

Supported by:

Led by:

In partnership with:



wtw

A photograph of a mangrove forest along a body of water. The trees have dense green foliage and prominent prop roots extending into the water. The sky is clear and blue.

Financial Tools for Small-Scale Fishers: Community Survey — Papua New Guinea (PNG)

© Juergen Freund / WWF Pacific

Executive Summary

As part of a project funded by GEF, WTW together with the World Wide Fund for Nature (WWF Pacific) are developing an insurance product(s) to help increase the resilience of fishing communities in three pilot locations in Fiji and PNG to climate risk, whilst incentivising sustainable use of resources and protecting the natural assets upon which the fishers depend. In order to ensure that the product(s) are fit-for-purpose, the project team has engaged in desk and field research.

This document presents the findings of a survey conducted in September 2022 in Madang Province, Papua New Guinea. 168 people were surveyed.

The communities surveyed are extremely vulnerable to the impacts of climate hazards, and climate change is already manifesting itself in the region through sea-level rise and coral bleaching, threatening the livelihoods of coastal fishing communities. The survey results confirm the communities' high level of concern about potential impacts from multiple different climate-related hazards (e.g., droughts, storms), and the decreases in fish availability and catch that they are already observing. With low levels of financial resilience (through savings and insurance) and low diversity of income, the consequences of any disruption to their livelihoods could be exceptionally severe.



Collectively, these survey results, alongside other data gathered through other project activities, will be used to inform the development of insurance product(s).

Background

With 30% of PNG's total population living within 10km of the coast¹ and a ranking of 156th out of 191 countries in the 2022 UNDP Human Development Report,² PNG is highly vulnerable to climate hazards and ocean-related threats (as well as geophysical hazards).

Amplified by the effects of climate change, this threatens progress towards sustainable development goals and exacerbates existing development challenges. Indeed, with a baseline where 56.6% of the population is classified as multidimensionally poor,³ coping capacity is exceptionally low and climate hazards reinforce poverty traps by forcing people into destructive coping mechanisms. Coastal fishing communities are particularly vulnerable to the impacts of climate hazards, and in the context of climate change and ecosystem degradation, it is particularly urgent to take measures to increase their resilience.

With 14,535km² of coral reefs and 5,734km² of mangroves, Papua New Guinean communities have constructed their livelihoods around the ecosystem services these provide. Fishing is one of the most important sectors for PNG, both commercially and for subsistence fishers, and in the past, traditional knowledge and systems have governed marine resources. In recent years, however, these have been increasingly eroded and unsustainable fishing practices such as the use of dynamite have become more prevalent, amplified by a growing population and the growth of industry in PNG (both fishing and other heavily polluting activities such as mining) leading to inshore fisheries becoming increasingly strained. Aside from fisheries, communities are heavily reliant on subsistence agriculture; however, with climate change threatening crop productivity, food security will pose a significant challenge. This means that both community resilience and sustainable resource management are ever more important.

This project seeks to leverage the strength of existing traditional systems and community ties, and design an insurance product that will support and complement existing conservation measures and frameworks, and respond to the needs of the fishing communities in the face of growing climate risk. Through the potential insurance product, we aim to strengthen communities' financial resilience, allowing them to better overcome climate shocks, and lower their dependence on government support, which is largely dependent on donor funding and budget reallocation and is therefore difficult to predict. At the same time, we aim to support communities in managing natural resources, which the survey indicates willingness to do.

¹Neil L. Andrew and others "Coastal proximity of populations in 22 Pacific Island countries and Territories," PLOS ONE, 14.9 (2019).

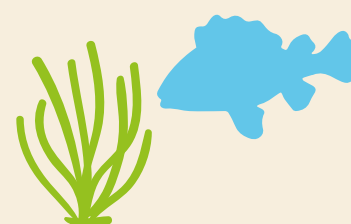
²UNDP, "Human Development Report 2021/2022: Uncertain Times, Unsettled Lives: Shaping our Future in a Transforming World" (2022). Available at: https://hdr.undp.org/system/files/documents/global-report-document/hdr2021-22pdf_1.pdf

³Ibid.

⁴Asian Development Bank, 'State of the Coral Triangle: Papua New Guinea' (2014) Available at: <https://www.adb.org/sites/default/files/publication/42413/state-coral-triangle-papua-new-guinea.pdf>



© Juergen Freund / WWF Pacific



Papua New Guinea is located in the Coral Triangle, the world's epicentre of marine biodiversity, and one of two locations where coral reefs are expected to be able to survive 1.5C of warming.



In PNG's coastal communities, average per capita consumption of fish is

53kg
per year⁴

Methodology and Participants

In September 2022, we conducted a survey in eight villages across the districts of Madang, Sumkar and Bogia in Madang Province: Kranget, Rempi, Moro, Toto, Bilbil, Korak, Meiwok Sarar and Medebur.

Around 20 Community Facilitators carried out the survey in 168 households over 5 days for these eight communities. Communities were notified in advance of the survey through the community facilitator network. However, some heads of families might have had other priorities to attend to, resulting in other members of the family being interviewed.



Respondents were 74% male and 26% female. 80% of respondents were between 21-60 years old.



Map indicating the location of villages surveyed in Papua New Guinea

Financial/Livelihood

87% of households surveyed had an average monthly household income of less than PGK 600 a month (with 61% earning less than PGK 300 a month).

The 4.14 PGK per person per day poverty line used by Schmidt et al.⁴ converts to a poverty line of PGK 497/month for a 4-person household. This would indicate that a large majority of the households surveyed in PNG (between 61-87%) fell below the poverty line. On average, households derived 44% of their income from fishing, highlighting the importance of fishing for their livelihoods.

Respondents were asked what proportion of their time they spent on various occupations. A significant disparity was found between male and female members of households. Women spent the largest proportion of their time on domestic duties, with this occupying about 45% of their time, whereas most men spent only small proportions of their time on domestic duties.

Men split their time for the most part between fishing and fish processing, and farming, as did women with the time they had left. Both were spending slightly more time farming than fishing. Men also engaged in twice as much paid work as women did.



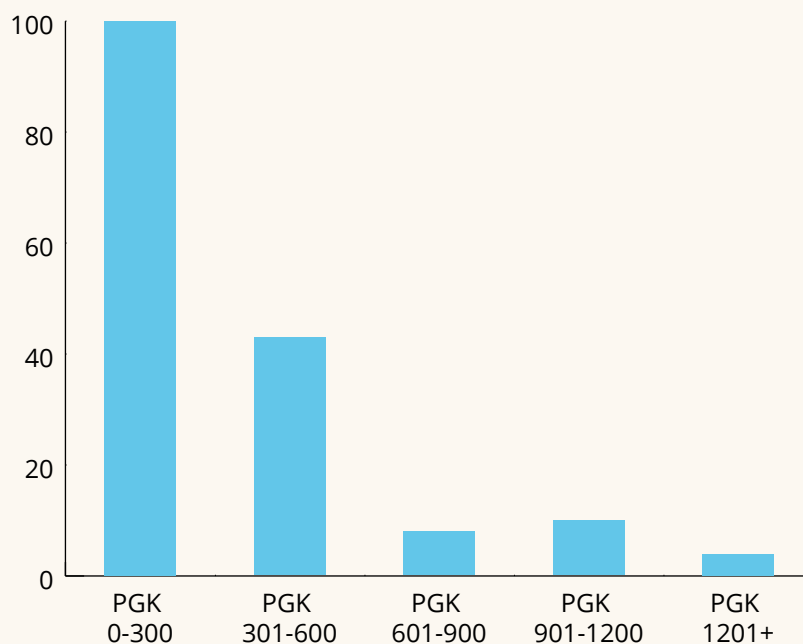
between

61-87%

fell below the poverty line.



Figure 1: Average Monthly Household Income



⁴Emily Schmidt et al. 'Poverty analysis in the lowlands of Papua New Guinea underscores climate vulnerability and need for income flexibility' (2020)

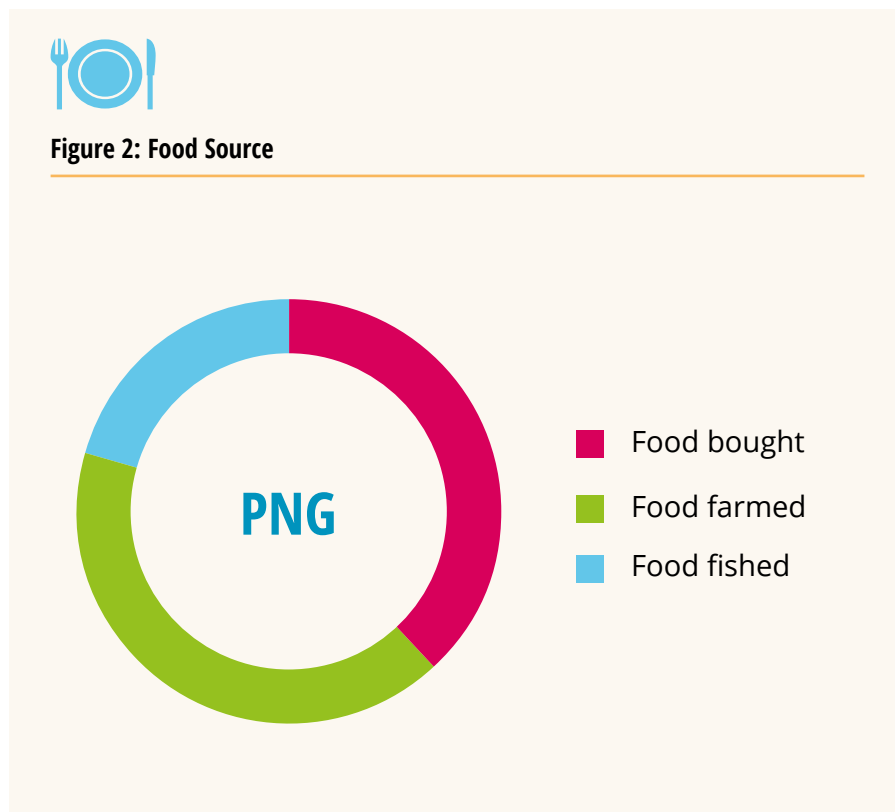
In order to understand communities' dependence on fishing and farming for subsistence, and their need for cash for food, we asked respondents to break down the proportion of food they sourced from different categories.

The results show that communities on average farm and fish the largest proportion of their food, supplemented by buying about a fifth of their food. In a follow up question, about three quarters of respondents (76%) reported having experienced needing to reduce their meals. Most of the time, this was due to a climate event or food prices. Some respondents also reported this happening due to lack of fish.

Journeys to the market were easy for the most part, with the majority of people undertaking their journey on foot, and the rest taking public transport. 70% of people took less than an hour to get to the market.

Half of the respondents reported selling less seafood/fish to the market in the aftermath of a climate event, whereas for the other half this stayed the same.

When asked if they belonged to a fisheries or agricultural co-operative, almost nobody did. However, PNG does have a customary system of tenure known as tambu applicable to



inshore fisheries and which operates permanent or temporary fishing ground closures, and although this practice of closures is now on the decline, there is also increasing investment in Locally Managed Marine Areas (LMMAs). WWF is also actively engaging with the communities to formalise Village Savings and Loan Associations.



70%

of people took less than an hour to get to the market

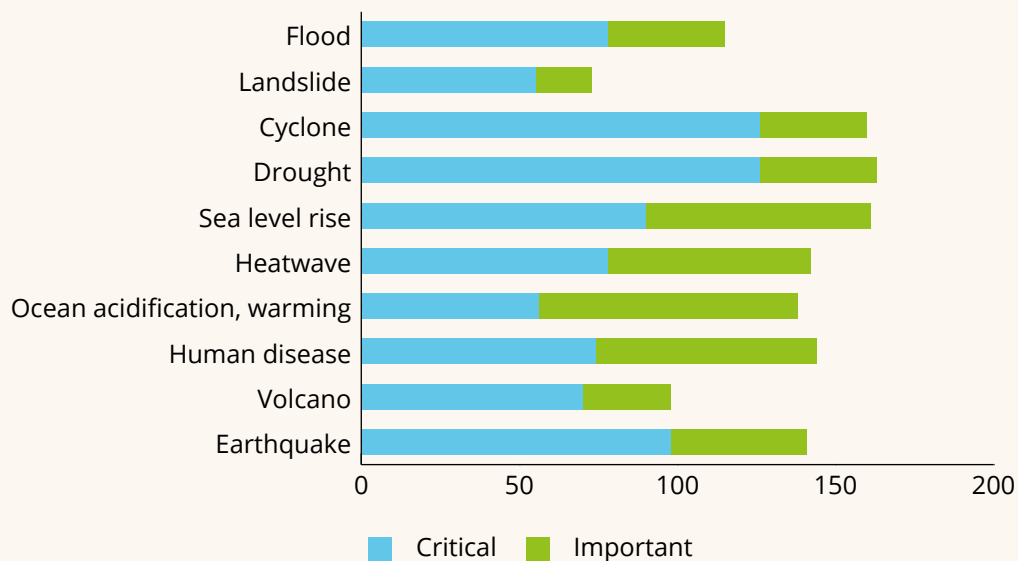
Climate hazards

In order to inform the prioritisation of hazards to be considered under this project, we asked respondents to rate the importance of climate and geophysical hazards.

The same list was used for respondents in Fiji and Papua New Guinea. Respondents were able to rate hazards as Critical, Important, Somewhat Important, or Not Important. The graph shows responses that rated hazards as Critical and Important. Respondents in PNG included storms and bad weather under the “Cyclone” category.



Figure 3: Importance of Hazard





The survey also asked people how they monitored the risk of possible climate events. Observing signs and patterns via traditional knowledge was the most commonly-cited method, followed by radio. Village announcements were not mentioned by anyone.



Figure 4: Monitoring of climate events



Traditional knowledge / observe weather / insects / birds

111



Radio

58



Monitor water levels

15



Newspaper

13



TV

3

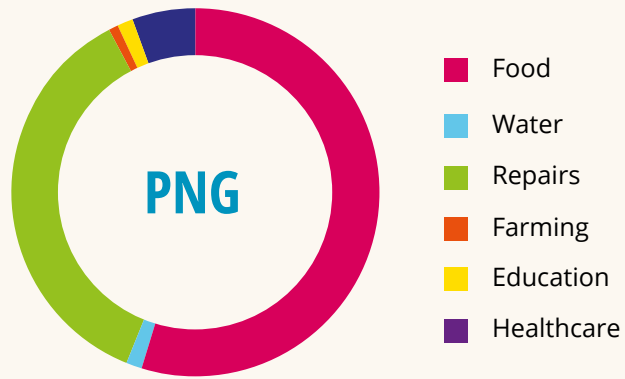
We also asked people what their biggest priority was after an event.

55% of respondents chose access to food. This was closely followed by repairs with 36% of people choosing this, whereas access to water was only selected by 2 people.

With 4 exceptions, all respondents also stated needing access to additional funds after an event. When asked what their main source of funding was, 38% of respondents chose friends, underscoring the importance of community-based systems. Government support was the second most important source of funding, followed by savings.



Figure 5: Biggest Priority Post-Event



© Juergen Freund / WWF Pacific

Financial Inclusion

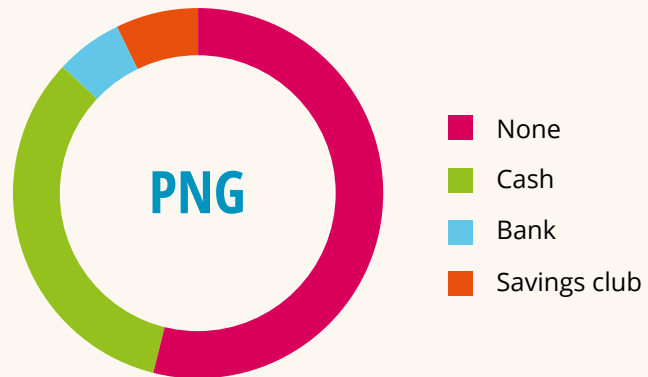
The majority of respondents did not have any savings (53%), with those that did holding this mostly in cash, and almost no one had a loan.

This highlights the lack of financial inclusion and therefore financial resilience of the communities surveyed. This is accentuated for women, with women being slightly less likely to have a bank account than men.

97% of the people surveyed did not currently purchase any type of insurance. 2 people reported purchasing health insurance.



Figure 6: Savings



© Tom Vierus / WWF Pacific



76% of people surveyed had either no or very little understanding of insurance,

and additionally, 67% of people surveyed reported having no trust, or very little trust, in insurers and banks. The baseline understanding of insurance as well as trust in banks and insurers in PNG were substantially lower compared to the surveyed communities in Fiji, with the results indicating that there is still a lot of progress to be made in increasing understanding and trust in insurance, and the financial literacy training conducted as part of the project contributes to building this.



67%
of people surveyed reported having no trust, or very little trust, in insurers and banks.



Figure 7: Extent of understanding of Insurance

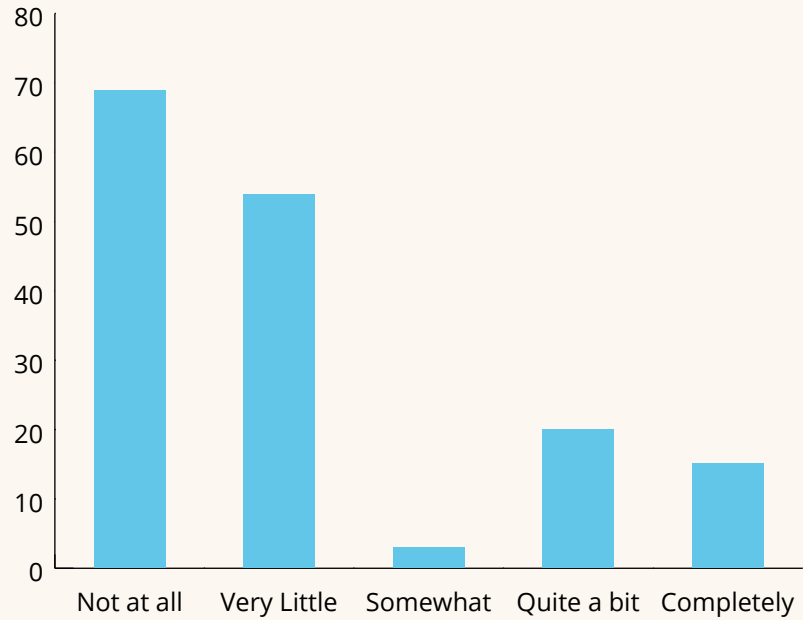
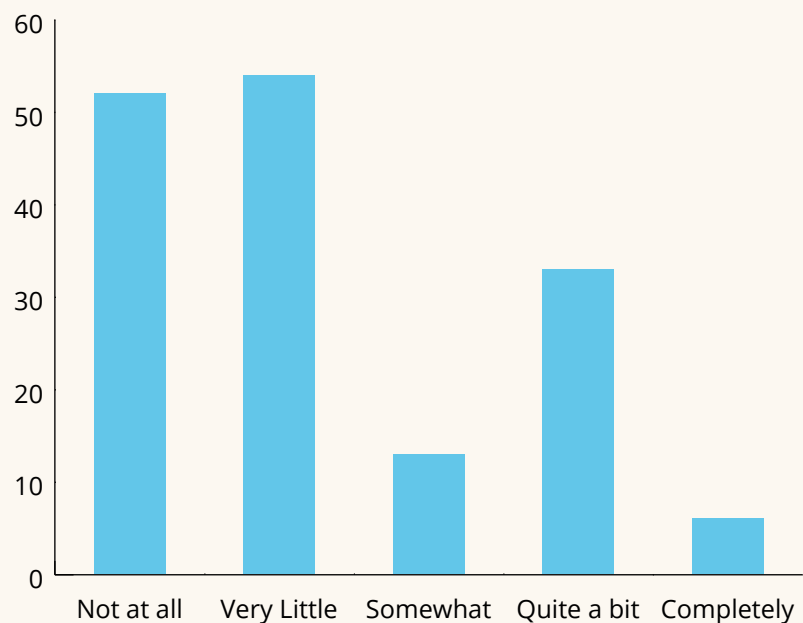


Figure 8: Trust of Insurers and Banks







©Tom Vierus / WWF Pacific

Resource management/sustainability

It was also important to get a picture of resource management and governance and behaviour relating to fishing, due to the project's goal to incentivise sustainable resource use/conservation of natural assets.

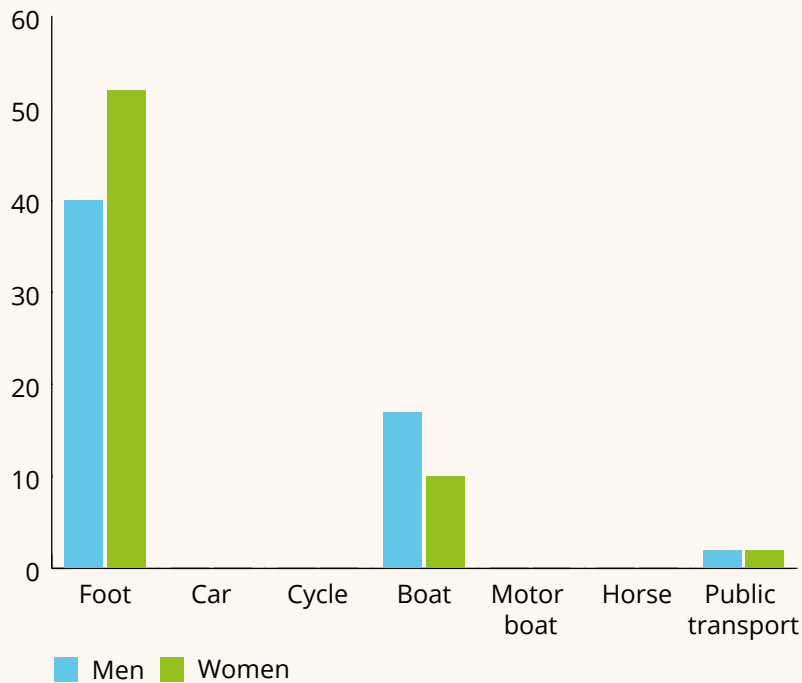
We asked respondents whether there was a management plan or rules in place to govern the fishing grounds they used. Almost 75% of people reported that there was. Only 10% of people felt these rules or plans were strongly enforced, with 35% reporting they were not at all, and the rest reporting that there was some level of enforcement. With 97% of people responding that they believed more rules should be in place, however, there was clearly strong support for management plans and rules.

Some of the rules people reported as being in place included tambu fishing areas and preservation of trees by the coastline. Almost 70% of respondents reported that they had observed a decrease in the availability of fish in the last five years, and 60% expected this to decline further over the next five years compared to today.

Respondents were also asked questions to understand their fishing habits. They were asked to list the most common types of fish they fish. Across the villages, there was wide variety in fish mentioned, with some commonly mentioned fish being parrotfish, mullet, tuna, trevally, wrasses, rabbit fish and goat fish. Some people were also catching turtles and sharks. Some gender differences were observed, with women more likely to catch octopus and crabs than men. Coastal reefs and outer reefs were the main fishing locations cited for men, as well as some time spent in the deep sea, and for women, efforts were focused on coastal reefs. The predominant method of fishing used across both genders was line, with some men using nets and spears. Most people accessed their fishing grounds on foot.



Figure 9: Access to Fishing Grounds



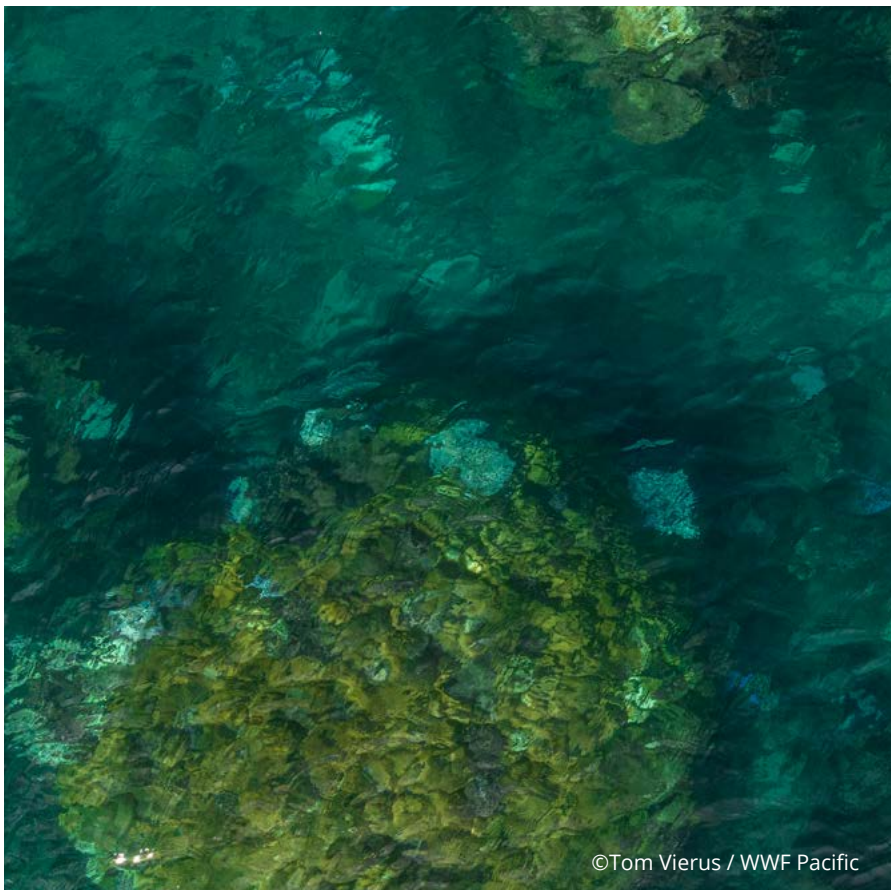
70%

of respondents reported that they had observed a decrease in the availability of fish in the last five years.



60%

expected this to decline further over the next five years compared to today.



©Tom Vierus / WWF Pacific

Conclusion and Takeaways

This survey forms a valuable component of our project, providing information on fishing communities' livelihoods and resource management practices that is vital to the project's objective of creating a financial tool to enhance community and ecosystem resilience.

The survey results show that the project's target communities are predominantly living below the poverty line (with 87% of households surveyed earning less than PGK 600/month), meaning they are particularly vulnerable to the impacts of climate hazards. Indeed, the survey shows that most of the respondents are highly dependent on just one or two income streams (fishing and farming). Fishing and farming are also responsible for around two thirds of their nutrition, and provide most of the income for the other portion of food that is bought.

Any disruption to communities' ability to fish or farm, or reductions in yield and catch, have the potential for severe consequences for these communities, but alternative livelihood options are limited.

In addition, the surveys show that the communities have little financial resilience that would allow them to weather a short period of disruption. More than half the survey respondents did not have any savings whatsoever, and those that did often held these mainly in cash. As expected, almost none of the respondents currently purchase any insurance product, as well as reporting having no or very little understanding of insurance. This underscores the importance of the financial literacy training conducted as part of this project in increasing this understanding. Almost all respondents did note, however, that they needed access to additional funds after a climate event, with reliance mainly on each other or government support for this. This dependence on government support leaves communities in a vulnerable position, waiting for support that may not materialise, that may be delayed, and/or that may not be sufficient. And reliance on each other has limitations in applicability to events that affect the entire community at once. As climate change amplifies climate hazards and resource scarcity, these challenges will only grow, increasing the risk of poverty traps and resulting unsustainable resource use for short-term gain.



87%
of households surveyed earning
less than
PGK 600/month



**More than half the survey
respondents did not have any
savings whatsoever, and those
that did often held these mainly
in cash.**

It is therefore essential to find and create solutions that will help communities be more resilient to climate hazards, as well as managing resource use in a sustainable manner, and address dependencies. The surveys show that communities have a high level of awareness of some of these challenges, and are taking steps to govern the use of fishing grounds, with rules already in place and almost every respondent indicated support for additional ones. This signals promising levels of community buy-in despite operating in a complex environment.

Contact information

Constance Wong

Constance.g.wong@wtwco.com

WWF Pacific

info@wwfpacific.org

For more information please visit:

<https://www.wtwco.com/en-GB/Insights/campaigns/financial-tools-for-small-scale-fishers-in-melanesia>

About GEF

The Global Environment Facility (GEF) is a family of funds dedicated to confronting biodiversity loss, climate change, pollution, and strains on land and ocean health. Its grants, blended financing, and policy support helps developing countries address their biggest environmental priorities and adhere to international environmental conventions. Over the past three decades, the GEF has provided more than \$22 billion and mobilized \$120 billion in co-financing for more than 5,000 national and regional projects.

About WWF

WWF is an independent conservation organization, with over 30 million followers and a global network active in nearly 100 countries. Our mission is to stop the degradation of the planet's natural environment and to build a future in which people live in harmony with nature, by conserving the world's biological diversity, ensuring that the use of renewable natural resources is sustainable, and promoting the reduction of pollution and wasteful consumption. WWF® and ©1986 Panda Symbol are owned by WWF. All rights reserved.

About WTW

At WTW (NASDAQ: WTW), we provide data-driven, insight-led solutions in the areas of people, risk and capital. Leveraging the global view and local expertise of our colleagues serving 140 countries and markets, we help you sharpen your strategy, enhance organisational resilience, motivate your workforce and maximise performance. Working shoulder to shoulder with you, we uncover opportunities for sustainable success — and provide perspective that moves you. Learn more at wtwco.com

Supported by:

Led by:

In partnership with:

