificate before extending seeds. Women are also concerned about the risks involved

in aquaculture where maturation times are longer. Whilst market demand is good for *tre pra* catfish because they are no longer available locally, they take 2 years to reach market size; consequently women preferred to raise walking catfish because they only need 3–5 months to mature. Women have also developed vegetable gardens and/or floating gardens to provide extra sources of income, but both aquaculture and agriculture were time-consuming, and without market demand for a product then “nothing will be any use to us” (Leng, a married man in his 20s).

The gendered configuration of innovation, and the motivation for it, also varied across and within the Philippines sites. Women’s innovation in the coastal barangay was driven by the desire to make up for household income lost due to the decline in abaca, whilst men’s innovation was driven by both economic and environmental objectives. For both, innovations tended to focus on improving farming practices, such as trying out a new way of growing coconut or using a non-chemical pesticide. Attitudes in the coastal barangay were strongly framed by the idea of economic decline and how the lack of credit and lack of markets hindered innovation. Whilst there were “so many people doing business” when the abaca industry was thriving farming, now “the merchants no longer allow us loans, even our neighbours no longer lend us money” (Roberto, a male farmer in his 40s). Any changes men did make were necessarily incremental because of the difficulty of investing in new enterprises.

In the more fisheries-dependent island barangay, innovations around fishing, including new gears as well as more effort in processing and marketing fish, are more likely to be perceived as a family affair in which husband and wife had joint interests and separate responsibilities. Women’s main concerns were their inability to reliably secure a reasonable price for their husband’s fish, and the absence of capital to invest in innovation. Significantly, women felt that their families are often running at a deficit and that taking on loans could only work for them if the interest were minimal and if there was a guarantee to buy their catch at a fair price. In the coastal barangay, women noted that hard work and motivation are important for their capacity to innovate but that they also need support and understanding from the family. Like men, they stress that their ability to innovate is hampered by lack of access to capital, but in addition they feel they lack training.

Men in both barangays stress the importance of “real” government support to innovate: they report that this was largely lacking with promises of support, often made at election time, tied to their landlords’ political interests and regularly failing to materialize. Whilst women in the island barangay also stress the importance of a supporting institutional context, they did not make any specific reference to government, possibly reflecting their lesser involvement in local politics of patronage.

Innovation possibilities are also gendered in the Solomon Islands sites. Men expressed that their capacity to innovate is strengthened where they have land, with its potential for agricultural activities like gardening and piggeries, and when they can access the sea, with its potential for fishing. Poor infrastructure is a major problem, as Paul notes “We need access to markets and transportation. Even if we make good use of land and produce lots of food, it will be wasted.”

In contrast women’s capacity to innovate is focused on their existing resources which they see as: tools for working their gardens, land for working a garden, labour, planting materials and the ability to work together. Women reported that having too many children, making it difficult to go and work in the garden, and the absence of an agricultural extension worker bringing information into the village, hampered their efforts to innovate. Growing green copra and raising pigs are seen as the most promising agricultural activities but were beyond some women’s capacity. As Teresa comments, “you must have land because it’s hard to make a garden in the air” but “those women with lots of small children who can’t work in the garden, have no garden. So they go and steal from other people’s gardens.”

In the sites in Cambodia and the Philippines, the ability to accumulate surplus capital and/or borrow capital are seen as fundamental to the capacity that different households had to experiment with new activities or to further develop existing activities. For example, in the Cambodian villages, people considered that those in the middle well-being group “find it easier to borrow, and quicker to get money back for repayment” (Chanda, a married man in his 50s) than the poor because they have children with jobs who send remittances. In contrast, the poor are simply “not allowed” (Hun Srey, a previously married woman in her 50s) to take loans from organizations because they lack collateral, reliable income sources, or guarantors to guarantee repayment. Instead, informal private lenders are helpful for poor fishermen unable to access microfinance services. For instance, in the Tonle Sap sites, fishermen borrow money or receive fishing gear or groceries on credit from *Moy*: in return the lender must sell his catch to the *Moy* at a lower price than the going market rate, but no further interest will be charged and the deadline for repayment is renegotiable. Although some *Moys* are women, taking on such a role requires business connections, capital and strong family support; thus, they tend to belong to more socio-economically advantaged households.

Whilst both men and women in Cambodia and the Philippines sites identify access to capital as necessary for investing in technologies, their attitudes towards taking on loans are strongly gendered. For men, taking loans tends to be seen as an opportunity, and it is ability to access the loans, and the difficulty of applying for them, that is the sticking point. For many women, however, going into debt is perceived as a source of unhappiness and insecurity. Joint household liability for repayments led women in the Cambodian sites to stress the importance of marital trust for successfully managing the liability incurred by borrowing: “It is hard if the wife sees others making good earnings and talks with her husband to make a loan to borrow a little to start a business, but finds that her husband spent the money on alcohol. Then she would have nothing more to say to the creditor; the husband does not listen and beats her, and sometimes even burns the house...” (Tang Chhoun, a married woman in her 20s).

In contrast, indebtedness and unmet demand for loans did not figure prominently in the Solomon Islands as only men with wealthy connections can secure significant loans for investment. With regards to their own business ventures, women expressed a preference for leveraging income from lower investment activities. Margaret, 28 years old, reports that she goes fishing so that she can sell the fish at market

to get money to buy feed for raising poultry. Christina, 38 years old, when asked if she borrows money, says that she prefers to trust in her own hard work to leverage small amounts to invest: as she puts it, “I go to the garden in the morning and come back in the evening.”

To sum up, whilst perceptions of innovation and the capacity to innovate are clearly gendered, they are also strongly socially differentiated and powerfully circumscribed by wider structural conditions. Given these constraints, we now turn to examine how individual men and women are (or are not) able to negotiate for innovation in these settings.

5.3 | Gendered negotiations around innovation

In the opinion of the Cambodian participants, the “motivation” to innovate is embedded in gendered family relations. Family unity was important as an enabler: many participants said that husbands and wives had to “join hands” and work together if they wanted to be better off. This did not necessarily mean that husbands and wives needed to undertake new activities together, but was rather directed towards ensuring that both supported each other in managing increased productive workloads and both ensured that the benefits from new activities contributed to household well-being.

This contrasts with the situation in the Philippines sites where there was a clearer preference by men for women to contribute to the joint fishing enterprise. Here women earning more as part of the household enterprise or fishing business was encouraged and often long-standing. In the island barangay, women have always been involved in the fishing business, both mending nets and processing fish, but are now more involved in generating better income from fishing livelihoods beyond as well as within the home through marketing and processing activities. For these reasons, female interviewees felt that decisions about innovations in their fishing businesses were necessarily taken jointly. As Maita, 51 years old, puts it, “Me and my husband agreed to this. He goes fishing and he needs to have someone to help him because he can’t do it on his own.” However, as Maita clarifies, “joint decision-making” combines spheres of separate task-specific authority with joint decisions of more strategic importance: “he will be the one to decide on the fishing because it is he who does it. I handle inventory, pricing and selling. When it comes to deciding how much to sell, how many, that would be the two of us.”

Whilst there was general support in the Solomon Islands communities for the ideal that men and women should communicate together and make joint decisions, negotiations seemed more complex in practice. Strikingly, there appear to be differences between the mainland community—with its closer proximity to markets and greater exposure to development—as compared to the outer island community in terms of gendered negotiations around innovation. Women in the mainland community reported that “the women steer the men here. The men just follow the women. The women always take the lead doing new things.” In contrast, the women in the outer island community reported that “whatever the man does, the women does it as well, so the children can eat.” Despite these differences, in both sites men felt

that they had the final decision in many matters relating to the household and justified this with gender norms that circumscribed women’s decision-making: a “good” woman would discuss ideas with her husband and “must obey her husband.” However, the gendered nature of decision-making varied with women having more autonomy in areas considered to be their domain, such as deciding how much of their garden crop to sell.

Given these differences and continuities over gendered decision-making around joint household enterprises, it is no surprise that gendered negotiations around women’s or men’s innovations were also varied. Nevertheless, in general, women’s innovation required some renegotiation of gendered responsibilities and expectations and the same was not necessarily true for men’s.

5.3.1 | Negotiations around women’s innovation

In the Cambodian sites, the powerful norms around the value of husbands and wives working together to build a sustainable household economy, as well as women’s long-standing involvement in productive activities within the home and on the farm, their role as family financial managers, and their reputation as traders were all deployed to support women’s innovation. Our findings indicated that women are commonly acknowledged to be better at handling money than men, better at selling fresh produce in the market and to have better skills in negotiating prices than men. In comparison to the other contexts, this seems to offer women an advantage in innovation beyond the family business. This is confirmed by the fact that the majority of interviewees—male and female—felt that it was generally easier for a wife to persuade her husband to go along with her idea, rather than vice versa. Despite this, men were not always supportive of their wives’ independent mobility except where it was agreed upon beforehand and was for a business purpose. Although partly rooted in women’s domestic responsibilities—which have effects on how long and how far they can be away from home—this concern was strongly inflected with male authority over the propriety of their wife’s behaviour. Women’s mobility was further restricted in the floating village because moving around in the dark is risky and women in the community are less likely to sail.

Both women and men in the Philippines FGDs collectively identified the possibility of a husband’s disapproval as a barrier to women’s innovation (but not vice versa). However, the detailed responses of participants indicate that this is open to considerable negotiation. In practice, women’s increasing involvement in productive activities reflects an expansion of their sphere of family responsibilities, often interpreted as “helping” her husband, whilst men continue to identify themselves as the providers of the family, albeit in the face of new challenges and constraints. Whilst this has resulted in some flexibility in executing domestic duties, this is accompanied by a strong construction of women’s activities outside the home, and particularly beyond the fishing enterprise, as legitimate *only* where they are generating more income for the household income. Where wives are doing new things within the household, whilst still fulfilling her family obligations, this was less threatening.

In the Solomon Islands sites, women have a widely acknowledged reputation for being good at marketing and better at bargaining than men who are “too shy to go near girls” (John, male respondent, 60, from the outer island community). Although some men admired women who were good at marketing, others resisted women going to market because their absences forced men to take up women’s work. One man from the mainland community said that “a very good husband” who “trusts his wife” will “take the full responsibility of looking after kids, cooking, gardening and so forth” but another asked “Who knows what she is doing?” when she is at market. Not only could she be doing “anything in the absence of her husband,” others noted that people will talk and say that “she is the boss of her husband.” Suspicion about wives’ mobility is not necessarily confined to men; for instance, a woman respondent in the mainland community spoke against a wife going to market because “she’s just relaxing and enjoying herself” whilst her husband works at home.

The necessity for women of renegotiating domestic responsibilities (or the way in which they are fulfilled) was central in all sites to women’s capacity to take on new activities in different ways. For instance, women in the island barangay in the Philippines said that their capacity to innovate was constrained by family obligations, not only to caring for children and husbands, but also to support their husband’s productive activities. As Patricia (a married woman in her 40s who processes cassava) says, “Who will take care of your children and your husband and prepare his needs in fishing?” Although men’s reluctance might be framed in terms of thinking that “women should just be at home doing the household chores” (Patricia), men are also concerned about losing their wives’ inputs to their fishing business. Therefore, women earning “on their own” or outside the house or at the expense of their reproductive and productive obligations to the family need their husbands’ permission or support to proceed. The evidence confirms that there is sufficient flexibility here for some men to do some “women’s work” from time to time, as long as they feel that they are not defined by it. Indeed when women undertake new activities or set up new businesses, there is an inevitable impact on their household responsibilities. As Elena, a 42-year-old married woman, says, her business affected the cleaning and the laundry, but when her husband commented on the work not done, she said “I would tell him that I can no longer attend to it. The tasks [in my new business] are quite heavy, so I ask for his help because I also need to rest.” Despite this, she admits that “I still end up doing most of the tasks.” Crucially husbands “helping” out selectively and from time to time with domestic tasks is not the same as sharing the domestic workload. Indeed, only one man said that “I do the laundry and take care of the children when I don’t have work. I gather firewood for my wife.... we try to divide the tasks because if I don’t have work, I also help her at home.” More generally, the construction of men doing this work as “helping out” their wives serves to uphold conventional gender expectations.

Whilst the attitude to women earning outside the home appears more liberal in the Cambodian sites, the situation regarding the renegotiation of domestic responsibilities seems to be very similar. Hun Narong, 34, from the lakeside village sees her success in business as bringing more respect from her husband, more freedom for her beyond

the home, and more support from him within the home. She clarifies that this does not comprise his washing the clothes, but it does include his tolerance of domestic tasks that are not done, help with some household tasks and assistance in her business. She stresses that “Since I was successful, my husband followed me. He helps with the housework also, but not in washing clothes, but he prepares food, he prepares the fish.” Aside from actually helping out, women and men emphasize the importance of husband’s “understanding,” namely their greater tolerance for domestic tasks not done, or not done as well as in the past. This tolerance, and men’s support generally, is strongly reliant upon the success of women’s innovation in generating more income for the family.

Indeed, the rather generalized norm that women may need a husband’s approval to innovate may be misleading. The findings suggest that (dis)approval is not necessarily decided at the outset but rather emerges over time: initial discussion of ideas may not be encouraging but may fall short of forbidding innovation, so wives may risk experimenting without husband’s “help,” and if they manage to make a success of it they can win their husbands approval, cooperation and respect. For instance, in the Philippines, Carmen (60 years old) reports that her husband was initially sceptical about her proposal to grow new plants in her garden: “I talked to my husband about it. I asked him “Do you think it’s good to grow different kinds of plants?” He said not to bother but I did not pay heed. I planted a can of nuts. When it finally grew, my husband realised its advantages.” This example suggests that in this family, whilst the wife sought her husband’s opinion that she did not need his approval before going ahead. However, had his objection been based around more deep-seated concerns, such as propriety, or had her innovation required major investment, this may not have held.

The strategy of winning of husband’s approval is echoed in the in-depth interviews in all the study villages and seems to be an important element of what female entrepreneurs would like us to understand about their entrepreneurial history. For example, Som Moeuk, 48 years old, moved to the lakeside village upon marriage but did not know anything about fishing. When she started trading fish, she lost money and her husband’s support: “My husband did not want me to do it and as I lost money, he did not help with it. I strived alone and hired children to help. I dared not ask my own children for help as they had to go to school. I shouldered the hardship alone and did not say to my children, being afraid that it would affect their study. With my persistence, I made it a success and now he [her husband] has changed. Now I can do or go wherever I want and he does not object.” If a wife is successful, her husband is likely to be happy with her work as it improves their situation.

Nevertheless, many participants, male and female, in all the study villages expressed anxieties about women’s innovation and income generation where it was perceived to threaten men’s primary identity as the family provider. Interestingly though, many distinguish between disapproving talk (gossip) and actual experiences, indicating the possibilities for ignoring or counteracting negative framings. Despite the apparent support for women’s income generation in the Cambodian sites, where a wife’s activities eclipsed her husband’s, there was likely to be talk in the village from women as well as men. Faced with a

hypothetical scenario in which a woman sold her produce at market whilst her husband helped out at home, Duong Phuong (a married woman in her 40s) laughingly said “the husband is too lousy,” and Ang Chea (a married woman in her 20s) agreed “being a man he has to work to make a living or he is simply rubbish.” However, Seng Lae (a married woman in her 50s) goes beyond the stereotypes to observe that “they live in harmony in their household.... They both live happily, but we outsiders see that as not good.” Whilst the pressure to live up to gendered expectations within the community is real, it is not necessarily defining of marital choices or marital happiness.

In this way, women’s willingness and capacity to innovate, as with respect to their priorities around productive activities, are intimately tied to their gendered family relations: decisions to get more involved in new enterprises risk trade-offs and tensions with reproductive relationships that are integral to women’s lives and security.

5.3.2 | Negotiations around men’s innovation

Whilst men’s innovation in the six sites did not so obviously involve a renegotiation of reproductive responsibilities, men also faced gendered barriers or pressures around innovating. Our findings indicate that men often wanted and needed their wife’s approval, cooperation and “help” in new ventures, that they were under considerable pressure to succeed and in particular that they needed to address wives’ concerns about the risks of indebtedness.

Whilst men in all the sites tended to claim that the initial decision to innovate would be theirs, they reported that they would then discuss it with their wives and/or involve their wives in helping them with the planning and execution of their idea. There are, however, clearly varied perceptions about gendered decision-making around men’s innovation. In some cases, what appears to be a liberal position may obscure a more conservative stance: for example, in the coastal barangay, Luis, 36 years old, says that he and his wife: “really discuss about our concerns and problems. We try to understand each other’s decisions” before clarifying that “so whatever I decide, she is fine with it.” In others, there is clearly considerable room for manoeuvre; for instance, Alfonso, 62 years old, also from the coastal barangay, says that “my wife really helps me out... she handles the planning.” Significantly though, husbands also reported the necessity of doing well in business to win their wives’ support. A wife’s disapproval, or reserved judgement, on her husband’s innovation was driven primarily by concerns over economic risks as investments incurred joint liabilities. A man in the floating village in Cambodia reports that his wife initially disapproved of his decision to go into fish farming, but that she gained confidence “because” the business was successful and that as a result was willing to cooperate by looking after the fish.

Interestingly in the Solomon Islands, wives withheld approval of husbands’ innovation where they reneged on their expected contributions to their wife’s gardening. For example, Philip reports that his wife initially agreed that he could develop a new business but changed her mind because he was so busy that he could not help anymore in the garden. However, after their income started to improve, she started supporting him again because “instead of going to the garden, she

could pay others to labour” for her. This suggests that men’s less visible reproductive responsibilities—including in this case helping wives in their gardens—also need renegotiation when they get more involved in new productive activities. This renegotiation, often tacitly handled within specific marriages, suggests more power for wives over husband’s innovations than is apparent from gender norms.

6 | DISCUSSION AND CONCLUSIONS

The findings reflect the strongly gendered nature of men’s and women’s understandings of their capacity to innovate. In each context, changes were reported in gender norms and practices that were stimulated by women undertaking activities that were new for them. Although the specifics of these changes were particular to each context, and the prevailing gendering of re/productive responsibilities, they were, in all cases, said to be driven by increasing hardship. Rather than being straightforwardly empowering, the findings are revealing of ambiguities in the meaning of these changes in gender relations. Whilst expanding the space for women’s economic activity, these changes can also be seen as part of “a trend towards the feminisation of responsibility” (Chant, 2008:521).

Participant’s accounts of their challenges and opportunities to do things differently reflected well-understood structural factors and socially differentiated capacities to invest in new ventures. However, they were also notably preoccupied with the importance of having a “good woman/wife” or a “good man/husband” on their own capacity to innovate. Whilst discussions of marital morality may appear from a technical perspective to be unrelated to productive livelihoods, trust, mutual respect and cooperation between husband and wife are integral to these households’ ability to adapt to harder economic conditions and form a central theme for men and women in their estimations of what helps or hinders their attempts to improve their family’s situation. Respondents accounts of the gender tensions and conflicts around changing livelihoods reveal how local gender norms, and new ideas introduced by external agencies, particularly with respect to domestic violence, are deployed in these discussions over how men and women should behave in the context of changing livelihoods.

Men’s and women’s perceptions about their capacity to innovate were distinct in their relationship to the existing gender division of labour around productive activities and were often motivated (or inhibited) by gender-specific priorities. Whilst innovation by women necessarily incurred the renegotiation of gendered responsibilities and expectations, men’s innovation fulfilled existing gender norms about providing for the family. This is not to say that there were no gendered barriers to men’s innovation, nor is it to say that men blocked women’s innovation. Rather, although the extent to which women needed men’s prior approval varied, both according to context and according to the sphere and scale of their innovation, women seemed adept at manoeuvring to secure their husband’s approval. This was most reliably secured, as for men, by making an economic success of their enterprise. Beyond this, gendered negotiations around women’s innovation were sensitive to the desire to uphold the gender status quo:

this was evident both in representations of men taking on more domestic work and childcare as “helping out” and of women’s greater mobility as being acceptable only for productive purposes (Resurreccion & van Khanh, 2007).

What does this mean for development efforts in poor fishing communities? Firstly, it indicates wider structural constraints are highly significant for both men and women and that progress in addressing these in ways that are pro-poor and gender equitable matter. This means that the technical advice extended to women needs both to be promoting convincing and reliable innovations and to do so in a way that takes into account their gender-specific priorities and constraints. Secondly, it indicates that gender norms do not determine men’s or women’s capacity to innovate; rather, both men and women deploy ideas about gendered responsibilities to legitimize innovation where they perceive a genuine opportunity. This means both that women have considerably more agency to negotiate to do differently where they perceive *compelling* opportunities than existing gender norms suggest, and correspondingly that gender norms may overstate men’s autonomy in innovation at the micro-level. Thirdly, it indicates that research from a social relational perspective can make an important contribution to understanding how gender relations mediate the promotion of new ideas or technologies in poor fishing communities. Our findings showed that the social relational perspective makes visible how interventions that may appear to “lack direct reference to the resource base” (Bennett, 2005), such as raising awareness about domestic violence or legitimizing women’s mobility beyond the village, can feed into micro-level renegotiations of gender relations in ways that expand women’s capacity to innovate.

ACKNOWLEDGEMENTS

This study was funded by the Aquatic Agricultural Systems (AAS) CGIAR Research Program, but any errors or opinions therein remain the responsibility of the authors. We would like to sincerely acknowledge the role of the participants, country teams and supporting consultants in the six case study sites in generating the data on which this study is based. We also acknowledge the GENNOVATE Initiative of the CGIAR for spearheading the methods and fieldwork on which this study draws. Thanks also go to Laura Camfield and Carole White (UEA) for insightful comments on earlier drafts.

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How to cite this article: Locke C, Muljono P, McDougall C, Morgan M. Innovation and gendered negotiations: Insights from six small-scale fishing communities. *Fish Fish*. 2017;00: 1–15.