

Tonga: Farmers & MSME Demand Study Report



Author: The Pacific Insurance and Climate Adaptation Programme

The Pacific Insurance and Climate Adaptation Programme aims to improve the financial preparedness and resilience of Pacific Islanders towards climate change and natural hazards through the development and implementation of market-based meso- and microinsurance schemes. The programme will offer an option for the national and sub-national governments to consider subscribing to a 'macro to micro' scheme, where a government level insurance policy pays out to individuals, to support the most vulnerable segments. Fiji, Vanuatu, Tonga, Samoa, the Solomon Islands, Papua New Guinea, and other Pacific Small Island Developing States will be covered under the multi-year programme.

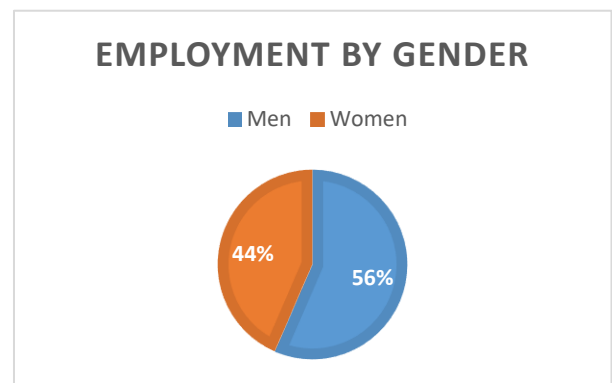
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1. Background:

The World Bank estimates Tonga's GDP and GDP Per Capita for the year 2019 as US\$512.35 million and US\$4,903.01 respectively¹. As of 2018, the island's working age population stood at 63,189 citizens comprising of 29,527 males and 33,662 females. The informal sector employed 46.8% of the working population. In terms of gender, men constituted a majority of 56.5% of the employed population whereas women constituted 43.5%. Slightly more than one-third (35.7%) are employed in the agriculture, forestry and fishery sector while 5.6% are employed in the accommodation and food services sector².

The world risk report ranks Tonga as the 3rd most disaster-prone country with a world risk index of 30.51 (for comparison, Germany was ranked 161st with a score 2.66³). A score closer to 0 indicates that a country is less exposed to natural hazards and less vulnerable to its societal impacts whereas a score approaching 100 indicates that the country is highly exposed to natural hazards and highly vulnerable to its societal impacts. The index is calculated using four indicators enumerated below.



1. **Exposure** to earthquakes, cyclones, floods, drought, and sea-level rise.
2. **Susceptibility** depending on infrastructure, food supply, and economic framework conditions.
3. **Coping capacities** depending on governance, health care, social and material security.
4. **Adaptive capacities** related to upcoming natural events, climate change, and other challenges.

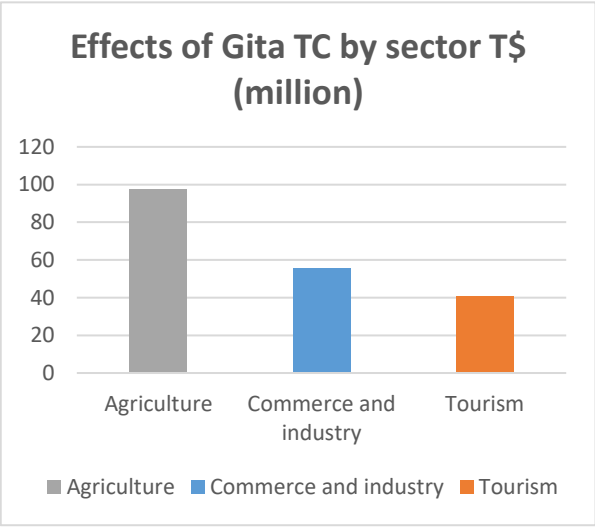
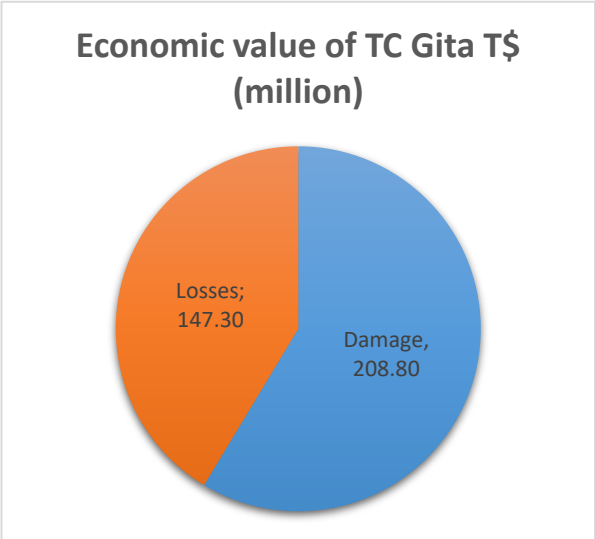
Tonga, like many other Pacific Island States, is prone to tropical cyclones which occur between the months of October and May with damaging winds, rains, and storm surges. The island's location along one segment of the Pacific ring of fire makes it prone to high magnitude earthquakes and tsunamis. The island has been impacted

¹ World Bank (2021). *World Development Indicators*
<https://databank.worldbank.org/reports.aspx?source=2&country=TON>

² Tonga Statistical Department (2018). *Labour force survey*
<https://tongastats.gov.to/survey/labour-force-survey/>

³ Aleksandrova et al. (2021). *World Risk Report*
<https://reliefweb.int/sites/reliefweb.int/files/resources/2021-world-risk-report.pdf>

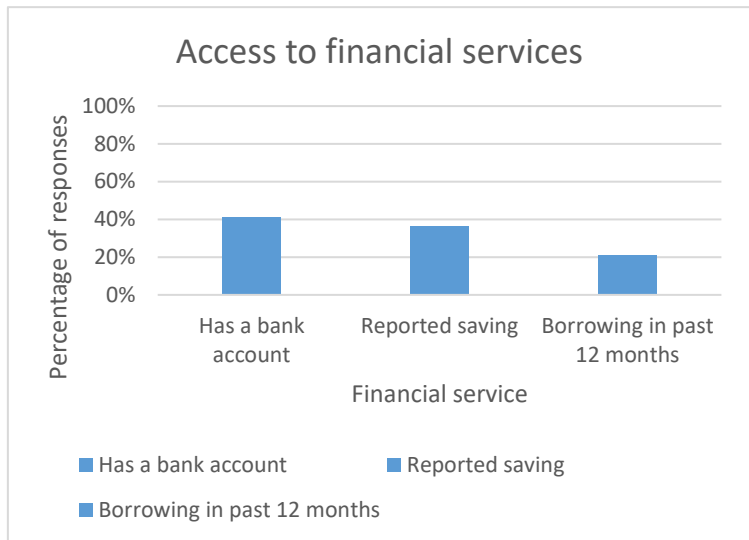
by seven tropical cyclones (TC) between 2011 and 2020 including TC Winston in 2016, TC Gita in 2018 which was the strongest to hit the country and TC Harold in 2020. The total economic value of the effects of the strongest tropical cyclone to hit the island state, TC Gita, was estimated to be approximately T\$ 356.1 million (US\$164.1 million) representing 37.8% of the island state’s GDP for the year 2017. Out of this value, T\$ 208.8 million (US\$ 96.2 million) was attributed to damage whereas T\$ 147.3 million (US\$ 67.9 million) was attributed to losses. In relation to the effects on the productive sectors, the agricultural sector suffered the greatest losses (estimated T\$ 97.48 million or US\$44.92 million), followed by commerce and industry and the tourism sector with losses being estimated at T\$ 55.27 million (US\$ 25.47 million) and T\$ 40.60 million (US\$19.33 million), respectively⁴. In addition to tropical cyclones, the country has witnessed Richter-scale earthquakes in the years 1977 and 2009⁵. In monetary terms, the country is expected to incur on average USD 15.5 million of losses per year from earthquakes and tropical cyclones. The island has a 50% chance of experiencing losses of USD 175 million with about 440 casualties in 50 years and a 10% chance of experiencing losses of USD 430 million and casualties larger than 1,700 people in the same period⁶.



In terms of access to financial services, a 2015 demand side survey by the National Reserve Bank of Tonga indicated that 41% of adult Tongans are banked with 36% of them having reported saving and 21% of them having reported borrowing in the past 12 months. An equal percentage of 41% men and women reported having

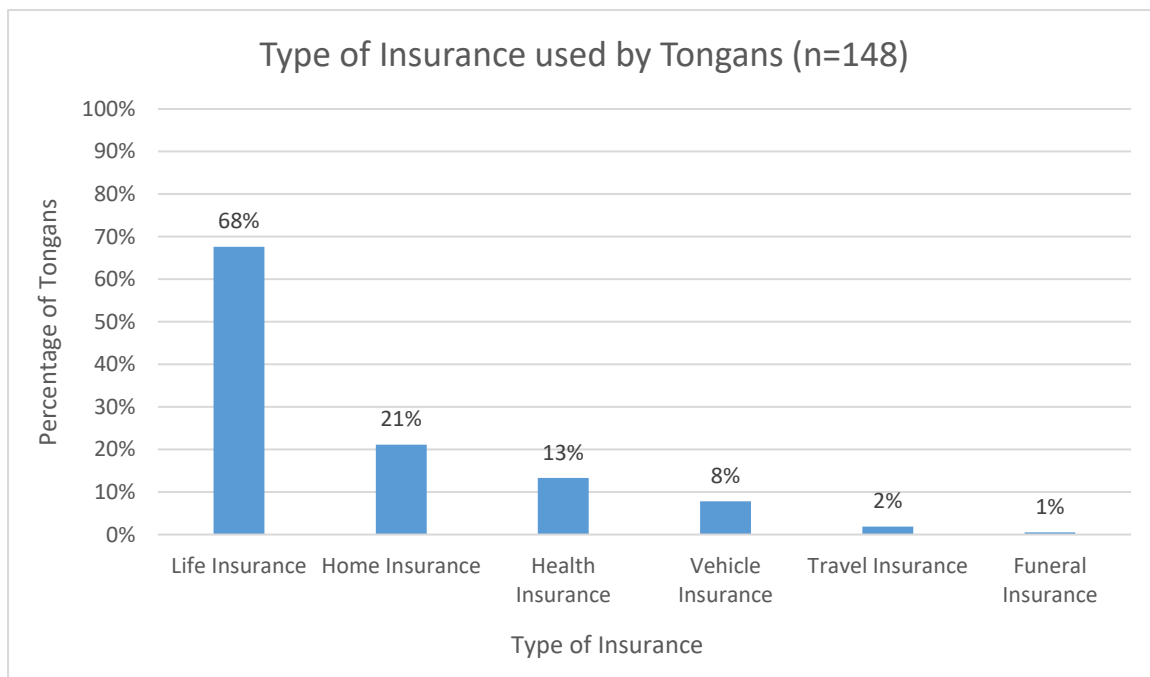
⁴ Government of Tonga (2018). Post Disaster Risk Assessment, Tropical Cyclone Gita <https://www.gfdr.org/en/publication/post-disaster-rapid-assessment-tonga>
⁵ PCRAFI (2011). Country Risk Profile: Tonga <https://www.gfdr.org/en/publication/country-risk-profile-tonga>
⁶ (ibid.4)

bank accounts. A majority (70% of Tongans) reported receiving remittances in the past 12 months. The percentage of Tongans who reported using mobile money services was 10%. About a quarter (22%) of the population does not know what insurance is.



Almost 90% of respondents in the Demand Side Survey reported not having insurance. Of the 13% that reported having insurance

a majority (67.6%) indicated having life insurance products, 21.1% had home insurance, 13.3% had health insurance, 7.8% had vehicle insurance, 1.9% had travel insurance and 0.5% had funeral insurance products⁷. It should be noted that a substantial number of women (34%) are excluded from both formal and informal financial services⁸.



⁷ National Reserve Bank of Tonga (2016). Financial Services Demand Side Survey Tonga <http://www.pfip.org/wp-content/uploads/2017/08/TONGA-DSS-REPORT-LOWRES-FINAL.pdf>

⁸ (ibid. 8)

Key Findings for Farmers

% of Participants	Tongatapu Farmers	Tongatapu Handicraft	Ha'apai	Vava'u
Women interviewees	65%	100%	52%	55%
Owners of farms	70%	NA	100%	67%
Day laborers	NA	NA	0%	33%
Only source of income is farming	67%	47%	76%	70%
Percentage of produce sold on retail market	80%	47%	52%	30%
Hazards & Damages				
Impacted by hurricanes	52%	47%	76%	45%
Impacted by extreme rainfall with associated flooding	26%	53%	24%	18%
Impacted by drought	9%	NA	0%	33%
Impacted by earthquakes economically	28%	NA	76%	33%
Financial Services & Financial Risk Management				
Have bank account	93%	53%	100%	82%
Use community or informal saving services	50%	100%	100%	30.3%
Use mobile phones	98%	100%	100%	100%
Use mobile money	41%	53%	48%	28%
Preference for insurance only to manage impact of natural hazards	22%	47%	28%	12%
Preference for a combination of savings, loans, and insurance to manage impact of natural hazards	2%	53%	24%	15%
Product Preferences				
Prefer cheaper product covering key risks	52%	47.06%	51.73%	48.48%
Prefer more expensive product covering variety of risks	46%	53%	24%	52%
Have life or health insurance	22%	0%	0%	18%
Interested in product which bundles life or health with natural risks	96%	100%	100%	88%
Prefer to buy insurance via farmer association or cooperative	52%	NA	28%	55%

Key Findings for MSMEs

Variable	Vava'u	Ha'apai (Informal Market Vendors)	Ha'apai (Others)
MSME registered	100%	0%	100%
Engaged in retail business	100%	100%	60%
Had turnover of less than T\$ 50,000	100%	100%	100%
Could allocate less than T\$ 5,000 on average into savings or investments between 2018 to 2020	100%	100%	100%
Irregular economic cycles	100%	100%	100%
At least 1 female employee	100%	100%	100%
MSME has full-time workers	0%	100%	100%
MSME has part-time workers	100%	0%	0%
Hazards & Damages			
Impacted by hurricanes	100%	100%	100%
Impacted by drought	100%	100%	100%
Experienced 2-month loss of business time	0%	100%	0%
Experienced 3-month loss of business time	0%	0%	100%
Experienced 4-month loss of business time	100%	0%	0%
Recovery time less than 2 months	0%	100%	60%
Recovery time less than 3 months	0%	0%	40%
Recovery time less than 6 months	100%	0%	0%
Financial services & Financial risk management			
Transacted business in cash	100%	100%	100%
Transacted business through bank account	100%	0%	0%
Provided support for employees after natural hazard events	0%	0%	60%
Access to informal lending	0%	100%	100%
Use of insurance products	0%	0%	0%
Access to mobile money and other digital financial services	0%	0%	0%
Savings as a coping mechanism	0%	0%	0%
Government support as a coping mechanism	0%	100%	100%
Loans as a coping mechanism	100%	0%	0%

Preference for loans as a coping mechanism	100%	100%	100%
Product Preferences			
Cheaper product covering key perils	0%	100%	0%
More expensive product covering variety of perils	100%	0%	100%
Bundled with health and life insurance	100%	100%	100%
Desire for mutual scheme to protect against basis risk	100%	0%	0%
Differentiated coverage plans for employees	100%	0%	100%

2. Survey Methodology and Participants:

Farmers

The survey was conducted among farmers and fishers (many people doing both activities) located in three administrative locations of Tonga, namely Ha’apai, Vava’u and Tongatapu. A total of 108 persons participated in the survey comprising of 29 persons located at Ha’apai and 33 farmers located in Vava’u and 46 from Tongatapu. There were additionally 17 community handicraft workers from Tongatapu that also took place in the survey.

An informal approach was used in the form of focus group discussions to ensure farmers felt comfortable and gave honest answers. The UNCDF team was accompanied by a dedicated team from the farmers’ cooperative who had informed the farming and fishing communities in Tongatapu, Ha’apai and Vava’u of UNCDF’s arrival date and time.

The discussions were held in groups numbering either 7 or 8 in Ha’apai, between 4 and 7 for the groups in Vava’u, between 1 and 7 for the Tongatapu farmers and two groups of 8 and 9 for the handicraft workers. The Ha’apai farmers’ income sources are from a variety of activities, including fishing, farming root crops like kumara, yams, cassava and taro, pandanus and fau leaves farming, weaving, catering, handicrafts, livestock, construction and manufacturing. In the case of Vava’u, the participants engaged in the following activities: pearl farming, root crops, vanilla and kava farming as well as rearing livestock including cattle, pigs, chickens and horses. Other additional income sources of the Vava’u farmers included weaving mats, driving taxis, relying on spousal income and remittances and making handicrafts. For the Tongatapu farmers, they reported growing yams, tapioca, taro, watermelon, giant taro and plantain, as well as some of the members indicating that they

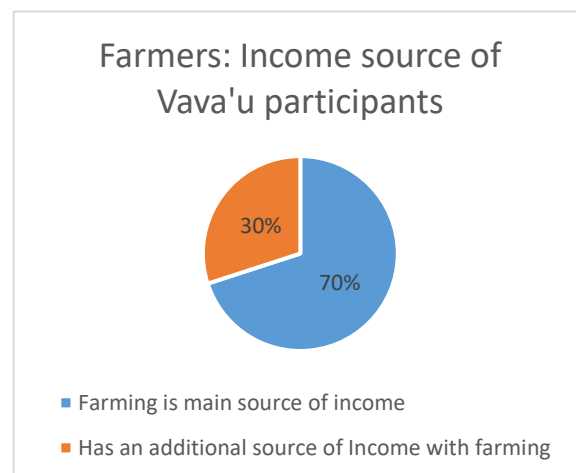
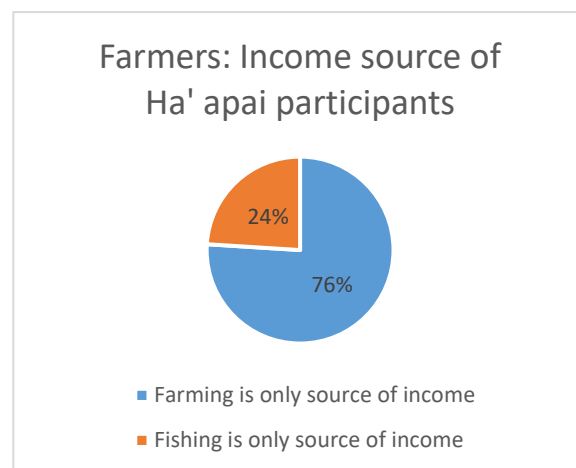
engage in handicraft activities and some fishing as well. Other income sources of Tongatapu handicraft workers are, selling wares at the flea market (47%) and weaving & packing squash when in season, knitting waist mats and peeling tapioca for export.

In terms of the gender distribution of the participants in the survey, there were 14 males and 15 females (52% female) in Ha’apai with Vava’u having 15 males and 18 females (56% female). For the Tongatapu farmers group, 16 of the interviewees were male and 30 were female, (65%). All of the respondents of Tongatapu community handicraft workers were women (100%)

All the participants located at Ha’apai indicated that they owned their farms. In Vava’u on the other hand, all the pearl farmers (33%) indicated that they were laborers on farms, while the remaining farmers in Vava’u owned their farms. There were 70% of the Tongatapu farmers who owned a farm and 17% of the sample were allotted farmers while 13% worked as laborers. The question was not relevant to the handicraft worker group of Tongatapu.

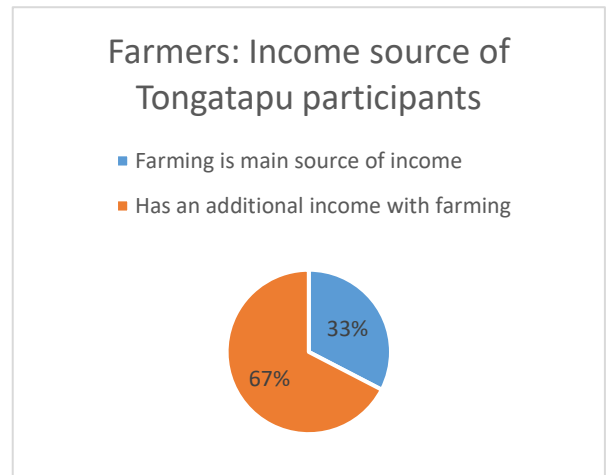
Answering the question of whether farming is the only source of income, 76% of the Ha’apai participants indicated that farming was their only source of income. The remaining 24% indicated that fishing was their only source of income except when there were operational costs. In the case of Vava’u, 70% of participants indicated that they got all their income from farming whereas the remaining 30% (primarily kava and animal farmers) indicated receiving less than half of their income from farming (factors like operational cost, natural hazards, and theft has caused these farmers to pursue additional income sources).

From the group of Tongatapu farmers, 39% are involved in seasonal work other than farming such as seasonal work overseas, intermittent flea sales, processing of fresh produce, weaving & packing squash mats in the season, knitting of waist mats and peeling of tapioca for export. There were 12 government employees (26%) who obtained 40%-50% of their income from government employment and only one from the sample has the main source of income from fishing. For the handicraft workers, 47% get all of their income from handicraft sales.



Other activities of the handicraft workers include weaving & packing squash when in season, knitting waist mats, and peeling tapioca for export.

The participants in Ha'apai were split regarding what percentage of the average farmer's produce would be sold in the retail market: 52% indicated the average farmer sells all of his or her produce, while the rest indicated the average farmer sells most of his or her produce. In the case of Vava'u, 30% of the participants indicated that the average farmer from the region would sell 100% of his or her produce in the retail market. A majority (52%) of the participants from the administrative division indicated that the average farmer would sell more than 50% of their



farm produce in the retail market. The remaining 18.18% indicated that the average farmer in Vava'u would sell half of his or her produce in the retail market and export the rest. From the farmer group of Tongatapu, 80% of the respondents sell all of their products to the retail market and 20% of them only sell more than 60% of the produce in the retail market. Of the community handicraft group of Tongatapu 49% sell 100% of their produce on the retail market.

There were varied responses when the interviewees in Ha'apai were asked when they were typically paid. Those that indicated working a lot in the fishing sector (24% of the group) indicated that they made daily cash sales usually 4 days per week. A little over a quarter (28%) of the participants stated that they made local cash sales and anything in excess is for their consumption. The pandanus and fau leaves farmers in Ha'apai indicated that they made daily cash sales at the market. The remaining participants indicated that it depends on what they are farming which could range about 1 year for taro, 9 months for cassava, 6 months for yams, and 4 months for watermelon and kumara. Likewise, the interviewees in Vava'u had varied responses. The pearl farmers within the region indicated that they made cash sales for local sales and telegraphic transfers through bank accounts for export sales. The farmers who deal in root crops made daily cash sales at the market. The animal farmers in Vava'u made a combination of daily cash sales, mobile money transfers and bank transfers and the remaining kava farmers made only cash sales. Of the Tongatapu farmers group, 61% of farmers get paid at the point of sale as cash while 22% get paid as daily cash. There was only one respondent (2%) who reported that he paid twice-weekly cash sales at the market. The farmers who export their produce get part of their payment upfront

while the rest get paid once goods are received overseas. There were 15% respondents involved in the export market. This information was not recorded with the survey conducted for Tongatapu handicraft workers.

MSMEs

The Micro, Small and Medium Enterprises (MSME) survey was undertaken in two administrative divisions of Tonga, Vava'u and Ha'apai. There were a total of 18 enterprises which were selected to be part of this survey. The majority of MSMEs, 11 enterprises comprising 5 informal market vendors and 6 enterprises engaged in retail, accommodation and a restaurant, were in Ha'apai while the remaining 7 in Vava'u were engaged in retail businesses. This information was not collected for the Tongatapu farmers and community handicraft workers.

The UNCDF team collected individual responses from each MSME in Ha'apai where they were categorized into two groups, the informal market vendors and the other MSMEs. The representatives were given a brief introduction to the Pacific Insurance and Climate Adaptation Programme and the intended product that this study aims to help develop in the future. The representatives of all the MSMEs stated that they were sole traders and had women as part of their management team.

The founding years of MSMEs in Vava'u ranged between 1999 and 2017 with 4 out of the 7 enterprises being officially registered. In the case of MSMEs located in Ha'apai, their founding years ranged between 2000 and 2019 with 5 out of the 11 officially registered. All enterprises in Ha'apai had more than one branch office with a majority, 7 of them having their main area of operation and main offices located in Pangai. All the enterprises in Vava'u had only 1 office with 3 of them located in Neiafu. All the representatives of the MSMEs in Vava'u answered that the main purpose for setting up the enterprises was to sustain the family and to meet obligations of the church and the community. Their counterparts in Ha'apai indicated that the purpose was to sustain the family only.

In terms of the operations of the MSMEs, all surveyed enterprises indicated a turnover of less than T\$ 50,000 (USD 21,931.22). All enterprises surveyed also indicated that they were able to allocate on average less than T\$ 5,000 (USD 2,193.12) into savings or investments for the business between the years 2018 and 2020. All enterprises also considered their economic cycles in terms of production, sales, or investment cycles as irregular.

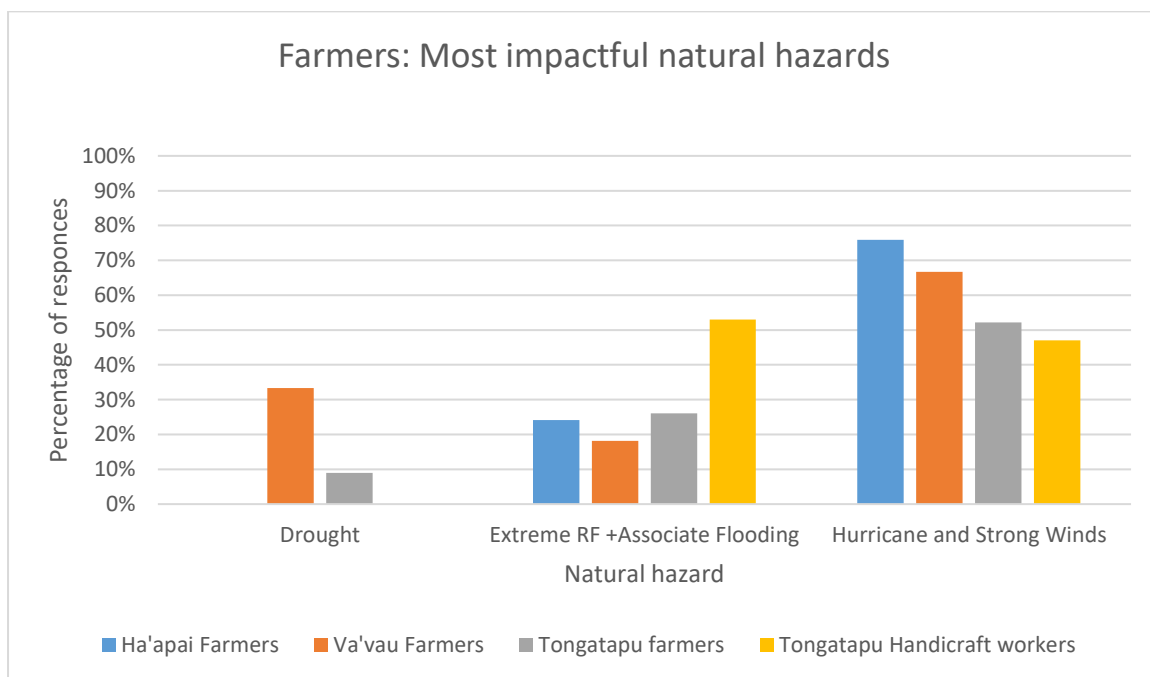
In relation to staffing, the MSMEs in Vava'u had a staff strength between 2 and 5 part-time workers. The informal market vendors in Ha'apai had a staff strength below 3 workers, whereas the other enterprises in Ha'apai indicated having a staff strength of between 2 and 5 workers. All the staff in Ha'apai were all full-time workers. All the staff working for the surveyed MSMEs in Vava'u were female and lived in Vava'u while those working in

Ha’apai lived in Pangai. Also, the informal market vendors in Ha’apai employed 1 female staff same as the other MSMEs in Ha’apai except for the restaurant which had 4 and another enterprise which had 2. The ages of the employees of enterprises found in Ha’apai ranged between 20 and 58 years and employees found in Vava’u ranged between 25 and 40 years. In terms of interaction with employees of the MSMEs, all representatives of enterprises in Ha’apai indicated that they met their employees daily and communicated with them via telephone. Those in Vava’u indicated that they met their employees once a week and communicated with them via telephone.

3. Hazards and Damages

Farmers

The most common natural hazard affecting farmers in Ha’apai is hurricanes with a majority of 76% of interviewees indicating that hurricanes and strong winds have the most impact on productivity of crop farmers in the region. Close to one-third of the 76% of respondents indicated that when there is a hurricane it ruins the quality of trees and leaves. The remaining 24% of interviewees from Ha’apai indicated that extreme rainfall with associated flooding has the most impact on productivity of farmers in the division. A majority (67%) of farmers interviewed from Vava’u also indicated hurricanes and strong winds as the natural hazard with the most impact on productivity of farmers in the division.



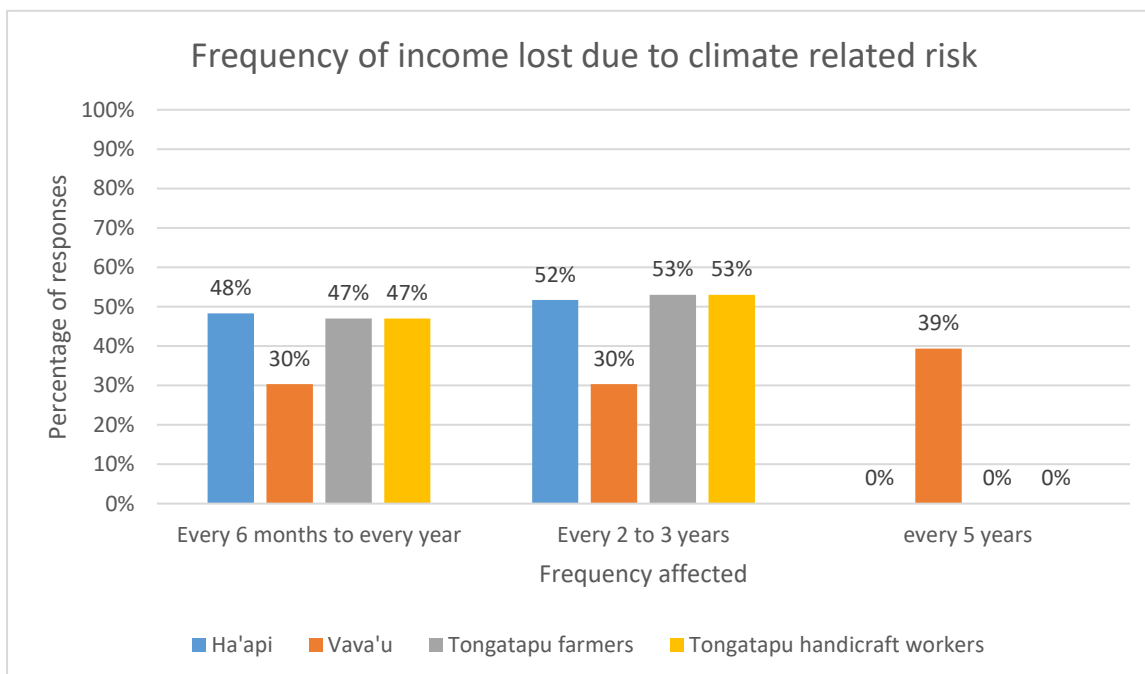
About 67% of participants specifically stated that hurricanes with rough tides are the most impactful natural hazard. A significant number of respondents from Vava'u indicated strong winds, heavy rains and drought as the most impactful natural hazard. An additional 18% of the respondents indicated extreme rainfall and associated flooding as the most impactful natural hazard. The remaining 15% of participants indicated that the most impactful natural hazards for farmers is drought and strong winds with that of fishers being strong winds. For the group of farmers from Tongatapu, most common natural hazard was the hurricane with majority of 52% of interviewees indicating that hurricanes and cyclones has most impact on crop productivity of the farmers in the region. About a quarter (26%) of respondents reported that their crop productivity was affected by extreme rainfalls floods and associated weather events and 9% mentioned the crop losses due to drought. For Tongatapu handicraft workers, group extreme rainfall and associated flooding, as reported by 53% of participants and cyclones with heavy rain, as reported by 47% of participants, are the most common natural hazards affecting group productivity.

The participants were further asked whether earthquakes have ever had a significant impact on the economic well-being of the people in the area. From Ha'apai the fishers affirmed stating that they are not able to go fishing after a natural hazard. A group of farmers also agreed suggesting that after the earthquake in 2006, the tides did not go as low as was expected. Consequently, they lost their pandanus leaves which were soaked at sea to high tides. The remaining root crop farmers indicated that earthquakes do not have an economic impact on their farming. The farmers in Vava'u had varying experiences. The pearl farmers agreed to have been impacted economically by earthquakes. They stated that when earthquakes are strong, it causes the oysters to fall off the lines. Another group of pearl farmers in Vava'u indicated that they were impacted economically when an earthquake causes a tsunami. The group of farmers who farmed root crops responded negatively to being affected economically by earthquakes. The animal and kava farmers also had a similar experience as the root crop farmers but suggested that the earthquakes they experienced were not major earthquakes. Farmer group from Tongatapu also mentioned that they were significantly affected by earthquakes. The response to this question from the handicraft workers group of Tongatapu was that they did not have substantial impact on their well-being because they do not harm the natural resources essential for their activity in the same way as heavy rain and cyclones do.

The participants in Ha'apai were asked whether their vulnerability to natural hazards was differentiated based on their earnings. The responses to this question showed a trend where the participants agreed that those with lower incomes were more vulnerable to natural hazards compared to those with high incomes. A similar trend was witnessed among the participants from Vava'u. They additionally noted that the more diversified the source

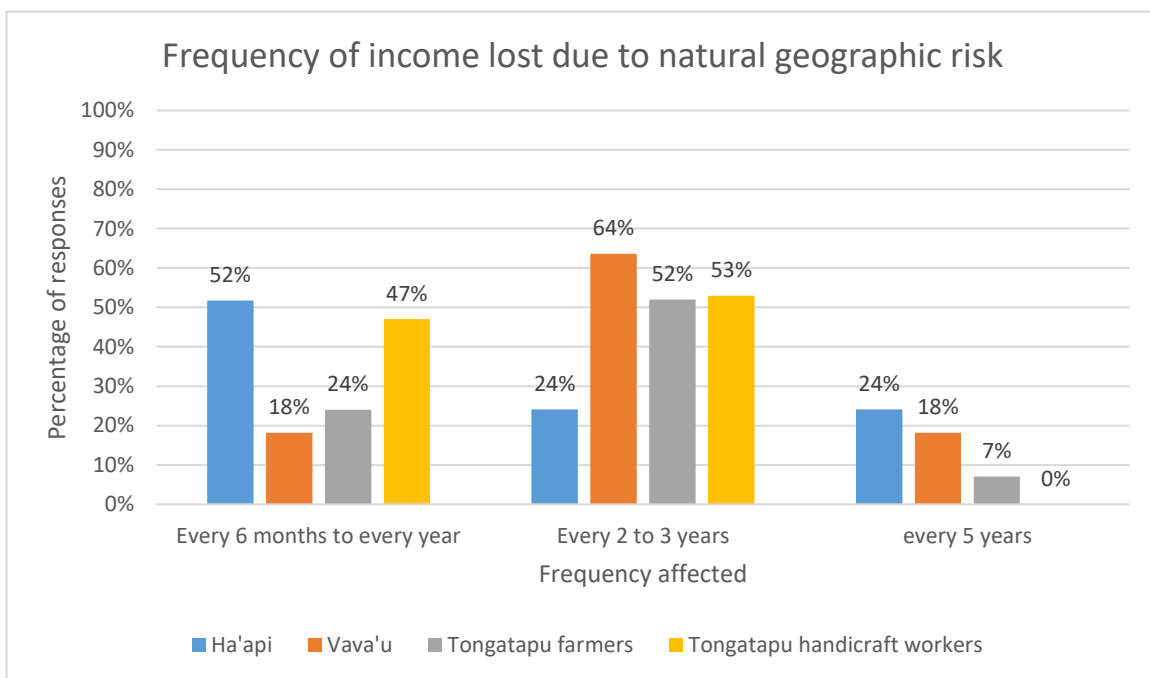
of income of the farmer, the less risky it is. From the farmer group of Tongatapu, slightly different answers were reported, where half of the respondents mentioned that farmers with low income are more vulnerable to both hazards and 28% of respondents mentioned that farmers with high income are more vulnerable as they sometimes export and their market may be impacted if they are not able to supply or meet demands. The other respondents mentioned that both high-income farmers and lower-income farmers are affected the same way because their main source of income is farming.

As for the Handicraft group, extreme rainfall and associated flooding, as reported by 53% of participants and cyclones with heavy rain, as reported by 47% of participants, are the most common natural hazards affecting group productivity. When asked how much of an average member's annual income would be lost due to extreme rainfall and associated flooding, 9 out of 17 participants (53%) agreed that about 80% of income would be lost at least twice a year, while the remaining 8 participants agreed that 70% of income would be lost



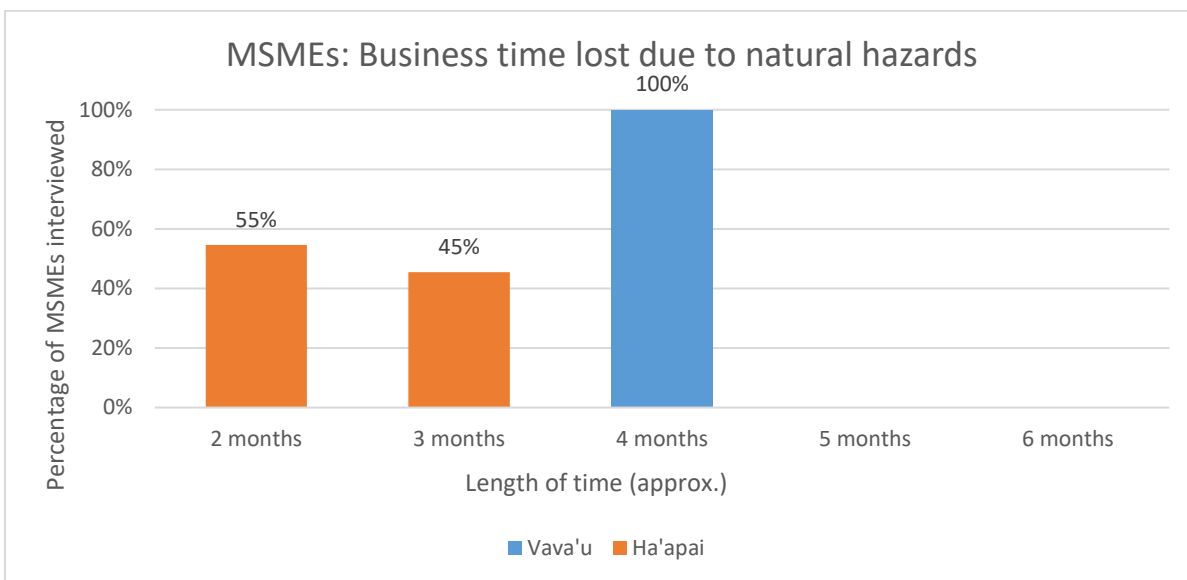
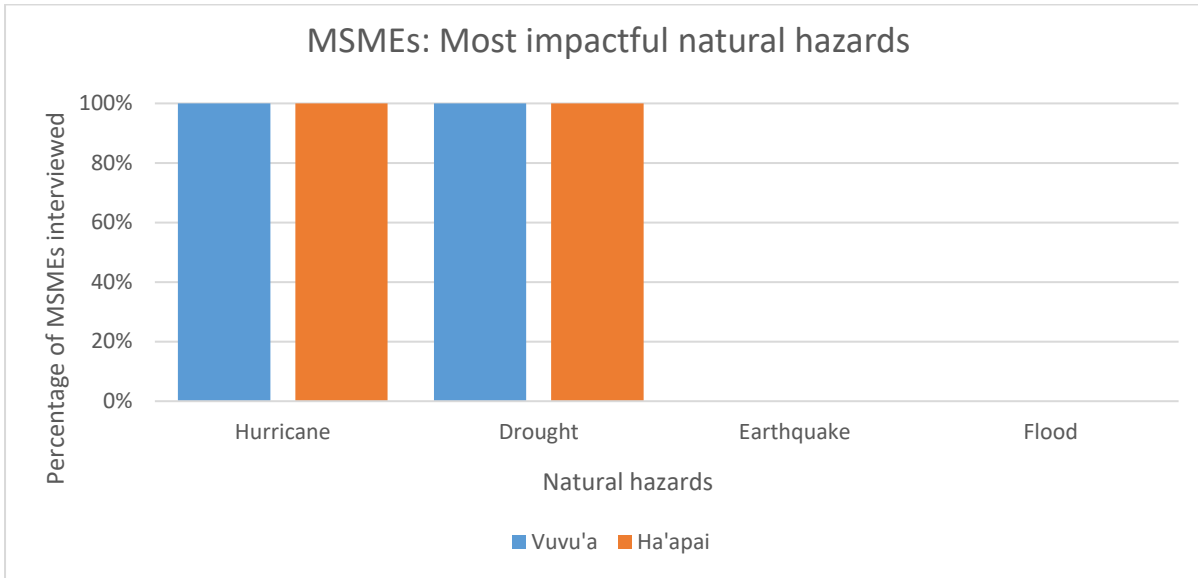
occasionally once a year. Concerning the second most-rated hazard; cyclones and heavy rain, 53% of respondents claimed that approximately 60% of income is lost once or twice a year, while the remaining 47% feel that approximately 40% of revenue is lost once or twice a year. When asked about earthquakes, all participants stated that earthquakes had no substantial impact on their well-being because they do not harm the natural resources essential for their activity in the same way as heavy rain and cyclones do.

The farmers in Ha’apai stated that a farmer in the region would lose 100% of their income on average 4 months in the year from climate related risks and 80% of the income in 5 years from earthquakes. The root crop farmers indicated 50% of their income is lost to climate related risks yearly, whereas 40% of their income is lost to earthquakes biennially. The remaining farmers in Ha’apai indicated losing incomes amounting to thousands to climate related risks yearly and hundreds to earthquakes yearly. In the case of Vava’u, the first group of pearl farmers indicated that they lost 80% of the income to climate related risks every 5 years and 30% of their income to earthquakes every 10 years. The second group of pearl farmers lost between 100% and 80% of the income to climate related risk and earthquakes every 2 years respectively. The first group of root crop farmers in Vava’u lost 80% and 60% through climate related risk and earthquakes every 2 years respectively. The second group of these farmers lost about 80% of their income to climate related risks at least twice a year and about 60% of their income to earthquakes once annually or once biennially. The animal farmers in Vava’u lost 70% of their income to climate related risks or 20% of their income to earthquakes every 5 years. Lastly, the kava farmers lost 50% of their income annually to climate related risks and 50% of their income biennially to earthquakes. The



Tongatapu farmers reported a wide variety of answers, ranging from 50% every two years to 100% yearly. For the handcraft workers, 47% percent they would lose 70% of their income twice a year and 53% would lose 80% at least twice a year.

MSMEs



The most common hazards impacting MSMEs in both locations in Tonga are hurricane and drought with all MSMEs interviewed in Vava'u and Ha'apai indicating that they were impacted by these hazards in the last 10 years. None of the interviewed MSMEs indicated any other natural hazards.

With regards to how frequently the businesses are affected by these hazards, all MSMEs in Vava'u indicated that it depends on the hurricane season which is experienced twice every year. The MSMEs located at Ha'apai on the other hand indicated that they experienced these events once in every three years. When these hazards occur, all informal market vendors in Ha'apai representing a majority 55% indicated that they had to shut down for approximately 2 months while the other MSMEs in Ha'apai representing 45.45% indicated that they had to shut down for approximately 3 months. All the MSMEs in Vava'u indicated that they shut down for approximately 4

months. All MSMEs in both administrative divisions stated that they experienced either damage to their office buildings or assets by these natural hazards. All MSMEs in Vava'u indicated that it took them 6 months to recover and return to normal operations after a natural hazard event. A minority, 2 out of 11 MSMEs in Ha'apai indicated that it took them 3 months to return to normal operations whereas the remaining 9 indicated that it took them 2 months to return to normal operations. Data was not gathered from Tongatapu for MSMEs.

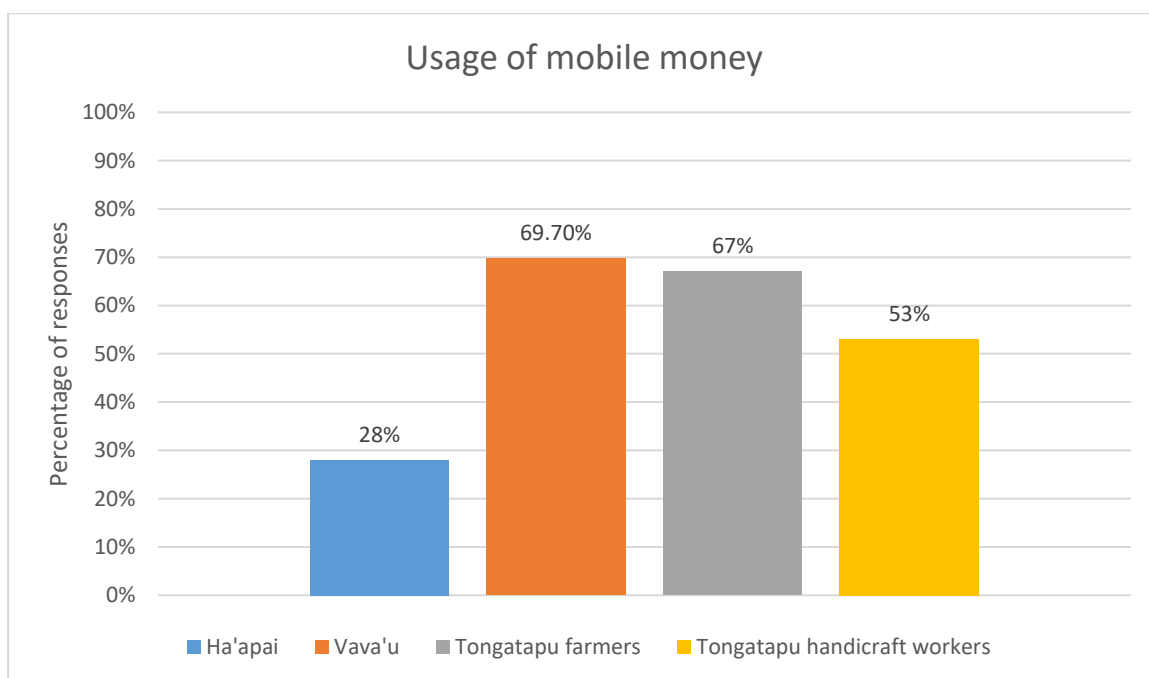
4. Financial Services and Financial Risk Management

Farmers

This section analyses the responses to questions related to access to affordable financial products and services, coping mechanisms as well as the funding needs after natural hazards events of farmers and fishers and handicraft workers from Ha'apai, Vava'u and Tongatapu. .

All the participants in Ha'apai indicated that they use formal savings accounts with banks in Tonga. Out of this number, all of them indicated that they commonly used the savings account with the Tonga Development Bank (TDB). A majority (52%) of them indicated that they commonly used the savings account with Bank of South Pacific (BSP). All farmers in Vava'u except for those that farm root crops indicated that they operated formal savings accounts. They indicated that some farmers use formal savings accounts, and others do not. An equal number of farmers representing 55% of all farmers interviewed from Vava'u stated that they commonly used savings bank accounts with Tonga Development Bank (TDB) and Bank of South Pacific (BSP). A group of pearl farmers and kava farmers from the division representing 27% of all farmers indicated that they commonly used bank accounts with MNF Bank. There were 93% of the Tongatapu farmers indicated that they use formal savings accounts with banks in Tonga while 6.5% of respondents had never used a formal savings account. Of the people who have a formal savings account, 86% of respondents used the savings account with the (TDB). There was one respondent from the sample who used a common savings account with the Bank of South Pacific (BSP). For the group of handicraft workers from Tongatapu, they only have access to savings, rather than any other form of informal lending. All the respondents agreed that some people use formal savings accounts while others do not, and the majority of those that use, have their savings account with Tonga Development Bank.

The participants in Ha’apai were then asked whether farmers typically use community banking or informal saving services. The participants in Ha’apai who actively use fishing as a source of income agreed and noted that they saved at home. Another group of farmers indicated that there are community savings schemes typically used by the farmers. The pandanus and fau leaves farmers indicated that they contributed to small group savings and the remaining root crop farmers agreed and noted that there are informal savings services in every village in Ha’apai. In the case of participants in Vava’u, close to half who were pearl and root crop farmers stated that they do not typically use any community savings and informal savings services. The remaining participants indicated that they typically used community savings or informal savings services which were common in every village. Half of the respondents from the farmer group of Tongatapu also indicate that they use types of services such as community-based savings with women, village base community-saving organizations, and groups are set up for savings purposes and most of the respondents (43%) mentioned that their deposits are withdrawn before Christmas. A similar trend was witnessed among the participants from handicraft worker group which used informal savings operated within the group; members meet every Saturday to deposit “shares” and these shares are withdrawn just before Christmas.

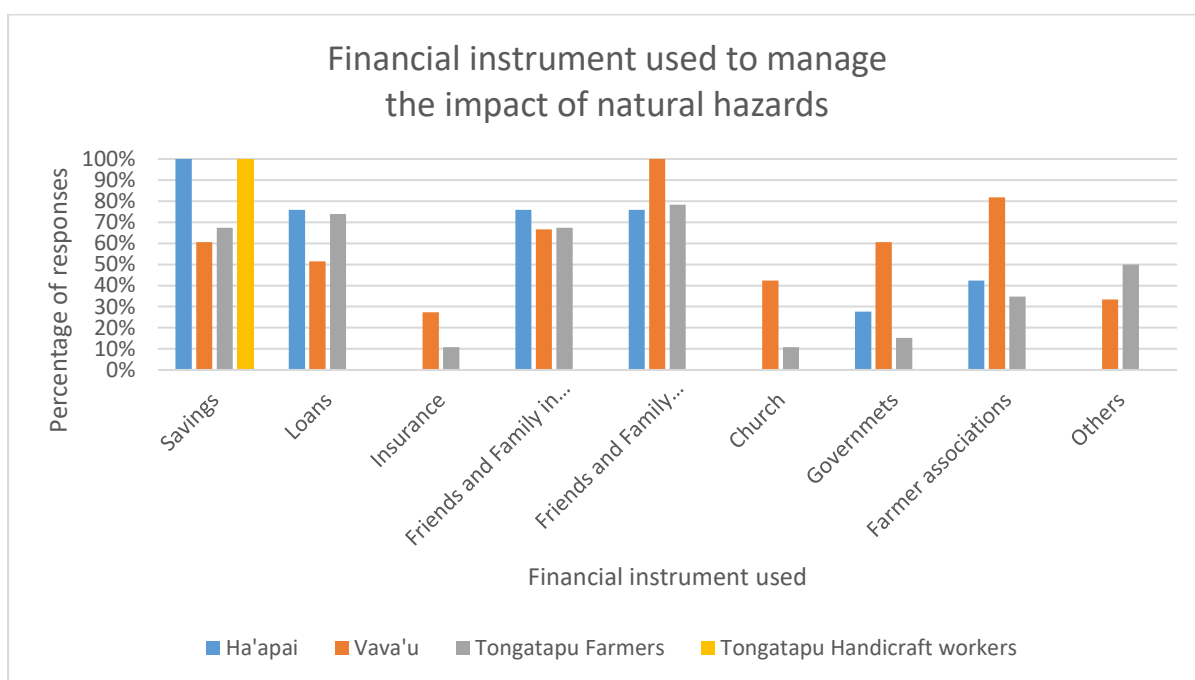


There was a high mobile phone usage among the interviewees from three regions indicating that they had mobile phones. Though there was high mobile phone usage among the farmers in Ha’apai. On the contrary majority representing 72%, did not have mobile money accounts. The remaining 28% who had mobile money accounts typically used it for trading because it was fast. About half of all participants in Vava’u had mobile money accounts with 30.30% indicating that they did not have mobile money accounts and the remaining 21% stated that some farmers had mobile money accounts and others did not have because their mobile service

provider did not offer that service. There were only one from the sample from Tongatapu farmers who did not use a mobile phone. There were 67% of the respondents who mentioned that they use mobile money.

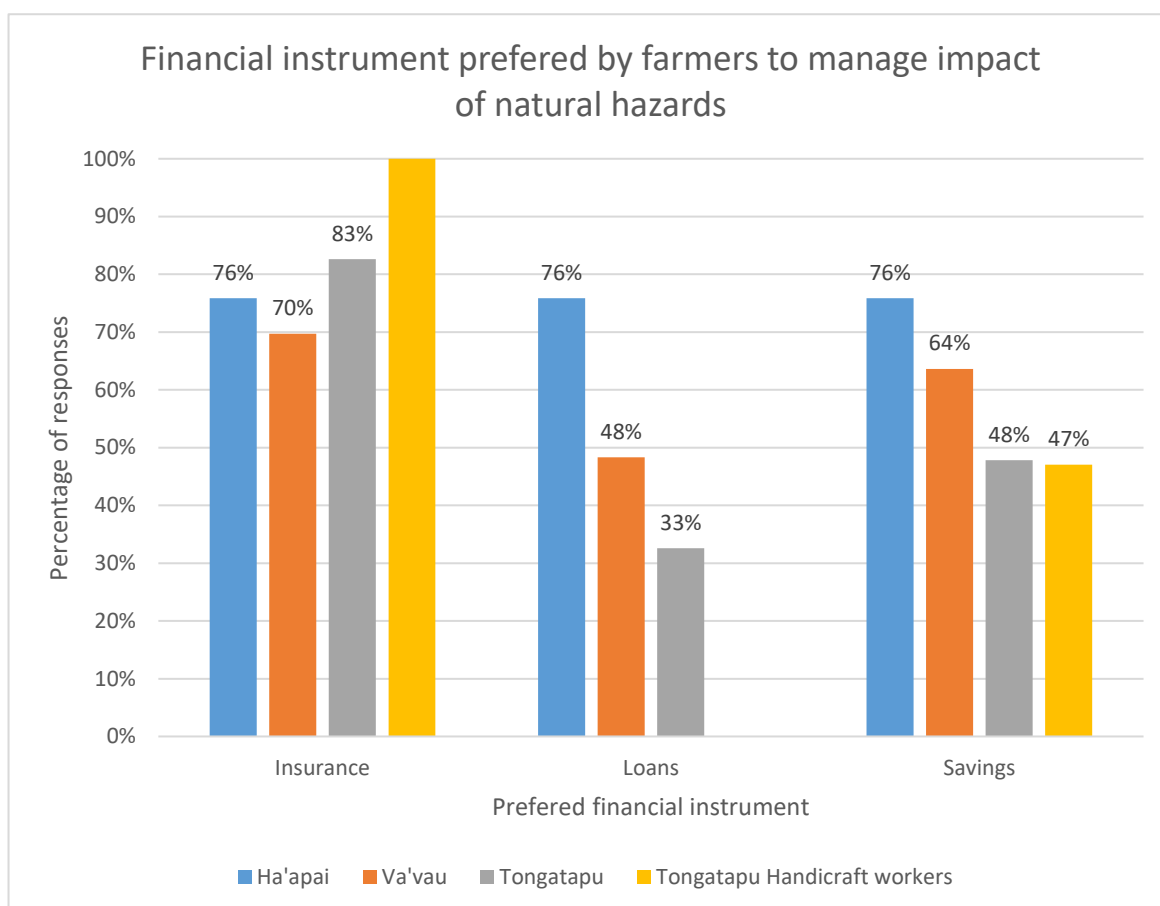
From the group of handicraft workers of Tongatapu, the majority of respondents (53%) agreed that members in this business typically have mobile money, while the rest indicated that only some have mobile money, not all.

More than half of the participants in Vava'u also noted that they used mobile money services when receiving remittances from family overseas with a minority using it to make payments for goods sold. Out of 46 farmers of Tongatapu, the majority of the respondents used mobile money to receive money from overseas which was reported as 63% and there were 4% of respondents used mobile money for savings. Handicraft workers also use mobile money for a similar purpose.



The most used financial instruments by participants in Ha'apai for coping with impacts of natural hazards are savings, loans and financial help from family and friends from Tonga and financial help from family and friends from abroad. The majority of participants from Ha'apai indicated that they sometimes or always use their savings. About three-fourths of them also indicated using loans. Many of the participants always or sometimes depend on financial help from family and friends in Tonga and abroad. None of the participants from Ha'apai, however, indicated using insurance as a coping mechanism. The financial instruments used mostly by farmers in Vava'u are financial help from family and friends from abroad, savings, farmer associations, and loans. All interviewees agreed using financial help from family and friends abroad to manage the impacts of natural

hazards. About two-thirds of the participants indicated managing impacts of natural hazards with financial help from family and friends living in Tonga. Others also managed the impacts with their savings, assistance from farmer associations and loans. With regards to the use of insurance to cope with natural hazards, most of the participants did not use insurance to manage their impacts. However, one group of pearl farmers and kava farmers indicated using insurance to manage their impacts. A similar pattern is also shown by farmers from Tongatapu for the coping mechanism. The most used coping mechanism of Tongatapu farmers was the use of friend and family support, loans and savings. Around 78% of farmers indicated that they have support from a friend and family who resides abroad, while 67% indicated they receive support from friends and family in Tonga, there were 74% of responses also for loans as a coping mechanism while insurance used by farmers was only 11%.

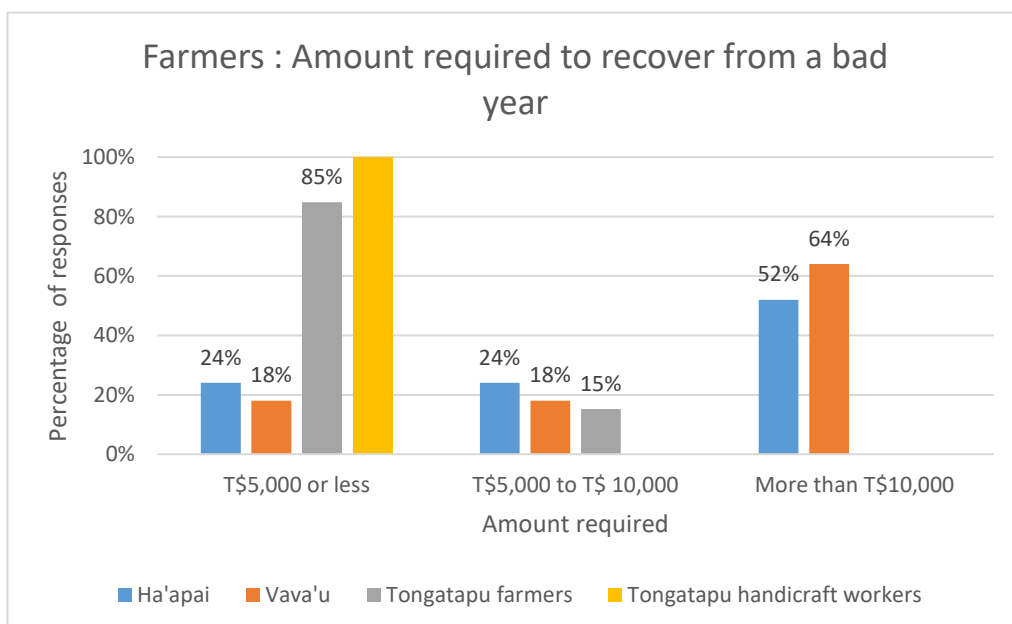


When the participants were asked about their preferred instrument for managing natural hazard impacts, the farmer groups had different preferences. The graph shows summary of responses preferred by farmers for each product. The fishers preferred insurance only since they believe it will assist when natural hazards occur. The pandanus and fau leaves farmers preferred a combination of savings, loans and insurance as this would all help in coping with impacts including family obligations. The root crop farmers in Ha'apai preferred loans only during emergencies. The remaining farmer group in the division preferred savings and loans since they are easy and fast to access. In the case of participants in Vava'u, the kava farmers preferred a combination of savings, loans

and insurance as this combination gives more protection. The animal farmers preferred insurance and loans so that if insurance pay-out is not enough, they can fall on a loan. One root crop farmers group preferred savings and insurance because they could access their savings during emergencies. The other group of root crop farmers preferred savings only for emergencies. One group of pearl farmers preferred insurance only as a backup and the remaining group of pearl farmers in Vava'u preferred savings and insurance to ensure that there are funds to restart their business. For the group of Tongatapu, the majority 83% mentioned insurance as their preferred managing instrument. There were slightly less than one-third mentioned loans as a managing tool in their responses. And there were 48% preferred savings in their responses as a preferred instrument for managing natural hazards.

The participants were asked about the financial products that seasonal agricultural migrants who travel and work in Australia and New Zealand might be interested in purchasing. A little over half of all participants in Ha'apai indicated that the seasonal migrant workers would be interested in all three instruments (savings, loans and insurance). About a quarter of them chose loans and the remaining who were fishers were not sure. In the case of participants in Vava'u, close to half of them indicated that seasonal migrant agricultural workers from Tonga would be interested in purchasing insurance only. A minority, 18 % of them chose loans and insurance. Some of the remaining participants were not sure and the rest provided no answers. For the farmer group from Tongatapu majority of them preferred a single product (Insurance only, Savings only or Loans only) There were 61% of respondents who preferred insurance only because they can be reassured that if a natural hazard happens, they do not have to worry about helping their family back home, as help will be available from the insurance scheme. There were 17% who preferred to have savings only because they preferred to help and assist family in Tonga. Slightly more than one-tenth of respondents also indicated that they would like to have a loan as a preferred tool and from the total 46 of respondents, only one showed the willingness to get two combined tools or all three tools. In the case of Tongatapu handicraft workers majority of the respondents (53%) preferred a combination of savings and insurance, while 47% preferred insurance only. The reason given by the majority who wanted a combination of savings and insurance is that savings could be accessed for emergencies, while insurance would be relied upon in the event of a disaster.

There were different responses when the participants were asked about the reputation of any of the organizations they have worked with in their regions. The fishers indicated that none of the organizations in their region has a good reputation. A group of farmers mentioned the handicrafts association as a group with a good reputation. The pandanus and fau leave farmers thought the banks were trustworthy and the root crop farmers indicated that they did not have much knowledge on the local organizations or institutions. Their counterparts in Vava'u had varied responses too. The kava farmers and a group of pearl farmers indicated that they do not find any of the organizations reliable. The second pearl farmers group found the Vava'u Pearl Farmers Association reliable. One group of root crop farmers found Non-Governmental Organizations (NGOs) reliable and the second group of these farmers did not have much knowledge on the local institutions that work in the community. The animal farmers noted that they had never worked with another organization as such if PICAP goes as planned, they will have their first experience working with other organizations. Majority of Tongatapu farmers (54%) said that there were none, while 26% stated they trusted farmer groups. The South Pacific Business Development organization was also trusted by 15% of Tongatapu farmers and 9% said they trusted churches. The response from Tongatapu handicraft workers was that 47% of the participants noted the South Pacific Business Development (SPBD) as reliable, while the majority claimed to be unaware of any local institutions.



The interviewees were asked how much a crop farmer would require to recover from a bad year inclusive of living costs and farm repair or rebuilding costs. The fishers from Ha'apai indicated T\$5,000(US\$2,200)⁹, the pandanus and fau leaves farmers stated T\$10,000(US\$4,400). The root crop farmers indicated

⁹ T\$ 1: US \$ 0.44 on 14.101.2022
<https://exchangerate.guru/top/usd/50000/>

T\$10,000(US\$4,400). In the case of Vava'u, the kava farmers, a group of pearl farmers and a group of root crop farmers stated an amount of T\$10,000(US\$4,400). The other group of pearl farmers stated an amount of T\$5,000(US\$2,200). The other group of root crop farmers stated an amount of T\$10,000(US\$4,400) and the remaining group of animal farmers indicated an amount of T\$15,000 (US\$6,600). From Tongatapu farmers there was majority (43 %) of them required between T\$1000- 2000(US\$ 440-880) for recovery, there were 32% of respondents reported that they required T\$ 2000-3000 (US\$ 880-1320) sum of money, only 15% of them required a huge sum of the money around T\$5000-10000 (US\$2,200-4,400) as some indicated their fishing boats, plowing requirements after an incident. There were only less than one ten of respondents reported the monetary amount between T\$0-1000 (US\$ 0-440). From Tongatapu farmers all of them were fall under less than T\$5000(US\$2200) as all of them required T\$1000-3000(US\$440-1320) amount to recover.

The farmers were asked further questions regarding the financial tools used during financial recovery after impacts of natural hazards. The majority (78%) of Tongatapu farmers indicated that they always get the financial support from their family and friends abroad. Most participants (73%) also mentioned that they use loans as a coping mechanism. The third mostly used coping mechanism by the respondents was use of their personal savings (67%). There were similar percentage of respondents who reported getting support from the family and friends who reside Tonga. Other coping mechanisms reported by respondents include support from farmers' associations 34% and equal support from Insurances and Churches (10%) while government support reported as 15%.

This section explores the handicraft workers' responses to questions about access to inexpensive financial products and services, coping strategies and funding needs following natural hazard events in Tonga.

As for the handicraft workers, when asked how much profit could have been put into savings for the years prior, all the participants stated between T\$5,000(US\$2,200) and T\$30,000(US\$13,200) in 2018 and less than T\$5,000(US\$2,200) for both 2019 and 2020. After severe weather or natural hazards, the group does not offer any kind of financial or non-financial support to its members.

If a natural hazard prevented the group from earning any funds for one week or one month, each respondent estimated that the company would need between T\$1,000(US\$440) and T\$3,000(US\$1320) to continue operating normally during that time. When asked how quickly they would require financial support following an occurrence, every responder who was asked this question stated one month in the event of a natural catastrophe.

Members only have access to savings, rather than any of the other forms of informal lending. This is the most common and the one to which people are most accustomed. All the respondents agreed that some people use

formal savings account while others do not and majority of those that use, have their savings account with TDB. The participants also noted the use of informal savings operated within the group; members meet every Saturday to deposit “shares” and these shares are withdrawn just before Christmas. All the participants expressed interest in gaining access to loans, but they highlighted the obstacle of not being able to fulfill the credit requirements set forth by the larger financial institutions.

Everyone who participated affirmed that they have a trustworthy relationship with the banks. The group does not have a reserve fund that can be used to repair and reconstruct business operations in the event of natural hazards. Regarding the percentage of the average member’s produce that would be sold in the retail market: 47% indicated the average farmer sells all (100%) his or her produce, while the rest indicated the average farmer will sell between 50% and 100% of his or her produce. Answering the question whether tapa is the only source of income, 47% of the handcraft workers indicated that tapa was their only source of income. The remaining 53% indicated receiving less than half of their income from tapa.

MSMEs

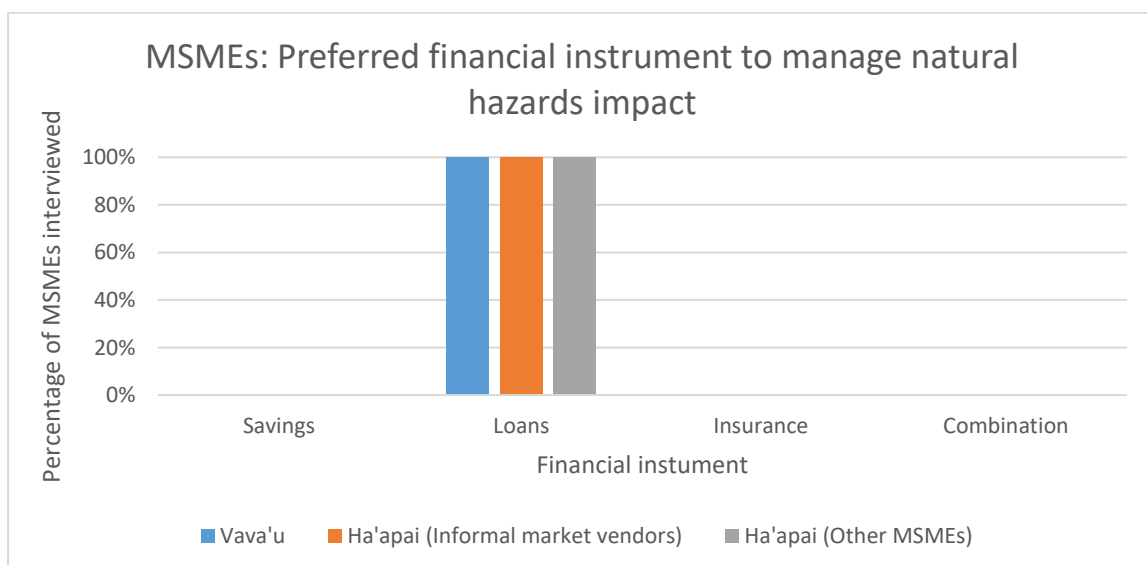
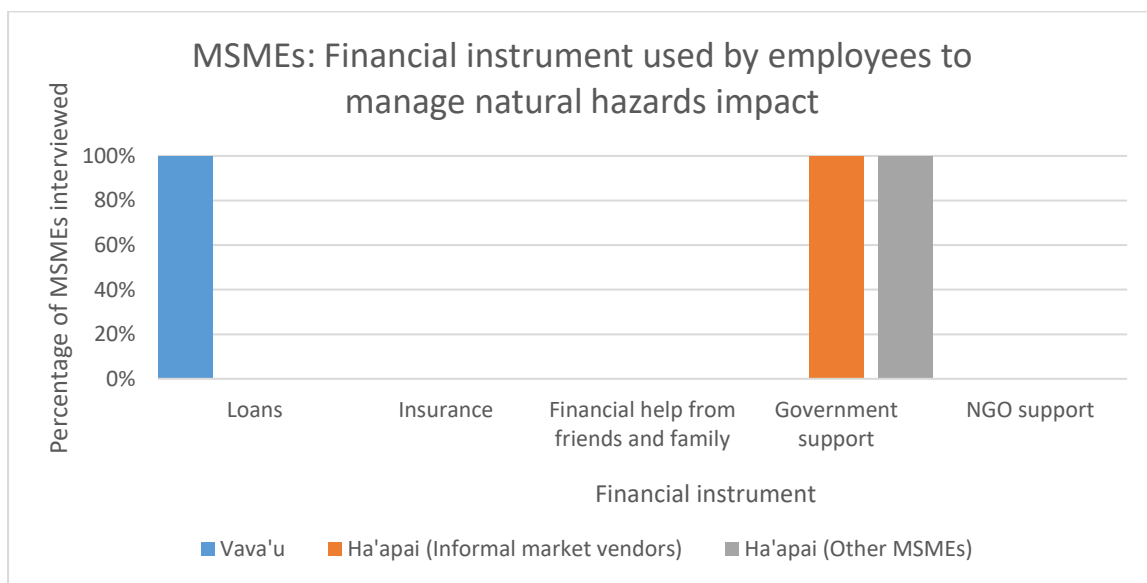
This section of the survey report analyses the MSMEs’ responses to questions related to access to affordable financial products and services, coping mechanisms as well as the funding needs of MSMEs after natural hazards events occur.

All MSMEs in Ha’apai indicated that they transacted all their business in cash including paying salaries. Those in Vava’u paid their employees in cash but paid other transactions or received payments by direct deposits through their bank accounts. All MSMEs in Vava’u did not provide any form of support to their employees after the occurrence of natural hazards. The same situation was witnessed among the informal market vendors in Ha’apai. However, 3 out of the 5 of the other MSMEs in Ha’apai provided some form of support to their employees after the occurrence of these events.

In terms of employees’ access to informal lending, all the MSMEs located in Vava’u responded that their employees had no access to any form of loans including other forms of informal lending. The MSME employees in Ha’apai on the contrary had access to loans and informal lending. The MSMEs in Ha’apai indicated that insurance and credit are the financial products they needed most but had limited access to, whereas their counterparts in Vava’u indicated that insurance and stocks are the financial products they needed most but had limited access to.

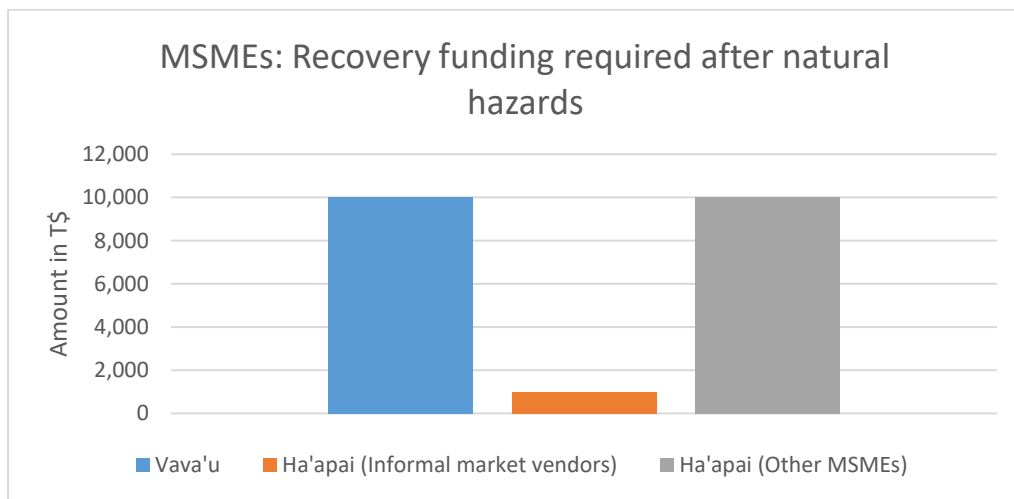
The informal market vendors in Ha’apai noted that their inability to meet banking requirements is the main barrier preventing them from accessing financial services. The other MSMEs in Ha’apai indicated that their

inability to save due to the mismatch between their income and expenditure is the main barrier preventing them from accessing financial services. All the MSMEs in Vava'u also indicated that the unaffordability of insurance products is the main barrier they experienced in terms of access to financial products. The MSME representatives in both administrative divisions when asked about the insurance products they were already using, answered in the negative. All of them also indicated that access to banks is the only financial service they had access to. In terms of the other coping mechanisms employed by MSMEs to manage the impacts they face from natural hazards, they all indicated that they had no savings to fall on in times of need after the occurrence of these events.



The employees of all MSMEs in Ha'apai typically fall on government support to manage the impact from natural hazards though they preferred to have access to loans to manage the impact. Their colleagues in Vava'u noted that they typically use loans to manage the impact of natural hazards and still had this instrument as the

preferred tool for managing the impact of natural hazards. The reason behind the preference for loans could also be because the forms of insurance products for MSME are not currently suitable. Parametric insurance products are currently not available on the market.



When MSMEs were asked about the amount of funding they typically required to recover from the impact of natural hazards, the informal market vendors in Ha’apai stated an amount of T\$ 1,000 (US\$ 440) whereas the remaining MSMEs both in Ha’apai and Vava’u stated an amount of T\$ 10,000 (US\$ 4,400). The informal market vendors in Ha’apai further stated that they will require T\$ 500(US\$ 220) as weekly funding to recover whereas the remaining MSMEs in both Ha’apai and Vava’u stated that they will require T\$ 1,000 (US\$440) as weekly funding to recover.

All MSMEs indicated that they adopted formalized bookkeeping and accounting practices in their operations. However, they also indicated that this is currently being done on paper and not digitally.

All MSMEs noted that they paid their employees on a weekly basis and had meetings with them at their workplaces. The informal market vendors in Ha’apai together with the MSMEs in Vava’u indicated that they had no superannuation fund for their employees. The other MSMEs in Ha’apai on the contrary had a superannuation fund for their employees. When asked about the positioning of their operations along the supply chain, all MSMEs in both administrative divisions answered that their operations could be placed within the upstream of the supply chain. All MSMEs in both Ha’apai and Vava’u indicated that their ability to source primary resources may be affected when natural events happen, however, only the informal market vendors in Ha’apai noted that similar supply chain actors could also be affected.

The informal market vendors in Ha’apai noted that their financial position in connection with other services providers and buyers is not affected by the occurrence of natural hazard events. All the remaining MSMEs

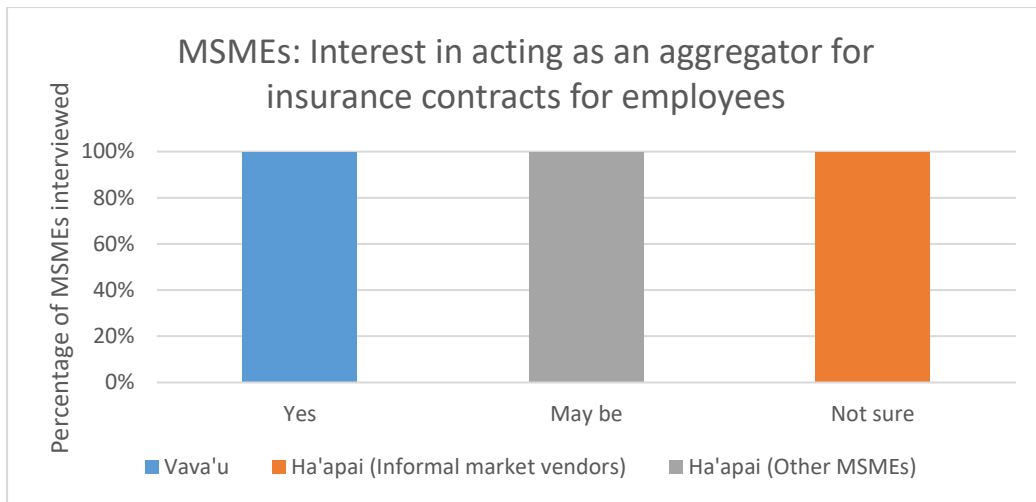
in both administrative divisions, however, confirmed being affected financially relationship-wise with other service providers and buyers.

All MSMEs in the surveyed regions added that they needed financial support within 2 weeks after the occurrence of a natural hazard event. In terms of planning for the aftermath of natural hazards, all MSMEs in both administrative divisions stated that they had developed disaster preparedness and or business continuity plans and were aware of them except for the informal market vendors in Ha'apai who did not develop any disaster preparedness or business continuation plans in anticipation of the occurrence of natural hazards.

When the MSMEs were asked what specific measures they undertook to protect and prepare themselves in anticipation of natural hazards, they all stated that they diversified their revenue stream. When probed further whether the specific measures were successful, the informal market vendors were unsure, however, the rest of the MSMEs in both regions responded in the affirmative. All the MSMEs indicated that they would need financial resources as well as training to improve their ability to accurately account for measures to protect and prepare themselves in anticipation of natural hazards.

With regards to knowledge on disaster risk management, none of the MSMEs across both administrative regions ever had any training on disaster risk management nor belonged to any entity that provided training workshops on the topic. They all however, indicated that their employees would be interested in knowing more about the topic through social media and radio.

All MSMEs in the surveyed regions had no savings fund to extend assistance to their employees in times of need after natural hazard events though they all expressed the willingness to set up such a fund for their employees. With regards to a pension fund for their employees, none of the MSMEs in both administrative divisions had an existing pension fund. The MSMEs in Vava'u stated that they may be interested in setting up one, the informal market vendors in Ha'apai stated that they are not interested in setting up one while the remaining MSMEs in Ha'apai confirmed their interest in setting up a pension fund for their employees.



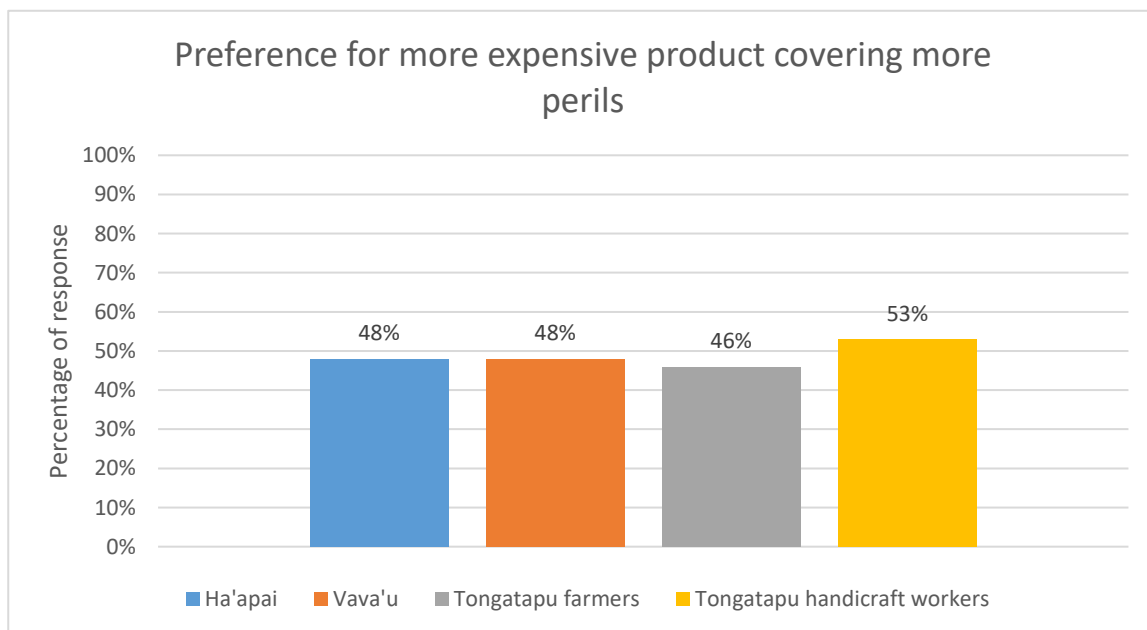
The leaders of MSMEs in Vava’u stated that they may be interested in acting as aggregators for insurance contracts for their employees. The informal market vendor leaders in Ha’apai, however, indicated that they were not sure whether they wanted to act as aggregators for insurance contracts for their workers. The leaders of the remaining MSMEs in Ha’apai indicated that they will be willing to act as aggregators for insurance contracts for their employees. When asked whether they think their employees would like to include their dependents in the insurance cover, all the MSMEs in Ha’apai responded in the affirmative whereas all the MSMEs in Vava’u responded in the negative.

When the MSMEs were asked about pooling their resources together to create a cooperative insurance structure as a solution to managing basis risk after post-loss insurance adjustment, those in Vava’u agreed to the idea whereas those in Ha’apai declined although they all did not presently belong to any existing structure in this form. All the MSMEs in both administrative divisions further stated that they did not presently belong to any cooperative or business association that could set up an endowment fund as a solution to managing basis risk after post-loss insurance adjustment. They all also indicated that they did not set aside any savings to cover operational expenses if the business is unable to operate for some time after a natural hazard event occurs.

5. Product Preferences

Farmers

This section of the survey sought responses from the farmers regarding their preferences for the insurance product that would best fit their needs. A majority representing 52% of participants in Ha’apai stated that they would prefer a cheaper product that covers key perils than a more expensive product that covers a variety of perils. Close to a quarter of the participants in Ha’apai preferred having a more expensive product which covers a variety of perils and the remaining participants indicated the need for having a product which is affordable but will cover a variety of perils. In the case of participants from Vava’u, slightly over half (52%) preferred having a more expensive product which covers a variety of risks. The other close to half (48%) preferred to have a cheaper product which covers key perils. From their counterparts of Tongatapu there were 46% of respondents who preferred to have more expensive products and covered for a variety of risks because different crops are impacted by different hazards. There were 52% of respondents who preferred cheaper options and cover the two most hazardous disasters as they mentioned due to the fact that it is very rare for respondents affected due to earthquakes and volcanic eruptions. One avoided responding to this question. The response was alike for the group of handicraft workers from Tongatapu where, all the participants mentioned that they would be interested in purchasing solutions that combine the risk of natural hazards with other types of insurance, such as multi-peril property insurance and business interruption insurance.



All the participants in Ha'apai further noted that they had neither health nor life insurance or even knew about these products. A minority of participants in Vava'u on the other hand had life insurance and the remaining ones in Vava'u neither had life nor health insurance.

The participants were then asked whether they would be interested in a product that bundles natural hazard risks and health or life insurance. All of them from Ha'apai agreed. A majority representing 88% of them in Vava'u also agreed indicating that they may be interested. Some reasons the participants indicated interest in the bundled product are that the bundled product covers inter-related perils and will give them extra protection as well as provide life cover.

A majority (48.28%) of interviewees in Ha'apai indicated that they do not wish to buy insurance through their farmer associations or cooperatives because they prefer claim payment to be made to them directly. A little over a quarter of them indicated they would like to purchase through farmer associations or cooperatives because the associations or cooperatives would be able to offer more assistance. The remaining participants in Ha'apai stated that they may be willing to make purchases through associations or cooperatives because they lacked experience working with any association and were not sure. A majority (56%) of their counterparts in Vava'u on the contrary indicated that they are willing to purchase insurance products through farmer associations or cooperatives because they could offer more assistance including expediting payment from insurers and educating them on the benefits of insurance. A minority (15%) of farmers in Vava'u declined this option with the reason that they preferred direct payment. The remaining interviewees stated that, they may be willing to make purchases through farmer associations or cooperatives because they lacked any experience working with these associations.

All participants in Ha'apai and Vava'u provided no amount when they were asked how much an average crop farmer would be willing to pay for an insurance product which covers extreme weather conditions.

As for the Tongatapu farmers, the majority (83%) mentioned insurance as their preferred managing instrument. Slightly less than one third mentioned loans as a managing tool in their responses while 48% stated savings as a preferred instrument for managing natural hazards.

In Tonga, there are seasonal migrants who go to Australia or New Zealand for seasonal agricultural work, so the Tongatapu farmers were further asked to identify the product preference of these seasonal migrants to have on behalf of their families staying in Tonga to keep as their risk management tool. Their response was different from the previous responses where majority of them preferred a single product (insurance only, savings only or loans only) There were 60% of respondents who preferred insurance only because, they can be reassured that if a disaster happens, they do not have to worry about sending help to their families as insurance will be

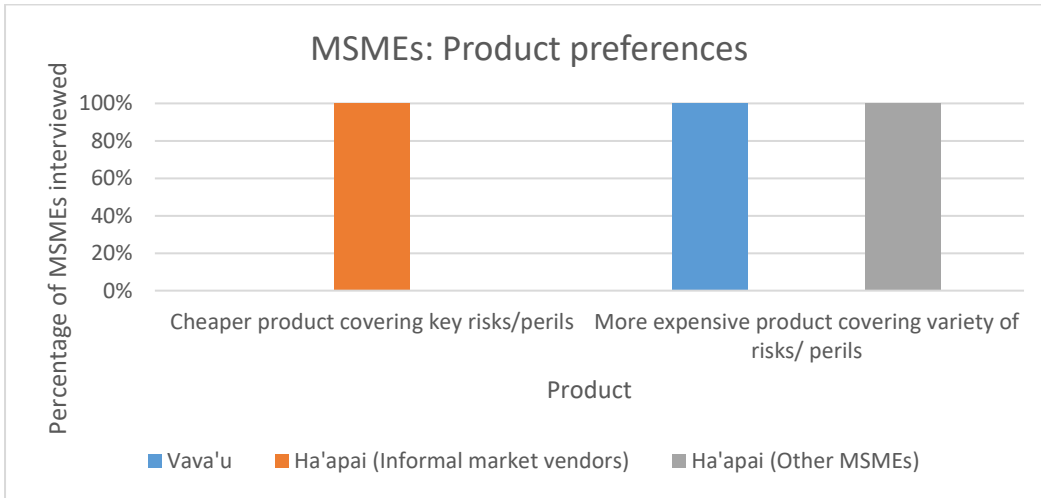
available while 17% preferred to have savings only because they prefer to help and assist family in Tonga. Slightly more than one-tenth of respondents also indicated that they would like to have loan as a preferred tool and from the total of 46 respondents, only one showed the willingness to get two combined tools or all three tools.

Regarding local trustworthy institutions for farmers and handicraft workers, the majority of Tongatapu farmers (54%) said that there were none, while 26% stated they trusted farmer groups. The SPBD organization was also trusted by 15% of Tongatapu farmers and 9% said they trusted churches.

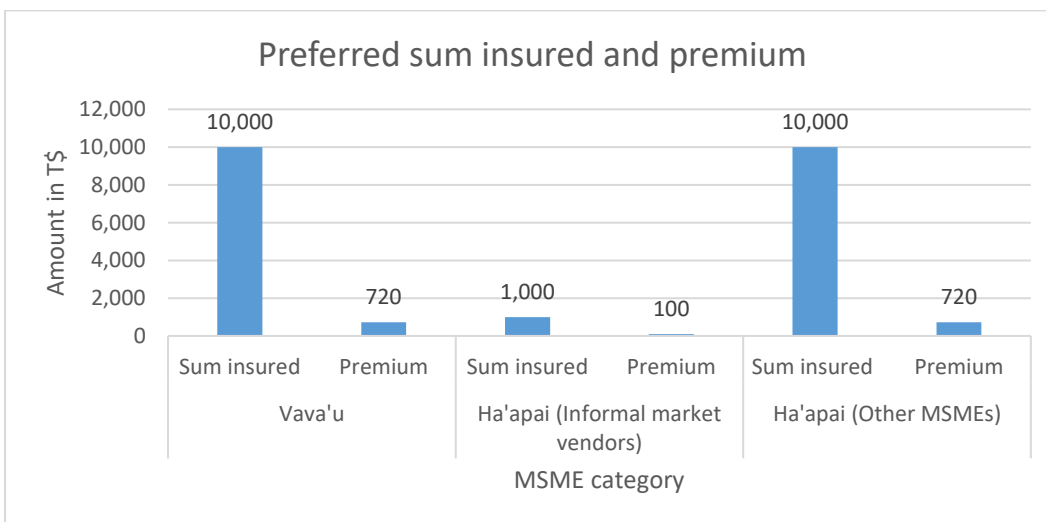
Among the handicraft workers, majority (53%) would be interested in a more expensive product that covers a variety of risks, while 47% preferred a cheaper option that covers the two most hazardous disasters with reasons of zero likelihood that they would be affected by the other risks like earthquake & volcanic eruption etc. Regarding insurance, none of the members have purchased any kind of coverage for themselves. When asked about the strategies they use to mitigate the effects of natural hazards, all the participants said that they receive financial assistance from their families and friends. On the other hand, they would like to use a combination of savings and loans whenever it is possible to do so.

To help manage the impacts of natural hazards, majority of the respondents (53%) preferred a combination of savings and insurance, while 47% preferred insurance only. The reason given by the majority who wanted a combination of savings and insurance is that savings could be accessed for emergencies, while insurance would be relied upon in the event of a disaster. All the participants said that they would be interested in purchasing solutions that combine the risk of natural hazards with other types of insurance, such as multi-peril property insurance and business interruption insurance. All of them expressed an interest in purchasing products that combine the risk of natural hazards with financial savings or credit instruments. Every single member has indicated that they are willing to pay a premium of one hundred dollars per year. However, neither the management nor the group members are willing to join a cooperative structure with other MSMEs in order to bundle insurance premiums and payouts. All the members rely on the diversification of revenue streams as a mechanism for preparedness and protection against natural risks. This approach was unanimously deemed to be successful by all of the members. Regarding knowledge of local institutions, 47% of the participants noted SPBD as reliable, while the majority claimed to be unaware of any local institutions.

MSMEs



This section of the survey sought responses from the MSMEs regarding their preferences for the insurance product that would best fit their needs. All the informal market vendors in Ha’apai preferred a cheaper product which covers key risks or perils. The remaining MSMEs in Ha’apai together with all the MSMEs in Vava’u preferred a more expensive product which covers a variety of risks or perils. All the MSMEs in both regions surveyed showed interest in signing up for a product that bundles natural hazard risks with health or life insurance risks for their employees.



The MSMEs in Vava’u indicated that they had a trust-worthy relationship with the banks in terms of accessing loan facilities. The MSMEs in Ha’apai on the contrary indicated that they do not have any trust-worthy relationship with any financial services provider.

In terms of the cost of the insurance product, the informal market vendors in Ha'apai were willing to pay T\$ 100 (US\$ 44) per year as a premium for a product with a sum insured T\$ 1,000 (US\$ 440). The remaining MSMEs in Ha'apai together with their counterparts in Vava'u were willing to pay T\$ 60 (US\$ 26.4) per month as premium for a product with a sum insured T\$ 10,000 (US\$ 4,400). The informal market vendors noted that they will be willing to pay a premium of T\$ 10 (US\$ 4.40) per month for an insurance product which provides a weekly pay-out of T\$ 500 (US\$ 220) per a month to prevent the enterprise from winding up if it earns no income because of a natural hazard event. The remaining MSMEs in Ha'apai were willing to pay T\$ 50(US\$ 22) per month for a similar insurance product providing a weekly pay-out of T\$ 1,000(US\$ 440) for a month. The MSMEs in Vava'u were willing to pay T\$ 100 (US\$ 44) per year for an insurance product providing a weekly pay-out of T\$ 1,000 (US\$ 440) per a month to prevent the enterprise from winding up if it earns no income because of natural hazard event.

In relation to employee insurance plans, the informal market vendors in Ha'apai indicated that their employees would not require differentiated coverage plans and would each be willing to pay an annual premium of T\$ 100 (US\$ 44). The other MSMEs in Ha'apai on the other hand indicated that their employees would require differentiated coverage plans and would each be willing to pay an annual premium of T\$ 100 (US\$ 44). The MSME's in Vava'u also indicated that their employees would require differentiated coverage plans but could not determine how much they could afford as annual premium since they do not work with the enterprises for long.

6. Conclusion

Farmers

The survey revealed that hurricanes and drought present the most imminent and damaging hazard to farmers in Tonga, however, the recent volcanic eruption which occurred on 15th January 2022 creates the need for a follow-up survey in terms of its impacts on farmers and their perception of risks posed by volcanic eruption and other natural geographic risks including earthquakes which can be economically devastating to them.

With regards to product preferences, the demand for cheaper products covering key risks or perils versus more expensive products covering a variety of risks was more or less split among all groups. In the interim, a parametric wind, rain and drought combined pilot product as well as a comprehensive parametric pilot product covering climate and natural geographic risks are both likely to succeed among the farmers in Tonga.

The survey results also show that there is considerable use of alternative coping mechanisms among the farmers. This presents an opportunity for product bundling to cover services such as savings, loans and remittances. There is also a high demand for a product which covers health or life risks. This could be an additional feature offered in the form of a rider to the standard policies designed or alternatively, a bundled product which offers these covers in addition to the standard risks covered by the parametric product. In terms of the cost of the product, an affordable premium which is calculated based on the average annual earnings of a typical farmer from Tonga should be used. Flexible payment options should be made available as well as payment options during periods of bumper harvest or catch.

In terms of distribution of the products, a MFI distribution channel could be initiated while financial literacy campaigns especially among groups and associations is increased to build trust. These organizations will provide a good distribution channel when the trust their members have for the organizations is strong. In the interim, the product could be piloted through local associations and the village savings groups. The success of these groups could further help develop this distribution channel. Digital distribution also looks promising when the mobile money service penetration increases since there is high use of mobile phones among farmers in Tonga.

The survey results also reveal that there is a lot of interest in using insurance in conjunction with savings as a coping mechanism. There is also a lot of interest in buying products that combine natural hazard risk with financial savings or credit instruments. In terms of the product's price, all members stated a willingness to pay a one-hundred-dollar premium per year. Given the widespread use of mobile phones and access to mobile money, digital goods distribution may be encouraged. Members would also benefit from disaster risk management and financial literacy training.

MSMEs

The survey revealed that hurricanes and drought presents the most imminent and damaging hazard to MSMEs in Tonga, however, the recent volcanic eruption which occurred on 15th January 2022 creates the need for a follow-up survey in terms of its impacts on MSMEs and their perception of risks posed by volcanic eruption and other natural geographic risks.

With regards to product preferences, there is a demand for both cheaper products covering key risks or perils and a more expensive products covering a variety of perils. In the interim, a parametric wind, rain and drought combined pilot product is most likely to succeed among the MSMEs in Tonga with further developed products to incorporate other natural geographic risks like volcanic eruptions, tsunami, etc. being anticipated. There is also an opportunity for the creation of mutual insurance schemes or endowment fund as a solution to basis

risks after post-loss insurance adjustments. The survey also shows a desire of MSMEs to have business interruption as a covered risk.

There is an opportunity to design a policy with options of a policy sum insured covering the main perils ranging between T\$ 1,000 (US\$ 440) and T\$ 10,000 (US\$ 4,400) depending on the needs of MSME with an additional business interruption weekly cover ranging between T\$ 500 (US\$ 220) and T\$ 1,000(US\$ 440).

In terms of distribution of the products, a direct sales agent's model seems a viable option presently for MSMEs in Ha'apai with a bancassurance and direct sales agents model viable in the case of MSMEs in Vava'u. However, there is an opportunity for digital forms of distribution in the country when the market develops further and when mobile money penetrations deepens.

About UNCDF

The UN Capital Development Fund makes public and private finance work for the poor in the world's 47 least developed countries (LDCs). UNCDF offers "last mile" finance models that unlock public and private resources, especially at the domestic level, to reduce poverty and support local economic development. UNCDF's financing models work through three channels: (1) inclusive digital economies, which connects individuals, households, and small businesses with financial eco-systems that catalyze participation in the local economy, and provide tools to climb out of poverty and manage financial lives; (2) local development finance, which capacitates localities through fiscal decentralization, innovative municipal finance, and structured project finance to drive local economic expansion and sustainable development; and (3) investment finance, which provides catalytic financial structuring, de-risking, and capital deployment to drive SDG impact and domestic resource mobilization.



About UNU-EHS:

The United Nations University Institute for Environment and Human Security (UNU-EHS) conducts research on risks and adaptation related to environmental hazards and global change. The Institute's research promotes policies and programmes to reduce these risks, while taking into account the interplay between environmental and societal factors. UNU-EHS is the hosting organization of the Munich Climate Insurance Initiative (MCII). MCII is a leading think-tank on climate change and is focusing on developing solutions for vulnerable communities. The contribution of UNU-EHS to the Pacific Insurance and Climate Adaptation Programme will be done by the MCII Project Office. The association will provide specific insurance-related advisory as well as foster dialogue and part with similar undertakings including its Climate Risk Adaptation and Insurance in the Caribbean project.



About UNDP

UNDP partners with people at all levels of society to help build nations that can withstand crisis, and drive and sustain the kind of growth that improves the quality of life for everyone. The UNDP Pacific Office in Fiji serves 14 countries and territories in the Pacific, as part of the 177-country office UNDP network, and offers global perspective and local insight to help empower lives and build resilient nations.

