

Women and the business of aquaculture: A case for women tilapia farmers in Fiji

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Introduction

Aquaculture in Fiji (and for parts of the Pacific region) has in the past been described as novel, fledgling, infant, small, underdeveloped or limited. However, in comparison to where it was two decades ago, the aquaculture sector in the Pacific has made progress in that at least five commodities (i.e. pearl oysters, marine shrimp, Nile tilapia, Kappaphycus seaweed and freshwater prawn) are a proven basis for viable aquaculture businesses (Amos et al. 2014).

Fiji's national average of fish consumption is estimated to be 21 kg per person per year (Bell et al. 2009), well below the recommended quantity of fish of 35 kg per person per year for good nutrition for Pacific Island people (SPC 2008). The country will require an additional 34,200 tonnes by the year 2035 to meet its food security requirement due to its predicted growth in population (Bell et al. 2011). Pond aquaculture has been identified as a strategy to help (in part) meet the shortfall. Freshwater aquaculture has existed in Fiji for over 50 years, whereby tilapia aquaculture in particular has been developed largely for remote areas and community-based food security and livelihood purposes (Amos et al. 2014). In 2013 the estimated tonnage was just over 200 tons, with prices ranging from USD 3.50-USD 5.00 per kg (*Ibid*). Today, prices have slowly reached USD 6.15/kg.

Tilapia species were first introduced into Fiji in 1949, when the culture of *Oreochromis mossambica* was initiated at the Sigatoka Agricultural Station. In 1968 Nile tilapia

(*O. niloticus*) was introduced, replacing *O. mossambica* and became a well-accepted fish in local markets. Although tilapia is an introduced species, it has proved to be a relatively easy fish to grow with fast rates of growth, making it a favourable for culture by smallholder farmers, including community-based farms. Over the years with increase in consumer acceptance to the taste of freshwater fish, there has been a notable increase in the production of tilapia. Tilapia farming in Fiji has become a source of livelihoods for many families in Fiji and consumers rely on tilapia as another source of protein. With government seasonal bans on consumption of certain fish, such as groupers (known locally as *Kawakawa* and *Donu*), this is an opportune time to provide further exposure to this market.

Currently there are approximately 500 tilapia farms in Fiji, with 303 in the Central Division, 129 in Western Division, 54 in the Northern Division and 18 in the Eastern Division. Over 80% are subsistence farmers with the rest operating

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Figure 1. Katarina Baleisuva at KayBee farm. © Salote Waqairatu

at semi-commercial level (i.e. producing tilapia for both subsistence and commercial purposes) (SPC 2018). Of the three known local, active semi-commercial tilapia farmer clusters, there are four women farmers, three individual owners and one as a co-owner with her spouse, making up 15–20% of the total number of semi-commercial farmers. More data needs to be collected to confirm these numbers for women involved in community-based farms. Women tilapia farmers operate within a number of farm modalities including committee-run farms led by either males or females, male- and female-headed household farms, single male-headed household farms and family run or husband/wife team farms. Even so, at times men are more likely to be deemed the “face of the business” as they have more contact with extension officers and other technical support. Key findings from a recent gender analysis of women by SPC (2018) involved in tilapia farming in Fiji revealed that:

1. women play a major role in aquaculture farming regardless of farm modalities, but are not often included in training opportunities;
2. aquaculture activities seem to have an impact on the empowerment of women with respect to more decision-making opportunities (outside the household), leading to their greater recognition in formal structures within communities; and
3. the association or groups of women farmers (such as managed by a larger women’s group or large family) appear to give women a sense of power, notably as a result of associations of women and the opportunity for a collective voice.

Here, we briefly discuss some key areas for the development of women in tilapia aquaculture in Fiji, gained from efforts by the Pacific Agribusiness Research in Development Initiative (PARDI2) and the Pacific Island Farmers Organisation Network (PIFON) in the establishment and capacity building of Tilapia Fiji (a local and recently formed Tilapia Farmers Association).

The need for sex-aggregated data surrounding the activities of women in freshwater aquaculture in Fiji

It is clear that women within freshwater aquaculture value chains are involved at various levels and that there are many others involved in additional supporting sectors, including academia, research, technical, and policy support. However, contributions by women and girls are invisible as there are almost no data supporting these observations. Studies that have looked at women’s involvement in specific areas of aquaculture in Fiji include maricultured pearls (Southgate et al. 2019), *Kappaphycus* seaweed farming (Lal et al. 2010) and tilapia (Jimmy et al. 2019). There is a strong need to collect and share accurate, regular sex-disaggregated statistics for aquaculture, to shed light on how many women are employed, the types of work they do, and how this is changing over time (Brugere and Williams 2017).

Examples of data that should be considered for collection include: enrolment numbers of female students in specific aquaculture courses over time; the positions in which

women are formally employed within the aquaculture sector; women’s roles in value chains in the informal sector; and the value of their contributions to both formal and informal economies. The lack of comprehensive and timely data on women in aquaculture is a major reason why women are invisible in aquaculture policy. In comparison, women in small-scale fisheries are slightly better recognised in policy because fisheries and NGO research has provided more evidence of women’s contributions in the informal sector and their large economic and food security contributions, as well as providing insights into their decision-making powers and their ownership and control of assets or resources (Thomas et al. 2021).

More women need technical training and should carry out training

One key area to further women in the aquaculture sector is ensuring they have access to proper technical training. Although there are training sessions and workshops carried out by various stakeholders such as the Ministry of Fisheries, the Pacific Community (SPC), the University of the South Pacific (USP) and others, most of the time, the majority of attendees have been men (SPC, 2018). Unless farms are owned and run by individual women or women groups (in the case of community-based farms), most of the time men are seen as the “face” of these tilapia enterprises because they are the ones who take on the responsibility of technical roles, reaching out to fisheries extension officers, liaising with additional technical support such as other farmers, and who consequently attend the workshops (SPC, 2018). In reality, on small-scale farms, women and men frequently work together, carrying out complementary activities. In medium and industrial scale aquaculture, women are at the lower end of the pay scale or unpaid. As production intensifies, women’s engagement drops and they rarely become managers (Brugere and Williams, 2017).

Where women own, run and manage their own aquaculture enterprises as individuals, these are typically small in scale and turnover, and often combined with other income generating activities, or are part of a household farm enterprise carried out with others (Brugere and Williams 2017). This is clearly seen with some of the current leading women in tilapia aquaculture in Fiji such as Katarina Baleisuva, Arun Lata, Cathy Joyce and Laisiana Nayasi, who gain income from tilapia farming, agriculture and side ventures; for some this makes them the sole breadwinners of their family. Apart from Cathy, who co-owns one of Fiji’s largest commercial freshwater aquaculture enterprises (Pacific Ocean Culture), Katarina, Arun and Laisiana make up a small number of women who attend local technical training sessions including hatchery, grow-out techniques and feed production. Furthermore, a case study of KayBee Farm (owned by Katarina, Fig. 1) has shown an attractive return on investment with her operating one of the very few privately owned tilapia hatcheries culturing all-male fingerlings in Fiji. The production of fingerlings by farmers such as Katarina eases the burden on existing government hatcheries to provide enough fingerlings for new and existing semi-commercial farmers (Vuki, 2018; Fiji Times 2019).

In community-based tilapia farms, women who received technical training were not only valuable to their own enterprises but also to other communities that were interested in pursuing tilapia farming, but lacked the technical knowledge. Women were empowered when called upon for technical assistance or advice in aquaculture requested by other communities, giving them opportunities to attend the regular monthly village meetings rather than only going when invited (SPC, 2018).

Although we do see fewer women receiving technical training to run their farms, we are seeing an increasing number of female students enrolling in formal undergraduate and postgraduate aquaculture courses, at least at USP. This clearly shows the need to collate more data on this to gain insight into the contributions and value of our female graduates.

Entrepreneurial support for women

Although women seem to trail behind men in receiving technical training in aquaculture for direct use in their own tilapia enterprises, they are more visible in general business management. Despite debate over whether women make better managers, the reality for many women is that they have little choice because of the time commitments and expectations associated with their traditional roles of managing the home (including its finances) and the general welfare of the family. This is not new for women to want to be more visible in the area of business management, record-keeping, marketing, negotiations and sales. As seen in one of the case studies, Laisiana Nayasi, a single mother and tilapia farmer from Ra Province, shared that record-keeping using the SPC Tilapia farming logbook enabled her to secure loans/financial support from development banks, and government grants (Jimmy et al. 2019). In 2020, the Pacific became the only region in the world with 41 qualified awardees to hold a Micro-Qualification in Establishing and Operating a Small Seafood Business. This was made possible through scholarships awarded by the USP Pacific-European Union Marine Partnership (PEUMP) Programme. Recognising the need to build capacity for small-scale seafood businesses, a second regional cohort of the micro-qualification will be held in August 2021, with 26 scholarships awarded and delivered through USP-Pacific Technical and Further

Education (TAFE) in Suva, Fiji. Out of these, 15 recipients are women including one from Kiribati, three from Tuvalu, one from Vanuatu and the rest from Fiji. The first regional cohort, which was held in June 2020, had 15 graduates, nine of which were women. Training women and men in both the farm and business management skills is vital to ensure businesses are profitable.

Armed with the proper training and knowledge, women can further strengthen their communities and the industry by training others. A gender analysis on selected tilapia farms of various modalities in Fiji showed that women were empowered when armed with the technical know-how of raising tilapia and were invited by their own community and others nearby to share and train other men and women in tilapia farming (SPC 2018). It is interesting to note, though, that in some cases women are forced into this situation and not many voluntarily do this, indicative of the need for marketing training and even involvement within larger networks of entrepreneurs and industrial action groups for increased confidence in their knowledge, skills, contribution, products and businesses.

Tilapia aquaculture has been developed largely for remote-area food security purposes and has not yet provided the same basis for private sector-led economic growth and employment, as seen in Africa or the Caribbean (Amos et al. 2014). Although there is a small and slow-growing emergence of semi-commercial tilapia enterprises, there is much scope for up-scaling of tilapia production (Amos et al. 2014) led by market pull/push mechanisms, and from the present layer of small-scale and subsistence fish farmers, the next challenge is to add a layer of viable small- to medium-scale commercially oriented aquaculture for peri-urban markets, thereby enforcing the need for more access to business management, particularly marketing training.

Over the last five years, there has been increasing interest in supporting women in business (particularly at micro-small-medium (SME) level), resulting in a number of organisations and programs, especially focused on assisting women to establish their start-ups (incubators) or to accelerate them (accelerators) to reach their business aspirations.

Some examples of support include the following.

Fiji Enterprise Engine accelerator program: jointly developed and run by the Market Development Facility and the Fiji Commerce and Employers Federation (FCEF), this is a face-to-face mentor-style program focused on strengthening local SMEs, in the area of human resources, strategic planning, marketing and finance.

Academy for Women Entrepreneurs (AWE): supported by the US Embassy, AWE is designed to further enhance women entrepreneurs' skill sets in business and marketing. Recently, seven groups of 20–25 women throughout Viti Levu and Vanua Levu have started their virtual workshops (June 2021) consisting of online training paired with mentor facilitation. The US Embassy also partners with both the Women Entrepreneurs Business Council and

Figure 2. Community-based tilapia farm. © Tim Pickering/SPC



Makoi Women's Vocational Centre to manage the AWE program. US State Department funding of USD 23,000 will provide opportunities for 170 women to learn skill sets that can be directly and immediately applied to creating or enhancing their business (US Embassy website, 2021).

Pacific Agribusiness and Research Development Initiative (PARDI): funded by the Australian Centre for International Agricultural Research, this agribusiness project has worked with a number of SMEs over the years to provide mentorship in marketing and product development particularly in Agritourism. A number of women-led/owned enterprises have received support from PARDI, enabling further support from additional developmental agencies.

Business Link Pacific (BLP): is a private sector development programme funded by the New Zealand Ministry of Foreign Affairs and Trade, based in Auckland, New Zealand, and supported by in-country partners in Vanuatu, Fiji, Samoa, Papua New Guinea, Solomon Islands and Cook Islands. BLP connects small- and medium-sized businesses in the Pacific to local advisory services. The BLP quality approved network of advisors offers accessible services for business growth and quite recently has offered 50–100% subsidy cost of these services to businesses led or owned by women, particularly during COVID-19.

Women Entrepreneurs in Business Council (WEBC): was established (through a partnership between FCEF and International Labour Organization Bureau for Employers Activities-Norway Partnership) in September 2013. It is a subset of the Fiji Commerce & Employers Federation and is part of its seven Councils. WEBC's primary objective is to ensure that the voice of businesswomen in the formal and informal sectors is heard at the policy level. WEBC also runs many training programs.

The role of associations, collective action and capacity building

As a whole, there are more local women engaged in tilapia aquaculture at a community-based level (Fig. 2) than as individuals or as part of a husband–wife team. Collectively, *iTaukei* (Fijian) women who live in villages mobilise around issues, for example, learning and awareness of income generating skills, health checks in the village by medical personnel or civic education from various NGOs. Mobilisation is usually through church groups or community networks such as the *soqosoqo vakamarama* (village women's group), and as a collective, women have had access to training and information-sharing opportunities on health issues. Furthermore, interpersonal power gained through associations or groups, creates solidarity and support for one another, enabling them to use their collective voice to negotiate services, spaces and market access (SPC 2018). In the Pacific there are some good examples of women's groups around farming, including Samoa Women's Association of Growers, Fiji Floriculture Association, Tonga's Pearl Farmers Association, Papua New Guinea Women in Agriculture Development Foundation and the Australian Women in Agriculture that play key roles in advocating on behalf of their members to strengthen their individual agricultural enterprises and industries.

One of the key recommendations that came out of a previous case study was the need for the development of the Tilapia Farmers Association, to strengthen the sector and to facilitate training, exchange of information, technology transfer and delivery of assistance during major disasters (Vuki 2018). Gender issues in aquaculture lack strong advocates (with strong succession plans), despite some efforts by development agencies to promote women in (usually) small-scale aquaculture.

Figure 3. Some members of Tilapia Fiji during their workshop, 2019 © PARDI2/PIFON



In 2019, representatives of tilapia farmer clusters around Fiji attended a one-day workshop that was organised by the Pacific Island Farmers Organization Network (PIFON) with financial assistance from the European Union and the International Fund for Agricultural Development and facilitation support through the Pacific Agribusiness and Research Development Initiative (PARDI2). The objective of the workshop was to gauge farmer perceptions on the current local tilapia industry, identify key challenges faced by farmers and discuss practical steps to develop the industry through a participatory approach. One of the major outcomes of this workshop was the establishment of Tilapia Fiji (Fig. 3), a local tilapia farmers' association. In 2020, Tilapia Fiji was formally registered under the Department of Industrial Associations, Ministry of Employment, Productivity and Industrial Relations, with the understanding that it would be further developed by members themselves and with assistance from relevant stakeholders. A key role of the association is to be a well-structured, well-networked and nationally recognised association that would support its farmer members, keep all stakeholders informed and well connected and essentially form the foundation for a successfully developing industry. The formation of an association also opens further donor opportunities to finance capacity building and further training, in addition to providing a collective link between farmers, and public and private stakeholders. The newly established Tilapia Fiji conducted its first Annual General Meeting and was tasked with actionable items that paved the way forward for the association. This included the development of a commodity plan, the need for proper production data from producers, the need to conduct feasible studies on established farms to ensure sustainability, individual farm business plans, best farm practices, feed costs analysis and thorough value chain analysis for improved decision-making. Key stakeholders such as PARDI2 and PIFON will continue to partner in building organisational capacity for Tilapia Fiji to support its role in industry and for the wider local aquaculture community.

Conclusion: Where to from here?

Capture fisheries are limited and we are seeing decreasing catches and fish sizes; there is therefore a need to invest in sustainable freshwater aquaculture and mariculture (Amos et al. 2014) to meet future seafood demand. This investment should include the development of women in aquaculture, who are already playing critical roles along the value chain. A good example of this is the recent gender analysis done for local women tilapia farmers as individuals, husband-wife teams and farms that are community owned and run. Investments such as technical and entrepreneurial training and the establishment and capacity building of farmer collectives such as Tilapia Fiji (to improve networking and collaboration, technology, skills and research transfer, and technical advice) will also be pivotal to strengthening the contribution of women aquaculture farmers. It is clear that compared to women in capture fisheries, there is much more catching up to do to recognise the contribution of our women in aquaculture. Not only will such data improve decision-making for their development but also strengthen sustainable aquaculture for future food security and livelihoods.

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