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Politics of vulnerability: Impacts of COVID-19 and Cyclone Harold on Indo-Fijians engaged in small-scale fisheries

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ABSTRACT

The global COVID-19 pandemic has exposed the shortcomings of our health, social, and economic systems. While responding to the health crisis, governments are scrambling to understand and address the knock-on economic effects from market disruptions, and respond to other major disturbances (e.g. natural disasters). We conducted 61 key informant interviews with Indo-Fijian small-scale fisheries (SSF) actors (i.e. fishers, boat owners (that may or may not fish), crew members, and traders) in May 2020, two months after Fiji got its first case of COVID-19 and a month after Cyclone Harold hit the country. We examined how these SSF groups whose access to resources depends on their ability to navigate existing social relations of power, have lived through, experienced, and responded to the two stresses. We found the main impact of COVID-19 on SSF actors was the reduction in sales of fish (73.8% of respondents) likely a result of reduction in local consumption and/or the loss of tourism markets. Loss of purchasing power meant almost a fifth of Indo-Fijian SSF actors interviewed (comprising 44.4% of crew members, 16.4% fishers, 11.5% boat owners, 8.3% traders) were unable to obtain sufficient food to meet their families’ daily needs. Many of these SSF actors do not have access to social security or similar safety nets leaving them vulnerable to the current crisis as well as to other shocks and changes. Furthermore, social inequities and power relations surrounding access to fisheries resources and government aid contributed to their vulnerability to economic stresses from COVID-19 and a severe cyclone. An understanding of early impacts of COVID-19 on SSF through an intersectional lens can assist decision-makers to quickly mobilise assistance to help people who are most vulnerable, and avoid widening inequities among social groups.

1. Introduction

The COVID-19 pandemic is an unprecedented health crisis in humanity’s recent history with social and economic effects rippling across the globe (Hakovirta and Denuwara, 2020; Bennett et al., 2020; Everard et al., 2020). This severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) was first recorded in Wuhan City in Hubei Province, People’s Republic of China (Wang et al., 2020) and reported to the World Health Organization (WHO) on 31 December 2019 (WHO, 2020a). As news about the highly contagious virus spread, countries scrambled to close their borders and put measures in place (e.g. lockdowns, travel bans, closure of schools, home confinement, curfews) to restrict the movement of people in an attempt to curb the introduction and/or spread of the virus. At the time of writing (5 June 2020), COVID-19 had been recorded in 216 countries and territories around the world with over 6.5 million cases and 387,155 deaths, and in contrast to other WHO regions (i.e. Americas, Europe, Eastern Mediterranean, South-East Asia and Africa), six Pacific Island countries and territories recorded relatively low numbers of COVID-19 cases and deaths – Fiji (18 cases, 0 deaths), French Polynesia (60 cases, 0 deaths), Guam (171 cases, 5 deaths), New Caledonia (20 cases, 0 deaths), Commonwealth of the Northern Mariana Islands (26 cases, 2 deaths) and Papua New Guinea (8 cases, 0 deaths) (WHO, 2020b). Since our study was completed, these numbers have changed drastically and as of 1 January 2021, 81.9 million cases have been reported in 222 countries and territories and the global death toll stands at 1,808,041 (https://www.who.int/). However, with the exception of Guam and French Polynesia, numbers in the Pacific region have remained low.

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While much of the attention remains focused on human health, there have been numerous media articles on the impact of the pandemic on different sectors, including small-scale fisheries (SSF). Small-scale fishers, processors and traders, and especially women in the seafood sector, have been identified as particularly vulnerable to impacts from the pandemic (Bennett et al., 2020). For example, many women in SSF undertake low-income jobs which cannot be done from home, or dominate in seafood processing and retail markets which increases their exposure to COVID-19 (Briceno-Lagos and Monfort, 2020; Campbell et al., 2020). Reported impacts to those engaged in SSF include complete fisheries shutdowns on the onset of government mandated social distancing measures, loss or reduction in markets, physical distancing on boats limiting the number of crew, reduced supplies of fishing gear or ice, labour shortage, and employment loss (FAO, 2020a; Bennett et al., 2020). The exact nature and geographic differences of these impacts warrants closer investigation in order to effectively reorient government support and donor funding, and to avoid widening gaps in vulnerabilities and inequities in the sector (Bennett et al., 2020).

Although the Pacific has a lower number of cases relative to other regions, knock-on economic effects from government restrictions and market contractions have impacted SSF livelihoods and exacerbated social and ecological vulnerabilities of the sector. In examining the effect of COVID-19 on SSF actors, we adopt a broad definition of vulnerability that is “based on the ability of individuals and communities to respond to external stresses and explicitly incorporates social relations of power” (Nelson and Finan, 2009). This framing of vulnerability moves away from the more historically popular use of vulnerability seen as lack of capacity to adapt, and redirects the focus on vulnerability using a relational and intersectional lens (Adger and Kelly, 1999; Oliver-Smith, 2004; Barnett, 2020). This broad definition of vulnerability also necessitates the examination of people’s agency and decision-making in anticipation and response to external stresses (Adger, 2006). Thus, rather than being a direct outcome of a perturbation or stress, vulnerability is a historically contingent condition that shapes people’s ability to respond to external stresses. Such a reframing also shifts the focus of responses by external actors and governments away from responding to ‘deficiencies in the system’, to addressing the politics of social practices and institutions (Barnett, 2020).

Given that people will always experience multiple external stresses in some form or another, addressing factors that make people vulnerable necessarily implies identifying some benchmark of people’s ability to respond to such stresses beyond which they are no longer considered vulnerable (Nelson et al., 2007). Factors that may influence vulnerability and adaptive capacity include intersectional differences associated with gender, ethnicity, culture, caste, education, economic status, disability, history (e.g. colonisation), and resource or property access rights (Orlove et al., 2010; Huynh and Resurreccion, 2014; Nayak et al., 2014; Smucker et al., 2015; Gaskin et al., 2017; Thomas et al., 2018). Because the causes of vulnerability can be as diverse as people’s lived experiences of it, bottom-up approaches aiming to describe variation in how people respond to external stresses are a necessary beginning for defining this benchmark and setting the stage for further work seeking to address ‘systemic vulnerability’, where some people will always be more vulnerable to disasters no matter what kind of disaster it is (Ziervogel et al., 2006).

Although the social and economic impacts of coastal disturbances are often immense, their effects can be particularly significant for marginalised groups, especially those that lack the capacity to self-organise and influence power dynamics at larger scales (Cinner et al., 2018). In this paper, we examine vulnerability amongst Indo-Fijians in the SSF sector and their responses and coping mechanisms to the external stresses. The stresses we examined were the global pandemic and COVID-19 cases present in Fiji, and Category 4 tropical Cyclone Harold that passed through the country in April 2020. Although these two stresses caused different and differential impacts, they are embedded within and operate through Fiji’s social, cultural, and political systems, and influenced by its colonial history. We examine how Indo-Fijian SSF actors, a non-Indigenous ethnic group whose access to resources depends on their ability to navigate existing social relations of power, have lived through, experienced, and responded to the two stresses.

2. Methods

2.1. Study context

Fiji is one of the most developed economies in the Pacific with the highest rate of urbanisation (50 %) in the region (Mangubhai et al., 2019). Fiji’s economy is highly dependent on foreign aid, international trade, and tourism (IFC, 2018; Gounder, 2020; Reserve Bank of Fiji, 2020a); for example, tourism income totaled around US$900 million (17.2 % of GDP) in 2019 (Sherzad, 2020). The fisheries sector is an important source of employment, with subsistence and commercial SSF contributing an estimated US$63.8 million to the country’s national GDP (Gilleit, 2016). The Fijian economy was projected to contract by 19.0 % in 2020 and its recovery contingent on the resumption of international travel (Reserve Bank of Fiji, 2020b).

While 88 % of the land is owned by Indigenous Fijian (iTaukei) communities, inshore waters (foremost to the outer reef edge) are subject to a dual system of management under both customary and statutory laws (Mangubhai et al., 2019). There are 411 registered fishing grounds within which iTaukei communities have customary fishing access and use rights. However, the ownership of the seabed and overlying resources rests with the State, which retains the power to legislate or regulate resource use including commercial fishing within customary fishing grounds. However, the Fisheries Act of 1942 stipulates that all Fijian citizens, regardless of ethnicity, can fish and harvest from the sea for subsistence purposes.

Fiji’s colonial history has shaped its current socio-political-environmental context, and the relationships between its two major ethnic groups. Nearly 60,000 Indians were brought to Fiji between 1879 and 1916 under British colonial rule (Ali, 1979). This indenture period of servitude (Girma) era represents a significant point in history for Indigenous iTaukei Fijians and Indian labourers. For Indians leaving the ports of Chennai, Kolkata, or Mumbai during this period and the years following, the migration to the Pacific was a means of escape from the harsh socio-political realities of British-occupied India, caste discrimination, and an opportunity for a better life (Prasad, 2004; Rai, 2010). The indenture contract (a form of debt bondage) was initially a five-year term with the provision of accommodation and a basic-wage rate for the labourers. At the end of their contract, labourers could leave at their own expenses or stay on for another five years with an offer to have a free return passage (Ali, 1979). The system was set up to incentivise the Indian labourers to stay on in Fiji. While a considerable number of Indian labourers opted to return to India, many remained and now their descendants make up a significant portion of the Fijian population. Although the indenture system was abolished in 1921, the doors remained open for subsequent Indian traders and opportunity migrants who settled in Fiji (Mayer, 1963; Lal, 1999).

Although the authors recognise that all ethnic groups are referred to as Fijians in Fiji, we use the term ‘Indo-Fijians’ to differentiate those of Indian ethnicity and descent. Indo-Fijians represent the second largest ethnic group in the country (313,798 out of a total population of 836,190 (37.5 %), 2007 census). As non-Indigenous resource users, Indo-Fijians are engaged in both subsistence and commercial SSF. Due to their historical migrant status during British colonial occupation, Indo-Fijians were largely excluded from formal fisheries access rights, and their descendants have limited ability to participate in fisheries management decisions. For example, commercial fishing licenses within inshore waters must have written consent from registered iTaukei communities and in most cases, this is granted by a high ranking traditional chief or group of chiefs—→ (Veitayaki, 1998). In many cases outside fishers (i.e. those without access rights to specific customary fishing grounds) such as
Indo-Fijians, have historically given what is known colloquially as a ‘goodwill payment’ in return for the permission to fish. Without formal regulations and guidelines directing how payments should be collected and who had access to these payments, the system had become subject to abuse and corruption over the years (Veitayaki, 1998). To address this issue, in 2017 the Ministry of Fisheries declared a complete ban on the demand of goodwill payments until it had established a clear, open, and transparent customary fishing ground access policy. Given the complexities and sensitivities associated with goodwill payments including disputed fishing boundaries and variable sizes of fishing grounds, and despite the ban, no national guidance is in place and the practice continues (Reddy, 2019).

Fiji had its first case of COVID-19 in Lautoka town on 19 March 2020, and peaked at 18 cases on 20 April 2020 (Figs. 1 and 2). Seven cases were recorded in the towns of Lautoka, one in Nadi, one in Ba, five in Labasa, and four in the capital Suva. As cases were detected, towns were placed on a minimum and mandatory 2-week lockdown (i.e. no one could enter or leave the town), and testing was increased around infection clusters. A national curfew was put in place between the hours of 10 pm to 5 a.m. from 27 March 2020 for all citizens, with the exception of essential services, and all inter-island ferries were stopped between 29 March to 26 April 2020 (Fig. 2). For towns not under lockdown, the government permitted fishing at night provided fishers left port before the curfew and they remained at sea during curfew hours (Deo, 2020). Fishers were also required to obtain special fishing passes to get a curfew exemption and were approved as long as they were able to maintain safe social distancing on their boats. At the time of our study, all 18 people infected with COVID-19 had recovered, and no deaths were recorded in Fiji.

Fiji’s cyclone season extends from November to April and is characterised by high and variable rainfall influenced by El Niño Southern Oscillation cycles (Mangubhai et al., 2019). On 8 April 2020, Category 4 tropical Cyclone Harold passed through Fiji damaging over 2000 homes and causing extensive agricultural and infrastructure damage totaling US $22.6 million (OCHA, 2020; Mahul and Signer, 2020). With wind speeds of 120 km per hour, over 6000 people sought refuge at 197 Evaluation Centers despite social distancing restrictions in place. In the days following the cyclone, the Fiji government socialized that 95% of damage was caused by wind and 5% caused by rain. A number of studies have investigated the impact of cyclones on the fishing industry, and the associated socio-economic implications (McKean et al., 2012; Delgado et al., 2018; Tilley et al., 2018). The study’s objective was to assess the impact of COVID-19 on fishers in Fiji and analyze their perception of the government’s response.
preceding and proceeding the cyclone, heavy rainfall resulted in extensive flooding around Fiji (WMO, 2020). At the time, the country was still responding to COVID-19 with new cases in the populated towns of Lau-toka, Nadi, Suva and Labasa and with restrictions on travel and social gatherings, and with the closure of non-essential businesses and services. Consequently, damage assessments and relief efforts in the immediate aftermath of Cyclone Harold were difficult, and were largely limited to government personnel.

### 2.2. Sampling and design

We conducted a rapid assessment using semi-structured key informant interviews with four types of Indo-Fijian SSF actors – fishers, boat owners, crew members, and traders. ‘Boat owners’ are fishers or businessmen that owned boats and hired crew members who may or may not participate in fishing activities, and who differed from ‘fishers’ who largely fished on their own. ‘Crew members’ were fishers that worked for boat owners, and ‘traders’ were those that bought fish off fishers and/or boat owners for sale. We asked 10 questions focused on: (a) the main stress(es) or stressor(s) faced by the four actors in the SSF sector, particularly concerning COVID-19; and (b) the main impacts to sales and income (see Supplementary Materials). The survey was primarily designed to look at COVID-19, as it was initially assumed (based on news reports) that the impacts of Cyclone Harold would not be significant, given the pathway of the cyclone was through the southern parts of Fiji and not through the major towns where Indo-Fijians SSF actors were based. However, surveys were not altered as we asked interviewees specifically if there were any other major national events that had affected them in 2020, where those affected discussed the impact of Cyclone Harold on fisheries activities, as well as their lives more generally. Although the nature of the two stresses caused differential impact, people’s responses to them were intertwined. We also asked Indo-Fijian SSF actors what type of government assistance they required to help guide authorities on how to better prioritise their support.

We conducted the interviews between 12–20 May 2020 over the telephone to comply with national restrictions on movement within Fiji, social gatherings, and recommendations on social distancing practice. Telephone interviews limited the number of questions that could be asked. We applied stratified random sampling following Bernard (2011), and selected fishers (n = 14), boat owners (n = 26), crew members (n = 9), and traders (n = 12) from a database of respondents from previous surveys conducted between June to July 2018 (Reddy, 2019) and February to April 2019 (Nand et al., 2021). Respondents were selected because: they represented a diversity of Indo-Fijian SSF actors from the two main islands in Fiji; we had pre-COVID-19 and pre-Cyclone Harold data on these fisheries actors including their telephone contacts; and they were comfortable talking to staff from the Wildlife Conservation Society. Of the 70 that we selected for interviews, we were only able to reach 61 due to poor phone reception or respondent availability. We interviewed a total of 57 men and 4 women in their preferred language of Fiji-Hindi, with interviews taking between 10–15 min. SSF actors were based in the towns of Ba (n = 21), Tavua (n = 3), and Rakiraki (n = 13) on the island of Viti Levu, and Labasa (n = 14) and Savusavu (n = 10) on the island of Vanua Levu (Fig. 1). Fishing and selling of seafood is almost predominately a male-dominated activity in the Indo-Fijian community, though a small number of women collect invertebrates for food or for sales (Reddy, 2020). Unless stated otherwise, all currency quoted is in US dollars (FJ$1 = US$0.45).

### 2.3. Data coding and analysis

We extracted data for qualitative and quantitative analysis by hand transcribing audio data from telephone interviews. Given the challenges of administering surveys over the telephone, five of the questions were on a 3-point Likert scale (e.g. less, same, more) and nine were open-ended. We calculated the percentage change in prices using the before and after COVID-19 fish prices provided by SSF actors. We transcribed all qualitative text from interviews and analysed the data using NVivo. Consistent with Saldana (2009), we applied an interactive grounded theory approach to analyse qualitative data. The data were first analysed to decipher core meaning (i.e., short phrases capturing the essence of that respondents shared). The responses were then grouped into categories according to themes that emerged from the data, and then reviewed again to consolidate a smaller group of categories to better visualise the data. Although the themes (e.g. food security, income security, emotional health) were influenced by the structure of the interviews, we did not restrict ourselves to these themes. The interviews were semi-structured and the respondents were encouraged to talk and answer questions in their own way.

### 3. Results

We present our results across three broad themes that emerged from our interviews. While food security, livelihoods, and income security are inherently linked, these are disaggregated based on how respondents engaged with the terms.

#### 3.1. Livelihoods

Overall, the fisheries actors stated that the greatest impact of COVID-19 was felt by the reduction in sales of fish (73.8 % respondents), which they attributed to a reduction in local consumption (67.2 % respondents) and/or the loss of international and domestic tourism and associated closure of hotels and resorts (32.8 % respondents) (Table 1). Reduction in sales affected all traders, 85.7 % of fishers, 65.4 % of boat owners, and 44.4 % of crew members. A Ba fisher explained the reduction in local consumption was due to restriction in movements (e.g. curfews) as well as lockdowns saying “Before COVID-19, the sale was good, but now 40 to 50 percent of the sales have dropped.” A Savusavu trader from another district noted that the reduction in fish sales was due to local customers having no money to buy fish or were being very cautious with their spending. She said “Business is slack – we just come and sit all day, have lunch and go home. There are a lot of people selling fish as well and we hardly get a chance to sell our fish. If resorts were open, there were people that used to come and buy fish. What we saved [is] near spent.”

To further quantify the impact of COVID-19 on fisheries livelihoods, we asked SSF actors if they were: (a) fishing the same amount of fish; and (b) selling the same amount of fish. When asked more directly about fishing, the majority of fishers, boat owners and crew members (63.0 %) stated the amount of fish they were catching was less (Fig. 3). Explanations for the reduced fish catch included: poor weather; reduction in fishing days and fishing trips (especially since the demand had dropped); or because they were unable to go as far as before due to lockdowns and curfews. Some further explained that they carried limited supplies and were worried about traveling far in case there were changes in the curfew period or an additional lockdown while they were at sea. To understand if fishing pressure had changed, we also asked if the number of people fishing had changed since February (the month before the first case of COVID-19). Most (63.9 %) felt there were less people fishing, but most (63.9 %) felt there were less people fishing.

#### Table 1

Impact of COVID-19 on Indo-Fijians in the small-scale fisheries sector. Only the responses listed by more 10 different respondents (regardless of which fisheries actor) are shown. n = total number of respondents surveyed.

| Actors    | n   | Sales | Price | Unemployment | Lockdown |
|-----------|-----|-------|-------|--------------|---------|
| Fisher    | 14  | 85.7% | 21.4% | 21.4%        | 21.4%   |
| Boat owner| 26  | 65.4% | 61.5% | 19.2%        | 23.1%   |
| Crew member| 9  | 44.4% | 66.7% | 11.1%        | 11.1%   |
| Trader    | 12  | 100.0%| 25.0% | 8.3%         | 16.7%   |
| All       | 61  | 73.8% | 45.9% | 19.7%        | 19.7%   |
same. The majority of SSF actors (82.1%) stated they were selling less fish (Fig. 3); it was only in Labasa that half the SSF actors stated they were selling less, and the rest (13.1%) felt it was the same. The majority of SSF actors (82.1%) stated they were selling less fish (Fig. 3); it was only in Labasa that half the SSF actors stated they were selling less, and the rest (13.1%) felt it was the same.

Fig. 3. Perceptions of Indo-Fijian fishers, boat owners, crew members, and traders on the impact of COVID-19 on (a) the amount of fish being caught, (b) the amount of fish being sold, and (c) income being generated. The legend is in (a).

In addition to COVID-19, respondents stated they were impacted by Cyclone Harold (59.0%) and bad weather (18.0%) more generally. The cyclone caused damage to fishing boats (26.2% of respondents), engines (4.9%) and homes (6.6%). Insurance companies in Fiji do not cover small fishing boats, engines and gear, and especially wooden boats which are used by Indo-Fijian fishers and boat owners (Y. Nand, pers. comm.). The cyclone and continued bad weather prevented some from fishing (24.6%). Although some actors returned to fishing 1–2 weeks after the cyclone, many complained that the cyclone and subsequent flooding meant less fish were caught. For two boat owners who sustained significant damage to their boats during the cyclone, they were not able to fish for 1–2 months because they did not have the immediate funds to fix their boats. Some fishers from Vanua Levu explained they tried to return home because of bad weather but could not as a lockdown had occurred while they were away.

3.2. Income

We found that the second largest impact of COVID-19 (45.9% respondents) affecting Indo-Fijians in the SSF sector was the reduction in the price of fish in all five markets surveyed (Table 1). The percentage decrease in sale price ranged from 14.3 to 77.8% and averaged 36.5%, and was mentioned more frequently by boat owners (61.5%) and their crew members (66.7%). Only a quarter or just under a quarter of traders and fishers respectively, mentioned price drops as a result of COVID-19. All 46 respondents stated they were earning less money from fisheries (Fig. 3). A Savusavu trader explained, “Local people have no money to buy from us and we have no earning due to this to buy fish from fishers. Before fish was bought at $35 [US$15.75, a bundle] and sold at $37 [US$16.65, a bundle]. Now the fish is bought at $20 [US$9.00, a bundle] and sold at $25 [US$11.25, a bundle] still no one is buying it. Business is running in loss.” A Ba boat owner said, “Walu [Spanish mackerel] was sold for $12/kg [US$5.40] but now it’s sold for $8/kg [US$3.60].”

Around a fifth of respondents mentioned unemployment (19.7%) and lockdowns (19.7%) as the third most important factor affecting them. Discussions on unemployment by SSF actors were specifically in relation to hiring and retention of crew members, sometimes referred to as ‘labourers’ during interviews (Table 1). Crew members explained their net earnings was based on the amount of fish sold, minus the costs of the trip (e.g. fuel, food) and minus the percentage that goes to the boat owner. Many of the boat owners felt personally responsible for their crew members and their families and had provided them small financial loans. Boat owners also expressed the challenges of paying off their own loans on their boats, while continuing to provide for their own families and support their crew. During lockdowns fishing was prohibited, and the police, army, and the maritime safety authority worked to ensure there was no movement of people into or out of lockdown areas, which included sea access. As a result, during lockdowns fishing was not allowed, seafood markets remained closed, and fishers, boat owners, and traders could not leave their towns to sell in other locations. This was particularly challenging for Lautoka and Soasoa area in Labasa town where lockdowns were extended for 20 and 28 days, respectively. As one Labasa fisher explained, “During lockdown, Labasa market was closed and even no boat went out to sea. All the labourers stayed home. Labourers got affected since fishing and selling business was down; labourers were not paid [and] their family got financially affected.”

When we asked SSF actors that were not fishing and/or selling fish what other work they were doing to bring in income for their family, 63.3% stated they have no other source of income, though responses varied between the groups. Specifically, 42.9% of fishers, 44.4% of crew members, 72.0% of boat owners and 83.3% of traders said they have no additional or alternative source of income. For those with options, secondary livelihoods included: sugarcane farming; rental car business; boat maintenance services; running a small family shop; rental from tenants on their land; vegetable farming; carwash business; or working for another company. Four respondents received social welfare assistance or financial/food support through their children or other relatives.

3.3. Food security

We asked Indo-Fijian SSF actors about their access to and availability of food for the household which was recorded on a 3-point likert scale (i.e. not enough, enough, more than enough), and followed up with an open-ended question to explain their selection. Food security was raised as a concern among all SSF groups we interviewed, with 44.4% of crew members, 16.4% of fishers, 11.5% of boat owners, and 8.3% of traders...
stating they did not have enough food for themselves and their immediate family. This represents an overall food insecurity in 16.4 % of Indo-Fijian SSF actors interviewed. A Rakiraki crew member said, “[I] have to think a lot before buying. Before, used to get 2 weeks of groceries out of a fishing trip but not anymore.” A Savusavu crew member also affected by loss of income explained, “Since income is affected due to this crisis, this has caused us to buy less due to which family is eating less now. Don’t have money to buy enough.” And a Savusavu female trader said “We only buy small amounts at a time because we have to look at our pockets. Sometimes I go to my relatives’ house to eat and sometimes I just eat crackers and tea.”

3.4. Other stresses

Given the dual impact of the COVID-19 and Cyclone Harold, we asked the respondents about the main stresses their family were feeling. Financial stress ranked the highest (47.9 % of respondents). Although financial stress was present before COVID-19, some explained this stress had increased significantly since COVID-19. A Ba boat owner explained how unemployment is affecting religious celebrations: “Currently there is Roza going on and Eid [Eid al-Fitr] is coming up. [My] children want new clothes and there is no money.” In addition to financial stress, respondents also identified family stress as an important factor (17.4 %). A Tavua trader explained, “There is no business in my shop currently. [My] wife passed away … and I have a 4-year-old kid to look after. Have to commit time for him also.” In addition to food availability (16.5 %), other stresses included livelihood loss (9.1 %), mental health (6.6 %), and physical health (2.5 %) (Table 2). A Tavua fisher explained that the uncertainty surrounding COVID-19 was stressful − “Uncertainty as to how long this COVID issue will last. The situation is depressing for many of us who are reliant on fishing.”

Fishers and crew members were found to be largely self-employed or engaged informally without employment contracts. There was little evidence of Indo-Fijian SSF actors having access to social security or other safety nets. Some fishers highlighted that despite the ban by the Ministry of Fisheries they were still being asked by i-Taukei leaders to pay an annual goodwill payment of US $450 to get consent letters to enable them to fish in customary fishing grounds. Given the profitability of fisheries had declined, this was causing additional stress for some fishers, especially those in Tavua. One fisher explained that in 2019 the Minister for Fisheries had intervened and helped him get the consent letter without the goodwill payment. However, the same chief has asked for a US$1350 goodwill payment which the fisher negotiated down to US$450.

The final question we asked was “if you had to ask for any assistance or support from the government right now, what would it be?” The five most popular requests were: boat maintenance and supplies (23.3 % respondents); direct financial assistance (12.3 %); purchase of boats and/or engines (11.0 %); purchase of fishing gear (11.0 %); and requests for freezes or improved access to ice (11.0 %) (Fig. 4). There were also requests for assistance with loans (i.e. provision of loans or cancellation of loan repayments), waiving of government fishing license fees, facilitating access to markets, or the lifting of the four-month seasonal grouper ban in 2020. While many stated there was no help or forthcoming help from government, others also added they have little to no expectations of support from the government. As a Savusavu trader said, “How would [the] government help us when they have no money themselves.” A Labasa fisher expressed that the struggle was personal − “We have to fight for our rights, we have high expectations from [the] government, but at last we have to struggle for ourselves.”

4. Discussion

The swift closing of its borders successfully averted a nation-wide health crisis in Fiji. However, as in other parts of the Pacific, Fiji’s economy is fragile and ill-equipped to respond to a sharp decline in multiple economic sectors resulting from the border remaining closed due to the COVID-19 pandemic–> (Gounder, 2020; Reserve Bank of Fiji, 2020a). SSF have not been immune to the impact of the global health crisis (Bennett et al., 2020), and with the exception of a few (e.g. Eriksson et al., 2020; Steenbergen et al., 2020; Aura et al., 2020; Campbell et al., 2021), there have not been in-country assessments of the impacts to this sector. Studies examining disruptions to food systems largely focus on either internal (i.e. national) or external (i.e. international) shocks (e.g. Gephart et al., 2016, 2017), but rarely consider how the two can act simultaneously to produce cascading impacts upon other sectors. Our study highlighted that Indo-Fijian SSF actors were vulnerable to the impacts of the COVID-19 pandemic, as well as to natural disasters such as highly destructive tropical cyclones and flooding. Their vulnerabilities are linked to impacts to livelihoods, reduced income, and increased food insecurity.

Indo-Fijian SSF actors remain vulnerable under the current crisis because many do not have access to social security or similar safety nets, and access to insurance systems for job loss or damages to fisheries infrastructure (Y. Nand, pers. comm.). Lack of ownership rights over land also prevents many from shifting to alternative livelihoods (e.g. farming), which would help absorb some of the economic and food impacts of the crisis. In exposing such vulnerability, the COVID-19 pandemic has also revealed how Indo-Fijian SSF actors experienced vulnerability differently from each other. Fishers and crew members were vulnerable because they are largely self-employed or engaged informally without employment contracts and therefore have weak labour protection and limited access to social security. Boat owners and traders were vulnerable because of greater (uninsured) financial and infrastructure investments in the SSF sector, and their income was highly dependent on fish sales. There were initial government COVID-19 relief and stimulus packages but they seemed to have been targeted towards small formal businesses, home gardeners in urban and peri-urban centres, farmers, and those with superannuation (IFIC, 2020; FAO, 2020b; Sherzad, 2020). There was however, no evidence to suggest (at the time of the surveys) that SSF actors benefited. COVID-19 responses to support the SSF sector appeared to be largely limited to the lifting of management measures put in place to improve already depleted fisheries. For example, in Fiji the early opening of the seasonal ban of groupers during their reproductive period (Sloan and Samuela, 2020) or the lifting of a national moratorium on the harvesting sea cucumber ban being debated (Rabonu, 2020), will undoubtedly have impacts on SSF actors with long-term investments in the sector. Increases in the number of fishers or fishing licenses to promote economic growth while markets are still constricted, could further reduce profit margins for Indo-Fijian SSF actors and their overall household income.

Of concern was that almost a fifth of Indo-Fijian SSF actors we interviewed did not have enough food for their families, and ranked food availability as their third highest stress. This contrasts with a parallel study that found that while most iTaukei villagers listed COVID-19 as a major recent event in their lives, the majority of respondents (92.3 %) stated they had “enough, more than enough or lots of food” available to them through their own gardens and customary fishing grounds.
Food insecurity among Indo-Fijian SSF actors stemmed largely from reduced earnings from fisheries livelihoods, particularly for those without alternative or secondary income, and with a high dependence on the local economy (i.e. seafood purchased by domestic consumers and the tourism sector). According to the Fiji Hotel and Tourism Association, 93% of hotels and resorts are closed (FAO, 2020b), with 29% of businesses predicted to go bankrupt by the end of 2020 (IFC, 2020). The loss of purchasing power to meet daily food and nutritional security needs is not unique to Fiji, and is impacting people all over the world, especially the poor, highlighting how fragile local food systems are to shocks and stresses (Barnett, 2011; Devereux et al., 2020; Farrell et al., 2020; Butler et al., 2020). Given the interconnectedness of food systems with other sectors (e.g. tourism in the case of Fiji), disruptions are likely to have a ‘ripple effect’ throughout value chains (Benét, 2020).

The majority of Indo-Fijians, including farmers and those in the fisheries sector, are some of the poorest in the country (Naidu et al., 2013). Indo-Fijians comprise the largest group of landless people in Fiji, with most of the SSF respondents interviewed living on leased or rented land, with limited education, resources and means to diversify or change livelihoods (Nand et al., 2021). Differential land-sea tenure rights, particularly around the access and use of land and sea resources have created complex relationships and power dynamics between the two main ethnic groups in Fiji (Naidu et al., 2013). These tenure arrangements have left Indo-Fijians vulnerable to multiple external stresses. Consequently, many would rather give good will payments to secure access to customary fishing grounds than refuse what is an outlawed practice (Reddy, 2019). These good will payments were highlighted by some respondents in our study as an ongoing financial stress during COVID-19.

During disasters those that are marginalised (and likely the most vulnerable) may not have a voice and can be missed during recovery efforts (Sovacool et al., 2018). Much of the support Indo-Fijian SSF actors wanted related to direct financial assistance and fisheries infrastructure (i.e. boats, gear, freezers). However, the findings from our survey suggest that Indo-Fijian SSF actors were resigned to the fact that the government would be unlikely able to help them due to funding shortage. The same respondents interviewed in a 2019 study raised concerns that their needs were not understood or prioritised, and there was little expectation of help from anyone (Nand et al., 2021). This form of apathy has been argued to be a ‘defining characteristic of vulnerability’ creating hopelessness about their future and can be debilitating (Barnett, 2020); it can also lead to loss of an individual or group’s identity and pessimism about their role and place in society—> (Nayak et al., 2014). This likely stems from the history of Indian-Fijians in Fiji, reinforced by political unrest (i.e. four political coups since 1987), and previous discriminatory policies that disadvantaged Indo-Fijians, and the belief that they have little power and influence over the political system (Naidu et al., 2013). Moving forward, there is an opportunity for government, NGOs and development agencies to address this apathy through inclusive aid and recovery packages.

![Fig. 4. Main types of assistance Indo-Fijian small-scale fisheries actors in Fiji would like from their government.](image)
aid is needed in the short-, medium- and long-term, it is important those decisions are open, transparent, and based on data where available. This requires descriptive studies to create a baseline for further explorations of vulnerability. Conceptualising vulnerabilities from an intersectionality lens is essential in framing recovery to avoid further marginalisation of certain groups of people (Erwin et al., 2021). One of the greatest challenges for countries is to simultaneously be planning for short- and long-term economic recovery. In the short-term, aid and recovery packages must be fair and inclusive (e.g. across gender, age, ethnic, social groups), and go to those who are the most vulnerable and/or marginalised. The effects of long-term and systemic marginalisation of groups has been brought to light by the global pandemic in many different countries (e.g. women’s livelihoods, United Nations (2020)). In the case of Fiji, this will require a closer look at the complex relationships among SSF actors and better considerations of institutional histories, as well as processes, transparency, and awareness of how government aid is allocated during and post global pandemics and natural disasters. In the long-term, there is a need for a coordinated and more strategic response that aims to transform existing institutions, supply chains, and food systems in ways that improve conditions and resilience of the SSF sector to future shocks (Bennett et al., 2020; Béné, 2020).

5. Conclusion

Understanding vulnerability is core to research into human adaptation to future stresses, including those exacerbated by climate change (Adger, 1999). Dealing with natural disasters amidst a global health pandemic is unchartered territory, requiring new approaches by policy and decision-makers to address the concurrent and accumulative impacts of multiple stressors (Aura et al., 2020; Gephart et al., 2016, 2017; Ishiwatari et al., 2020). Previous research has taught us that natural disasters may be “worsened by human factors such as mismanagement, underdevelopment, profiteering, neoliberal capitalism, and crisis politics” (Sovacool et al., 2018). This means countries, including Fiji, need to address ethical and social justice considerations and the politics of recovery efforts by putting vulnerable and marginalised groups front and centre in the aftermath of pandemics and natural disasters. What countries cannot afford is for economic recovery efforts to put additional burdens and risk on those invested in the SSF sector, and cause further widening of inequities, and increase food and economic insecurity. While the attention of the global community is focused on the immediate health crisis, cyclones Harold, Yasa (Category 5, made landfall on 17 December 2020) and Ana (Category 2, made landfall on 31 January 2021), were stark reminders for the Pacific that the existential threat of climate change has not gone away. The COVID-19 pandemic may simply be the ‘first wave’, especially if global climate change, biodiversity, and sustainable development goals and targets, and addressing inequities through an intersectional lens, are not seen as integral to economic recovery.

CRediT authorship contribution statement

Sangeeta Mangubhai: Conceptualization, Investigation, Methodology, Formal analysis, Validation, Visualization, Project administration, Writing - original draft, Writing - review & editing, Funding acquisition.
Yashika Nand: Conceptualization, Investigation, Methodology, Data curation, Formal analysis, Validation, Project administration, Writing - review & editing. Chinnamma Reddy: Investigation, Validation, Writing - review & editing. Arundhati Jagadish: Validation, Writing - original draft, Writing - review & editing.

Declaration of Competing Interest

The authors report no declarations of interest.

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Appendix A. Supplementary data

Supplementary material related to this article can be found in the online version, at doi: https://doi.org/10.1016/j.envsci.2021.03.003.

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