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### Editor's note

Welcome to the 27<sup>th</sup> issue of the Women in Fisheries Bulletin, which highlights gender roles in coastal fisheries, women's fishing activities in urban and rural communities, and gender issues in development.

In this issue, the first article relates to the Fijian supply chain and marketing of the seagrapes, *Caulerpa racemosa*. The authors, Cherie Morris and Shirleen Bala, describe the harvesting and marketing sites for *Caulerpa*. Approximately 70% of the crop is from the Yasawa Islands in the Western Division. It is sold in a number of urban markets, with the main municipal market located in Suva. *Caulerpa* is sold by portion (heaps), at prices ranging from FJD 2.00–4.00 ( $\approx$  USD 1.00–2.00) per heap, the weight of which ranges from 250–300 grams.

The peak marketing days of *Caulerpa* in Fiji are Fridays and Saturdays. Fresh, harvested stock arrives in the main markets (Suva and Lautoka) by Thursday afternoon. Some harvesters do their own retailing but most stock is sold directly to wholesalers and market vendors in Lautoka, Nadi, Sigatoka and Suva. Most harvesters located on Vanua Levu, Fiji's second largest island, retail their own stock direct with little wholesaling.

In the second paper in this issue, "Changing patterns in household membership, changing economic activities and respective roles of men and women in Matoka Village, Onoilau, Fiji Islands", Veikila Vuki describes the changing economic activities in an isolated island in Fiji. The roles of men and women in sustaining and efficiently running households in the village are also clearly explained.

In the third paper, "Gender issues in culture, agriculture and fisheries in Fiji", Veikila Vuki and Aliti Vunisea describe relevant statistics on gender and cultural issues. They note that there are still very few women participating in major decision making in the various societies represented in Fiji. Land tenure, traditional social organisation and customary marine tenure ownership are still very much dominated by males. Men are actively involved in



commercial and semi-commercial agriculture and fisheries while women are active in marketing and post harvest agriculture and fisheries activities. Women's contribution to subsistence agriculture and fisheries is higher than men's contribution.

Aliti Vunisea's paper on "The participation of women in fishing activities in Fiji" describes how indigenous women fishers are engaged in Fiji's fisheries sector in various ways. She maintains that women's role in the fisheries sector is critical but is still poorly understood, undervalued and underappreciated, as is their role in the fisheries supply chains.

Women are expert fishers in the inshore fishing areas and most fish and invertebrate species are targeted, both for selling in the domestic markets and for household consumption. Many fish and invertebrate species have also been the target of value added activities.

In the article "Towards gender-equitable fisheries management in Solomon Islands", Olha Krushelnystka synthesises the study on "Gender, fisher, trader, processor: towards gender-equitable fisheries management and development in the Solomon Islands" (Barclay, Payne and Mauli 2015). This report identifies gaps in the social and economic opportunities and constraints for women in the fisheries sector in Solomon Islands to provide policy directions and future investments in the fisheries sector.

The report also analyses women's involvement in the supply chains of the tuna fisheries and coastal fisheries sectors of Solomon Islands. Women's contribution in tuna and fisheries supply chains is enormous but there are limited data to measure their involvement. Therefore, many initiatives are not gender sensitive and so the engagement of women in the sector is often overlooked.

The report also recommends ways to efficiently improve information and data to address the involvement and inclusion of women and to contribute to the social benefits from the fisheries sector. The report finds that women have a high potential in increasing the sustainable management of aquaculture and coastal fisheries activities and supporting men's fishing activities in the sector.

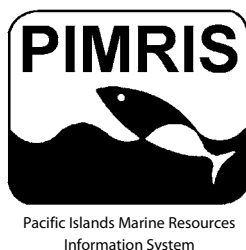
To close this issue, we publish two articles about two Pacific women who were recognised by Aquaculture without Frontiers in 2016. Dr Meryl Williams was recognised as the "Woman of the month" in January 2016 and I was very fortunate to be recognised in February 2016. Dr Meryl Williams' extensive contributions to global research in fisheries and aquaculture and her global contribution to advocacy of women and gender in aquaculture and fisheries were recognised. Similarly, my contributions to the Pacific Islands as a researcher, educator and community worker were recognised. In particular, my supporting role and contributions to SPC's *Women in Fisheries Information Bulletin* since 2007 has provided and maintained a global profile on women in fisheries information network.

I welcome any feedback on these articles and encourage you to submit articles on gender and fisheries issues from your country or region.

**Veikila Curu Vuki**

*Cover image: Market vendor selling seagrapes in Suva*

PIMRIS is a joint project of five international organisations concerned with fisheries and marine resource development in the Pacific Islands region. The project is executed by the Pacific Community (SPC), the Pacific Islands Forum Fisheries Agency (FFA), the University of the South Pacific (USP) and the Pacific Regional Environment Programme (SPREP). This bulletin is produced by SPC as part of its commitment to PIMRIS. The aim of PIMRIS is to improve the availability of information on marine



resources to users in the region, so as to support their rational development and management. PIMRIS activities include: the active collection, cataloguing and archiving of technical documents, especially ephemera ('grey literature'); evaluation, repackaging and dissemination of information; provision of literature searches, question-and-answer services and bibliographic support; and assistance with the development of in-country reference collections and databases on marine resources.

## Supply chain and marketing of seagrapes, *Caulerpa racemosa* (Forsskaål) J. Agardh (Chlorophyta: Caulerpaceae) in Fiji

Cherie Morris and Shirleen Bala<sup>1</sup>

### Introduction

The edible seaweed *Caulerpa racemosa* (Forsskaål) J. Agardh (Class Bryopsidiophyceae, Order Bryopsidales, Family Caulerpaceae) is widely consumed in Fiji (South 1993a, 1993b, 1993c; South and Pickering 2006). The Fijian name most commonly used is *nama* (South *et al.* 2011). While women, men and children harvest *Caulerpa racemosa*, mainly in the Western and Northern Divisions, only women manage this fishery.

Previous research reports have indicated that *C. racemosa* is harvested mostly at subsistence level and is consumed locally, although some is sold at urban markets where the income derived supplements household income. Key fisheries areas include the Yasawa Islands, Labasa, Tavua and Rakiraki where *C. racemosa* is abundant and easily accessed by harvesters. These sites, among others, supply the municipal markets in Fiji. (Morris *et al.* 2014).

The health benefits of *Caulerpa* include the low calorie content; iodine, which keeps the thyroid gland healthy and thus reduces the chances of goitre and high fatty acids, chlorophylls *a* and *b*; and  $\beta$ -Carotene (Paul *et al.* 2014).

Other research includes taxonomic studies by South and N'Yeurt (1993) on the genus *Caulerpa* in Fiji, and the post-harvest and export potential of *C. racemosa* were reported by Chamberlain (1997) and Chamberlain and Pickering (1996). Further studies on *Caulerpa* as a food potential and marketable food product for export were reported in Novacek (2001) and Pickering and Mario (1999). In addition, Paul *et al.* (2013) reported on the potential of *C. racemosa* for aquaculture production, and preliminary studies have been conducted on preservation for extended shelf-life (Lako 2012). There is, however, very little information available on harvesting, marketing, value and preservation.

### Methodology

Harvesting and supply chain data gathered from selected harvesting sites in Fiji were analysed using probability and trend analysis.

The supply chains and marketing surveys were carried out using semi-structured interviews based on questionnaires developed by Department of Fisheries personnel in Fiji. The questionnaires were either translated into the local



*Caulerpa racemosa* growing in the Yasawas

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languages or the interviews were carried out by surveyors who spoke the local languages.

The harvesting and marketing sites for *Caulerpa* (Figure 1) were identified from preliminary market surveys conducted in 2010. Site surveys were carried out during the months of July, October and November 2011. The harvesting sites for *Caulerpa* were Gunu, Namuimada, Navolau, Vatutavui, Lomowai, Vatulele, Vusama, Sasake, Lakeba and Dromoniku. The marketing sites were Lautoka, Nadi, Suva, Nausori, Rakiraki, Mana Island, Tavua, Ba, Sigatoka, Labasa and Savusavu.

Anecdotal information from shipping personnel, fisheries officers and market vendors suggest that other areas in Lomaiviti (Nairai and Batiki Islands) and Tailevu, occasionally supply *nama* to urban markets, depending on availability of transport.

## Results and discussion

### Marketing, quantities and value

The harvesting and marketing information for *Caulerpa* in Fiji are presented in Figure 1 and Table 1. In the Western Division, approximately 70% of the crop is from the Yasawa Islands. While *Caulerpa* is sold in a number of markets, most of it is sold in the main municipal market in Suva. It is sold by the portion (in heaps), at prices ranging from FJD 2.00–4.00 per heap, the weight of which ranges from 250–300 g. The plants are generally offered to customers on plastic plates, but in Suva and Nausori it is accompanied by a small plastic bag or cup of fermented coconut and fresh chilli. The majority of customers are local people.

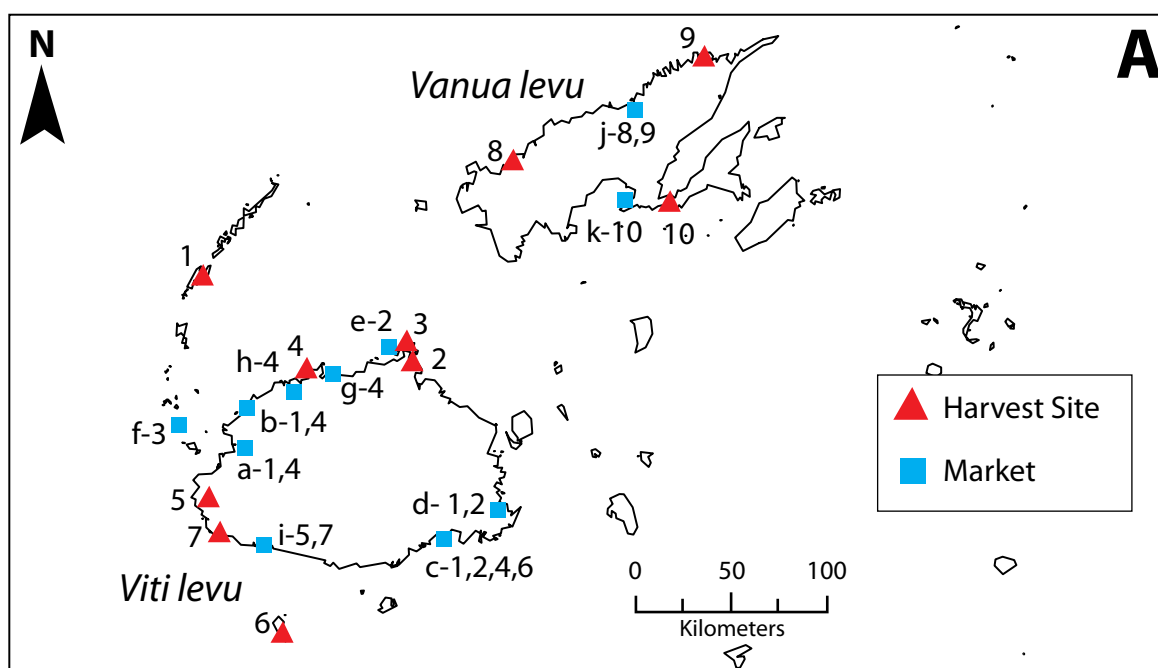
The peak marketing days of *Caulerpa* in Fiji are Fridays and Saturdays. Fresh, harvested stock arrives in the main markets (Suva and Lautoka) by Thursday afternoon. Some harvesters do their own retailing but most stock is sold direct to wholesalers and market vendors in Lautoka, Nadi, Sigatoka and Suva. In contrast, most harvesters located on Vanua Levu, Fiji's second largest island, retail their own stock directly with little wholesaling.

### Harvesting, storing and conservation activities

Results of the interviews suggest that harvesting is limited by the tide, weather and stock status. According to the harvesters, *Caulerpa* is more abundant during the cooler months (June to September). The production capacity of the main harvesting beds has not been studied, and the population density and biomass at these sites is not known.

The most common method of storing harvested *Caulerpa* is to put it in potato or sugar sacks with or without leaves in a cool place. Post-harvest storage ranges from one to three days, depending on distance and method of transport to the market. Women in Dromoniku in Savusavu use the wound-healing method, which involves keeping the bag of *Caulerpa* soaking in the sea overnight. According to these women, this method keeps *Caulerpa* fresh for longer. The introduction of improved post-harvest treatment by the use of proper wound-healing technology would prolong the life of the crop from harvester to consumer.

In Labasa, upright branches are separated from the runners, from which they arise, either at home or at the market and wrapped in banana or pawpaw leaves before sale. Losses vary between sites and range from half a bag to



**Figure 1.** Harvesting and marketing sites for *Caulerpa* in Fiji  
 Fiji harvesting sites/villages: 1- Gunu; 2 - Namuimada; 3 -Navolau; 4 - Vatutavui; 5 - Lomowai ;  
 6 - Vatulele; 7 - Vusama; 8 - Sasake; 9-Lakeba; 10-Dromoniku  
 Marketing sites: a - Lautoka; b - Nadi; c - Suva; d - Nausori; e - Rakiraki; f - Mana Island;  
 g - Tavua; h-Ba, i - Sigatoka; j - Labasa; k - Savusavu.  
 Note: j-8,9 indicates that the marketing site j sells marine products collected in harvesting sites 8 and 9



Market vendor selling seagrapes in Suva

one bag (approximately 18–35 kg) during each period of storage on site and at the market. This equates to approximately 35–70 kg per week.

The careful conservation of harvesting sites (as in the Yasawa Islands) over long periods of time by local villagers would be a good measure, allowing predictable harvesting. Sustainable harvesting (i.e. not removing the runners) is another important practice carried out by most harvesters, mainly in the Yasawa Islands. The women understand that harvesting of runners is unsustainable and affects the *Caulerpa* stock in their collection area.

Conservation of sites is to a certain extent in the hands of the harvesters themselves, but the sites are not formally protected. Harvesting is part of a traditional activity that includes in-shore gleaning for shells and sea cucumber, and fishing for daily meals.

### Loss

The fact that harvesting of *Caulerpa* is limited to a few main sites in coastal communities means that the industry is potentially vulnerable to loss of product. Losses may be due to the combined impacts of unsustainable harvesting and natural phenomena, such as storm surges and cyclones, resulting in the sites becoming unproductive. Preliminary results from a Fiji biomass survey show that this has been the case in Rakiraki.

## The future of the industry

The sustainability of the *Caulerpa* industry in Fiji depends on gathering more data on the carrying capacity of important harvesting sites such as the Yasawa Islands. The identification of new potential sites for both wild and farm harvests, such as in the Lomaiviti and Lau groups, would also be important for the sustainability of the *Caulerpa* industry. The training of harvesters and fisheries officers in creating awareness about the protection of harvest sites, the importance of the industry in sustaining livelihoods, and management issues is also vital for the growth and sustenance of the industry in the future.

## The market and supply chains

The supply chains in Fiji are shown in Figure 3 and Table 1. From surveys conducted at ten sites in six areas of Fiji, a total of some 150 harvesters (part-time and full-time) were recorded. Production from these ten sites ranges from 5 kg to 2,100 kg per week, with an average of 323 kg per week. The main production areas are the Yasawa Islands, followed by Labasa, Tavua and Rakiraki.



Seagrapes being sold at Lautoka market

*Caulerpa* harvesting and sale provide a part-time subsistence occupation for many villagers in Fiji, with a potential maximum income of more than FJD 200 per week for harvesters. The industry provides only a small proportion (< 1.0%) of the overall national income from the inshore fishery, and *Caulerpa* sales are overshadowed by the sale of other seaweeds in some places in Fiji (South 1993b). *Caulerpa* is the main marine commodity harvested in Yasawa Islands, Rakiraki and Tavua, but in Sigatoka, Labasa and Savusavu, other marine commodities are of higher priority.

Compared with other commodities, the supply chains are simple, and in Fiji middle-men are routinely used. Road-side sales of *Caulerpa* do not routinely occur in Fiji, and the

crop goes directly to market with only a three-day shelf life because of the difficulty of being able to provide wound-healing as a post-harvest process. Shelf-life could be substantially increased if harvesters were to use an appropriate wound-healing methodology, such as holding in aerated seawater for up to 48 hours after harvesting. The lack of sustainable harvesting at some sites is a potential threat to the long-term survival of the beds.

The market supply chains show that the loss of crop occurs during handling between harvesters and consumers. This is partially a result of inadequate quality control. The port and the market serve as the consolidation point for middlemen, who then carry out the distribution to other local markets, some resorts and, occasionally, to road-side stalls.

The marketing system varies according to site. Women either sell *Caulerpa* through wholesales to middle-sellers (Yasawa Islands) or through retail sales (Sigatoka, Labasa and Savusavu) or through a combination of wholesale and

retail sales (Rakiraki and Tavua). The middle-sellers who buy *Caulerpa* from Yasawa then sell at wholesale and retail prices to other middle-sellers and consumers at municipal markets, restaurants and hotels/resorts. In some cases, harvesters take turns at retail sales in the markets.

### Pricing and expenses and income

Results from this study show that *Caulerpa* production is around 115.578 tonnes per year, valued at FJD 346,734.00 (Note that the actual production figure could be higher as production from sites not visited is excluded). This figure may fluctuate depending on prices of *Caulerpa* and the amount of *Caulerpa* collected.

Overall, the price of *Caulerpa* ranges from FJD 2.00–4.00 per kilogram. Wholesale prices range from FJD 30–100 per bag, depending on the quantity of *Caulerpa* in the bag and the availability of *Caulerpa*. Retail prices range from FJD 2.00–4.00 per heap/plate, depending on the quantity.

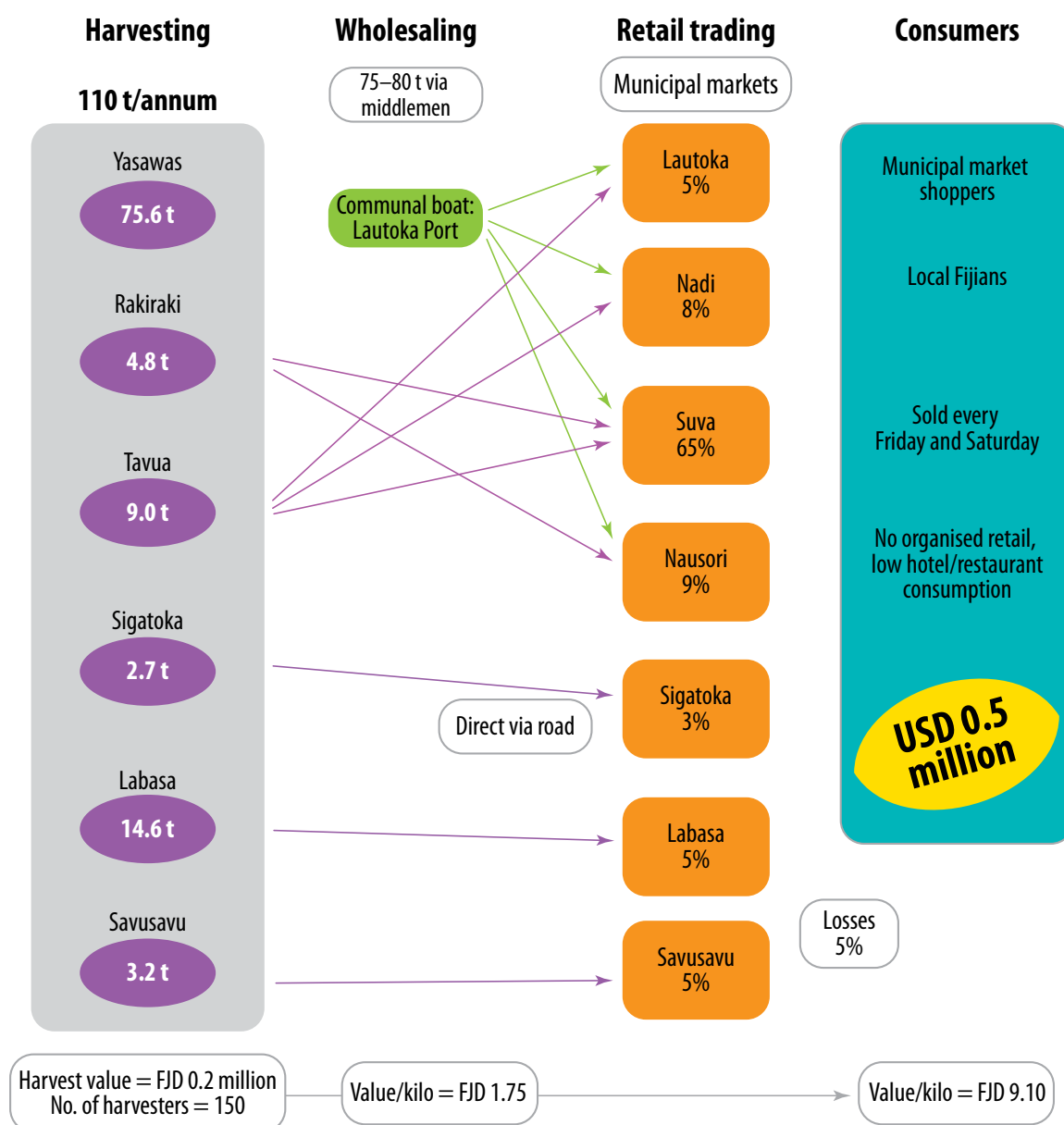


Figure 3. Industrial supply chain map for *Caulerpa* - Fiji



**Table 1.** Annual production and revenue from *Caulerpa* harvesting and sales in Fiji in 2012

Site	Total Production per annum (t)	Total Revenue (FJD)
Yasawa	75.6	129,600
Sigatoka	2.7	24,300
Rakiraki	4.8	24,390
Tavua	9.0	27,000
Labasa	14.6	41,040
Savusavu	3.2	9,000
Total	110	FJD 255,330 (USD 141,632)

Expenses for harvesters vary, depending on the distance from the harvest site to market, and range from FJD 21.00 to FJD 300.00 per week (average of FJD 97.00 per week).

Income ranges from FJD 30.00 to FJD 100.00 per bag, depending on the quantity of *Caulerpa* (measured by bag size) and from FJD 2.00 to FJD 4.00 per kilogram (average of FJD 3.00 per kilogram). The average income per week for one woman works out at about FJD 70.00 from wholesales and FJD 115.00 from retail sales. This equates to an average annual income per person of FJD 2,520.00 from wholesales and FJD 4,140.00 from retail sales of *Caulerpa* alone, based on the assumption that 70% of their time is spent harvesting *Caulerpa*.

### Other local markets

Some resorts and restaurants have *Caulerpa* in their seafood menus. The purchasing manager at Hideaway Resort confirmed that he purchases *Caulerpa* every Wednesday and serves it to tourists on Thursday with their traditional Fijian dish cooked in a *lovo* (an earth oven).

The owner of Casablanca Restaurant on the Coral Coast also serves *Caulerpa*, but only when there is a special request from customers. He believes that in order to introduce *Caulerpa* to resorts and restaurants, there is a need for awareness and a consistent and fresh supply. Gunu village occasionally sells *Caulerpa* to tourist boat operators (Captain Cook Cruises), who serve it as a salad to the tourists. The Bounty Restaurant in Nadi is also known to serve *Caulerpa* with their seafood salad.

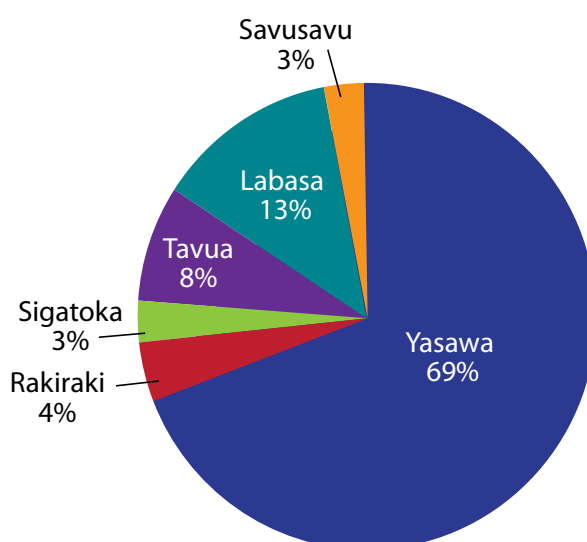
### Suppliers

The main suppliers of *Caulerpa* on Viti Levu are concentrated in the Western Division. Major markets are supplied by two or more sources. On Viti Levu, a regular supply of *Caulerpa* from the Yasawa Islands goes to Suva, Nadi and Lautoka markets. Rakiraki *Caulerpa* is regularly supplied to the Suva market and to Mana island and occasionally to the Nausori market. A regular supply of *Caulerpa* from Tavua goes to the Lautoka, Nadi and Suva markets and occasionally to Ba and Tavua markets. Suva market also receives an occasional

supply from Vatulele. A regular supply of *Caulerpa* from two sites and an occasional supply from one site in Sigatoka are sent to the Sigatoka market. On Vanua Levu, regular supplies of *Caulerpa* from six sites are sent to the Labasa market and regular supplies from two sites plus occasional supply from one site are sent to the Savusavu market.

### Shell-life of *Caulerpa*

The shelf-life of *C. racemosa* can be improved by preservation in brine, and some preliminary trials have been conducted at the University of the South Pacific's post-harvest facility. When bottled in weak (10%) brine, after treatment to reduce bacterial numbers, shoots have lasted for three to four months. Preserved shoots that have undergone heat treatment have, however, higher fibrosity than fresh-brined ones, and this could reduce their value to consumers. Given the short shelf-life and the many critical control points determined during preliminary surveys along the



**Figure 2.** Production (%) of *C. racemosa* per area

chain (especially since markets are up to 100 km away), it would be worthwhile to conduct a proper Hazard Analysis and Critical Control Points (HACCP) analysis of the cold-chain in order to determine the best methods of intervention (Lako 2012).

### Export markets

Export of *Caulerpa* has not yet been fully exploited due to the difficulty of keeping it fresh for a long period. Export trials done in the late 1990s were unsuccessful. In 1999, Chamberlain and Pickering conducted a HACCP-type study of the post-harvest treatment of seagrasses for the artisanal and export fisheries in Fiji. After holding the sacks in seawater for two days to allow for healing of the wounds created by harvesting, an attempt was made to ship the plants to Japan in vented, polystyrene boxes. The boxes were drained and prepared for air shipment. During this process approximately 50% of the plants were rejected. After a nine-and-a-half-hour flight to Osaka, followed by a 15-hour road journey from Osaka to Nagoya, 100% of



Market vendor in Labasa selling seagrapes

the shipment was rejected. Apart from the quality and storage issue, it was calculated that the shipment costs were prohibitive. While this attempt was unsuccessful, the study led to a number of recommendations for future ways of shipment and avoiding loss of plants (South *et al.* 2011).

In 2011, a local seaweed export company sent a trial shipment of five kilograms of pickled (brined) *Caulerpa* to New Zealand. It was reported that this shipment reached the customer in good condition (even after being in quarantine for at least two days). The preservation process was fairly simple; *Caulerpa* bought from the Lautoka market was sorted (almost 50% was rejected), washed in fresh water and packed in plastic bags containing brine. This demonstrated that export of *Caulerpa* to nearby countries is possible.

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We are also grateful to the staff of the Ministry of the Fisheries and Forests (Fiji), who assisted in facilitating activities and assisting in data collection: Eloni Takali, Shalendra Singh and Silina Seruilumi. We also thank Marlyin Vilisoni from Savusavu for assisting in data collection and providing photos. We also acknowledge the support and information from Ms Shamron Pickering from Pacific Seaweed Ltd. Our special thanks go to Ms Perna Chand for her assistance in mapping of harvesting sites and markets in Fiji.



## Changing patterns in household membership, changing economic activities and roles of men and women in Matokana Village, Onoilau, Fiji

Veikila Vuki<sup>1</sup>

### Introduction

The Ono-i-Lau group of islands is located in the southern section of the Lau archipelago in the east of Fiji at 20° 40' S and 178° 44' W (Figure 1).

The lagoons, coral reefs and islands of the Ono-i-Lau group of islands are shown in Figure 2.

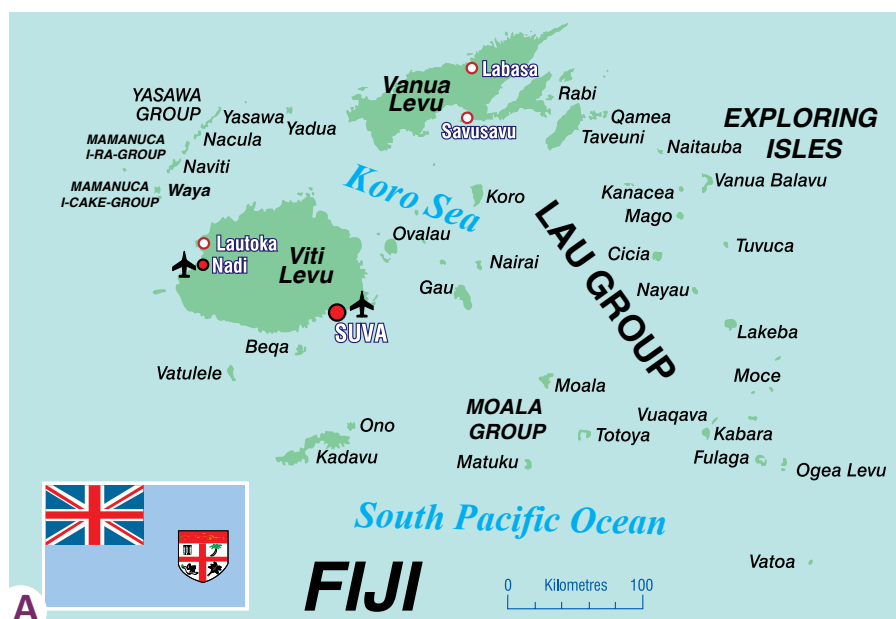
There are over one hundred islands in the Ono-i-Lau group, covering a total land area of 7.9 km<sup>2</sup> within a reef system of 80 km<sup>2</sup> (Ferry and Lewis 1993; Vuki et al. 1992). The two main islands – Onolevu and Doi – are inhabited. The three villages of Nukuni, Lovoni and Matokana are located on Onolevu Island, while Doi village is located on Doi Island.

The islands of Onolevu, Doi and Davura are volcanic in origin and are part of the rim of a breached crater. Onolevu Island is the principal island. It is an elbow-shaped island with two hills.

Tuvanaicolo and Tuvanaira Islands are located a few kilometres away from the islands of Onolevu but are also part of the Ono-i-Lau group. Vuataono, a reef lagoon, is located between Onolevu Island and the two Tuvana islands.

Matokana Village is located on the western side of Onolevu Island near the airstrip. Figure 3 shows the Google earth satellite map of the current village and the village boundaries. The houses can be clearly seen in this map.

This study was undertaken in Matokana village on the island of Onoilau in November of 2014. The survey was funded by the UNDP GEF Small Grants Program as part of a wider project on enhancing food security and environment conservation. The wider study covered socio-economic studies, food consumption, food security, marine conservation, gender empowerment and water usage and management. This survey was conducted by the author with the help of Vuli Mekemeke and Pauliasi Luvu as research assistants from Matokana village.



A • Map of Fiji showing the location of Ono-i-Lau

B • Satellite map of Ono-i-Lau group of islands showing the main island of Onolevu where the airstrip is located and Doi Island, the second largest island in the group

C • Satellite map of Matokana Village in Ono-i-Lau



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## Changing patterns in household membership

The population of Matokana village has declined over the years. In 1982, 166 people were recorded and in 2002 there were 103 (Kuster et. al. 2005). In the survey carried out in November 2014, the household data indicate that it had 29 households with a population of 99 people (this study).

The age of males and females living in Matokana Village in November 2014 ranged from 1 to 74 years for males and 3 to 85 years for females. In two households, a 78 and a 76 year-old female were living on their own.

The mean number of people per household decreased from 6.6 people in 1982 to 5.3 people in 2002 within a period of 20 years. It decreased even further to three people per household in 2014, over a decade later. Figures 4 and 5 show the age categories of males and females respectively living in Matokana Village during the November 2014 survey.

The two age distribution plots show some distinctive trends, such as the low count of males between 11 to 30 years compared to that of females. There is also a higher count of females aged 41 to 75 than of males.

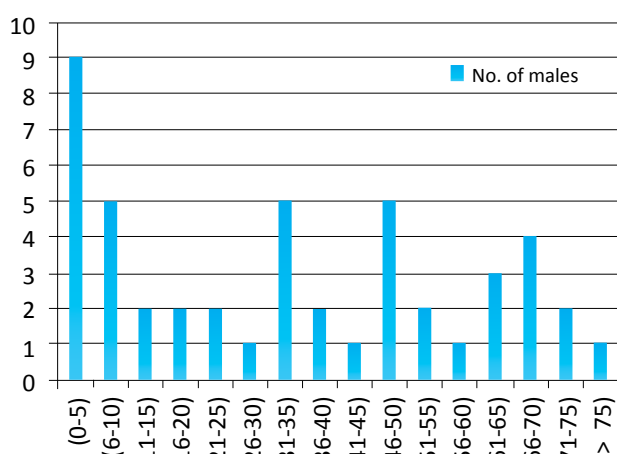


Figure 4. Age groups of males living in Matokana Village in 2014.

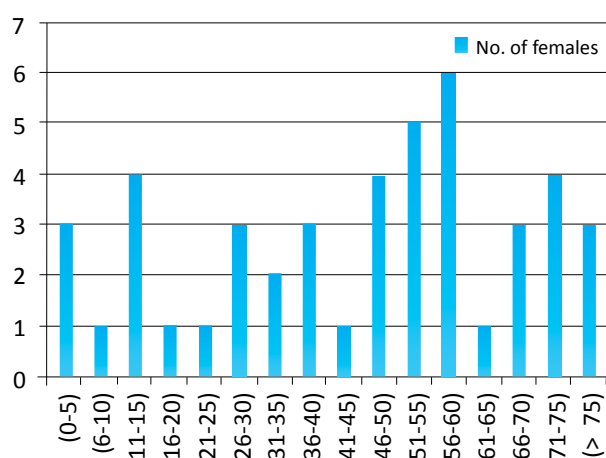


Figure 5. Age groups of females living in Matokana Village in 2014.

## Historical changes of sources of income

From the 1930s to the 1990s, the traditional regular source of cash income in Matokana village was from copra. Men, women and children collected coconuts during the week and then cut the copra once a week. Both men and women were involved in cutting copra (Vuki et. al. 1992). Money obtained from cutting copra was used to purchase sugar, tea, canned food and similar items from the only village co-operative store.

Seaweed became a major source of income for the islanders in 1998. A rural development programme started in 1998 developed community-based seaweed farming in Ono-i-Lau and many other parts of Fiji. This provided an important economic base for the island and a renewed interest in marine resources and their conservation. Families were actively involved in planting seaweed and selling it to the Fiji Department of Fisheries or its agents. The seaweed planting incentive for the villagers included the provision of a wooden boat with an outboard motor provided by the Fiji Department of Fisheries after harvesting a certain amount of dried seaweed.

By 2014, there was no seaweed being planted by the Matokana villagers nor was there any copra production. There are several reasons for the lack of participation in the copra industry, an activity that was a traditional source of income in the past. Among the many reasons is the fall in the copra market price, which made the making and selling *magimagi* (sinnet) to the urban markets more lucrative than cutting copra. The seaweed farming ceased in Matokana village because of damage and loss of crops during cyclone seasons and also because of marketing problems with seaweed in Fiji (Lal and Vuki, 2010).

The other reason is that there is no longer a village cooperative store to buy copra and sell it to urban markets. There were two village stores in the past; the whole village of Matokana owned one, a cooperative store, and the



Figure 6. *Magimagi* (sinnet) ready to be shipped to urban markets



other was also a cooperative store but belonged to a single *mataqali* (clan), Naceva. Both cooperative stores were closed because of financial mismanagement.

Because of the closure of the cooperative stores, copra production almost ceased in Matokana village. Some families were still producing copra in 2014 but had to sell it to the Doi village cooperative store on a neighbouring island, and copra had to be transported by boat. By 2014, three stores were operating, all owned and run by individual families in the village. Women owned two of these stores. None of them bought or sold copra because the copra business is very demanding in labour for handling, drying, general processing and storage.

One of the lucrative products being sold from 2008 to 2013 was sandalwood. The Ono Development Committee (ODC) formed by the urban dwellers who are Onoilau relatives, bought sandalwood from the villagers and then sold it to urban markets. Individual families as independent traders also sold sandalwood to middle-men in urban areas. Monies from sandalwood have been used to build homes and to buy generators, gas stoves, water tanks and outboard motors. Sandalwood trading ceased in 2014 because the mature trees were all harvested when this study was undertaken. There were also stringent regulations put in place by the Onoilau Development Committee and the Fiji government on the marketing of sandalwood products. These contributed to hardships in trading sandalwood by individual families.

### Other sources of income and village development projects

Other sources of income are cash remittances from relatives living overseas and relatives with salaried positions in Suva and other urban centers, but this applies only to a minority.

In the 1960s and the 1970s, young village boys who had left school and some middle-aged men were engaged in seasonal casual work in farms in New Zealand. The seasonal working scheme in New Zealand did not continue due to the strong labour movement in New Zealand. However, some local seasonal casual work took place in farms in Fiji during this period. Harvesting in sugarcane fields and pine tree planting in the Western Division of Viti Levu and Labasa in Vanua Levu attracted some young and middle-aged men. Women did not participate in this seasonal work in farms locally or overseas. A few of these casual workers from the village worked in estates on Taveuni Island in the Northern Division of Fiji, cutting copra or planting cocoa.

The village sponsors groups of young and middle-aged men from Matokana village to work primarily for village projects since the 1960s to the present time. Those who participate in seasonal work retain only half of their wages while the other half is contributed to the village development projects such as building water tanks, extending the church building and building communal buildings such as community halls.

Another source of income is from the communal collection of money, or *soli*, in urban centers for education scholarships for villagers and village development projects. For example, in 2000, relatives of Matokana villagers living in urban areas throughout Fiji collected FJD 9,000 in one day as a contribution to Matokana village development projects. The Fiji Government, under its Rural Development Programme, provided additional support to the Matokana village development projects after one third of these FJD 9,000 was paid to them. This included building three communal flush toilets and showers, and installing two telephone lines on either side of the village. Men and women from the urban centers in Viti Levu and Matokana villagers spearheaded these projects.



Figure 7. Pandanus (*voivoi*) dried for mat making



Figure 8. Scented coconut oil prepared by women ready for sieving and transfer into bottles





In the 1970s, the Matokana villagers living in the urban areas contributed one-third payments to the Fiji government for the purchase and installation of power generators. They also contributed towards the building of water reservoirs and the installation of water pumps to pump water from the reservoirs to the village.



Figure 9. Drying sea cucumbers in the sun

The sale of mats, coconut oil, tapa and other items provided a little extra income to the villagers. Relatives in Suva or other urban markets in Viti Levu usually sell these. Coconut oil is sold to teachers teaching in the two local schools in Onoila.

The 2014 survey found that young men in the village are actively participating in diving and selling bêche-de-mer. The groups are well organised and collect bêche-de-mer (sea cucumbers) from offshore lagoons (Vuataono) and from the offshore islands of Tuvanaira and Tuvanaicolo within the Ono-i-Lau group of islands.



Figure 10. Washing at the borehole during the 2014 drought



Figure 11. Coconut buns ready for the oven



Figure 12. Sea bird eggs collected from bird rookeries by both men and women for food

Sea cucumbers are often collected by men and by some women from the various sites and then brought to Matokana village, where they are salted and sun-dried by women. Then an agent or middleman transports them to Suva for sale to the Chinese agents. The money is then sent back to the village by money order through the postal services. Bêche-de-mer is one of the most lucrative marine products being sold in urban markets for overseas markets.

### Roles of men and women

The people of Matokana Village are hard-working people. Men and women support one another in cleaning the village in order to live in a tidy environment. Vegetable gardens are important to men to support their households' daily needs. Sometimes men work collectively to plant yams and cassava. Women do not in any way get involved in gardening, but they usually visit the gardens to fetch vegetables. Women's roles are restricted to household chores (cooking, cleaning and washing) (Figs 10 and 11), fishing and weaving mats. These gender roles have not changed.

Both men and women collect sea bird eggs from egg rookeries (Figure 12) on the islands of Niuta and Yanuya.

The women's club in the village is typical of village women's clubs everywhere in Fiji. Its activities include sewing sessions and the occasional fund-raising effort for the church or school. It is usually effective in getting results when an occasion requiring women's co-operative effort arises. In 2014, the Ministry of Women and Social Welfare built a house for the women in the village where they could have their meetings or hold activities to promote women's interests. Before that, women had never had a house dedicated solely to their interest. This was seen as a major step forward in the recognition of women's contribution to village development.



Figure 13. A fisherman with his spear gun



Figure 14. A Matokana woman processing fish and invertebrates for cooking

### Men's and women's roles in fishing activities

In the 2014 survey, the younger men were found to frequently undertake spear fishing at night in groups from boats. In the past, usually men went hand-line fishing on Saturday nights so that the catch could be eaten on Sunday, a day that Fijian villagers respect and greatly honour as a day of rest and religious worship.

Women engage in a great deal of fishing for reef-fish, shell-fish, and crabs and other crustaceans. For example, women and children sometimes spend two or three nights on Udui Island, fishing and processing their catch before they return to the village. If an account is taken of all the fishery products included in the household diet, women contribute more in quantity than the men. However, men contribute a lot in terms of fish catch per unit effort, even though women fish more frequently.

The women of Matokana are mainly responsible for processing fish and invertebrate catches (Figure 14) after they come back from fishing or after the men return from fishing. They are also responsible for cooking the fish, either boiling it or cooking it in coconut milk with green leafy vegetables.

Observations in November 2014 show that women keep live crabs in cages near their homes (Figure 15). These crabs are mainly fed with coconuts but occasionally they are fed mangrove leaves. Keeping crabs in cages was not usually practised in the past but it was observed in Matokana Village in 2014. Recently, women have also used coconut as bait in mangrove areas to make it easier to catch crabs because they aggregate where the food source or coconuts are located.



Figure 15. Crabs in crab pens in the village fed with coconut meat



## Conclusion

The mean number of people per household in Matokana decreased from 6.6 people in 1982 to 5.3 people in 2002 within a period of 20 years. Over a decade later, it decreased further to 3.0 people per household in 2014.

The historical changes in sources of income for the village changed from copra production, to seaweed production, to sandalwood production and to *magimagi* (sinnet) production. Other sources of income include the sale of handicrafts (mats and tapa), coconut oil and dried sea cucumbers. Partnerships in fund raising by those in the village and those in the urban areas provide further funds for village development. The Fiji government also further contributes in providing funds for village projects.

The traditional roles of men and women have been very stable over the years. Women raise the children and take care of household chores. They also play an important role in making handicrafts such as mats and tapa and these are important for traditional obligations such as weddings and funerals. Women also take an active role in fishing especially in reef gleaning and inshore fishing.

Men, on the other hand, are traditionally the decision-makers and play an important role in maintaining gardens for food security. They also fish and young men have taken an active role in spearfishing at night. Men also contribute to providing income by making and selling *magimagi* (sinnet), the main source of income in 2014 in Matokana village.

## Acknowledgments

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## Gender issues in culture, agriculture and fisheries in Fiji

Veikila C. Vuki<sup>1</sup> and Aliti Vunisea<sup>2</sup>

### Introduction

The Republic of Fiji is an island nation with over 330 islands with a total land area of 18,333 square kilometres. Its exclusive economic zone covers an area of 1.29 million square kilometres. One third of the islands are inhabited and most of these are volcanic in origin. The largest islands are Viti Levu (10,390 square kilometres) and Vanua Levu (5,538 square kilometres) (Figure 1). They make up about 87 per cent of Fiji's landmass and are home to about 90 per cent of Fiji's population.

Fiji is divided into four main divisions, the Central, Northern, Eastern and Western Divisions. It is further divided

into fourteen provinces. Most government ministries have offices at the divisional level that oversee administrative matters and some ministries have offices at the provincial level. Provinces are further separated into 187 districts. District councils oversee Fijian village affairs, and the government administration at this level is in the hands of the district and provincial officers.

Fiji's economy is largely dependent on natural resources such as agriculture, sugar, fisheries and forestry. Tourism is mainly private sector driven and has grown significantly over the years.

Fiji has made considerable progress in recognising gender issues in relation to legal and human rights; and to gender

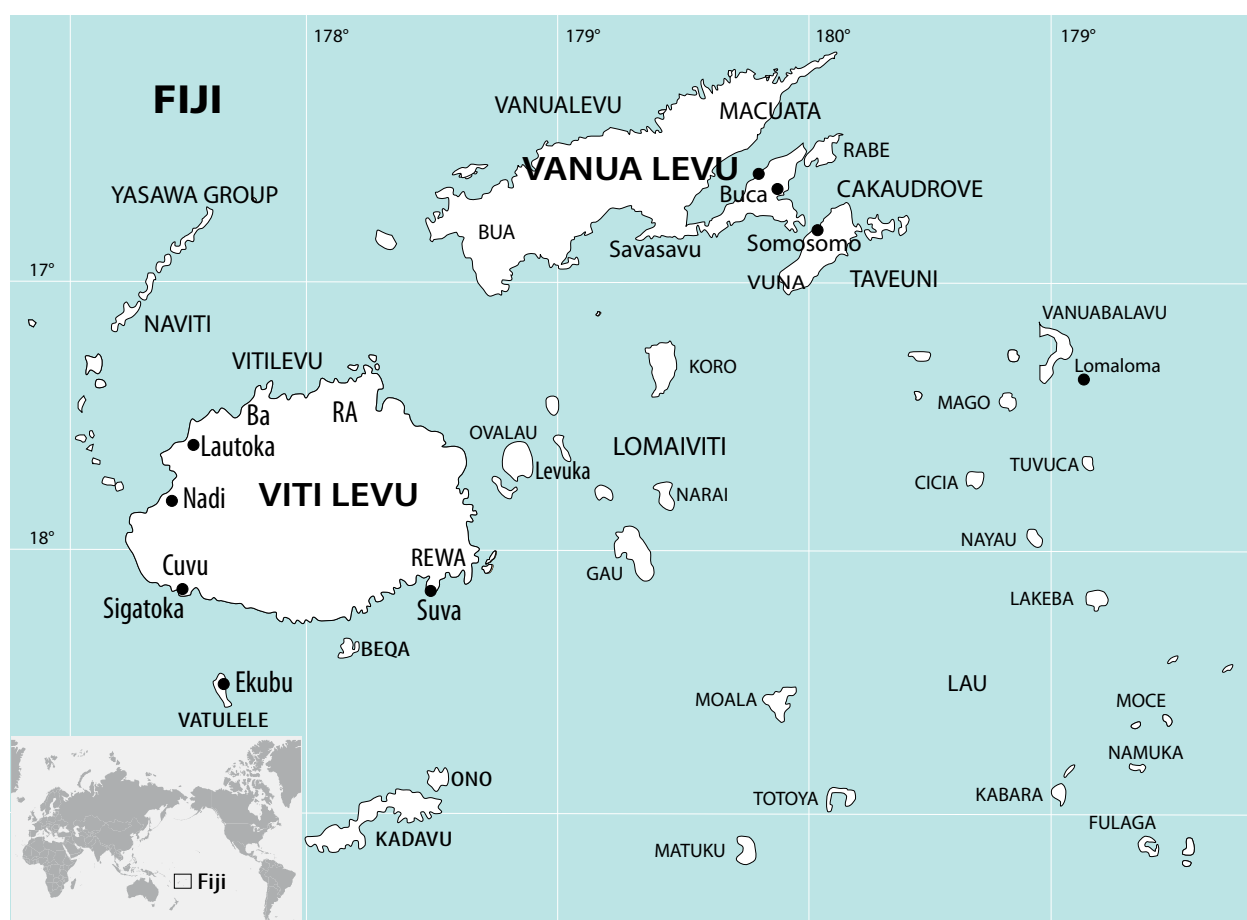


Figure 1. Map of the Republic of Fiji

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and development. Under the 2013 Constitution, there is recognition for equal rights to citizenship for both men and women, and equal status to spouses of male and female citizens. Previously, there were restrictions to non-citizen spouses of female citizens.

In this paper we briefly describe relevant issues on gender, culture, agriculture and fisheries in Fiji. We also describe Fiji's gender population and relevant statistics; land tenure, traditional social organization and customary marine tenure; and agriculture and fisheries issues relevant to gender.

## Population and relevant statistics

The 2007 census gives an approximate idea of the make-up of Fiji's multi-racial population. The total population was estimated to be about 837,271 ([www.statsfiji.gov.fj](http://www.statsfiji.gov.fj)) with an annual growth of 0.8 per cent. Ethnic Fijians (iTaukei) accounted for 56 per cent (475,739) while Indo-Fijians, whose ancestors migrated from India in the late 19th century, accounted for 36 per cent (313,798) of the total population. The other 8 per cent (47,734) consisted of Rotumans, Pacific Islanders, Chinese, Europeans, New Zealanders, Australians and people of mixed ethnic origin ([www.statsfiji.gov.fj](http://www.statsfiji.gov.fj)).

In the 2007 census, the rural sector population numbered 412,425 and the urban sector 424,425. The population aged 15 years and over numbered 594,150. Out of these, 326,988 were economically active in the labour force and 267,162 were not economically active.

There has been a major demographic shift since 1987 because of political instability. In 1986, the Indo-Fijian population accounted for more than 50 per cent of the total population but, after 1987, there was large-scale emigration of the Indo-Fijian population because of military coups, political instability, ethnic conflict and lack of opportunities. The coups of 2000 and 2006 led to further political instability and further increase in emigration of both iTaukei and Indo-Fijians.

## Gender and cultural issues

Indicators from 2004 showed that there are very little differences in the education levels of women and men. The enrolment rate for females in primary school was 94.6 per cent in 2000 compared to 94.9 per cent for males. The enrolment rate in secondary school was higher for females (74.0 per cent) than for males (67.7 per cent) (Republic of Fiji, 2004). The ratio of literate females to males 15–24 years old is similar (Republic of the Fiji Islands, 2004).

There are still very few women actively participating in decision making. All societies in Fiji are patriarchal and men are predominantly the politicians and the traditional leaders and take a leading role in leadership in the home and in the society.

Ethnic Fijian and Indo-Fijian societies are culturally different. The ethnic Fijian society is more homogeneous while the Indo-Fijian society is more diverse in culture as they come from different parts of India. However, there are

some noted differences in ethnic Fijian societies between the different traditional confederacies, eastern and western people and between the hill people and coastal people. Most ethnic Fijians are Christians and belong to the Methodist denomination. Other Christian denominations also exist for example the Catholics, Anglicans and Pentecostal denominations. Indo-Fijians mostly belong to several Hindu organisations but there is also a substantial Muslim population.

Traditional values influence gender relationships within the village where the leadership authority of chiefs and men has to be respected and women have to know their place, which is lower than men. For Indo-Fijians the gender relationships emphasise the male authority in decision-making at home.

Culturally, ethnic Fijian women are not restricted to the home and can be active in economic participation especially as teachers, nurses and as saleswomen in agriculture and fisheries. They are often seen selling at the markets in urban areas. There are some restrictions on Indo-Fijian women in rural areas, where women are restricted to working only in the home. Education and employment for girls have become more important in both communities in recent years.

## Land tenure, traditional social organisation and customary marine tenure

Most land in Fiji is classified as “native land” and this accounts for 82 per cent of all land. The other 8 per cent is freehold, and 10 per cent is government owned. The “native land” is further subdivided into 36 per cent reserve land and 63 per cent unreserved land. Fijians control the reserve land directly (Ward 1995).

Land ownership follows a traditional Fijian social-political organisation as recorded by the British colonial administration (Nayacakalou 2001). At the highest level of the organisation is the vanua and this usually includes several villages in a district or districts. The vanua usually consists of several tribes or yavusa and these are found in one or several villages. Groups of yavusa form the vanua and these are headed by high-ranking chiefs (Ravuvu 1983). Customary marine tenure is usually associated with these larger social groups (Veitayaki 1998).

The primary land-owning unit is the clan or mataqali and there could be one or several found in one village. The mataqali is under the headship of the most senior male member. Groups of mataqali form the yavusa and the traditional heads are traditional chiefs in most of the islands throughout Fiji. The mataqali is then further sub-divided into the lowest level of socio-political organisation, tokatoka or sub-clan and is a kinship group based on patrilineal descent (Nayacakalou 2001). In some cases women may have user rights to use customary or native land but this is rare. Each male mataqali member is allocated plots to plant and to use for their own family's use. The size of the plots varies greatly and depends on the number of male members of the mataqali.

Although all iTaukei are registered as such in the *vola ni kawa bula* or Fijian registry not all have access to land and women often may also not have user rights. Indo-Fijians have been able to lease farming plots through the Agricultural Landlord and Tenants Act (ALTA) of 1976. About 46 per cent of native land is leased mostly for agriculture and other activities (Srisikandarajah 2003). The tourism industry is heavily reliant on leases and 50 per cent of resort facilities are on native land (Narayan and Prasad 2003). Mining and timber activities are also found on native land.

The two acts that give legal recognition to customary marine tenure or *qoliqoli* are the Fisheries Act of 1942 (Cap 158) and the State Lands Act (Cap 132). The Fisheries Act gave legal recognition for customary fishing rights to iTaukei kinship groups, usually the *yavusa*, while the State Lands Act recognises the ownership of the state. The customary fishing rights have been a contentious issue and the controversial *Qoliqoli Bill* (available at [www.parliament.gov.fj](http://www.parliament.gov.fj)) was the subject that divided the nation in 2006.

It was one of the reasons the military overthrew the Qarase government because Qarase wanted to legally recognise customary fishing rights and return ownership to Fijian social units registered in the Native Fisheries Commission. Despite, the political turmoil, nothing has changed much in terms of customary fishing rights governance because the traditional, cultural norms and social structures in Fijian villages are still intact.

## Gender, agriculture and fisheries Issues

Women's involvement in agriculture at a subsistence level was higher than that of men (Chandra and Lewai 2005). In contrast, more men are likely to participate in commercial and semi-commercial agriculture than women. Although women contribute to post-harvest activities and marketing labour in most household level agricultural activities, they are rarely acknowledged in national statistics. On the other hand, Indo-Fijian men and women are more likely to be engaged in mixed cash and subsistence activities than ethnic Fijians (Chandra and Lewai 2005).

Studies have shown that women continue to contribute to routine agricultural activities and they engage in subsistence cultivation, marketing of farm produce, collecting shellfish, and selling shellfish (Schoeffel et al. 2005). Women are responsible for all household chores, including collecting firewood. Men assist the women by clearing and preparing the land and men grow commercial crops like pawpaw and tobacco.

Women of all ethnic origins are involved in marketing food crops in urban markets in the main cities and also from roadside stalls. Rural women grow their crops and sell their surplus in urban markets. Some women have turned entrepreneurs in urban markets by buying taro, cassava and vegetables from Chinese wholesale farmers and selling them at retail prices at urban markets and roadside stalls.

Ethnic Fijian women actively participate in subsistence fishing in coastal areas and many are now moving into male traditional fishing areas such as diving for *bêche-de-mer*.

Ethnic Fijian women are also the main distributors and marketers of seafood. Women also dominate invertebrate fishing like gleaning for shellfish and fishing for octopuses. Women also dominate post-harvest fishing activities and food processing.

Women contribute to subsistence fishing on a daily basis except when there is a communal fish drive in some parts of the country where the community is involved. Women use handlines, traps and bare hands and hardly use boats. Men are likely to use boats and nets or diving gear. Men are also required to contribute larger catches for ceremonial functions such as weddings and funerals or church obligations.

In small-scale commercial fishing, women contribute significantly to invertebrate collection like shellfish, seaweed, crabs and marketing them at the urban centres or at the roadside stalls. There is over-exploitation of near-shore marine resources and this has threatened the sustainability of household food security in many villages along the coast and in the islands. Fisheries resource management is an important issue that needs to be addressed in coastal villages in order to sustain household protein sources.

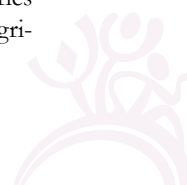
Since 1970, records of disasters have shown that people and livelihood are affected by disasters in varying degrees. The economic and social wellbeing, infrastructure and environment have been severely affected by natural disasters.

There were only two reported drought events occurring during this period, but the effects of these drought events was more severe than any other natural disaster and accounted for 45 per cent of all disaster-affected people since 1970 (Lal et al. 2009). Droughts affected people in the coast and also in the upland areas. The direct costs of natural disasters are also phenomenal and for disaster events occurring between 1970 and 2007, the direct costs were estimated to be about USD 532 million (Lal et al. 2009).

Disaster management in Fiji focuses on post-disaster response, recovery and rehabilitation rather than building a culture of prevention. Under the Natural Disaster Management Act 1998, the Natural Disaster Management Office is responsible for post national disaster response. It also runs an annual disaster awareness programme to promote community awareness on natural disasters and to help minimise negative impacts on livelihoods. The National Disaster Management Council (NDMC) is responsible for disaster management policies and it makes recommendations to government. Fiji Red Cross is also active in providing advice on disaster management policies, responses and operations in Fiji.

## Conclusions

In summary, there are still very few women participating in major decision making in the different societies represented in Fiji. The land tenure, traditional social organization and customary marine tenure ownership are very much dominated by males. Men are actively involved in commercial and semi-commercial agriculture and fisheries while women are active in marketing and post harvest agriculture and fisheries activities.





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## The participation of women in fishing activities in Fiji

Aliti Vunisea<sup>1</sup>

### Introduction

Women play critical but still poorly understood, undervalued and underappreciated roles in fisheries supply chains. Gender issues are not on the policy agenda, which is sustaining a vicious cycle where only limited resources are dedicated to understanding the gender dimensions of fisheries and how to address them. While small-scale fisheries and nutritional security are strongly linked, much more attention needs to be given to recognising, strengthening and protecting the role of women in both coastal and offshore fisheries in Pacific Island countries (ESCAP 2014).

Knowledge of gender roles is an important part of fisheries management because it allows interventions to be tailored to specific groups of fishers. Long-standing gender patterns continue, with men predominantly targeting finfish while women target invertebrates (SPC 2013). Women's participation has dominantly been in the inshore fisheries, with primary involvement in the subsistence sector and the small-scale commercial fisheries sector. Involvement in the offshore fisheries sector has been in certain areas only, predominantly in the processing and post-harvest sector at the Pacific Fishing Company (PAFCO) in Levuka, Fiji, and the selling of cooked and uncooked fish in markets, roadsides and other outlets. While there has been increased acknowledgement and documentation of the participation of women and gender inclusion in the fisheries sector in recent years, these have been mostly in specific areas. In 2011, studies on the participation of women in Pacific Island countries, which included Fiji, indicate that women's participation in fisheries science and management accounted for only 18% of total staff working for fisheries in science and management in government fisheries, environment institutions and environmental non-governmental organisations (NGOs) in Pacific Island countries and territories. In contrast, women account for more than 60% of administrative and clerical staff in government fisheries divisions.

For the purpose of this report, women fishers relate mostly to ethnic Fijian women (*i Taukei*) who engage and dominate in Fiji's fisheries sector. Although women from other major ethnic groups in Fiji generally do not engage in fishing activities, studies to identify and document participation of other ethnic groups should be pursued to establish ethnic participation in other aspects of the fisheries sector in Fiji, such as value-adding or selling.

### Progress on the inclusion of women in Fiji

Overall, gender mainstreaming processes to achieve the government's commitments to gender equality are still not well integrated into the government institutional structure, planning, and budgetary processes in Fiji. Despite the considerable progress made in the various sectors, the gaps in the implementation or achievement of government policy on gender are numerous, and need to be addressed in institutional arrangements and in the planning and budgeting process (ADB 2006).

Traditionally and historically, fishing beyond the reef was the domain of men, while women concentrated their activities on fishing and collecting invertebrates within lagoons and inshore areas. The dominant participation of women in the inshore fishery, and their involvement in the post-harvest sector, marketing and distribution has been documented in numerous writings and reports (Matthews 1993; Tuara 1995; Vunisea 1996; Lambeth *et al.* 1998). Recent writings and reports, too, highlight the fact that fishing participation of women has not changed much and women still dominate the inshore fishery, with primary involvement in post-harvest activities, marketing and distribution of marine products (Kronen and Vunisea 2007; Tawake *et al.* 2007). With technological changes, however, come changes in fishing trends and demands – and new fisheries have emerged through the years.

### The cultural roles of women

The cultural roles of women continue to define and determine their spheres of influence at the community level, and dictate their roles and participation in the various fisheries sectors. Nainoca (2010), in her discussions on traditional environmental knowledge (TEK), makes reference to the different institutional levels in which people live in communities and the need to further understand how TEK and other customary matters relate or contribute to management at these levels. Veitayaki (2002) and early writers on Fijian lifestyle and livelihoods describe these levels of kinship at length in relation to marine resource management, food and social security in communities.

Traditional knowledge and practices in the Pacific are often gender-defined, as is the case in Fiji. Gender often dictates where women and men work and separates traditional knowledge held by women and knowledge held by men. Traditional or local knowledge is therefore important for

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understanding gender roles and responsibilities, but it must be kept in mind that traditions and customary practices have undergone a lot of changes, and in some areas people only know modified versions of what was traditionally practised. Moreover, while it is important to be gender sensitive, there is a need to recognise the danger of stereotyping women as vulnerable in ways that might obscure their strengths and resilience to change (Campbell 2010).

Writings and discussions on cultural roles of women have tended to focus on the hindrances women face through culture, with little mention of the many avenues that exist to enhance women's roles. Women also have certain roles and status, depending on the clans they belong to or are married into. Women have made progress in many areas of work and in the public and private sectors in Fiji. This has been the case for most urban and peri-urban based Fijians. Most women who live in the villages and in rural locations live within constrictive unwritten traditional rules and expectations, subjecting women fishers to two modes of influence: the cultural and restrictive demands of village life and the modern market demands women are exposed to through their marketing and participation in fisheries. The issue of women straddling two worlds through their marketing experiences, as highlighted by Vunisea (1995), is still an issue today, because marketing and engagement in the modern economy does not mean a reduction of domestic chores, child rearing and other village responsibilities. Further research is needed to better understand how women are meeting their cultural obligations while increasing their engagement in the fisheries market sector.

## Women in formal and informal sectors

Gender disparities are evident in most areas of work in Fiji, including the fisheries sector. The majority of women's involvement is in the informal as opposed to the formal sector. With only 109,000 females in the formal labour force, and 121,000 doing 'household work', more than a half of women's work is being defined away as 'economically inactive' because it is in the household (and unpaid) category (Narsey 2011). Most fishing activities for household consumption done by women are in the subsistence sector, thus are not enumerated and fall into the 'unpaid work' category. In fact, women spend more time than men on work overall, have fewer hours in paid work, and in general have less discretionary time than men (UNDP 2008).

Government efforts to assist women in business have been limited and largely restricted to microfinance. In its plan of action, the Ministry for Women, Social Welfare and Housing has identified activities to increase women's access to finance and address legal barriers to women's participation in the economy, although the focus is on women at the microenterprise level, rather than on larger businesses owned by women that have significant job-creation potential (AUSAID 2008). Discussions with the Department of Women indicate there has not been much success noted on projects implemented by the department or in projects women groups initiate. The Department of Women has identified a number of factors

that impede project success by women. These include lack of capacity to write proposals for funding, and lack of knowledge on project implementation, monitoring, evaluation and reporting. These are areas where women's groups could be assisted to access financial support to be able to improve their livelihoods. Work with women fishers needs to be aligned to national planning priorities, and there is a need for their involvement or contribution to policy level discussions with government line ministries to advance their concerns at a higher political level.

## Customary ownership and access to traditional fishing grounds

Customary ownership of rights to fishing grounds (*i qoliqoli*), which extend to the outer reef slope, determines how community groups, including women, participate in fishing (Fong 1994; Waqairatu 1994; Veitayaki 1995). Customary marine tenure is complicated because ownership is not a straightforward arrangement and is not uniform across Fiji. There is no strictly defined user system that systematically disadvantages women within their own fishing ground but other traditional practices where ownership of land, for example, is patrilineal in nature, strongly affect marine tenure use systems.

There are 385 marine and 25 freshwater fishing grounds in Fiji and these areas define where people fish and they also influence the type of fisheries communities engage in (Fiji Department of Fisheries 2014). An advantage of communities having custodianship over their traditional fishing areas is that local management can be implemented and monitored by them. Examples of these management practices include *tabu* areas, which are temporary closures to all forms of fishing or bans on fishing for certain species, limitations of the number of fishers or amount of harvest, and temporary moratoria on fishing (Aalbersberg *et al.* 2005). The traditional fishing grounds also have allocated *i kanakana* areas, which are fished exclusively for household needs. These *i kanakana* are reserved for "food for the community" and can be actively managed by local communities. Freshwater *i qoliqoli* and *i kanakana* are used and operated similar to marine areas, where there are areas exclusively fished for household needs, and temporary bans are placed on the fisheries during certain times. These traditional management systems are being used in a modern context as a fisheries management tool by local communities across Fiji with the support of the Fiji Locally Managed Marine Area network (Govan 2009a and 2009b). Recent changes to regulations and policies on fisheries licenses issued has implications for use of these fishing grounds by the communities, especially if outside fishers are accessing the same fisheries resources.

Traditional fishing area rights are defined and owned by *vanua* or *tikina* (social units that include a number of villages in a district) which regulate their use and exploitation. People are expected to use their own allocations, and those seeking to use grounds belonging to others are expected to get permission from the owners. Women have varying



ownership and user rights to fishing grounds, which differ according to clans they belong to and whether they married into the village. Those belonging or married to chiefly clans have more rights than those married to other clans. Those from the village usually enjoy more privileges than those married into a village. While the villagers understand the traditional fishing boundaries, officially drawn maps of those same boundaries do not always concur with the perceptions of resource users.

For women, ownership and access to marine resources and to land influences their participation in the fisheries sector. Setting up roadside stalls, selling from central points in villages, arranging barter of goods and negotiating deals with outside groups or fishers from the next village, setting up alternative income-generating ventures – all these depend on their status, traditional roles in the community and access to resources. Further work in identifying changes to the status of women in communities given the modern economy and how they can use existing relationships and status to further their fishing and marketing activities should be an area of further research.

## Department of women

The Department of Women is mandated to work on issues relating to women in Fiji under the Ministry of Women, Children and Poverty Alleviation to achieve gender policy goals (ADB 2006). The work of the department is guided by the *Fiji National Gender Policy* which was adopted in 2014. Prior to this, women-related issues were dealt with under the Women's Plan of Action (1999–2008). Fiji has ratified eight human rights and gender rights-related international instruments that assist in progressing the situation of women in the country. Statistical data needed for gender analysis are, however, sparse, sometimes of poor quality, and often out of date. The ministry needs to define its data requirements to support its role in advocating and advising on gender planning and mainstreaming across sectors, but in a mainstreaming environment, the collection and analysis of gender-sensitive data appropriately belongs to the Fiji Islands Bureau of Statistics (ADB 2006).

ADB (2006) raises the need for the Department of Women to work with other line ministries to support them in specific areas such as data and statistical reporting. The assignment for achieving gender policy goals is, however, problematic as the department is not a policy agency but a line department, focusing on general community development. In relation to tuna fisheries, there are few linkages between the gender policies of government under the Department of Women and those of the Department of Fisheries under the Tuna Management Plan (Sullivan and Ram-Bidesi 2008).

The policies mentioned above can be leveraged to progress the case for women engaged in the fisheries sector. The challenge, however, is in the capacity of the ministry to support women fishers and how effective collaboration work can be between the ministry and other stakeholders.

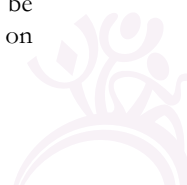
## Involvement of women in the Fisheries Sector

Since the 1980s, work on women in fisheries has gone through several phases. The initial emphasis on progressing women's issues under the 'women in development' approach resulted in programmes and projects that focused only on women. Having specific 'women in fisheries programmes' reinforced the tendency of national fisheries agencies to work only with men (Lambeth *et al.* 1998). Issues relating to women tended to get offloaded onto the women in fisheries programme, or onto women's agencies that have no experience, resources or expertise in fisheries management. By the late 1990s and early 2000s, there was a shift to have women's projects included in mainstream fisheries development, removing the separation of gender. The argument was that successful fisheries development and management needed to deal with the entire community involved in harvesting, processing and marketing marine resources. This caused the shift to gender-inclusive approaches where women's issues and concerns become part of core development priorities and trends. Recently in Fiji, the focus of the gender work in government is through gender mainstreaming into the sectors. The challenge will be how this process is implemented and monitored and how successful this will be in enhancing women's roles and participation in the fisheries sector.

## Policy and legal mechanisms

Gender work in Fiji is directed by eight major international agreements on gender equality and the advancement of women. Three of these are the Committee on the Elimination of Discrimination against Women (CEDAW), the Millennium Development Goals (MDGs) and the Pacific Platform for Action, which provide an opportunity for reporting on the state of women in the country. These international and regional agreements provide the basis for development of law and policy to address gender-specific issues across all sectors, including the role of women in the fisheries sector. The challenge will be whether the provisions from these instruments, such as those relating to non-discrimination by gender and equal access to resources and opportunities (as required under CEDAW, the MDGs), are reflected in fisheries policies or their implementation. Greater cross-sectorial policy dialogue, advocacy and information exchange are needed to build a more comprehensive and gender-just fisheries policy (Bidesi 2008).

In February 2014, the *Fiji National Gender Policy* was launched and has its mission to "promote gender equity, equality, social justice and sustainable development through the promotion of active and visible gender mainstreaming in all sectors". The promotion of gender mainstreaming will become a part of government work in the fisheries sector and this will provide opportunities for more gender-focused work, which will raise the profile of women's engagement and role in fisheries. The policy also provides the framework under which women fishers' issues can be strategically addressed. While everything looks good on



paper, some oversight and support are required to ensure effective implementation on the ground to effect change.

Over the past few years, the government has sought to address existing legislative shortcomings in the management of marine resources. The *Marine Spaces Act Cap 158A* and the *Fisheries Act Cap 158* are currently being reviewed in an effort to modernise Fiji's laws in line with international and regional obligations relating to fisheries management. Likewise, a new fisheries aquaculture decree and inshore fisheries management decree are being developed. Through technical assistance from the Secretariat of the Pacific Islands Forum Fisheries Agency (FFA), a new Offshore Fisheries Management Decree was gazetted in 2012 for Fiji. For inshore fisheries there is limited potential to use mechanisms within the *Fisheries Act (Cap.158)*, such as license conditions, permit conditions and gazettal of restricted areas to protect *tabu* areas. However, compliance with, and enforcement of, these mechanisms and fisheries laws in general, is a major obstacle in the effective management of the inshore marine environment (Minter 2008). The act also empowers the Minister of Fisheries to make special regulations relating to methods, species targeted and size limits, amongst many other specific areas. Special ministerial powers, however, could undermine management initiatives if licenses given are counter to management initiatives in place in certain areas.

## The Fiji Department of Fisheries

The Fiji Department of Fisheries is the lead agency responsible for the management of the country's fisheries resources. Its vision is "to have fisheries continue as one of the leading sectors in Fiji's socio-economic development and generate economic growth and ensure that resources owners are equitably remunerated". The department has an advisory role regarding the customary rights holders and institutes legislative and enforcement measures to ensure commercial viability. The department also approves licenses for fishing and administers permits to fishermen, and works on bi-lateral and multi-lateral arrangements with other countries on the export of fisheries products and aid to ensure the development of the fisheries sector.

From early 2000, funds were set aside in the Department of Fisheries to address the concerns of women engaged in fisheries. With the Fiji Locally Managed Marine Areas network, women's work is managed with the assistance of the Department of Fisheries. Currently, the department includes women fishers through a gender mainstreaming approach to all its work. However, the department does not have the capacity to roll out and implement projects that include women, and thus there is an opportunity for the Women and Fisheries Network (WiFN) and other partners to work collaboratively with the department to help achieve gender mainstreaming in the fisheries sector.

The main fisheries sectors are offshore (or oceanic), inshore, freshwater and aquaculture. These sectors are discussed below, and include women's participation and status in each sector.

## Offshore fisheries

### Engagement of women

Pacific Island states have been keen to encourage the development of offshore fishing activities, to generate income and to reduce pressure on inshore resources. The offshore fisheries concerns are often related to access to investment capital, development of joint-ventures, improving products for competitive markets, and technological upgrades for cost reduction or increased production. Such strategies are dependent on skilled labour and entrepreneurship, which most women lack, thus women are largely left out of offshore tuna fisheries development.

Early writings on the offshore fishery highlighted how most initiatives concentrated on supporting men's activities in development and management of fisheries in the region (Lambeth *et al.* 1998). Early studies on PAFCO highlighted the poor working conditions and low salaries of women as major concerns (Emberson-Bain 1994, 2001; Scoop Independent News 2003). Similar sentiments were raised more recently by Bidesi (2008), who stated that, in the industrial fisheries sector, despite policies aimed at creating employment, women's labour continues to be marginalised.

Recent research on the tuna industry has provided an update on the situation at PAFCO and there has been some positive progress documented. This includes improved working conditions for women at PAFCO, wages are comparable or higher than in other countries and women now entering the workforce are better educated (Sullivan and Ram-Bidesi 2008). However, there exists a bottleneck for women between the unskilled processing work and promotion to skilled or middle management positions. Because unskilled women are generally multi-tasking their household needs, customary roles and waged jobs, their priorities tend to be with the family rather than with advancing their career. As women continue to dominate the processing sector of the industry, special attention must be paid to their specific needs as multitasking members of their communities: as mothers, wives and fishmongers, matriarchs and homemakers (Sullivan and Ram-Bidesi *ibid*).

In spite of some progress in the offshore fisheries, cultural beliefs and norms continue to influence fishing participation in this sector. In recent years some women in the Pacific have become observers on tuna fishing vessels and some are engaged in shore-based activities. The conditions of fishing vessels and the length of fishing trips, which usually last up to three months, usually deter women from joining as crew members or as observers in fishing vessels.

At PAFCO, while working conditions have generally improved with the upgrade of the factory since the new partnership agreement with Bumble Bee, some issues remain in the working conditions of women. These relate to the need to improve the relationship between workers and staff, and the adoption of a gender policy for PAFCO to assist the company to be more accountable and transparent and avoid any discrimination by unions, NGO groups supporting women and the local community.

In the tuna long-lining sector, the direct participation of women varies according to the nature of the work and the type of business operation. There are various types of companies in the harvesting sector. Some focus on fishing only and have their own vessels and some act as agents for certain contracted vessels. If these companies own a shore-based office, there is direct employment for one or two women as clerical staff (see Table 1 below). All vessel operations and harvesting is done by men. Another type of fishing company is one where the company operates a fishing fleet, uses the processing services of another company and exports the processed fish. In the latter type of operation, women also work as office managers and administrators, while the fishing operations, engineering and mechanical work predominantly employs men (Table 1). Shipping agents that facilitate customs clearance, border inspections and provide other services and provisioning for vessels also employ women in clerical positions.

The exploitation of offshore resources has been promoted as the primary alternative to ease fishing pressure in coastal areas. This is to be by exploitation of offshore species with the use of fish aggregation devices (FADs) (Bell 2011). This alternative would indirectly reduce women's participation in the fin-fish fishery as cultural and social inhibitions to women's participation in the offshore fishery still exist. Because of these customs, most Pacific Island women, including Fijian women, do not participate in deep-sea fishing. Cultural beliefs that women on fishing boats are bad luck, traditional norms that inhibit women's ownership and use of large powered boats, the belief that offshore fishing is a man's domain, and the social obligations of household and family – all these inhibit the participation of women (Tuara 2008).

In general, offshore resources are in relatively good condition, with the exception of bigeye tuna and, to a lesser extent, yellowfin tuna. Women's involvement in this sector is mostly in the post-harvest and processing sectors, but there is potential for involvement in shore-based activities in ports. Increasingly evident in Fiji is how women use the by-catch from vessels in cottage industries.

Growth in trans-shipment activities in Pacific Island ports leads to an increase in shore-based services. Contact with local people is based on the exchange of goods and

services, with the sex trade being one service. The spread of sexually transmitted infections, including HIV/AIDS, is an issue of concern, particularly for the tuna industry and its management (Lambeth *et al.* 1998; Vunisea 2005). Demmke (2006) in an assessment of women's participation in the tuna industry highlighted the impacts, costs, benefits, and constraints of women engaging in tuna fisheries. However, there has been little implementation of the report's recommendations.

There is a need for affirmative action to assist women to enter areas of study that enable more practical and meaningful participation in the offshore fisheries sector. NGOs and other stakeholders could work on this as a priority to systematically enable the entry of women into this sector. Recommendations of reports as mentioned by Demmke (2006) should be strategically included in policies and work done in the offshore fisheries sectors.

## The inshore fisheries

The inshore fishery is complex, as it involves work with different species and is the major target for export and income generation for coastal populations.

Women are largely involved in inshore fisheries, which includes a diverse range of marine and freshwater finfish and invertebrates. Because there is little information on species, catches and fisheries trends in general, it is difficult to quantify women's contribution to the various types of fishery.

Inshore fisheries are targeted by both subsistence and commercial fishers. It is difficult for small-scale fishers to access the offshore fishery resources and there are difficulties associated with marketing products from the remote areas where abundance is greatest, to the urban areas where the marketing opportunities are the greatest (FAO 2009).

Early work on the participation of women in coastal fisheries (Lal and Slatter 1982; Matthews 1995; Vunisea 1995; Lambeth *et al.* 1998) made reference to the numerous activities women were engaged in and the need for proper acknowledgement of their involvement. Also important is women's perception of their fishing activities at the time – the majority of the women did not see fishing as work. This

Table 1. Employment Longline Vessel Operations, August 2007

Activity	No. of men	No. of women	Total	Percentage of Men	Percentage of Women
Company/boat owner/manager	25	3	28	11	81
Skippers	90	0	90	0	100
Engineers	180	0	180	0	100
Crew	968	0	968	0	100
Workshop and other	105	25	130	19	81
Office administration	46	82	128	64	36





means it is important to keep in mind the roles assigned to women within the social structure and context they live in. Recent studies indicate that women's participation has not changed much, with fishing activities continuing to support subsistence and economic livelihoods (Veitayaki 2005; Demmke 2006; Fay-Sauni 2008, Verebalavu 2009). Women's involvement in the small-scale fisheries sector is significant, however, as is evident by the number of women selling seafood at the Suva, Lautoka and Nausori municipal markets from Thursday to Saturday every week (Verebalavu 2009). The political instability of the last few years has seen an increase in marketing and selling of marine products as a fall-back option for people who have lost jobs, or those taking the opportunity to work in small-scale commercial enterprises.

Evidence suggests that the inshore fisheries of Fiji are in decline. In response to this, many communities in Fiji have established co-management plans for their traditional fishing grounds, using permanent and/or temporary closures (*tabu*). These communities are supported by various development partners, local and international NGOs, academic institutions and government departments, many of whom are also part of the Fiji Locally Managed Marine Area network (Govan 2009b).

There are huge gender disparities in employment and income-earning in Fiji. These disparities are obvious in labour force engagement, with males dominating the money income, women dominating the 'subsistence only' sector, and a very high number of women in the unemployed category. In the fisheries sector, the contribution of women is lost in enumeration, through the exclusion or underestimation of household work and unpaid family work. The work of women fishers largely falls into the subsistence or semi-subsistence fisheries sector, which in most cases is included under household work (collection of food for household consumption) (Narsey 2007).

The inshore fishery also falls within *i qoliqoli* and *i kanakana* areas, which have traditional mechanisms that have been used by resource owners for generations. These strategies have sustained households, have ensured food security and have been a source for income livelihoods for people. Despite the state of decline of the inshore fishery, their importance to rural/remote communities remain the same. What is important is looking at how aquaculture and other emerging fisheries can enhance and rebuild the fishery. This is where women's fishery roles become crucial, as they are important holders of information on species, their habitats, their seasonality and use patterns. As generalists, women gather all sorts of species through their gleaning activities and thus have a wide knowledge base that they could use for the management and/or recovery of populations.

Fishing methods and equipment used in the inshore fisheries are generally simple, many involving the use of hands and simple tools. The methods and skills, however, are diverse and require an intimate knowledge of the environment and the species targeted. In addition to the collection of invertebrates, women net fish, set up barriers and traps, and use hand lines. Seasonality of different species and the

effects of lunar cycles, winds and other natural phenomena on marine species are well known and used to advantage when fishing. While the role of women may have substantially changed, both in the urban and rural context, the real question is how far these changes have been acknowledged and are being considered in national policies and in fisheries management (Kronen and Vunisea 2007).

Today, many women are educated, are conducting household businesses in the absence of working husbands, and have taken a more influential role in community life. They can earn real income through fishing and controlling family finances. Often, this development has been reinforced through networking among themselves. What is needed is an approach that acknowledges that the roles of women and men may differ, but that there is a need to pay equal attention to women and men in Pacific Island coastal fisheries (Kronen and Vunisea *ibid*).

### Subsistence/semi-subsistence fishing

Subsistence fisheries are focused on providing food for the household, with any surplus sold if women have access to local markets, or given away to friends and relatives through traditional systems of barter (exchange). Women are generalists, foraging and collecting in the inshore areas for a wide range of species. Seasonality of species is known to them and fishing patterns and trends are usually dictated by the species in season, or that which is in demand in markets. Valuable species are taken to a market if accessible (e.g. lobster to a resort) (FAO 2009). An estimation of 70%–80% of the catch from inshore fisheries in the Pacific Islands (reefs, estuaries and freshwater) is used for subsistence purposes, with the remaining 20% going to commercial markets (Gillett and Lightfoot 2001). This figure may have changed, given the increased emphasis on commercial activities and the increase in cottage businesses targeting cooked seafood products.

Women dominate the subsistence fishing sector and, with their daily fishing activities and generations of knowledge, have an intimate knowledge of the coastal zone. Women are also the dominant sellers of crustaceans, molluscs and seaweed in Fiji, with many fishing for household needs and selling the surplus. The most sought-after species for selling in the local markets include seagrapes (*nama*), *Anadara* clams (*kaikososo*), mangrove crabs (*qari*), mangrove lobsters (*mana*), seaweed (*lumi*), giant clams (*vasua*), shrimp (*moci*), sea cucumber (*dairo*), urchin (*cavaki*), octopus (*kuila*), freshwater mussel (*kai*) and sea hare (*veata*).

Women's fishing activities are within the coastal reef areas, mud and sand flats and mangrove areas. In Fiji, over 70% of the fish landed in municipal markets are coastal or estuarine species, dominated by mullets (Mugilidae), rabbitfish (Siganidae), Jacks (Carangidae), snappers (Lutjanidae) and emperors (Lethrinidae). Of these, over 60% of the species were found to spend some time in the mangroves. It has been roughly estimated that at least 30% of the commercial fishery is intimately tied in with mangroves (Lal 1984). The mangrove fishery is of primary importance to women fishers as they are the main users of the coastal mangrove areas.

## Some specific fisheries and women's involvement

Women are expert fishers in the coastal zone and most fisheries species are targeted, both for selling in domestic markets and for household consumption. Many fisheries species have also been the target of value-added activities.

### Seagrapes (*nama*)

Seagrapes *Caulerpa racemosa* or *nama* is a type of seaweed collected on reef flats but increasingly women dive to collect from deeper lagoon areas. It is found in most coastal areas, and is abundant in the Yasawa Island group. *Nama* from the Yasawa Islands is sold regularly at the Lautoka and Suva markets. Edible seaweeds are an important part of the diet of coastal people. Indigenous Fijians have a long tradition of collecting and consuming different species and varieties of seaweeds. *Nama* is one of the most common species that is regularly harvested for consumption and sale in Fiji. It is almost predominantly collected by women, and left in sacks before being transferred to markets. Work on value-adding has started on the *nama* fishery, and is an area the WiFN-Fiji can focus efforts on.

### Seaweed (*lumi cevata* / *lumi wawa*)

Seaweeds, which include *Hypnea pannosa* (*lumi cevata*) and *Gracilaria maramae* (*lumi wawa*), are popularly collected and sold in domestic markets almost exclusively by women in

most coastal communities in Fiji. *Lumi cevata* is often sold cooked in municipal markets. Quality handling and the following of hygienic standards is, however, still a challenge.

### Sea urchins (*cawaki*) and sea hares (*veata*)

Sea urchins (*cawaki*) and sea hares (*veata*) are also popularly collected by women and are eaten raw. Women in the Muai-vuso Peninsula close to Suva are some of the biggest sellers of sea urchins and sea hares. Because these are eaten raw, food handling and hygiene in food standards are important.

### Octopus (*kuita*)

Octopus (*kuita*) is a lucrative species. It is sold at a slightly higher price and is popularly targeted by women in most reef areas. Women from Verata, Namara and those from the Tailevu province areas are regular sellers of octopus. Octopus is sold smoked in markets and recently served as part of packed lunches. Challenges of quality handling and setting of hygienic standards are areas that need to be addressed.

### Reef fish

Different species of reef fish are caught and sold by women. Some women also sell their husbands' catches. The current trend is the selling of cooked reef fish. Women selling on roadsides usually do not fish themselves, but buy from middle sellers and sell.



- A • Seagrapes are mostly sold after they are cleaned, have had sand removed and the salt water washed out. Women sell seaweed that is sold raw, or pre-cooked in local markets
- B • Women selling *moci* on the roadside at Laqere near Suva. Fishing and selling is done by women of all ages
- C • Octopus prepared and smoked in the Yasawas sold at the Suva market

### Sea cucumber (*dairo*)

Sea cucumber that is targeted for local consumption is usually the sandfish *Holothuria scabra* (*dairo*) that currently has an export ban due to severely depleted populations in Fiji. *Dairo* is usually processed and sold cooked.

### Crabs (*qari*)

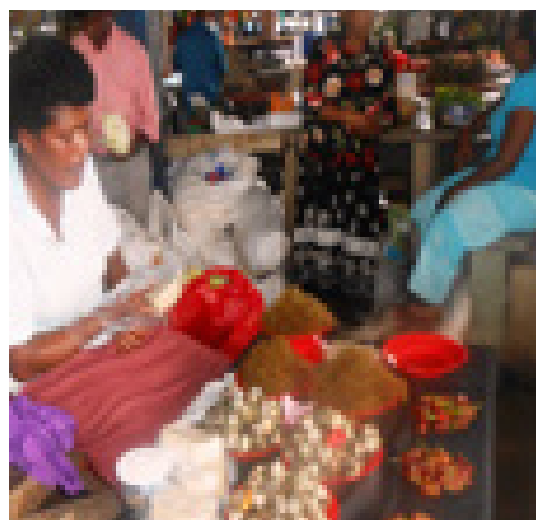
The mangrove crab fishery is a lucrative product on the domestic market as the price is high at FJD 50.00 to FJD 200.00 per string of crabs, depending on size and number. Crab sales are mostly from the Rewa and Ba areas where there are large tracts of mangrove. Evident from market surveys in Suva and Nausori, is the sale of undersized crabs – this indicates that both sellers and consumers are uninformed or unwilling to follow size limits under fisheries laws. Fisherwomen may not be aware that the continuing sale of under-sized crabs (below reproductive age) will cause rapid depletion of stocks. The recently established Navua Crab Farm has plans to work with communities to provide pens in mangroves where crabs can be bred to a marketable size. Given that women are involved in this fishery, there is an opportunity to get them involved in these initiatives, and ensure the sustainability of their fishery.

### Shrimp (*moci*)

Women residing close to mangrove habitats are also engaged in the shrimp (*moci*) fishery. These shrimps are sold as food and/or fishing bait to fishermen. *Moci* is a main protein source in some coastal communities and is a delicacy for people in the Rewa delta area. It is fished predominantly from within mangrove and estuarine locations. During low tide, tidal pools in or near mangrove areas hold water that women bail out. Once these small pools of water are dry, the *moci* are then caught using hands or small nets. *Moci* is sold at FJD 2.00 a heap and most women sell 10–20 heaps on the roadside daily. From discussions with women who sell *moci* at Laqere in Suva, it was learnt that women often walk long distances to get the *moci* and then have to walk to the roadside to sell.

### Mangrove lobsters (*mana*)

Currently, mangrove lobsters (*Thalassina anomala*) are also cooked and sold in markets, with both women and men participating in this fishery. Women walk through mangroves searching for mangrove lobster mounds and, once the mounds are found, traps are set to get the lobsters out of the mounds. There are special seasons when these mud lobsters are sold. Women in the Rewa area in particular are known for fishing and selling mangrove lobsters.



A range of products sold at the market- Women are generalists collecting and selling a range of species.



Different crabs species sold at most municipal markets.



Kaikoso/Anadara is a popular bivalve sold in most markets in Fiji.

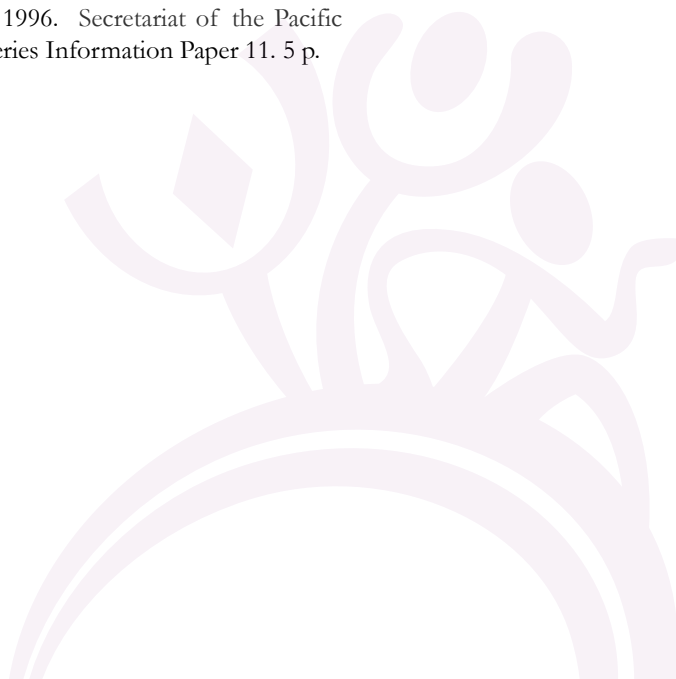




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## Toward gender-equitable fisheries management in Solomon Islands

Olha Krushelnyska<sup>1</sup>

This report aims to identify gaps in the available data on the social and economic opportunities and constraints for women in the fisheries sector in Solomon Islands in order to inform policy directions and future investments in the sector. It examines women's involvement in two supply chains in the fisheries sector of Solomon Islands – tuna fisheries and coastal fisheries – and recommends next steps for improving the information and data to better address the inclusion of women in fisheries to enhance the social benefits and outcomes from this sector.

Women make up a large proportion of the workforce in tuna and coastal fisheries supply chains, but there is little or no information available to measure the extent of their engagement. As a result, many initiatives, including training, awareness programs, and policies, are not gender-informed and as such overlook the needs of women engaged formally and informally in the fisheries sector. However, as this report finds, women have a high potential to improve the sustainable management of coastal fisheries in Solomon Islands, both in their own fisheries and aquaculture activities and in supporting men's activities.

### Why analyze gender in Pacific fisheries management?

**Fisheries are a fundamental driver for many PIC economies.** For PICs<sup>2</sup> – especially the fishery-dependent small-island states – fish stocks comprise the primary natural resource on which future economic growth will be based. Tuna (part of oceanic fisheries) caught in PIC waters represent around 35 per cent of the world's tuna catch, with an estimated total first sale value of USD 3.4 billion in 2013. PICs received roughly 7 per cent of this total in public revenues. The coastal fisheries throughout the region play a very different but equally crucial role in PIC economies. Although they do not generate significant amounts of national revenue, they are crucial supporters of local livelihoods, food security and dietary health in all PICs.

**Benefits from fisheries resources depend on how well they are managed.** PICs tuna resources are now reaching their long-term sustainable limits, due in large part to overexploitation. Similarly, coastal fisheries are threatened (and in some cases severely affected) by overfishing and coastal degradation driven by population growth, increased demand for coastal fish products, inefficient fishing technologies, and the erosion of customary management regimes due to increasing monetization of local economies.

**Understanding the role of women in the fisheries supply chain is key to effective fisheries management and development.** Women play a pivotal role in fisheries around the world. Contrary to the widespread perception that fishing is a male-dominated activity, a recent study by

FAO<sup>3</sup> finds that of the 120 million people worldwide who work in capture fisheries<sup>4</sup> and associated supply chains, half are women. However, since informal activities in the sector are not well recorded, the number of women involved may actually be higher. In Solomon Islands, women constitute most of the workforce in the processing sector of the *tuna fisheries supply chain*. They also make up half of the community *coastal fisheries supply chain* – both in their own fisheries and aquaculture activities, and as support for men's activities through providing food, trading and financial back-up.

**Gender analysis needs to be integrated into planning processes and policy development to strengthen fisheries management policies in PICs.** The perception that fisheries is a male-dominated sector has led to a degree of “gender blindness” in the fisheries sector. This gender blindness means that the post-harvesting and trading activities of women are often overlooked or neglected in fisheries development and management. As a result, training and assistance programs are often targeted for men. There is also a lack of gender-disaggregated data overall, and a knowledge gap about gendered retail and consumption patterns and the differing constraints on men and women to more effective participation in markets. This lack of data on women's roles in fisheries perpetuates the existing assumption that women's interests are taken care of by men and that benefits are shared within households.

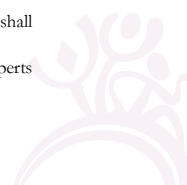
**Solomon Islands' fisheries sector makes a significant impact on the national economy.** Over 90 per cent of the country's territory is ocean, with an exclusive economic zone of more than 1.3 million square kilometers. This area

<sup>1</sup> Reproduced with the kind authorisation of the World Bank. The American spelling used in the original report has been retained here. This report synthesizes the study *Gender, Fisher, Trader, Processor: Towards Gender-Equitable Fisheries Management and Development in Solomon Islands* (Barclay, Payne and Mauli, 2015).

<sup>2</sup> The report refers to PIC Bank member countries, which include Federated States of Micronesia (FSM), Fiji, Kiribati, Palau, Papua New Guinea, the Republic of the Marshall Islands (RMI), Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu. The Cook Islands and Niue are also members through New Zealand.

<sup>3</sup> Sustainable fisheries and aquaculture for food security and nutrition. Rome: Food and Agriculture Organization of the United Nations (FAO), High Level Panel of Experts (HLPE) on Food Security and Nutrition of the Committee on World Food Security. HLPE, 2014.

<sup>4</sup> Capture fisheries refer to all kinds of harvesting of naturally occurring living resources in both marine and freshwater environments





includes tremendous fisheries resources, such as tuna fisheries<sup>5</sup>, coastal fisheries and aquaculture essential for food security and livelihoods for many communities. Women play a central role in development and resource management outcomes in Solomon Islands, but as their role is considered informal, or not recognized, they are often excluded in the planning and decision-making processes. To begin to address this, the Solomon Islands Ministry of Fisheries and Marine Resources (MFMR) developed a Gender Implementation Strategy (2011-2014) to take a more genderinformed approach to coastal fisheries management and development.

## Study methodology

**This report uses the “fish chain” as a conceptual framework to analyze the gender aspects of the fisheries supply chain.** Fish chains can be considered the same as supply chains, but they start with the ecosystem, and they integrate social and ecological dimensions with economic considerations. The gender analysis conducted along selected Solomon Islands fish chains took into account the multifaceted relationships between men and women – as boat owners, processors, sellers, family members, community members and co-workers. It considered the advantages or disadvantages of particular policy or practice for both men and women.

The report focuses on two key fish chains – the industrial tuna fisheries and coastal fisheries – which differ in terms of product, use, and processing. The study focused on elements of the fish chains present in Solomon Islands: for the tuna fish chain the case study focused on processing, for coastal fisheries it focused on production, harvesting, and marketing elements.

The fieldwork was conducted in two short periods between September 2014 and February 2015 and included individual and group interviews, focus groups<sup>6</sup>, and non-participant observation around ports and market areas in three provinces: Guadalcanal (which includes Honiara), Western (which includes Noro and Munda), and Malaita (which includes Auki and the Langalanga Lagoon area).

The primary data collection was qualitative only. However the research also drew on two relevant pieces of quantitative

analysis which included work done by Pomeroy and Yang (2014) associated with the *Hapi Fis*<sup>7</sup> project, and the SolTuna workforce profiles.<sup>8</sup> The analysis of the coastal fish chain is more limited than that undertaken for the tuna fish chain. Coastal fisheries are widely diffused in Solomon Islands and have a broad array of products. These factors, coupled with limited time and resources for the research, allowed the team to undertake a broad analysis only of coastal fisheries.

## Study findings

### *Gender issues in the tuna fisheries chain*

**The industrial tuna fish chain follows the fish from the water to the plate.** It starts at the ecology and continues through production, processing, trading and consumption (see Figure 1). The analysis focused on women's roles in processing element of the tuna fish chain in Solomon Islands, which are discussed below. Gendered characteristics for all other elements of the fish chain are presented in Annex 1.

**The domestic tuna industry in Solomon Islands relies heavily on the processing element of the fish chain.**

Processing in Solomon Islands is represented by one large company, SolTuna, which operates at Noro in Western Province. SolTuna processes skipjack, albacore and yellowfin tuna mainly for export-grade canning, but it also processes for domestic consumption. SolTuna is majority owned by multinational tuna trading company Tri Marine, with just under half of the shareholdings owned by the Solomon Islands government. SolTuna now employs approximately 1,500 people – almost two-thirds of whom are women – and it anticipates adding 500 more jobs over the next five years.

### *The impact of gender inequality on the processing element of the tuna fish chain*

**The flow of benefits from the tuna sector in Solomon Islands has been constrained by two main gender-related factors:** (i) *turnover and absenteeism* among women fish processing workers, which affects productivity rates and profitability, and (ii) *sex segregation* in work roles in this sector (i.e. the lack of women in supervisory and senior roles). Addressing these factors has the potential to



Figure 1. Tuna fisheries chain

<sup>5</sup> Tuna fisheries provided an estimated USD19 million in revenues to the Government in 2014.

<sup>6</sup> Approximately 60 people were interviewed in the fisheries and related sectors: Those interviewed included SolTuna employees, focus groups of women in coastal fisheries, Noro market vendors, NGO workers, community participants, government and donor representatives, police officers, shell-money producers. Interviewees were recruited via 'convenience' and 'snowball' sampling.

<sup>7</sup> Hapi Fis is a project, financed initially by USAID and continued under the Mekem Strong Solomon Islands Fisheries project in MFMR, which resulted in the development of a mobile application and a web-based platform to report fish landings in Solomon Islands. More information at <http://www.usaid.gov/pioneers-prize/hapi-fis-hapi-pipol>

<sup>8</sup> The most recent version of the Solomon Islands Household Income and Expenditure (HIES) statistics, which includes more gender disaggregated data than the previous HIES was not available at the time of this research.

improve gender equity, the wellbeing of the women's families and communities, and the profitability of the industry.

- *Turnover and absenteeism.* Turnover at SolTuna in 2014 was 2 per cent a month – nearly a quarter of workforce turning over every year. As a result, the company had to absorb higher operational costs, maintaining a roster of 300 workers more than needed (20 per cent for every shift) to ensure 1,500 workers are available. This practice inflates the remuneration and overheads needed to adequately staff the fish processing lines. Factors contributing to absenteeism and turnover include: lack of childcare, limited transportation to and from work, no or poor quality housing, poor health, gender-based violence, and insufficient wage income, and family and community responsibilities. To address absenteeism, the company has implemented an incentive bonus system whereby workers can receive up to 35 per cent of gross wages for full attendance for a month. Many of these challenges are also reported by managers of tuna factories in Papua New Guinea (PNG).
- *Lack of childcare.* In an effort to attract and retain women employees, SolTuna has a comparatively generous maternity leave policy granting 12 weeks maternity leave paid on a sliding scale according to length of employment. Former and current employees of SolTuna reported that the maternity leave was appreciated, but not a significant enough incentive for them to join the company or remain there. However, the lack of adequate childcare was mentioned as a key driver for staff turnover and a problem for SolTuna in losing experienced staff. This also presents a roadblock for women to progress within the company due to inability or irregularity of attendance.
- *Housing supply.* The supply of housing for employees of SolTuna in Noro is inadequate. The company provides housing for managers, but much of the low-income housing that exists in Noro is in a poor state of repair, and residential services (water, power, sewerage, rubbish disposal) are inadequate. The reasons behind the housing problems are complex, involving customary land tenure and low government capacity to plan for and deliver services. This problem is also apparent in the tuna processing industry in Papua New Guinea and is consistent with the problem of peri-urban informal settlements across Melanesia.
- *Housing allocation.* In addition to inadequate housing supply, it was found that the allocation of housing was gender-biased. For instance, SolTuna's internal Housing Committee, which is responsible for allocating housing, selects candidates based on criteria such as seniority and years of service. As a result, the majority of

housing is allocated to men in management roles, while the majority of workers are women in lower positions. To address this problem, the company reviewed the practices of the Housing Committee and appointed a woman as Chair and women and men from each Department were appointed as committee members. In addition, gender equity was introduced as a new criterion for allocating housing. More housing and efforts to improve gender equity in distributing housing are needed, but filling the need for low-income housing in Noro is likely to take at least several years.

- *Health.* Data from SolTuna showed respiratory diseases (asthma, cold/flu, pneumonia) at the top of the list in terms of number of occurrences and cost for treatment, and second in causing numbers of absentee days. It is not clear whether these diseases are related to the working or living conditions. Other ailments included diarrhea, infections of the ear and eye, dental, and obstetric/gynecological problems. SolTuna has a company clinic with a registered nurse and two nurse aides. A doctor comes to the company to do health checks for new recruits (which is required for food safety reasons) and also does emergency assessments when there are accidents. The company provides medical trips to Gizo<sup>9</sup> for workers who need to go to the hospital.
- *Gender-based violence (GBV).* GBV is prevalent throughout Solomon Islands. It is estimated 64 per cent of women aged 15 to 49 have experienced physical or sexual violence from an intimate partner or someone related or known to them.<sup>10</sup> Several interviewees and SolTuna managers raised violence against women by their partners as a problem for employees that contributes to increased absenteeism and low productivity. There is a unit within the company security department to deal with violence through counseling. SolTuna has also supported the multi-stakeholder initiative SafeNet, which aims to reduce violence against women in Noro by providing training on combating domestic violence. SolTuna allowed 20 staff to attend the training on paid time. SolTuna is also supporting the plan to establish a women's refuge in Noro; at the time of writing they were awaiting land approval for the site for the house.
- *Low wages.* In the Pacific, formal employment at low pay is a less attractive option for women when compared to running their own informal micro-enterprise from home, on their own terms. Formal employment comes with challenges of transport, housing, childcare, and low career prospects. In the case of SolTuna, low wages were the most common reason given for women leaving processing work at SolTuna. The benefits provided by formal employment (e.g. wage security, paid maternity leave or long service leave) did not significantly influence their decision to stay in or leave formal work.

<sup>9</sup> Gizo is the capital of Western Province, which is situated approximately 1.5 to 2 hours boat ride away or approximately 15 min flight time

<sup>10</sup> Ministry of Women, Youth Children and Family Affairs. Solomon Islands Family Health and Safety Study: A study on violence against women, 2009.



- *Budgeting.* Managers at SolTuna have observed income management, or budgeting, as an issue for their workers who have difficulty making their cash income last from one pay period to the next. The risk is that they then take days off to pursue other income-generating activities to fill this gap. A solution SolTuna management was considering was to shorten the pay period to weekly. SolTuna has an employee's credit union but, according to staff interviewed, it is not being utilized by workers as part of their personal budget management. Therefore, household budgeting and financial literacy training are potential interventions to consider.

### ***A gender-segregated workforce in the tuna industry***

#### **Gender segregation exists in the tuna industry in Solomon Islands and in other PICs with these industries.**

In Solomon Islands, the number of women in formal employment is half the number of men. Women are over-represented in low-paid, low-skilled jobs and face serious obstacles when they attempt to enter the labor market. Unequal sharing of household responsibilities and other unpaid labor is also a major contributor to economic inequalities between women and men. In the tuna fish chain, no women are employed as crew on industrial tuna fishing vessels, although some women work as government observers on vessels. At the other end of the spectrum, virtually no men work on fish processing lines and in the SolTuna factory women outnumber men three to one. This sex segregation in SolTuna's workforce, which is also observed in the other much smaller fish processing company in Solomon Islands, is part of entrenched gender norms in Solomon Islands society and the broader international seafood sector.

**Pay differentials between men and women results in women clustering around the lower end of the pay scale both in waged labor and salaried professional work.** This wage differential between men and women is similar across Solomon Islands, with women earning approximately 8 per cent less than men. This difference results from differential pay for similar work and over-representation of men in well-paid jobs.<sup>11</sup> SolTuna human resources data for 2014 show that the higher paid salaried staff category in the Production/Cannery Department included 25 men and only seven women, though there were nearly three times as many women as men in this department. Unskilled or low skilled labor (e.g. fish cleaning) is female-dominated and in the lower band of worker remuneration, while male-dominated roles such as trades, driver, and forklift operator are categorized in the higher wage band.

**In 2014, management of SolTuna included two women and 11 men.** At the deputy manager level all nine were men. In the salaried staff category – which receives higher pay, better access to housing, and benefits such as pre-paid

phones – the ratio of men to women was 78:19. The 19 women staff were in Production/Cannery, Quality Control, Human Resources, Administration and Finance, and not in the conventionally male work areas of Engineering or IT. There is an opportunity for women to move into a wider range of roles within SolTuna, as the management team wants to have more women in non-conventional roles (e.g. technical areas including welding, mechanics, excavator operating, and plumbing).

**Diversifying the workforce at SolTuna will be difficult, despite management commitment.** Various initiatives by SolTuna to empower women at a workplace, like housing and health care, have important but limited benefits due to gender perceptions in Solomon Islands in general. Entrenched gender norms around family responsibility, the kinds of work suitable for women, and gender-based violence constitute a real constraint to fully addressing gender issues within the company.

The “bottleneck” for women to move from low paid unskilled work through to the skilled, supervisory and management-level positions results from lower levels of education, as well as fewer training and promotional opportunities available to them in the workplace (in comparison to those offered to men). This is a result of sociocultural norms that enable men to hold positions of authority and restrict women from attaining leadership or management roles. Women thus need to be mentored to be able to take on leadership roles within the company. This bottleneck could be addressed in part through the creation of women-only consultative groups within the company as a way to empower women to speak up about their issues and concerns.

### ***The impact of tuna processing on gender equality***

**The capacity for fish processing alone to deliver on gender equality is limited.** The Solomon Islands government policy is to encourage growth in onshore tuna processing, as it is perceived to bring major benefits through employment. Notwithstanding government efforts to harness international investment in tuna processing, the capacity of the tuna processing industry alone to deliver social and economic outcomes for women is limited by several factors.

**A major factor is competition and cost structures within the global tuna industry.** Processing tuna for canning is a high-volume, low-margin business. Therefore increases in costs to improve incomes and conditions for workers are not always easy to accommodate. Although many cannery operations in the Pacific are not profitable, the guaranteed access to fish is factored into the decision-making process in this industry. Lastly, external factors such as existing gender norms, gender-based violence and stereotyping in work roles constitute a real constraint to fully deliver on gender equality at work. These factors exist across all PICs.

<sup>11</sup> Increasing the Participation of Women Entrepreneurs in the Solomon Islands Aid Economy. Haque and Greig, World Bank. 2011.





Photo Credit: Kate Barclay



**Transactional sex and sexual violence seem to be related to the industrial tuna fisheries, but more evidence is needed.** Girls and young women have been visiting foreign fishing vessels in harbors for commercial sex around the Pacific, including Solomon Islands, since at least the 1970s. In some cases the transaction involves women being given fish, which they then sell in local markets.

Interviews with community leaders and people involved with the industry in Noro and anecdotal evidence indicates that there has long been a phenomenon of “women going on the boats”, which may include explicit sex work, but also includes women seeking to “party” with alcohol and to meet men who have cash to spend.<sup>12</sup> Violence against women and the prevalence of sexually transmitted infections (STIs) may well be exacerbated by these activities, and women’s vulnerability to negative impacts is likely to be increased with limited options for earning cash.

The police in Noro aim to address the issue through their ongoing awareness and training activities targeting young women and girls, as well as parents. More data are needed to understand the relationship between the transactional sex and the tuna industry.

**The tuna industry also has gender-specific impacts around industrial ports and factories in Solomon Islands.** The masculine culture of seafarers, not limited to the tuna sector, has norms of “partying” when ashore, involving sex (including transactional sex) and alcohol. Factories also attract people seeking work, many of whom are experiencing for the first time living out of the cultural context of the village, which can result in unrestrained behavior in terms of sexual relations, alcohol consumption and violence.

Problems arising from social change and tensions are exacerbated by a lack of infrastructure and services in Noro and Honiara, low incomes and unemployment, and urban/peri-urban migration. The intersection between customary tenure, commercial activity and labor migration has not been well governed, giving rise to further sources of conflict including insecure tenure for housing.

Women bear the brunt of many of these issues, for example, with increased risk of violence and STIs. There is potential to improve the lives of women and their families involved in the industrial tuna fish chain by addressing the lack of infrastructure and services in port and factory towns, including services promoting health, reducing

violence against women, and finding socially acceptable solutions for accommodating labor migration.

**Gender stereotyping in work roles is strong, and gender-based violence rates are high.** Therefore, it could be expected that discrimination and/or harassment occurs in workplaces. SolTuna has long had a policy of equal pay for the same work, even though this has not been legally required, in part because buyer companies have required a certain level of equal opportunity to be demonstrated.

**A deeper investigation is needed for a thorough understanding of discrimination/harassment of women in the industrial tuna fish chain.** Such an investigation should also include a review of the current legislative framework for equal employment opportunities and protection from discrimination and sex-based harassment in the workplace, and of available services and training in Solomon Islands in this area.

### *Gender issues in the coastal fisheries chain*

**The coastal fish chain, like the tuna fish chain, starts with ecology and continues through harvesting, processing, marketing, export and consumption** (see Figure 2). However, in contrast to tuna fisheries, the data and information on coastal fisheries is more difficult to obtain due to their diffuse and non-homogeneous nature. In addition the limited resources available for the research did not enable fieldwork to be conducted with those actually fishing. Instead, fieldwork was limited to interviewing fish sellers at the markets and in some communities. Therefore, further detailed analyses on the coastal fish chain is recommended, and should be narrowed to selected products to better understand specific coastal fish chains such as *bêche-de-mer*.

**The report analyzes the production and harvesting, manufacturing, and marketing elements of selected coastal fish chain.** Gendered characteristics of all other elements of the coastal fish chain are presented in Annex 2.

**General assumptions about gender roles in coastal fisheries are difficult to make, as the patterns for each community and coastal fish products need to be identified individually.** In the Pacific region, one study has estimated that women’s small-scale fisheries make up 56 per cent of total estimated small-scale fishery catches, contrasting sharply with the conventional perception that women play a minor role in capture fisheries. This has serious implications for fisheries management and development, as well as food security.<sup>13</sup>



Figure 2. Coastal fisheries chain

<sup>12</sup> Report of the Special Rapporteur on the violence against women. Mission to Solomon Islands. Manjoo, 2012. United Nations.

<sup>13</sup> Women and fisheries: Contribution to food security and local economies. Marine Policy, Harper et al., 2013.



**Women in Solomon Islands do a great deal of fishing, taking well over half of the subsistence catch, and increasingly fish to generate income through market activities.** Women's fishing is crucial for a coastal community's food security and increasingly for cash incomes. This is similar to the situation in agriculture in PNG where men predominate in cash crop production and women in subsistence production. Women also provide extensive labor inputs for cash production, but men control the income from cash crops.

**Internationally, women have largely been excluded from coastal resource decisionmaking, and from coastal fisheries development activities.** Community-Based Resource Management (CBRM) is seen as key to the sustainable development of coastal fisheries in the Pacific, but very few places have an understanding of the gender-inclusive resource management. Solomon Islands is ahead of the curve due to the "gender transformative" coastal resource work done by WorldFish since 2011.

Coastal fisheries were examined in terms of the elements in the fish supply chain for production and harvesting and marketing along three main product groupings: (i) *bêche-de-mer*; (ii) trochus, greensnail, pearl oysters, and shell money; and (iii) aquarium trade, deepwater snapper and seaweed production.

### *Production and harvesting*

*Bêche-de-mer* (sea cucumbers) exports are consistently one of Solomon Islands' high exportearning marine commodities after tuna, earning SBD33 million in 2013 (increasing from SBD10 million in 1992). *Bêche-de-mer* are easily overfished due to their high financial value in Asian markets and their long growth period. To make *bêche-de-mer* fisheries sustainable, strong support from the government and other stakeholders is needed for monitoring, surveillance and enforcement, as well as awareness raising and providing alternative income opportunities during closed seasons.

*Bêche-de-mer* are one of the coastal fisheries activities important to women, and one in which women's involvement could potentially be enhanced. However, the literature on *bêche-de-mer* is overwhelmingly gender blind, with little written on the role of women in this fishery. Interviews conducted during this research, indicated that women are usually heavily involved with *bêche-de-mer* fisheries – either fishing themselves or supporting men's fishing activities through the provision of food for fishing parties, and participating in postharvest processing.

Increasing the involvement of women in this fish chain may help to improve effective and sustainable management of this resource. However, to understand how to effectively integrate women into this fishery information on gender relations in the *bêche-de-mer* chain needs to be strengthened. A qualitative investigation of the gender relations involved in fishing, processing and trading *bêche-de-mer*, along with a livelihoods analysis in one or more communities heavily reliant on this fishery is important to help communities better manage this resource and move beyond export bans to more effective resource management.

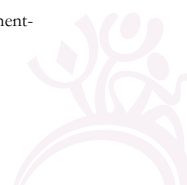
**Trochus, greensnail, pearl oysters and the range of shells used in customary money** have also for many decades been successful in generating cash income for Solomon Islands coastal communities. Like *bêche-de-mer* they are high-value, small, light, shelf-stable products that suit the economic, geographic and cultural contexts of remote coastal communities. Trochus buttons have been partially manufactured domestically, adding value before export. However, all three of these products have been overfished. Export bans and size limits for exports have been implemented, but a more comprehensive spread of consultatively established measures needs to be put in place to enable sustainable development of these fisheries. These fisheries also produce the shells that are incorporated into handicrafts and "shell money"<sup>14</sup> that are traditionally made and marketed by women. Therefore these fish chains are as likely as *bêche-de-mer* to be important livelihood opportunities for women.

**Aquarium trade, deep-water snapper and seaweed production** may also present income opportunities for women in Solomon Islands. Reports show that women and men have been involved in wild harvest and cultured production for the aquarium trade and in 2005 the annual turnover was SBD5 million, with profit for exporters estimated to be SBD1.8 million.<sup>15</sup> The aquarium trade has had mixed success in Solomon Islands, its viability and gender impacts would need to be examined further. A gender analysis of the implications of deep-water snapper should be undertaken to ascertain the level to which women will be needed to support the fishery. For example, opportunities for women may exist in the marketing elements of the supply chain. Seaweed farming is not suitable in all areas of Solomon Islands and its attractiveness depends on international prices among other things.<sup>16</sup> It has been introduced as an alternative source of income to *bêche-de-mer* in some communities. The gender dimensions of this product should be examined to better understand the role women play and if it assists to minimize impacts of closed *bêche-de-mer* seasons.

<sup>14</sup> Traditionally, shell money is used for bride price and traditional ceremonies, but in the modern market, these crafts are also commercialized as jewelry and souvenirs.

<sup>15</sup> Financial Assessment of the Marine Trade of Corals in Solomon Islands. Suva: Foundation of the People the South Pacific International, South Pacific Regional Environment Programme. Lal and Kinch., 2005.

<sup>16</sup> Solomon Islands Diagnostic Trade Integration Study. Honiara, Solomon Islands: Solomon Islands Government Department of Trade Industry and Investment, Implementing Agency: United Nations Development Programme. Gay, (Ed.), 2009.





### **Manufacturing of shell money and jewelry**

**Shell money is not a highly profitable way to earn a living.** The profits in shell money (estimated at 1SBD per hour of labor input) are small due to the costs women incur while trying to sell their product. As women primarily sell the shell money in Honiara, they incur costs such as boat fare to and from Malaita Province to Honiara in Guadalcanal Province; daily transport to the market; buying food while staying with relatives in town; daily market fees. Buying more shells for future production is also part of their cost structure. The majority of the shell money and handicrafts come from the Langalanga lagoon area in Malaita Province, but due to the degradation of coastal habitat in the Lagoon there are fewer resources to support this as an income-generating activity for the growing population.

**The declining supply of shells in the Langalanga Lagoon needs to be addressed for both economic and environmental reasons.** Further analysis into the shell supply chain and profitability could be considered as a way to increase income-generating opportunities for women, and reduce further environmental damage. For example, fishers in Western and Isabel Provinces are currently supplying shells for the production of shell money and handicrafts in Malaita. This spreads income-earning opportunities but the shell fisheries must be sustainably managed to avoid also spreading resource depletion.

### **Marketing**

**Economic returns from marketing fish generates better income than processing work at SolTuna.** However, fish vendors are mostly men. A survey associated with the Hapi Fis project that collected questionnaire data from 100 vendors in four Honiara markets in 2012 found that 76 per cent of fish vendors were men. There are more men than women involved in fresh fish sales, but women (usually family members of fishermen) dominate the sale of salt fish and selling to restaurant owners. In the Honiara Central Market, a new system of intermediaries has emerged whereby specialist fish vendors buy through fish receivers. There is not yet any data on the gendered composition of this group.

Market trading work was also reported to be easier and more flexible work for women to combine with childrearing duties than formal paid work at a plant. It was reported that income from market trading was enough to pay rent, school fees and food bills. In order to better support the marketing element of the fish chain, more gender disaggregated information is needed on net incomes and how this livelihood works in balance with people's life situations, the kinds of relationships that enable and constrain the business, and the gendered aspects of this element.

**The management system of the markets adds a challenge for women.** Marketplace locations are overcrowded, have inadequate infrastructure, unsanitary and unsafe conditions, including threatening or demeaning social interactions which present as problems for women vendors. Although women comprise the majority of traders in markets, there are few women in management. A recent study<sup>17</sup> found that market systems are corrupt, dysfunctional, and contain discriminatory policies. There is a need for gender-responsive, effective and accountable local government and market management. Collaborative action by vendors can be a positive force for improving market conditions. This may be in the form of inclusive, effective representative marketplace groups. Women's collective action groups can enable women to maintain control over increased income they earn, minimize costs and labor inputs, and facilitate transportation through pooling funds and labor.

**Poor financial literacy and a lack of market information inhibit women's ability to get the best value for their product and the best outcomes from their earnings.** Financial training and business management has been identified by vendors as useful for women to manage their budgets and the daily operations of their business, including wages for their casual workers and investing income back into the business. This supports the finding of Honiara-based women entrepreneurs interviewed in 2010<sup>18</sup> who cited basic financial literacy and business sense as a constraining skills gap by women, whereas men considered the primary gap to be in access to training in more technical areas. A lack of financial services, namely savings facilities and credit for market vendors and to support production, is a problem for women and men. The procedures required to open savings accounts are difficult for a large portion of the population who do not have identification documentation. In addition, women with limited literacy and who lack confidence dealing with public institutions are even less able to open savings accounts.

**There are some current development programs focused on providing financial services for women market vendors in Solomon Islands.** The International Finance Corporation<sup>19</sup> is working with the ANZ Bank and Bank of South Pacific to make financial services more accessible via mobile banking and financial literacy training, and aim to include women as half of the participants in these initiatives. The UN Women Markets for Change (M4C) project is working with the Honiara Central Market and the Auki market in Malaita Province to address many of the issues noted above. The project encompasses improving market facilities (including sanitation), creating market vendors associations, capacity development including training, access for people with disabilities, access to organized

<sup>17</sup> DFAT, 2014. Pacific Women Shaping Pacific Development. Solomon Islands Country Plan Summary. Retrieved from <http://www.pacificwomen.org/wp-content/uploads/Solomon-Islands-Country-Plan-Summary3.pdf>

<sup>18</sup> *Increasing the Participation of Women Entrepreneurs in the Solomon Islands Aid Economy*. Haque and Greig, World Bank. 2011.

<sup>19</sup> The International Finance Corporation, a member of the World Bank Group, is the largest global development institution focused exclusively on the private sector in developing countries

savings schemes, improving food quality and safety standards (including food storage), revising market regulations, and addressing security issues.

One of the key local partnership organizations is the Solomon Islands Women in Business Association (SIWIBA) established in 2005. One of SIWIBA's main activities is monthly “*mere* markets” in Honiara selling mainly handicrafts. The market vendors association started in 2014 under the M4C project and includes women selling fresh and cooked fish, but at the time of fieldwork this project was too new to yet have identifiable positive impacts.

## Data and information gaps

**The analysis has highlighted a number of gender-specific issues related to the management of tuna and coastal fisheries in Solomon Islands.** However, during the research it became evident that there is limited information and robust data on both of these fish chains, but more so in the case of the coastal fish chain. The gender disaggregated HIES may help fill some of the data gaps but at the time of this research it had not yet been released. The report lists below some of the key data gaps that exist.

### Overall data gaps

- Female participation (%) in the fisheries sector and ratio of men to women in the sector (this includes both formal (private and public) and informal sectors as main and secondary activities).
- Aggregated individual income statistics for those in the formal sector.
- Household income statistics for those in the informal sector.
- The correlation of income level and educational attainment of women participating in fisheries.
- Women's access to micro-credit facilities.
- Income, expenditure and consumption profiles of households with female fishers/ fisheries employees at the household level.

### Data gaps in tuna fish chain

- Proportion of men and women in each part of the industrial tuna supply chain. For example fishing for bait; owning boats; working as support staff for fishing in store control, administration and office work; working in government departments; and related businesses in seafood export, transport and retail; and those employed in processing activities.
- Workforce profile of employees of large and small companies involved in processing and analysis of this information as compared to other similar countries.
- Data on health and housing conditions of SolTuna employees.
- A thorough understanding of workplace discrimination/harassment in the industrial tuna fish chain. Such an investigation should include a review of the current legislative framework for equal employment opportunities and protection from discrimination and sex-based harassment in the workplace, and of available services and training in Solomon Islands in this area.
- Inventory of activities aimed at addressing gender dimensions in tuna fisheries and evaluation on their effectiveness and/or how they could be improved.

### Data gaps in coastal fish chain

- The degree to which women have access to transport to the markets. For example, anecdotally it is thought that men tend to control the transportation, while women are involved in seafood retailing.
- Income generated from selling coastal fish products and uses of this income, disaggregated by men and women.
- Expenses generated from coastal fisheries – how does this differ for women and men?
- Impact of declining fisheries and/or closed seasons on communities and women's livelihoods.
- Mapping of coastal fish chains for all coastal fisheries products across Solomon Islands.



## Recommendations

Specific recommendations and potential areas for action in the tuna industry and in coastal fisheries are presented below to address some of the data gaps relating to the social and economic opportunities and constraints for women in

the fisheries sector in Solomon Islands to help move to more gender-informed policy directions and investments.

Overall, a comprehensive and integrated approach should be taken to fill some of the data and information gaps that exist, particularly for coastal fisheries. This should also be closely aligned with MFMR's gender strategy.

**Table 1.** Tuna Industry

Tuna Industry	
Recommendation	Areas for Action
SolTuna should be supported to continue its efforts to improve gender equity and remove barriers, and measure effectiveness of programs and initiatives.	<ul style="list-style-type: none"> <li>Assess options to strengthen women's financial literacy to build their capacity to manage income and household budgets</li> <li>Assess options for reducing absenteeism such as improved childcare, housing opportunities and regular access to transport for low income families</li> <li>Develop training and mentoring opportunities for women to move into more senior or non-traditional women roles</li> <li>Work closely with other stakeholders in Noro to support ongoing initiatives such as SafeNet, improving infrastructure and/or services and creating a safe community</li> <li>Evaluate effectiveness of current initiatives</li> <li>Company awareness campaign to support organisational and behaviour change</li> <li>Conduct a survey of women in industry to profile them (educational attainment, health, income, housing situation, etc.) and get feedback on gender mainstreaming initiatives proposed Strengthen the data and information about tuna fisheries industry</li> </ul>
Strengthen the data and information about tuna fisheries industry	<ul style="list-style-type: none"> <li>Analyse the HIES and strengthen the information about formal sector and fisheries sector employment trends</li> <li>Profile the workforce of small and large scale operators in the Solomon Islands</li> <li>Undertake comparative analysis against similar countries such as PNG</li> <li>Compile gender disaggregated data on all tuna fishery companies in Solomon Islands – including the smaller operators and compare against large and small operators for commonalities/differences</li> </ul>
Understand the social and economic impacts and benefits of processing plants on communities in Solomon Islands	<ul style="list-style-type: none"> <li>Undertake household and village surveys for social and economic impact assessment looking at the impacts and benefits of SolTuna in the immediate and surrounding areas</li> </ul>




Table 2. Coastal Fisheries

Coastal Fisheries	
Recommendation	Areas for Action
Support the implementation of MFMR Gender Strategy.	<ul style="list-style-type: none"> <li>Design more effective coastal fisheries management and development through engaging more effectively with communities, including the gender and intersectional issues relevant to coastal resource use, World Bank financing under the PROP presents an opportunity for MFMR to take the lead in coordinating this activity</li> </ul>
Improve data collection and analysis on gendered issues along fishery supply chains and develop a single repository, including:	<ul style="list-style-type: none"> <li>Livelihood and market surveys</li> <li>An analysis of MFMR Hapi Fis market data collection system to determine how it may be improved or complemented to reflect/capture gender aspects</li> <li>In-depth gender analysis (quantitative and qualitative) on a few select coastal fishery chain</li> <li>Identify income generating opportunities and micro-credit facilities for women</li> <li>Review the HIES analysis for relevant information and data on coastal fisheries</li> </ul>
Support improvements to opportunities and conditions for women vendors at markets	<ul style="list-style-type: none"> <li>Support or expand upon the Markets for Change (M4C) project, including improved access to financial/microcredit services for market vendors, potentially working with other stakeholders such as IFC</li> </ul>
Undertake a pilot project to develop a participatory model for integrated coastal zone community-based resource planning and management in 2-3 locations, to be scaled out in future	<ul style="list-style-type: none"> <li>Research into gender dimension of fisheries in which women are already heavily involved in or potential markets, including: bêche-de-mer, shells for export, deep-water snapper, seaweed farming and shell money</li> <li>Research mechanisms or models to enable community participatory planning for integrated resource management</li> <li>Build on existing experience and analysis of ways to improve women's participation in resource use decision-making</li> </ul>










Annex 1. Industrial tuna fish chain – key gendered characteristics and issues




Chain elements	Actors	Activities	GDL*	Overarching issues	Gender-based constraints	Gender-based opportunities
<b>Ecology</b> 	<ul style="list-style-type: none"> <li>Oceanic ecosystems</li> <li>Fishing companies</li> <li>MFMR</li> <li>WCPFC</li> <li>SPC Oceanic Fisheries Program</li> </ul>	<ul style="list-style-type: none"> <li>Log fish catches</li> <li>Monitor &amp; analyse catches relative to stocks</li> <li>Regulate fisheries</li> </ul>	X	<ul style="list-style-type: none"> <li>Skipjack stocks good, some problems with yellowfin &amp; bigeye stocks</li> </ul>	<ul style="list-style-type: none"> <li>Tuna fisheries science &amp; resource management male dominated</li> <li>Gender differences in education and training</li> <li>Gender norms: “fishing is a man’s world”</li> </ul>	<ul style="list-style-type: none"> <li>Improve women’s access to education &amp; training</li> <li>Expand # &amp; capacities of women in resource science &amp; management</li> </ul>
<b>Inputs</b> 	<ul style="list-style-type: none"> <li>Farmers around Noro</li> <li>Salt fish traders in ports</li> <li>Formal food provisioning businesses</li> </ul>	<ul style="list-style-type: none"> <li>Supply fresh food for canteen &amp; fishing vessels</li> </ul>	Z	<ul style="list-style-type: none"> <li>Local supply sometimes inadequate, requiring use of imported food</li> </ul>	<ul style="list-style-type: none"> <li>Unknown, see work on gender in agricultural development in Solomon Islands</li> </ul>	<ul style="list-style-type: none"> <li>Facilitate farmers and produce traders to increase supply</li> </ul>
	<ul style="list-style-type: none"> <li>Chandlers</li> <li>Fishing vessel manufacturers</li> <li>Repair &amp; maintenance services</li> <li>Sundry supply businesses</li> <li>SolTuna Engineering Department</li> </ul>	<ul style="list-style-type: none"> <li>Supply fishing gear, vessels, other materials</li> <li>Repair &amp; maintenance vessels &amp; gear, processing factory</li> </ul>	Z, X	<ul style="list-style-type: none"> <li>Lack of entrepreneurial activity to service and supply fishing &amp; processing</li> </ul>	<ul style="list-style-type: none"> <li>Women face gender-specific barriers to business development, including credit</li> <li>Interventions need to take into account risks of violence &amp; women’s existing work burdens</li> </ul>	<ul style="list-style-type: none"> <li>Investigate potential service &amp; supply businesses (uniforms, cleaning, gardening, etc.)</li> <li>Train &amp; recruit women for non-typical technical roles</li> </ul>
<b>Inputs</b> 	<ul style="list-style-type: none"> <li>Shops, eateries, bars, casinos in Noro &amp; Honiara</li> </ul>	<ul style="list-style-type: none"> <li>Services for visiting fishing crew</li> </ul>	Z, Y	<ul style="list-style-type: none"> <li>Culture of “partying” with sex and alcohol among male seafarers</li> <li>Lack of non-party activities for seafarers</li> <li>No affordable accommodation for seafarers away from vessels</li> </ul>	<ul style="list-style-type: none"> <li>Male culture among seafarers, including substance abuse, sex &amp; risk taking</li> <li>Inadequate services for sexual health and violence against women</li> <li>Lack of cash-earning opportunities for women</li> </ul>	<ul style="list-style-type: none"> <li>Develop services to encourage socially desirable behaviour from seafarers</li> <li>Improve services for sexual health and preventing violence against women</li> <li>Improve women’s cashearning opportunities</li> </ul>
	<ul style="list-style-type: none"> <li>SolTuna</li> </ul>	<ul style="list-style-type: none"> <li>Management &amp; maintenance of factory &amp; fishing fleet</li> </ul>	X	<ul style="list-style-type: none"> <li>Management, professional and supervisory roles dominated by men</li> </ul>	<ul style="list-style-type: none"> <li>Societal gender norms discourage women from seeking leadership roles</li> <li>Gender differences in education and training opportunities</li> <li>Lack of childcare</li> </ul>	<ul style="list-style-type: none"> <li>Facilitate learning process of how to include women in senior roles</li> <li>Improve childcare services in Noro</li> </ul>
	<ul style="list-style-type: none"> <li>Tri Marine International</li> <li>Commercial banks</li> <li>IFC</li> </ul>	<ul style="list-style-type: none"> <li>Capital</li> </ul>	Z	NA	NA	NA

\*GDL – gendered division of labor. X = predominantly/exclusively male; Y = predominantly/exclusively female; Z = shared/joint tasks

Chain elements	Actors	Activities	GDL	Overarching issues	Gender-based constraints	Gender-based opportunities
<b>Harvesting</b> 	<ul style="list-style-type: none"> <li>National Fisheries Development (NFD)</li> <li>Albacore longline vessels, many based in Fiji</li> </ul>	<ul style="list-style-type: none"> <li>Fishing</li> </ul>	X	<ul style="list-style-type: none"> <li>Limited pool of skilled &amp; experienced human resources in Solomon Islands for industrial fishing</li> </ul>	<ul style="list-style-type: none"> <li>Industrial tuna fishing crews exclusively male</li> <li>Management of fishing male dominated</li> <li>Gender differences in access to relevant education &amp; training</li> <li>Gender norms: "fishing is a man's world"</li> </ul>	<ul style="list-style-type: none"> <li>Improve women's access to education &amp; training</li> <li>Expand # &amp; capacities of women in fishing management &amp; technical roles</li> </ul>
	<ul style="list-style-type: none"> <li>SolTuna</li> <li>NFD</li> <li>Tri Marine International</li> </ul>	<ul style="list-style-type: none"> <li>Ensuring supplies of required quantities &amp; qualities of fish from National Fisheries Development (NFD &amp; longline vessels)</li> </ul>		<ul style="list-style-type: none"> <li>Complex international trading work requiring extensive networks of contacts &amp; capital</li> </ul>	<ul style="list-style-type: none"> <li>Unknown, but may be similar as for managing fishing</li> </ul>	<ul style="list-style-type: none"> <li>Expand # &amp; capacities of women in tuna trading</li> </ul>
  <b>Processing</b> 	<ul style="list-style-type: none"> <li>SSI</li> </ul>	<ul style="list-style-type: none"> <li>Processing fresh fish for airfreight</li> </ul>	Y	<ul style="list-style-type: none"> <li>Declining yellowfin &amp; big-eye stocks</li> <li>Warm equatorial waters do not produce highest value sashimi</li> </ul>	<ul style="list-style-type: none"> <li>Gender stereotyping of roles: processing &amp; office administration for women, technical &amp; management for men</li> </ul>	<ul style="list-style-type: none"> <li>Expand # women in technical &amp; management positions</li> </ul>
	<ul style="list-style-type: none"> <li>SolTuna</li> </ul>	<ul style="list-style-type: none"> <li>Thawing, butchering &amp; cooking fish for loining/canning</li> <li>Packing &amp; retort</li> </ul>	Z		<ul style="list-style-type: none"> <li>Women and men work in these areas, but men dominate in senior ranks</li> </ul>	<ul style="list-style-type: none"> <li>Increase # &amp; capacities of women in senior ranks</li> </ul>
	<ul style="list-style-type: none"> <li>SolTuna</li> </ul>	<ul style="list-style-type: none"> <li>Cleaning skin and bones from fish to prepare it for canning</li> </ul>	Y	<ul style="list-style-type: none"> <li>High rates of absenteeism &amp; turnover</li> <li>Difficulties making income last from one pay period to the next</li> <li>Inadequate low-income housing</li> <li>Indications of health problems among processing workers &amp; their children</li> </ul>	<ul style="list-style-type: none"> <li>Women face gender-specific difficulties continuing paid employment:</li> <li>Lack of childcare for low-income families;</li> <li>Violence from partners related to work;</li> <li>Responsibility for food provision if pay runs out</li> <li>Women underrepresented in senior ranks</li> <li>Housing allocation has been biased against women</li> </ul>	<ul style="list-style-type: none"> <li>Investigate ways to better manage income</li> <li>Improve childcare options</li> <li>Improve housing</li> <li>Improve domestic violence services</li> <li>Increase # women in senior ranks</li> <li>Continue work addressing gender bias in housing allocation</li> </ul>
	<ul style="list-style-type: none"> <li>SolTuna</li> </ul>	<ul style="list-style-type: none"> <li>Quality control</li> </ul>	Z	<ul style="list-style-type: none"> <li>Difficulties having workers with low levels of schooling understand food safety principles</li> </ul>	<ul style="list-style-type: none"> <li>Women comparatively well represented in technical &amp; management roles</li> </ul>	<ul style="list-style-type: none"> <li>Maintain women's opportunities for skilled roles</li> <li>Improve processing workers' literacy</li> </ul>




Chain elements	Actors	Activities	GDL	Overarching issues	Gender-based constraints	Gender-based opportunities
<b>Distribution &amp; marketing</b> 	<ul style="list-style-type: none"> <li>• SolTuna</li> </ul>	<ul style="list-style-type: none"> <li>• Arranging transport &amp; importation logistics, according to requirements of buyers</li> </ul>	Z	<ul style="list-style-type: none"> <li>• Complex international trading work requiring extensive networks of contacts &amp; capital</li> </ul>	<ul style="list-style-type: none"> <li>• Unknown, possibly similar to managing fishing</li> </ul>	<ul style="list-style-type: none"> <li>• Investigate increasing # women?</li> </ul>
	<ul style="list-style-type: none"> <li>• Tri Marine International</li> </ul>	<ul style="list-style-type: none"> <li>• As above</li> </ul>		<ul style="list-style-type: none"> <li>• As above</li> </ul>	<ul style="list-style-type: none"> <li>• As above</li> </ul>	<ul style="list-style-type: none"> <li>• As above</li> </ul>
	<ul style="list-style-type: none"> <li>• Salt fish buyers</li> </ul>	<ul style="list-style-type: none"> <li>• Liaise fishing crews</li> <li>• Barter/buy fish from fishing vessels</li> <li>• Transport fish from fishing vessels to markets</li> <li>• Retail fish or sell to other sellers</li> </ul>	X	<ul style="list-style-type: none"> <li>• Food safety - Fish may sit in the hot sun for hours before being collected</li> </ul>	<ul style="list-style-type: none"> <li>• Possible transactional sex for fish</li> <li>• Affordable product for women entrepreneurs but inconsistent supply which can impact livelihoods</li> </ul>	<ul style="list-style-type: none"> <li>• Support UN Women M4C initiatives for women salt fish sellers</li> </ul>
<b>Importing</b>	<ul style="list-style-type: none"> <li>• European canned tuna companies</li> </ul>	NA	Z	NA	NA	NA
<b>Retail</b> 	<ul style="list-style-type: none"> <li>• Salt fish vendors</li> </ul>	<ul style="list-style-type: none"> <li>• Buy from buyers at wharf</li> <li>• Sell raw at Central Market, or</li> <li>• Take home, cook, bring back to markets to sell</li> </ul>	Y	<ul style="list-style-type: none"> <li>• General problems with working conditions in markets (safety, sanitation, water supply, comfort, storage for goods, etc.)</li> <li>• Ice not used for preservation</li> <li>• Unclean water used to keep fish looking fresh</li> </ul>	<ul style="list-style-type: none"> <li>• General issues for women in market work i.e. - safety concerns</li> </ul>	<ul style="list-style-type: none"> <li>• Consult women vendors</li> <li>• Support UN Women M4C initiatives for women salt fish sellers</li> </ul>
<b>Consumption</b>	<ul style="list-style-type: none"> <li>• Canned tuna customers - in Europe, Solomon Islands</li> </ul>	NA	Z	NA	NA	NA
	<ul style="list-style-type: none"> <li>• Salt fish customers</li> </ul>	<ul style="list-style-type: none"> <li>• Customers buy raw fish (markets) or cooked fish (eateries - "kai bar")</li> </ul>	Z	<ul style="list-style-type: none"> <li>• Food safety issues</li> <li>• Reluctance on the part of MFMR or the Honiara Central Market to formalize the salt fish trade</li> </ul>	<ul style="list-style-type: none"> <li>• Unknown</li> </ul>	<ul style="list-style-type: none"> <li>• Consult women improvements supply chain &amp; distribution re food safety</li> </ul>

Annex 2. Coastal fisheries and aquaculture fish chain - key gendered characteristics and issues



Chain elements	Actors	Activities	GDL*	Overarching issues	Gender-based constraints	Gender-based opportunities
<b>Ecology</b> 	<ul style="list-style-type: none"> <li>Resource-owning communities</li> <li>Government</li> <li>Conservation NGOs</li> </ul>	<ul style="list-style-type: none"> <li>CBRM</li> <li>Export bans</li> <li>Hapi Fis data collection</li> </ul>	X	<ul style="list-style-type: none"> <li>Reef areas depleted in some areas</li> <li>To date low involvement of government in coastal fisheries management</li> <li>Illegal trade of bêche-de-mer undermining management efforts</li> <li>Hapi Fis data not capturing all coastal fisheries (e.g., local pelagic &amp; gleaned crustaceans/shellfish)</li> <li>No data collection in villages</li> </ul>	<ul style="list-style-type: none"> <li>Women not included in CBRM</li> <li>Coastal fisheries management male dominated</li> <li>Gender differences in education &amp; training</li> <li>Gender norms: “fishing is a man’s world”</li> </ul>	<ul style="list-style-type: none"> <li>Improve women’s access to education &amp; training</li> <li>Expand # &amp; capacities of women in planned increase in</li> <li>government management of coastal fisheries</li> <li>Increase Hapi Fis data collection to gleaned products</li> <li>Gender disaggregate Hapi Fis data &amp; revise questions to gather data relevant for gender analysis</li> <li>Scale out WorldFish lessons learned to improve</li> <li>women’s inclusion/participation in CBRM</li> </ul>
<b>Inputs</b> 	<ul style="list-style-type: none"> <li>Suppliers of fishing vessels &amp; gear</li> <li>Suppliers thread &amp; tools for shell money</li> </ul>	<ul style="list-style-type: none"> <li>Supply to fishers &amp; gleaners</li> <li>Supply to shell money manufacturers</li> </ul>	NA	NA	NA	NA
<b>Production &amp; harvesting</b> 	<ul style="list-style-type: none"> <li>Fishers</li> <li>Gleaners</li> <li>Divers</li> </ul>	<ul style="list-style-type: none"> <li>Gleaning from intertidal zone</li> <li>Fishing from shore or boat</li> <li>Diving for shells, bêche-de-mer, spear fishing</li> <li>Cultivating corals, clams for aquarium trade</li> </ul>	Z	<ul style="list-style-type: none"> <li>Bêche-de-mer &amp; shells stocks depleted</li> <li>Some reef areas depleted of food fish</li> <li>High transport costs &amp; lack of ice make fishing for fresh fish markets unviable in many areas</li> </ul>	<ul style="list-style-type: none"> <li>Women’s fishing not assisted in development projects</li> <li>Women excluded from decision making about resource use</li> </ul>	<ul style="list-style-type: none"> <li>Scale out lessons learned in AAS to improve women’s inclusion/participation in fisheries development activities &amp; decision making</li> </ul>
	<ul style="list-style-type: none"> <li>Aquaculturists</li> </ul>	<ul style="list-style-type: none"> <li>Cultivating tilapia for village food</li> <li>Cultivating seaweed for export</li> </ul>	Z	<ul style="list-style-type: none"> <li>Aquarium trade limited viability</li> <li>Seaweed production high labor &amp; low profit</li> </ul>	<ul style="list-style-type: none"> <li>Unknown</li> </ul>	<ul style="list-style-type: none"> <li>Support WorldFish AAS gender-transformative work in Malaita, scale out</li> <li>Investigate opportunities regarding seaweed</li> </ul>

\*GDL – gendered division of labor. X = predominantly/exclusively male; Y = predominantly/exclusively female; Z = shared/joint tasks



Chain elements	Actors	Activities	GDL	Overarching issues	Gender-based constraints	Gender-based opportunities
<b>Manufacture</b> 	<ul style="list-style-type: none"> <li>Shell money makers, Langalanga Lagoon</li> </ul>	<ul style="list-style-type: none"> <li>Turn shells into beads</li> <li>Make strings of beads</li> <li>Combine strings into finished products (many varieties)</li> <li>Families use own labor</li> <li>Larger scale operators pay others to make for them</li> </ul>	Y	<ul style="list-style-type: none"> <li>Shell stocks depleted</li> <li>Shell money is a low-income activity</li> <li>Langalanga Lagoon ecosystem already depleted, increasing population pressure</li> <li>Lack of alternative livelihoods</li> </ul>	<ul style="list-style-type: none"> <li>Lack of water supply some villages meaning women must paddle long distances for water daily</li> <li>Lack of modern energy for cooking means women cut mangroves</li> <li>Lack of food gardens for some villages (distance for others) puts heavy burden on women</li> </ul>	<ul style="list-style-type: none"> <li>Improve village livelihoods through gender-sensitive ICZM CBRM (interlinked problems of resource depletion, livelihoods, sanitation, water, energy, food supplies)</li> <li>Investigate improvements to marketing arrangements</li> <li>Increased opportunity for entrepreneurial women to do larger scale manufacturing</li> </ul>
<b>Consolidation of products</b> 	<ul style="list-style-type: none"> <li>Fish receivers in provinces</li> </ul>	<ul style="list-style-type: none"> <li>Coordinate fishers to fill eskies sent by vendors from Honiara</li> </ul>	Z	<ul style="list-style-type: none"> <li>Unreliability of transport</li> <li>Unavailability of ice</li> <li>Communication by phone or radio</li> </ul>	<ul style="list-style-type: none"> <li>Unknown</li> </ul>	<ul style="list-style-type: none"> <li>Investigate opportunities for entrepreneurial women to operate as fish receivers</li> </ul>
	<ul style="list-style-type: none"> <li>Langalanga village trade stores</li> </ul>	<ul style="list-style-type: none"> <li>Barter store goods for shells or strings</li> <li>Finish manufacturing</li> </ul>	Z	<ul style="list-style-type: none"> <li>A way to purchase store goods, but makers income less</li> </ul>	<ul style="list-style-type: none"> <li>Women's need for cash &amp; store goods due to lack of gardens, fishery resources &amp; energy for cooking</li> </ul>	<ul style="list-style-type: none"> <li>Improve village livelihoods through gender-sensitive ICZM CBRM</li> </ul>
	<ul style="list-style-type: none"> <li>Buyers of bêche-de-mer, shells, aquarium products, etc.</li> </ul>	NA	?	NA	NA	<ul style="list-style-type: none"> <li>Investigate opportunities for businesswomen in exports</li> </ul>
<b>Transport</b> 	<ul style="list-style-type: none"> <li>Inter-island shipping services</li> <li>Public road transport</li> <li>Private small boats</li> </ul>	<ul style="list-style-type: none"> <li>Send fish from Provinces to Honiara by ship</li> <li>Send fish from other parts Guadalcanal &amp; nearby islands to Honiara</li> <li>Get fish to urban markets around the country</li> </ul>	Z	<ul style="list-style-type: none"> <li>High cost of transport/fuel</li> <li>Access to transport difficult from many areas</li> <li>Logistics chain problems cause high wastage</li> <li>Risk losing shipments due to shipping delays/breakdown</li> <li>Ice availability limited</li> </ul>	<ul style="list-style-type: none"> <li>Women lack confidence dealing with outsiders</li> <li>Women less mobile</li> <li>Transport businesses dominated by men?</li> </ul>	<ul style="list-style-type: none"> <li>Investigate opportunities for women in transport businesses</li> </ul>

## Annex 2: Continuation

Chain elements	Actors	Activities	GDL	Overarching issues	Gender-based constraints	Gender-based opportunities
<b>Marketing</b> 	<ul style="list-style-type: none"> <li>Fish vendors</li> </ul>	<ul style="list-style-type: none"> <li>Selling raw fish in municipal markets around the country</li> <li>Selling cooked fish – fish &amp; chips – various traditional styles of cooking</li> </ul>	X & Z	<ul style="list-style-type: none"> <li>Unhygienic market conditions (lack of toilets &amp; clean water, wooden benches, dogs roaming)</li> <li>Limited banking facilities</li> <li>Lack of facilities (storage, seating, shelter from sun &amp; rain, quality of flooring)</li> <li>Lack of coordination among vendors to push for improvement</li> </ul>	<ul style="list-style-type: none"> <li>Women's greater risk of violence/harassment in robbery or family taking cash</li> <li>Shell money: difficult for women &amp; families to spend long periods Honiara to sell</li> </ul>	<ul style="list-style-type: none"> <li>Support UN Women M4C initiatives for women fresh and cooked seafood sellers</li> </ul>
		<ul style="list-style-type: none"> <li>Sell at road side stalls</li> </ul>	?	Unknown	<ul style="list-style-type: none"> <li>Likely to be similar to other market/business constraints</li> </ul>	<ul style="list-style-type: none"> <li>Requires investigation</li> </ul>
		<ul style="list-style-type: none"> <li>Selling to restaurants</li> </ul>	?	Unknown	<ul style="list-style-type: none"> <li>Likely to be similar to other market/business constraints</li> </ul>	<ul style="list-style-type: none"> <li>Increased opportunity for women seafood traders</li> </ul>
	<ul style="list-style-type: none"> <li>Shell money vendors</li> </ul>	<ul style="list-style-type: none"> <li>Sell in Honiara Central Market or bulk sales</li> </ul>	X	<ul style="list-style-type: none"> <li>As above for market conditions</li> <li>Need to stay in Honiara weeks to sell</li> </ul>	<ul style="list-style-type: none"> <li>Family difficulties with women away in Honiara for long periods</li> <li>Low income relative to effort</li> </ul>	<ul style="list-style-type: none"> <li>Investigate alternative marketing options</li> </ul>
	<ul style="list-style-type: none"> <li>Exporters of bêche-de-mer, shells, aquarium animals, seaweed</li> </ul>	<ul style="list-style-type: none"> <li>Logistics</li> <li>Complying with regulations</li> </ul>	Z	<ul style="list-style-type: none"> <li>Depleted stocks of bêche-de-mer &amp; shells</li> <li>Difficulties exporting live aquarium animals</li> </ul>	<ul style="list-style-type: none"> <li>Unknown</li> </ul>	<ul style="list-style-type: none"> <li>Increased opportunity for women marine commodity exporters</li> </ul>
<b>Consumption</b> 	<ul style="list-style-type: none"> <li>Customers for fresh fish, urban &amp; rural</li> </ul>	<ul style="list-style-type: none"> <li>Buy fish, take home to cook</li> </ul>	Z	<ul style="list-style-type: none"> <li>Food safety</li> <li>High prices in Honiara</li> <li>Lack of refrigeration</li> </ul>	<ul style="list-style-type: none"> <li>Unknown</li> </ul>	<ul style="list-style-type: none"> <li>Requires investigation</li> </ul>
	<ul style="list-style-type: none"> <li>Restaurant customers</li> </ul>	NA	Z	<ul style="list-style-type: none"> <li>Unknown</li> </ul>	<ul style="list-style-type: none"> <li>Unknown</li> </ul>	NA
	<ul style="list-style-type: none"> <li>Customers for shell ømoney/jewellery</li> </ul>	NA	NA	<ul style="list-style-type: none"> <li>Unknown</li> </ul>	<ul style="list-style-type: none"> <li>Unknown</li> </ul>	NA
	<ul style="list-style-type: none"> <li>Overseas customers exported products</li> </ul>	NA	NA	<ul style="list-style-type: none"> <li>Unknown</li> </ul>	<ul style="list-style-type: none"> <li>Unknown</li> </ul>	NA

NA – not applicable, beyond the scope of this report.

## True gender champion recognised

Aquaculture without Frontiers is delighted to announce Dr Meryl Williams as the first woman of the month for 2016! Meryl's extensive and continuing contribution to international research in fisheries and aquaculture, and her advocacy of women and gender in aquaculture are inspirational to women globally.

For the past 40 years, Meryl has worked tirelessly in Australian and international fisheries, aquaculture, aquatic resource conservation, and agricultural research and development, and has published widely on aspects of fish harvesting and fisheries management around the world. More recently, her work emphasises fish in relation to food security and nutrition and its potential in feeding the world's anticipated population of nine billion people. Her contribution to women and gender in aquaculture and fisheries includes the initiation of the website <http://genderaquafish.org/>, which is devoted to the exchange of information on gender in aquaculture and fisheries in all parts of the world.



Meryl Williams







Working group at GA5

After graduating in 1975 from James Cook University with a science degree, Meryl collected the Dr Palmerston-Rundle Prize for biological sciences. After being elected a Fellow of the Australian Academy of Science, Technology and Engineering in 1993 she was awarded an Australian Centenary Medal in 2003. Last year, Meryl was awarded the prestigious Crawford Fund medal for her contribution to international agricultural research, through the Australian Centre for International Agricultural Research (ACIAR) and the CGIAR system.

Meryl commenced work for the Queensland government in 1977, moving to the tuna and billfish programme of the Secretariat for the Pacific Community in 1981, then to the Australian Department of Primary Industries and Energy in the mid-1980s, and later to the Australian Institute of Marine Science. From 1994 to 2004, she was Director-General of the WorldFish Centre, where her work focused on reducing environmental pressure and poverty

and improving the quality of nutrition. From 2004 until 2007, she chaired the Board of Management and was President of the Policy Advisory Council of ACIAR. In 1990 she became Executive Director of the Bureau of Rural Resources and three years later, Director of the Australian Institute of Marine Science.

Meryl's contribution to international committees includes being the Vice-Chair of the Scientific Advisory Committee of the International Seafood Sustainability Foundation and an Honorary Life Member of the Asian Fisheries Society (AFS). Currently she is leading the AFS AsiaPacific-Fish-Watch project to develop an online information system for Asia-Pacific fisheries and aquaculture. She has also led a number of key international evaluation teams for the World Bank and United Nations Food and Agriculture Organization. We are privileged to have Meryl as a member of the board of Aquaculture without Frontiers (Australia) Ltd.



## Veikila Vuki: Cultivating the sharing of information on aqua women<sup>1</sup>

Dr Veikila Vuki was elected Woman of the Month for February 2016 by the Aquaculture without Frontiers (AwF) organisation.



Veikila Vuki

There are numerous challenges facing women striving to make social changes in the aquaculture and fisheries arena. Firstly, female advocates, experts and researchers are scarce in this domain and are often unique in their institutes; secondly they are nearly always isolated from each other. Keeping up to date with new information and what is going on elsewhere can be difficult, given the constraints of their heavy everyday workload. In addition, few active networks exist to foster information pathways. One of the few standing information networks is in the central and western Pacific, where women are most actively engaged in fisheries and aquaculture. The conduit for this information exchange is the Pacific Community's (SPC) Women in Fisheries Information Bulletin (WIF) <http://www.spc.int/coastfish/en/publications/bulletins/women-in-fisheries.html>), which has been ongoing since 1997.

Since 2007, its editor has been Fijian researcher, educator and community worker Dr Veikila Vuki. In 2007, Veikila took over the information bulletin after a series of active editors who had also had women in fisheries responsibilities inside SPC's fisheries programmes. Although the women in fisheries work of SPC has not been very visible in its recent programmes, through the WIF Information Bulletin, it has maintained a global profile on women in fisheries by providing an information network. Veikila and her ongoing efforts are a major reason for this success.

Dr Veikila Vuki was formerly with the Fiji Fisheries Division and the University of the South Pacific and, since 2006, has been the Director of Oceania Environment Consultants, a consulting firm based in Guam. She also works with grassroots women's groups on fisheries development in Fiji. When she was appointed as WIF editor in November 2006, her duties were described as: seeking and collecting information for the WIF bulletin through regular contact with contributors and networks of people working on the relevant subject, and editing the information through direct

exchange with authors. These duties are not easy, especially in a field with relatively little funding support, such as women in fisheries and aquaculture.

Veikila has succeeded through her personal enterprise, great collaboration skills inside and outside SPC, and a strong commitment to the rights of women in our sector. Each issue of the WIF Information Bulletin is full of information, covering new project results from the Pacific, essays, news and reprinted key papers from other outlets. It is always recommended reading!

Veikila comes from Ono-i-Lau, an isolated southerly island in the Fiji group. She has nearly 30 years of research experience in Australia, Fiji, Samoa, Cook Islands, Kiribati, Vanuatu, Federated States of Micronesia (Chuuk, Pohnpei, Kosrae and Yap), Guam, Marshall Islands and Palau, plus a great deal of international and regional experience. Her experience relates to coastal fishing communities, coastal management, women in fisheries and fisheries development, and she has published widely. In her earlier career, she worked as a Fisheries Officer for the Fiji Department of Fisheries, where she helped train women in fisheries management, and was a board member of the regional Women in Fisheries Network based in Suva. Recently, she and her colleagues have worked to reinvigorate this Fijian network. You can access issues of the Women in Fisheries bulletin: <http://www.spc.int/coastfish/News/WIF/wif.htm>.

<sup>1</sup> Adapted from the AwF website : <http://www.aquaculturewithoutfrontiers.org/veikila-vuki-cultivating-the-sharing-of-information-on-aqua-women/>

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