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Financial Inclusion to Support Ecosystem-Based Adaptation for Small-Scale Fishers in the Philippines

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Executive Summary

This study — led by CFI and Rare — investigates how inclusive finance can enhance resilience and adaptation to climate change for small-scale fishers in the Philippines. Small-scale fishers in the Philippines rely on the coastal ecosystem for their survival, with the ocean being a critical resource increasingly endangered by climate shocks and unsustainable practices. For these communities, the coastal ecosystem provides daily sustenance and the foundation of their livelihoods; however, this connection is becoming increasingly precarious. The Philippines, one of the world's most disaster-prone countries, faces several critical challenges: It receives an average of 20 typhoons yearly, of which at least five are destructive and cause damage to fishing vessels, equipment, and houses. Additionally, erratic rainfall, landslides, rising sea surface temperatures, and other climate shocks and stressors deplete fish stock. Furthermore, over 75 percent of its waters are overfished, leading to the degradation of marine ecosystems.

Rare — a conservation-focused global NGO — has pioneered a community-driven fisheries management system called Managed Access with Reserves (MA+R) that balances sustainable use of marine resources and protection by providing local fishers with exclusive access to fish in the "managed access" areas and identifying "reserves," which are off limits for fishing. MA+R is a form of Marine Protected Area

(MPA) that combines managed access with no-take reserves. Managed access allows local municipal fishers to catch permissible fish species and other marine resources under predefined conditions, usually developed in a participatory matter. On the other hand, no-take reserves within these areas prohibit all extraction to provide a refuge for marine life to recover and thrive. The participation of local small-scale fishers in managing the MPAs is seen as a significant factor influencing their long-term success, as it aligns MPA regulations with community needs, fostering a sense of ownership and enhancing compliance.

An extensive body of research points to the potential of financial services in helping low-income, vulnerable populations cope with sudden emergencies, including climate shocks. For small-scale fishers, access to these services is crucial for adopting and complying with MA+R requirements. However, financial inclusion is often overlooked in conservation efforts, limiting their scalability and long-term sustainability.

The link between the resilience of communities and the environment is crucial, especially for coastal communities highly dependent on natural resources for their livelihoods and sustenance. Resilience emphasizes addressing the underlying factors that make people vulnerable in the first place, which is essential for building long-term resilience and adaptive capacities of fisher communities. Resilient communities have higher adaptive capacity, which enables them to learn from experiences, make informed changes, and adapt to new social, economic, and environmental conditions.

This study discusses the findings of research conducted in the typhoon-prone Siargao islands of the Philippines, focusing on five coastal municipalities. The research highlights how integrating financial services can strengthen the socioeconomic resilience of fisher households, promote sustainable fishing practices, and incentivize behavioral change to support conservation.

Key Findings:

- ↗ **Small-scale fishing is a significant source of livelihood, food security, and income for coastal populations.** Small-scale fishing is a vital livelihood, food security, and income source for coastal communities, providing an essential protein source for over 50 percent of Filipino households. In 2023, it contributed 1.3 percent to the Philippines' GDP and employed 1.6 million people, plus several million in related activities. Characterized by flexibility, informality, and low productivity, small-scale fishing is often subsistence based, with the surplus used for trade or sale occasionally.

- **With an average daily income of PHP 178 (USD 3.2), small-scale fishers are among the Philippines' poorest and most vulnerable populations.** Over 34 percent of fisher households in the Philippines — twice the overall poverty rate in the country — are considered poor. This segment faces numerous challenges that threaten their livelihood and food security, key among which are environmental and climate-related factors, unsustainable fishing practices, the limited human capital of fishers, external shocks and triggers, and institutional challenges.
- **The combination of poverty, environmental degradation, climate shocks, and stressors puts tremendous pressure on fisher livelihoods, often compelling them to resort to overfishing and unsustainable fishing practices, causing further harm to the ecosystem.** Illegal, unreported, and unregulated fishing is also rampant and worsened by weak enforcement, governance failure, corruption, and institutional failures. Technological advancements, such as the introduction of motorization and monofilament nets and, in many cases, the overcapacity of the fishing fleet, have also spurred an increase in illegal fishing, particularly by commercial fishers.
- **Small-scale fishing and aquaculture are considered predominantly male domains.** Even though women play an instrumental role in pre- and post-harvest processes, their role in fishing is undervalued and almost invisible. This is because gender-disaggregated data about employment in fisheries is scarce across developing countries. Moreover, even when this data is available, it fails to capture women's participation in fishing on a part-time basis. Additionally, given women's caregiving responsibilities and limited access to fishing boats and equipment, their activities are often limited to nearshore fishing as well as intertidal fishing and gleaning, which are considered secondary to fishing and not recorded.
- **Given fishers' limited options in the short run, strategies adopted immediately after a shock are often reactionary with potentially harmful social and environmental ramifications.** Many fishers lacking alternative sources of income or savings intensify fishing efforts to meet their immediate needs as a primary coping mechanism. These intensified fishing efforts can involve using destructive fishing gear and illegal practices, which harm the marine ecosystem and cause health hazards. The likelihood of intensifying fishing efforts and violating MPA regulations increases in the event of significant covariate shocks that impact the entire community. Other reactive coping mechanisms include reducing household consumption and taking children out of school.

- **Longer-term pathways for fishers to adapt to and build resilience against climate change should focus on giving fishers security and agency to pursue livelihoods of their choice.** Many small-scale fishers take pride in their occupation and want to continue fishing. Financial services can help them adopt sustainable fishing practices, protect fishing assets, and improve their livelihoods. Others, for whom fishing is not desirable or tenable, will need strategies to upskill and transition to alternative livelihoods that are stable and not as susceptible to climate change. Access to capital and markets supported by training and technical assistance will catalyze these shifts and equip fishers to effectively manage existing and emerging risks. Long-term adaptation of fisher livelihoods will also involve integrating alternative income-generating activities, such as farming or tourism-related jobs, alongside improved and sustainable fishing methods.
- **Fisher households with access to financial services demonstrate higher capabilities to recover from and adapt to climate shocks and stressors.** A growing number of fisher households access credit from microfinance institutions (MFIs). MFIs are crucial in helping fishing communities support consumption, children's education, livelihood investments, including working capital to buy and sell fish, and recovery from shocks. Savings clubs, facilitated by Rare and other NGOs, are another powerful mechanism that helps the community — particularly women — save regularly, access emergency funds, cope with the immediate effect of shocks, and use the payouts or take group loans for productive investments. However, savings clubs have limited outreach, and the payouts are often insufficient to cope with the aftereffects of large covariate shocks. Similarly, while insurance products can help cover damages to assets and life and provide support to recover from disasters, more remains to be done to build fishers' understanding of these products and encourage them to register with Local Government Units (LGU).

Recommendations for inclusive finance stakeholders:

- Building digital and financial capabilities of small-scale fishers to help them understand the benefits and risks of various financial products, confidently use digital payments, learn budgeting and cashflow management, and make informed decisions that prevent them from becoming overindebted
- Strengthening savings clubs through partnerships with NGOs and linkages with formal FSPs; providing training and offering other financial services to

members; training mature members to be distributors of agents of FSPs

- ↗ Enabling access to credit and insurance through increasing awareness, building trust, deepening understanding of fisher segments, and developing partnerships with fisher cooperatives and other stakeholders in the fishing value chain
- ↗ Supporting the design and implementation of incentive mechanisms that reward fishers for complying with MA+R regulations and sustainable fishing practices
- ↗ Partnering with NGOs like Rare to support LGUs, create more awareness about the benefits of registration, organize community-level mobile ID registration camps, and help them navigate the process and documentation requirements

Recommendations for non-financial services stakeholders:

- Developing initiatives focused on supporting the schooling and higher education of fishers' children
- Designing packages that combine productive assets, financial services, and technical assistance to equip fishers with capacities needed for higher-skilled jobs
- Investing in fish handling and processing infrastructure, distribution facilities for processed products, and cold storage to enable fishers to meet global quality standards
- Investing in digital infrastructure and training for fishing communities
- Implementing and building awareness about social protection and cash-for-work programs that fishers can rely on during the lean season

Contents

Acronyms and Abbreviations

4P	Pantawid Pamilyang Pilipino Program
BFAR	Bureau of Fisheries and Aquatic Resources
CCVA	Climate change vulnerability assessment
DA-BFAR	Department of Agriculture – Bureau of Fisheries and Aquatic Resources
DENR	Department of Environment and Natural Resources
DFID	Department for International Development (U.K.)
EbA	Ecosystem-based adaptation
ENIPAS	Expanded National Integrated Protected Areas System
FAO	Food and Agricultural Organization (United Nations)
FARMC	Fisheries and Aquatic Resources Management Council
FCDO	Foreign, Commonwealth & Development Office (U.K.)
FGD	Focus group discussion
FMA	Fisheries Management Area
FSP	Financial service provider
GDP	Gross domestic product
GIFF	Green Inclusive Finance Framework
IPCC	Intergovernmental Panel on Climate Change
KBA	Key Biodiversity Area
LGU	Local government unit
MA+R	Managed access with reserves
MBA	Mutual benefit association
MFI	Microfinance institution
MPA	Marine protected area
NBIS	Nature-based insurance solution
NFIS	National Financial Inclusion Strategy
NGO	Non-governmental organization
NIPAS	National Integrated Protected Areas System

OECM	Other effective area-based conservation measure
PCIC	Philippines Crop Insurance Commission
PES	Payment for ecosystem services
SAP	Social Amelioration Program
SFFIS	Small Farmers and Fisherfolk Indebtedness Survey
SIPLAS	Siargao Island Protected Landscape and Seascape
SLF	Sustainable Livelihoods Framework
UNCDF	United Nations Capital Development Fund
UNDRR	United Nations Office for Disaster Risk
VMS	Vessel monitoring system

01 Introduction

1.1. RATIONALE FOR THE RESEARCH

Small-scale and artisanal fishers in the Philippines rely on the coastal ecosystem for their survival, with the ocean being a critical resource increasingly endangered by climate change and unsustainable practices. For these communities, the coastal ecosystem provides daily sustenance and the foundation of their livelihoods. However, this connection is becoming increasingly precarious. The Philippines, one of the world's most disaster-prone countries, faces a critical challenge:[1] over 75 percent of its waters are overfished,[2] leading to the degradation of marine ecosystems. Overfishing is not just an environmental issue; it directly threatens the income, food security, and social stability of these coastal communities. The consequences are severe,[3] pushing fishers further into poverty and increasing their vulnerability to climate change, further complicating their ability to adapt and sustain their way of life.

Ecosystem-based Adaptation (EbA) is a nature-based solution

1 Bollettino, V., Alcayna, T., Enriquez, K., & Vinck, P. (2018). Perceptions of Disaster Resilience and Preparedness in the Philippines. Harvard Humanitarian Initiative. https://hhi.harvard.edu/sites/hwpi.harvard.edu/files/humanitarianinitiative/files/prc-phillippine-report-final_0.pdf?m=1607102956

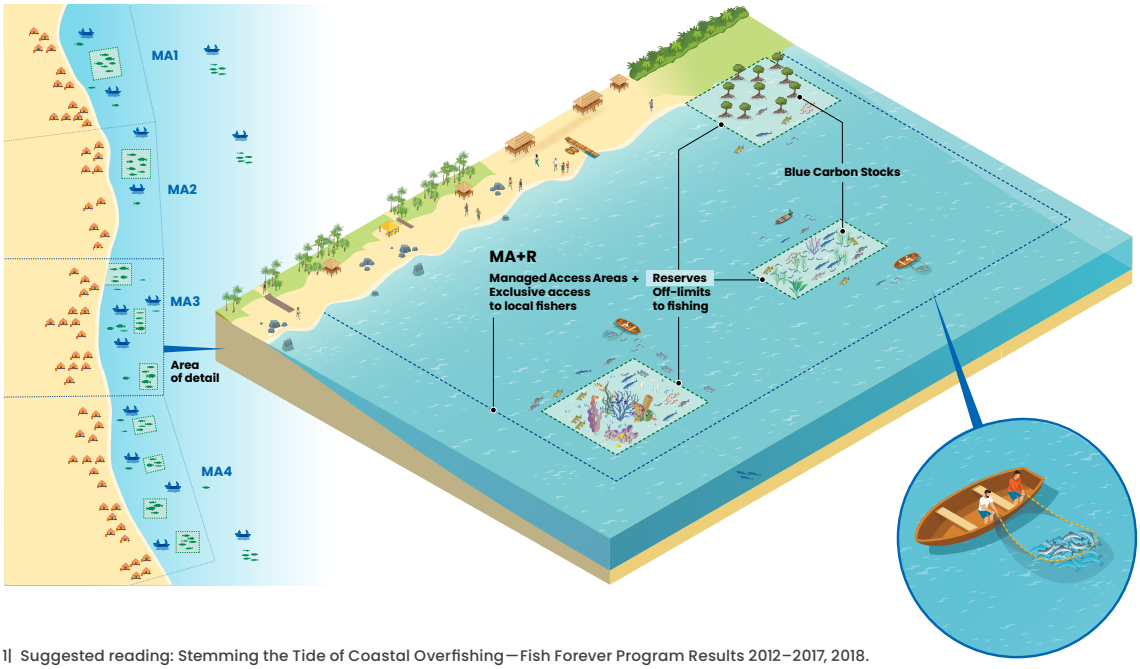
2 Lagniton, L. (2022, July 28). Philippine Ocean Conservation Group Sounds Alarm Over Dwindling Sardine Stock. Maritime Fairtrade. https://maritimefairtrade.org/philippine-ocean-conservation-group-sounds-alarm-dwindling-sardine-stock/

3 Note: "fishers" and "small-scale fishers" are used interchangeably in this paper.

that leverages biodiversity and ecosystem services to reduce vulnerability, build human resilience, and help people adapt to the adverse effects of climate change.[4] Conservationists and governments worldwide have implemented Marine Protected Areas (MPA) to protect the marine and coastal ecosystem from human activity and create long-term environmental and economic benefits for communities relying on these resources. MPAs are regions designated and managed for the long-term conservation of marine resources, ecosystem services, or cultural heritage.[5]

While there are numerous approaches to implementing MPAs, Rare — a conservation-focused global NGO — has pioneered a fisheries management system called Managed Access with Reserves (MA+R) (see Figure 1) that balances sustainable use of marine resources and protection by providing local fishers with exclusive access to fish in the "managed access" areas and identifying "reserves," which are off limits for fishing.[6] The concept is simple: Declining fish stocks can be replenished in the reserves where human activity is restricted. Furthermore, due to the spillover effect, fishers can eventually access more fish stock beyond the restricted areas,[7] yielding positive outcomes for safeguarding biodiversity, ensuring livelihoods and food security, and building the climate resilience of coastal communities.[8]

FIGURE 1: MA+R MODEL



1| Suggested reading: Stemming the Tide of Coastal Overfishing—Fish Forever Program Results 2012–2017, 2018.

Source: Fishing for Climate Resilience

4 Global EbA Fund. (n.d.). What Is EbA? https://globalebafund.org/what-is-eba/
5 NOAA Ocean Exploration. (n.d.). What is a marine protected area (MPA)? https://oceanexplorer.noaa.gov/facts/mpas.html
6 Rare. (2022, February 15). Managed Access with Reserves. https://rare.org/opinions-insights/managed-access-with-reserves/
7 Fabinyi. M. (2012). Fishing for Fairness: Poverty, Morality and Marine Resource Regulation in the Philippines. ANU Press. http://doi.org/10.22459/FF.01.2012
8 Rare (2022)

An extensive body of research points to the potential of financial services in helping low-income, vulnerable populations cope with sudden emergencies, including climate shocks.[9] Access to appropriate financial services is also crucial for helping small-scale fishers adopt and comply with MA+R requirements. While the MA+R approach can help replenish fish stock and improve fishers' livelihood outcomes and food security in the long term, considerable social preparation is needed to support coastal populations heavily reliant on fishing to adopt MA+R. Furthermore, since benefits are not immediate, fishers need support to maintain consumption levels, build resilience against shocks, and adapt and diversify livelihood options during this period.

Although financial inclusion is crucial for enhancing environmental resilience, conservation programs in fisher communities often overlook it as a strategic component. Financial inclusion, defined by the Center for Financial Inclusion (CFI) as a state in which all people who can use them have access to a full suite of quality financial services, provided at affordable prices, in a convenient manner, and with dignity for the clients, is a vital strategy that can support fishers to practice sustainable fishing and adopt MPA. At the same time, MPA approaches rarely integrate financial inclusion, making it challenging to achieve the scalability and sustainability needed for effective nature-based solutions. Recognizing the criticality of financial inclusion solutions in helping fishers build resilience and adopt MPA, CFI and Rare partnered to explore the role of financial services in promoting the adoption of MA+R by enhancing the socioeconomic resilience of fisher households and incentivizing behavioral change.

9 Pomeroy, R., Arango, C., Lomboy, C., & Box, S. (2020). Financial inclusion to build economic resilience in small-scale fisheries. Marine Policy, 118. https://doi.org/10.1016/j.marpol.2020.103982

Box 1: About the Partners

Rare is an NGO specializing in applying behavioral science to community-based conservation and sustainable development, placing local communities at the center of environmental solutions. Since 1973, Rare has used social marketing and behavioral adaptation strategies to strengthen environmental stewardship. Rare's global marine program, Fish Forever, works with over 1,400 communities and 200 local governments across eight countries, protecting more than 5.5 million hectares of coast. The program combines behavioral science concepts with climate and fisheries science, aiming to reverse the further decline and collapse of fish stocks around the globe. Fish Forever's focus on community-based fisheries management through the application of MA+R increases ecological and social adaptive capacity and ensures equitable distribution of benefits so people and nature can adapt and thrive under changing conditions. Additionally, Rare's innovative finance program connects coastal communities with the formal financial sector, helping them build resilience to financial shocks and the consequences of climate change and reduce the pressure on nature. For more information, refer to https://rare.org.

The Center for Financial Inclusion (CFI) is an independent think tank housed in Accion that works to advance inclusive financial services for the billions of people who currently lack the financial tools needed to improve their lives and prosper. CFI leverages partnerships to conduct rigorous research, test promising solutions, and advocate for evidence-based change. CFI's climate risks and resilience workstream focuses on understanding the financial needs of low-income and vulnerable populations in responding to climate change. CFI partners with climate-focused organizations and financial services providers to conduct rigorous research, evaluate existing green finance products and services, and test innovations that help low-income, climate-vulnerable populations adapt to and build resilience against climate shocks and stressors. CFI's research in this space is underpinned by its Green Inclusive Finance framework that lays out four pathways through which financial services can support low-income people and their livelihoods: mitigation, resilience, adaptation, and transition.[10] For more information, visit https://www.centerforfinancialinclusion.org/.

Rare's experience in working with small-scale fisher communities has shown that while a multi-pronged approach focused on behavior change, education, and

10 Miller, H., Krishnan, L., & Alvarez Ruiz, L. (2023). Green Inclusive Finance: A Framework for Understanding How Financial Services Can Help Low-Income and Vulnerable People Respond to Climate Change. Center for Financial Inclusion. https://www.centerforfinancialinclusion.org/green-inclusive-finance-a-framework-for-understanding-how-financial-services-can-help-low-income-and-vulnerable-people-respond-to-climate-change/

awareness building are prerequisites for fishers to understand and adopt EbA, it is equally important to strengthen the socioeconomic resilience of these vulnerable communities whose income streams are irregular and unpredictable. Rare has been supporting coastal communities in the Philippines to save and access financial services and cope with shocks by forming savings groups and enabling access to indemnity and parametric insurance.[11] While these initiatives have helped minimize the impact of health shocks and natural disasters and enabled access to credit for consumption, they have limited ability to support long-term adaptation.

In light of this, CFI and Rare's partnership focuses on understanding how financial inclusion can build the resilience of fisher households and communities to facilitate the voluntary adoption of MA+R by directly augmenting the financial, human, physical, social, and natural assets that they can access to improve their incomes, meet financial needs, and overcome financial shocks, as well as enhancing the effectiveness of institutions, processes, and policies that influence access to assets and overall vulnerability. To that end, it is important to recognize that the meaning of "resilience" varies across contexts. While resilience appears to be a neutral concept, it can vary depending on the context and the specific event referenced (political instability, climate shock, etc.).[12] Consequently, understanding the inherently political nature of resilience, the issues at stake, and the decisions that must be made requires nuanced analysis.[13]

1.2 THE ROLE OF INCLUSIVE FINANCE IN BUILDING RESILIENCE TO CLIMATE CHANGE: A BRIEF REVIEW OF LITERATURE

Financial services can enhance small-scale fisher households' resilience and adaptation to climate change. While there is extensive literature on financing for small-scale fisheries in the Philippines, particularly regarding credit and insurance,[14] evidence on the role of financial services in improving resilience and enabling adaptation is limited. However, substantial evidence in the context of smallholder farmers and other rural populations has demonstrated how financial services have helped people save for emergencies, invest in and insure assets, and receive help during disasters. This chapter draws on this evidence to explore the potential of financial services for small-scale fishers.

A growing body of research suggests savings can positively impact low-income populations. A randomized control trial conducted to assess the impact of the Savings for Change program, implemented in Mali, shows that women who joined the savings and credit groups facilitated by the program could increase food

11 Rare. (n.d.-a). Elements of innovative finance. https://rare.org/program/innovative-finance/elements/

12 Pizzo, B. (2015). Problematizing resilience: Implications for planning theory and practice. Cities, 43, 133–140. https://doi.org/10.1016/j.cities.2014.11.015

13 Pizzo (2015)

14 Food and Agricultural Organization of the United Nations (FAO). (2022). The CAFI SSF Network: Your partner in developing finance for small-scale fisheries. https://www.rfilc.org/wp-content/uploads/2022/10/The-CAFI-SSF-Network-Your-partner-in-developing-finance-for-small-scale-fisheries.pdf

security and resilience to income shocks.[15] Similarly, farmers with commitment savings accounts in Malawi improved agricultural investment and production.[16] Additionally, liquid savings products ensured easy access to funds for consumption smoothing emergencies, as seen in Chile, where access to liquid savings accounts reduced consumption cutbacks during income shocks,[17] while commitment savings products[18] encouraged people to save larger amounts for productive investments. These examples demonstrate the critical role of savings in helping households manage risks, cope with and recover from crises, and finance adaptation investments.[19]

Access to credit is a lifeline for maintaining household consumption, rebuilding housing, or relocating during and after climatic events. Furthermore, credit is even more essential when low-income households often don't have sufficient savings to make more significant adaptation investments. For example, access to credit — both formal and informal — helped households in Zambia and Bangladesh manage consumption and reduce the need for casual or off-farm labor during lean seasons and months of intense flooding.[20] An evaluation of the long-term effects of a credit program in Kenya that combined microcredit with training on climate adaptation and business management showed improvements in incomes, asset accumulation, and households' ability to weather climate shocks.[21] However, credit in the context of climate change carries risks for both borrowers and providers. Relying purely on credit to meet consumption needs or repay

15 Beaman, L., Karlan, D., & Thuysbaert, B. (2014). Saving for a (Not So) Rainy Day: A Randomized Evaluation of Savings Groups in Mali. National Bureau of Economic Research (NBER). https://www.nber.org/system/files/working_papers/w20600/w20600.pdf

16 Brune, L., Giné, X., Goldberg, J., & Yang, D. (2016). Facilitating Savings for Agriculture: Field Experimental Evidence from Malawi. Economic Development and Cultural Change 64(2), 187–220. https://www.nber.org/papers/w20946

17 Kast, F., & Pomeranz, D. (2018). Savings Accounts to Borrow Less: Experimental Evidence from Chile. The Journal of Human Resources, 59(1), 70–108. https://jhr.uwpress.org/content/59/1/70

18 A savings mechanism that restricts access to funds for a set period or until a specific goal is reached, encouraging disciplined savings for larger, planned expenditures.

19 Moore, D., Niazi, Z., Rouse, R., & Kramer, B. (2019). Building Resilience through Financial Inclusion: A Review of Existing Evidence and Knowledge Gaps. Innovations for Poverty Action. https://poverty-action.org/sites/default/files/publications/Building-Resilience-through-Financial-Inclusion-English.pdf; Sandri, E., & Robinson, J. (2021). Savings and Climate Resilience. A Review of Successes and Challenges in Current Programming. ITAD. https:// www.itad.com/knowledge-product/savings-climate-resiliencereview/

20 Fink, G., Jack, B.K., & Masiye, F. (2014). Seasonal Credit Constraints and Agricultural Labor Supply: Evidence from Zambia. National Bureau of Economic Research (NBER) Working Paper No. 20218. https://www.nber.org/system/files/working_papers/w20218/w20218.pdf; Fenton, A., Paavola, J., & Tallontire, A. (2017). The Role of Microfinance in Household Livelihood Adaptation in Satkhira District, Southwest Bangladesh. World Development, 92, 192–202. https:// www.sciencedirect.com/science/article/pii/ S0305750X16305587

21 Miller et al. (2023)

loans without increasing incomes or investing in adaptation can lead to overindebtedness and reduced well-being. Integrating strong consumer protection practices in the credit process and providing skills training or asset transfers will enable vulnerable people to adapt safely.[22]

Insurance products are a vital risk transfer mechanism to support vulnerable populations during catastrophic climate events. Studies conducted in Kenya[23] and Mexico[24] have shown that weather-indexed insurance[25] helped farmers manage future risks without resorting to negative coping strategies, influenced investment decisions regarding inputs and crop choices, and boosted household consumption after a shock. However, despite its benefits, the uptake of index insurance has been low due to high costs, basis risk, liquidity constraints, lack of data, and trust barriers.[26]

Payments, particularly through remittances and emergency transfers from government or humanitarian agencies, play a vital role in smoothing consumption during shocks and aiding recovery. Digital channels, including mobile money, can significantly enhance the rapid delivery of these payments on a large scale, supporting the resilience of vulnerable populations.[27] For example, in Tanzania, mobile money helped mitigate the effects of rainfall shocks on household consumption by facilitating the flow of remittances, enabling users to maintain consumption levels.[28] In Bangladesh, anticipatory cash transfers via bKash — a mobile money service — before floods enabled families to evacuate, stockpile food, and safeguard assets, enhancing their flood resilience.[29] During the COVID-19 pandemic, several governments leveraged mobile money to rapidly distribute social protection payments, making these systems more responsive to shocks and quickly reaching more people affected by the economic crises.[30]

22 Miller et al. (2023); Caretta, M. (2014). "Credit plus" microcredit schemes: a key to women's adaptive capacity. Climate and Development, 6(2). https://www.researchgate.net/publication/260446203_Credit_plus_microcredit_schemes_a_key_to_womens_adaptive_capacity

23 Janzen, S. & Carter, M. (2019). After the Drought: The Impact of Microinsurance on Consumption Smoothing and Asset Protection. American Journal of Agricultural Economics, 101(5), 651–671. https://doi.org/10.1093/ajae/aay061

24 De Janvry, A., Ramirez Ritchie, E., & Sadoulet, E. (2016). Weather Index Insurance and Shock Coping: Evidence from Mexico's Cadena Program. World Bank Policy Research Working Paper no. 7715. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2811363

25 A type of insurance that provides payouts based on predetermined weather indices (e.g., rainfall levels) rather than actual losses.

26 Miller et al. (2023)

27 Better than Cash Alliance. (2023). Call to Action: Responsible Digital Payments to Accelerate Climate Action. https://btca-production-site.s3.amazonaws.com/document_files/86/document_files/Alliance-CCCTA-complete-v6.pdf?1702944913

28 Riley, E. (2018). Mobile money and risk sharing against village shocks. Journal of Development Economics, 135, 43–58. https://doi.org/10.1016/j.jdeveco.2018.06.015

29 Pople, A., & Dercon, S. (2024). Cash Before Calamity: Anticipatory Action for Flood Resilience. Center For Global Development. https://www.cgdev.org/blog/cash-calamity-anticipatory-action-flood-resilience

30 Rutkowski, M., Mora, A. G., Bull, G., Guermazi, B., & Grown, C. (2020). Responding to crisis with digital payments for social protection: Short-term measures with long-term benefits. World Bank Blogs. https://blogs.worldbank.org/en/voices/responding-crisis-digital-payments-social-protection-short-term-measures-long-term-benefits

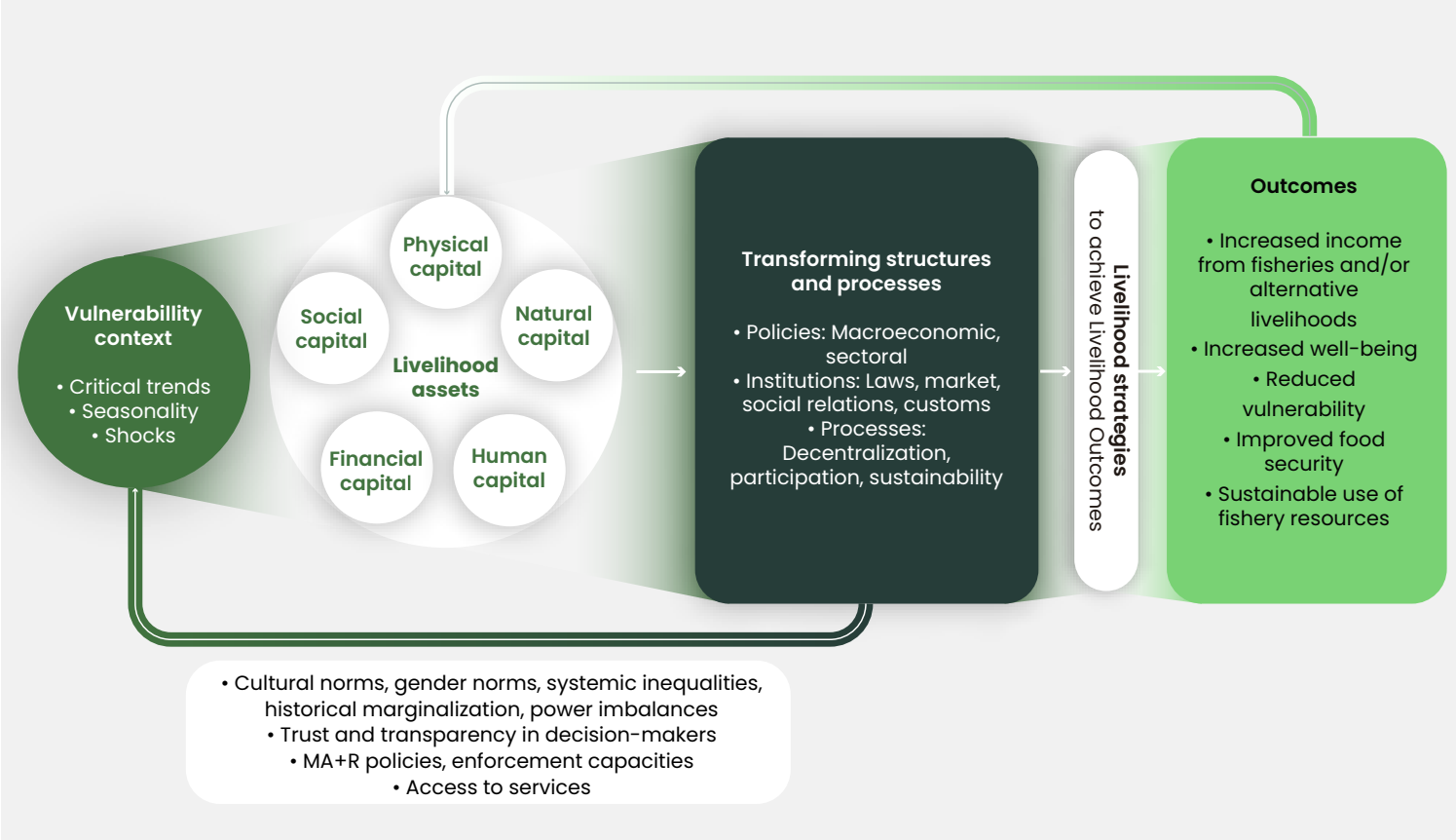
1.3 RESEARCH FRAMEWORKS

This research is informed by two key frameworks: FCDO's (formerly DFID) Sustainable Livelihoods Framework (SLF) and CFI's Green Inclusive Finance (GIF) Framework.

1.3.1 Sustainable Livelihoods Framework

The SLI framework provides a simple and people-centered structure to understand and analyze the livelihood strategies of low-income households, their inherent vulnerabilities, the contexts in which they live and make livelihood decisions, and the effectiveness of strategies and interventions employed to reduce their poverty and vulnerability.[31]

FIGURE 2: SUSTAINABLE LIVELIHOODS FRAMEWORK



Source: Adapted from DFID's Sustainable Livelihoods Framework

31 Department for International Development (DFID). (2001). Sustainable Livelihoods Guidance Sheets. https://www.livelihoodscentre.org/documents/114097690/114438878/Sustainable+livelihoods+guidance+sheets.pdf/594e5ea6-99a9-2a4e-f288-cbb4ae4bea8b?t=1569512091877

Key elements of this framework, as shown in Figure 2, include the following:

- Vulnerability context provides an understanding of the external environment in which people live, the shocks they are exposed to, and the longer-term and seasonal trends that directly affect their livelihoods, access, and ownership of assets. Notably, even when some trends and seasonal shifts may be positive, vulnerable populations such as fisher communities often lack the assets and institutional support needed to take advantage of these headwinds.

- Livelihood assets provide an understanding of the various strengths, assets, and capital endowments that communities have and how they can be harnessed to create positive livelihood outcomes. The SLI framework has identified five types of livelihood assets: human capital, natural capital, social capital, physical capital, and financial capital (see Annex 1).[32] These assets are interrelated and mutually reinforce each other.

- Institutions, structures, and processes operate at the global, regional, national, community, and household levels and encompass policies, institutions, and processes that shape resource accessibility. They influence and are concurrently reinforced by the vulnerability context. While structures help set the frameworks, policies, and legislation that govern all livelihood activities, processes define how structures and individuals interact. The transformation of structures and processes can catalyze equitable access to institutions, membership associations, assets, and livelihood strategies.

- Livelihood strategies represent the diverse range and combination of activities low-income households use to achieve their livelihood goals. Livelihood strategies are influenced by a household's vulnerability context, livelihood assets, and institutional structures. It is a dynamic process that includes both short-term coping mechanisms and adaptive strategies that are flexible and give people agency and the ability to develop resilience against shocks. Examples of livelihood strategies adopted by low-income fisher communities include fishing, pursuing alternative livelihoods, including tourism, investments in education, and migrating for better opportunities.

- Livelihood outcomes emanate from adopting various livelihood strategies. Households continuously learn and adapt their livelihood strategies depending on their livelihood outcomes. These

32 DFID (2001)

outcomes can be varied and include increased income and well-being, increased capacity to withstand and recover from shocks and stressors, more influence and decision-making power at the community level, and reduced vulnerability.

1.3.2 Green Inclusive Finance (GIF) Framework

CFI's GIF framework[33] builds on existing evidence and impact narratives that emphasize the idea of well-being and include four key impact pathways: mitigation, resilience, adaptation, and transition (see Figure 3). This framework is intended to help the inclusive finance sector better understand how financial products or services can help consumers respond to the risks and challenges associated with climate change. The pathways are not mutually exclusive and may be mutually reinforcing. The inclusive finance strategies proposed in Chapter 5 that can support small-scale fishers' resilience, adaptation, and transition to climate shocks and stressors are drawn from the GIF framework.

FIGURE 3: FRAMEWORK FOR GREEN INCLUSIVE FINANCE

PATHWAY	ROLE OF INCLUSIVE FINANCIAL SERVICES	EXAMPLES OF INCLUSIVE FINANCIAL SOLUTIONS
Mitigation	To support the adoption of green technologies and practices that can improve local environmental conditions for households and communities	↗ Installment plans to pay for solar lighting systems ↗ Financing of "clean" cookstoves (e.g., those powered by electricity or biogas)
Resilience	To support the financial resources needed to prepare for, manage through, and recover from climate-related shocks	↗ Weather/livestock index insurance ↗ Easy-access savings ↗ Social protection payments for food or wage security
Adaptation	To support necessary changes to livelihood strategies in response to longer-term climate-related events	↗ Financing to farmer-producer groups for high-value crop diversification and value chain linkages ↗ Financing to support weatherproofing homes
Transition	To support shifts to new livelihood strategies in response to and in anticipation of future climatic events	↗ Financing/remittances for migration to new locations ↗ Financing to invest in vocational training for a new livelihood

Source: CFI

33 Miller et al. (2023)

1.4 METHODOLOGY

This paper focuses on findings from a research project undertaken by CFI and Rare in the Philippines. The study was informed by desk research, key informant interviews, and participatory qualitative research conducted in the Siargao islands in April 2024 (see Box 2 for an overview of the region).

In order to understand how financial inclusion can build the resilience of fisher households and communities to facilitate the voluntary adoption of MA+R, CFI conducted an extensive literature review of the factors impacting the socioeconomic resilience of small-scale fishers globally and in the Philippines, the key institutional and structural barriers they face, and the state of financial inclusion in the country. The research also critically examined the MPA model and its impact on fishing and coastal communities. Additionally, given the focus on inclusive finance, CFI reviewed academic and gray literature on the linkages between financial inclusion and climate adaptation and resilience, particularly in the context of small-scale fishers.

CFI also conducted key informant interviews with financial service providers, international organizations, and experts focused on fisheries and global development. The interviews were followed by qualitative field research involving focus group discussions (FGDs) with men and women small-scale fishers and savings group members and interviews with Municipal Agricultural Officers, Fisheries Management Bodies (FMB), the Bureau of Fisheries and Aquatic Resources (BFAR), and local NGOs in Siargao. Annex 1 provides more details about the key informants and FGD participants.

Box 2: The Siargao Islands

The Siargao Island Protected Landscape and Seascape (SIPLAS) is one of the 128 Key Biodiversity Areas (KBAs) in the Philippines, situated in the Surigao del Norte Province in the Caraga Region of Mindanao. The two main islands, Siargao and Bucas Grande Island, and the surrounding islets cover a land area of 62,796 hectares, while the remaining 216,118 hectares of the SIPLAS are marine areas. The islands are rich in biodiversity, with 7,768 hectares of mangroves, eight species of seagrasses, 59 species of seaweed, and 106 species of fish, as well as 38 genera of corals and 137 species of mollusks.[34] Siargao's natural capital attracts tourists and surfers, enhancing the region's appeal and economic value;

34 Philippines Climate Change Adaptation Project. (2015). Siargao Islands Protected Landscapes and Seascapes Management Plan. Department of Environment and Natural Resources. https://www.scribd.com/document/463876880/SIPLAS-Management-Plan

in 2023, tourism in the region surged by around 324 percent.[35]

This study focused on five coastal municipalities in Siargao: Socorro, General Luna, Santa Monica, Del Carmen, and Pilar (see Figure 6). As of 2010, these municipalities were home to 66 communities with an estimated population of 70,625. 34.6 percent of the households in the Siargao region lived below the poverty line in 2012.[36] Most of the population relies on agriculture and fishing as their primary sources of livelihood. Nearly 24 percent of the population are small-scale fishers, who are among the poorest and most marginalized in the country.[37]

The Siargao islands are vulnerable to erratic rainfall, flooding, and rain-induced landslides. Furthermore, the sea level in the Philippines is projected to rise from 5.7 to 7mm per year, which, in addition to impacting crop production, infrastructure, and livelihoods, would result in significant portions of the island being fully submerged.[38] The Caraga region, where Siargao is located, is also highly prone to typhoons and tropical cyclones. Over the past 15 years, the area has seen over 15 typhoons, including Pablo, Yolanda, Odette, and Rai. Coastal communities, dependent on fishing and coral reefs, are most vulnerable to the hazards caused by rising sea levels, tsunamis, and tropical storms.

In 2020, Rare conducted Climate Change Vulnerability Assessments (CCVAs)[39] in the five municipalities to identify the magnitude of climate change-related threats and the opportunities for coastal fishing communities to adapt to climate change. Using CCVA results, Rare worked with the Local Government Units (LGU) and communities to mainstream EbA and help the municipalities develop and implement local fisheries management plans that include EbA.

FIGURE 4: PROJECT LOCATIONS

35 Travel and Tour World. (2024). Siargao's tourist arrivals surge, marks stellar growth in Philippines. https://www.travelandtourworld.com/news/article/siargaos-tourist-arrivals-surge-marks-stellar-growth-in-philippines/

36 Travel and Tour World (2024)

37 Travel and Tour World (2024)

38 Climate Tracker Asia. Rising Sea Levels and Coastal Vulnerability in the Philippines

39 Rare. (n.d.-b). Climate Change Vulnerability Assessment Dashboard. Retrieved on July 11, 2024, from https://experience.arcgis.com/experience/eab4cff2905445619805194968590dc0?views=View-3

1.5 LIMITATIONS OF THE RESEARCH

This research was qualitative and concentrated on five municipalities in the Siargao islands. Although the findings may not fully represent other regions with different socio-economic and environmental contexts, they offer valuable insights into the experiences of small-scale fishers and their relationship with the ecosystem. This research was primarily a demand-side study. The study mainly explored the livelihood contexts of small-scale fishers, their interactions with MPAs, and the perspectives of providers and fisheries experts. The supply-side interviews focused on uncovering the barriers providers faced in offering financial services to small-scale fishing segments; however, they did not extensively address policy and institutional challenges, as these were outside the study's scope. Additionally, while acknowledging the need for broader support for small-scale fishing households, the research specifically focused on how inclusive finance can strengthen livelihoods and help communities adapt to and build resilience against climate shocks.

1.6 STRUCTURE OF THE PAPER

The remainder of the paper is organized as follows: Chapters 2 and 3 establish the context for the paper. Chapter 2 examines the factors contributing to the vulnerabilities of small-scale fishers, while Chapter 3 provides an overview of MA+R and its impact on small-scale fishers, incorporating observations from Siargao. While this may not be new information for the climate change and conservation experts, it provides invaluable context for financial inclusion stakeholders. Chapter 4 focuses on the interplay between resilience and adaptation, drawing on existing evidence and observations from Siargao. This chapter explores how fishers cope with shocks and adapt their livelihoods in the face of climate change and MPA regulations and emphasizes three impact pathways: resilience, adaptation, and transition. Chapter 5 integrates the findings from an inclusive finance perspective, highlighting the critical role of financial services in supporting fishers' resilience and adaptation pathways. It also discusses the current state of the financial inclusion sector in the Philippines and provides an overview of the financial services observed in Siargao. Chapter 6 concludes with the key learnings and a way forward for supporting the financial inclusion of small-scale fisher households in the context of MPAs.

02 Small-Scale Fishers and the Vulnerability Context

2.1 SMALL-SCALE FISHING IN THE PHILIPPINES

Small-scale fisheries account for nearly half of global fish production.[40] They also employ millions of low-income households that directly and indirectly support fishing and related activities through capture fishing, aquaculture, fish processing, marketing, and building boats, nets, and other fishing equipment.[41] According to the FAO, small-scale fisheries are "traditional fisheries involving fishing households (as opposed to commercial companies), using a relatively small amount of capital and energy, relatively small fishing vessels (if any), making short fishing trips, close to shore, mainly for local consumption."[42] Usually, small-scale fishers use fishing vessels whose capacity is below three tons and limit their activities within a radius of 25 km from the shoreline. They may also be owners of small fish ponds of less than five hectares of fish cages smaller than 400 square meters and are less selective of the species they catch.[43] While the range of activities and tools used in small-scale fisheries varies considerably across countries and regions, they are characterized by their flexible and informal nature and low capital accumulation and productivity.[44] Small-scale fishing is often done for subsistence, where a small volume of fish is caught primarily for consumption or exchange. On occasion, the surplus harvest may involve selling or bartering.[45]

40 Van Anrooy, R. et al. (2022). World review of capture fisheries and aquaculture insurance 2022. FAO Fisheries and Aquaculture Technical Paper No. 682. https://doi.org/10.4060/cb9491en
41 Van Anrooy et al. (2022)
42 Badiola, J.A.R., Guinto, E.J., Das. P.K., Gietzen, T., Yang. L., & Van Anrooy, R. (2021). Financing small-scale fisheries in the Philippines – A policy brief. FAO. https://doi.org/10.4060/cb8029en
43 Badiola et al. (2021)
44 Pomeroy et al. (2020)
45 Badiola et al (2021)

Box 3: Small-Scale Fishing Practices in the Philippines

Capture fishing is classified based on the size of vessels used and the volume of fish caught per unit effort. Capture fishing can involve large-scale industrial vehicles, capital-intensive technologies, and salaried crew to cover larger areas of fishing ground, often in the open ocean, or small-scale or artisanal fishing using manually operated small craft and labor-intensive traditional fishing gear.[46] Small-scale fishers engaged in capture fishing in the Philippines primarily harvest wild fish from coastal ocean waters using various methods, such as nets, traps, and hook and line. Capture fishing has a high degree of unpredictability because the catch sizes can vary based on weather stock, water stocks, and availability of fish stocks.

Municipal fishing refers to capture fishing done in inland and coastal areas with or without using a fishing boat of up to three gross tons.[47]

Nearshore fishing refers to fishing conducted in shallow waters close to the coastline. Nearshore fishing, conducted on non-motorized boats, typically targets species that inhabit coastal areas, such as reef fish, and includes handlining, net fishing, and gleaning shellfish.

Small-scale aquaculture involves farming fish, shellfish, or seaweed in controlled environments, such as cages or coastal ponds, primarily for human consumption.[48] Aquaculture complements capture fisheries and provides fishers with a steady source of income from seafood.

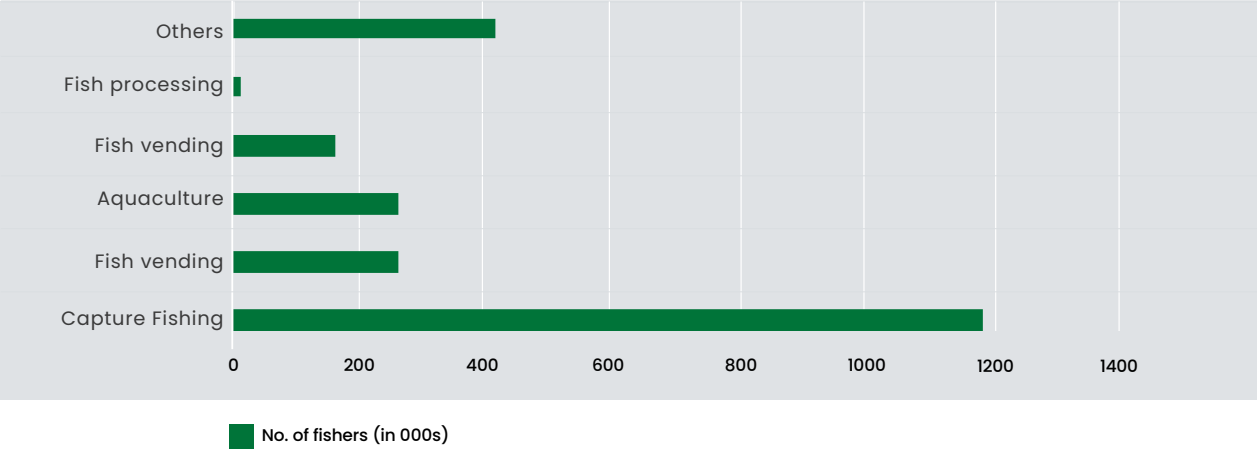
46 Asian Development Bank. (2014). Economics of Fisheries and Aquaculture in the Coral Triangle. https://www.adb.org/sites/default/files/publication/42411/economics-fisheries-aquaculture-coral-triangle.pdf

47 Yap, W. (1999). Rural Aquaculture in the Philippines. FAO. https://openknowledge.fao.org/server/api/core/bitstreams/571144dda-4dce-457d-bb79-652b2f58f918/content

48 Global Seafood Alliance. (2019, March 27). What Is Aquaculture and Why Do We Need It? https://www.globalseafood.org/blog/what-is-aquaculture-why-do-we-need-it/

Small-scale fishing is a significant source of livelihood, food security, and income for coastal populations. The fish caught is an important protein source for over 50 percent of Filipino households.[49] In 2023, it contributed to 1.3 percent of the Philippines' GDP and employed 1.6 million people, accounting for 4 percent of the labor force. There are over 2.3 million registered local fisherfolk[50] in the country operating more than 476,000 fishing vessels, most of which lack sails or gear.[51] These fishers primarily rely on traditional fishing practices and equipment such as hooks and lines, gill nets, and small boats, including those without engines. More than 85 percent of them are small-scale fishers, including municipal fishers engaged in capture fishing and operating within 15 kilometers of the shoreline.[52] Box 3 summarizes the primary fishing practices adopted by small-scale fishers in the Philippines. Approximately 259,000 fishers are involved in aquaculture (see Figure 5).[53] The production volume of capture fisheries has been declining steadily over the years and stood at approximately 1.99 million metric tons in 2022.[54] On the other hand, aquaculture production has risen to 2.38 million metric tons at the end of 2023.[55]

FIGURE 5: MUNICIPAL FISHERS IN THE PHILIPPINES, BY ACTIVITY



Source: Number of municipal fisherfolk in the Philippines in 2022, by type of livelihood

49 World Bank. (2023, May 30). New Fisheries Initiative Will Benefit Over a Million People in the Philippines [Press release]. https://www.worldbank.org/en/news/press-release/2023/05/31/new-fisheries-initiative-will-benefit-over-a-million-people-in-the-phi#:~:text=Despite%20its%20importance%2C%20the%20sector,impacts%20from%20land%2Dbased%20activities.

50 Statisa. (2024). Number of municipal fisherfolk in the Philippines in 2023, by type of livelihood. Retrieved July 15, 2024, from https://www.statista.com/statistics/1350775/philippines-number-of-municipal-fisherfolk-by-type-of-livelihood/

51 Van Anrooy et al. (2022)

52 Rare. (n.d.-c). Fish Forever in Philippines. Retrieved August 21, 2024, from https://rare.org/program/philippines/

53 Statista (2024)

54 Statista (2024)

55 Philippine Statistics Authority. (2024). Fisheries Situation Report, January to December 2023. https://psa.gov.ph/statistics/fisheries-situationer/node/168406258O

2.2 UNDERSTANDING THE VULNERABILITY CONTEXT OF SMALL-SCALE FISHERS

With an average daily income of PHP 178 (USD 3.2),[56] small-scale fishers are among the Philippines' poorest and most vulnerable populations.[57] Over 34 percent of fisher households in the Philippines are considered poor — twice the overall poverty rate in the country.[58] Eriksen et al. refer to vulnerability as a relational state defined by sociopolitical relations, such as gender, race, class, age, and (dis)ability, that determines one's vulnerability and likelihood of adapting to climate change.[59] While poverty and vulnerability are closely related, efforts to reduce vulnerability require longer-term approaches focused on shifting existing power structures, strengthening local institutions, and building local capacities and economic opportunities. In order to design policies and solutions that are holistic and focused on addressing the underlying systems and building fishers' capacity to make intentional changes, it is essential to understand the root causes of their vulnerability.

Climate change adaptation is influenced by deep-rooted discrimination and inequalities, allowing some groups to adapt more effectively while worsening the vulnerabilities of others.[60] Box 4 draws on the livelihood assets framework and summarizes the critical livelihood assets of small-scale fishers in the Siargao islands.

Box 4: Livelihood Assets of Small-Scale Fishers in Siargao

Natural Capital:

- ↗ Fish stocks, including invertebrates, mangroves, and seagrass, are vital natural assets integral to fisher livelihoods and protect against natural disasters. However, environmental degradation, climate shocks, and overfishing have caused significant damage to fishing habitats and the broader environment. While MPAs are essential for conserving and helping sustain fish stocks, they can also limit access to fishing resources.

56 Sun Life. (2023, March 28). Helping fishing communities in the Philippines build financial resilience. https://www.sunlife.com/en/sustainability/sustainability-stories/financial-resilience-for-philippines-fishers/

57 USAID LandLinks. (2017). Marine Tenure and Small-Scale Fisheries: Learning from the Philippines Experience. https://www.land-links.org/research-publication/marine-tenure-and-small-scale-fisheries-learning-from-the-philippines-experience/

58 Macusi, E. et al. (2022). Factors that influence small-scale Fishers' readiness to exit a declining fishery in Davao Gulf, Philippines. Ocean & Coastal Management, 230. https://doi.org/10.1016/j.ocecoaman.2022.106378

59 Eriksen, S. et al. (2021). Adaptation interventions and their effect on vulnerability in developing countries: Help, hindrance or irrelevance? World Development, 141. https://www.sciencedirect.com/science/article/pii/S0305750X20305118

60 Eriksen, S., & Naes, L.O. (2003). Pro-Poor Climate Adaptation: Norwegian development cooperation and climate change adaptation - an assessment of issues, strategies and potential entry points. CICERO. https://pub.cicero.oslo.no/cicero-xmlui/handle/11250/192034

Physical Capital:

- Fishing boats and equipment are critical assets governing fisher livelihoods. Most small-scale fishers rent and share boats and equipment and, in return, share the catch with boat owners, which significantly reduces the returns from fishing. Women small-scale fishers are less likely to own equipment.
- Fisher homes near the coast are vulnerable to damage caused by natural disasters, which increases the financial pressure on households and diverts resources from productive purposes. The surge in tourism in Siargao has led to an increase in land prices. Most fishers don't own land or livestock and practice sharecropping. Fishers rely significantly on coconut farming during the lean season, which is highly vulnerable to climate shocks and can take years to be productive.
- Underdeveloped infrastructure, including the lack of adequate and affordable transportation, limits fishers' mobility and access to services. The lack of infrastructure for storing, processing, and distributing the catch and information asymmetry barriers impede fishers' access to external markets.

Human Capital:

- Despite having low levels of education, fishers tend to prioritize children's education. However, given their low and unpredictable incomes, worsened by climate shocks and other emergencies, they are often forced to take children out of school. While the government-run Pantawid Pamilyang Pilipino Program (4Ps) cash transfer program helps support education, few fisher households are aware of or enrolled in it. Furthermore, the program only provides support until the child turns 18, lowering opportunities for higher education.
- Despite completing their education, young people often struggle to find job opportunities due to a mismatch between their skills and market needs. Since most jobs that provide a stable income and have regular work hours require a high school diploma, young people who have not completed formal education struggle to diversify their livelihoods. Consequently, they are forced to rely on fishing or unskilled labor and construction work that provides low security. Limited access to market information also affects fishers' ability to earn higher incomes, sell processed products, or market tourism.
- The fishing community's food security, health, and nutrition are closely linked to natural capital. Older fishers often have chronic health issues that diminish their capacity to work, impacting their household's economic

stability and ability to invest in human capital development.

- ↗ Migration to other parts of Siargao for work and education is rare. Increased opportunities catalyzed by the growth in tourism motivate many people to return to Siargao.

Social Capital:

- ↗ Communal and kinship ties are a critical asset for coastal communities. Fishers often buy goods on credit from local sari-sari stores and support each other with food and other resources during emergencies. Small-scale fishers who don't have land or boats find work through established social relationships and share the returns. Research has also pointed to an unspoken expectation that low-income, small-scale fishers expect more affluent community members to help them during emergencies.[61]
- ↗ Social networks also facilitate introductions to buyers and financiers, potentially securing better prices and financial support. Small-scale fishers rely on traders for credit, creating dependent relationships that bind them to specific buyers. At the same time, given the high levels of covariate risk, natural disasters can disrupt these networks and relationships.
- ↗ Participation in fisher associations and community enterprise groups allows fishers to undertake collective livelihood projects. However, women's involvement is limited to activities such as fish processing.
- ↗ Savings clubs are a powerful mechanism to build social capital, follow sustainable fishing practices, and strengthen community bonds and trust through mutual assistance, especially during emergencies. Savings clubs have also helped empower women fishers, and many members also participate in coastal cleanups and promote environmentally sound behaviors within the community. Some savings clubs have formed community farms to reduce reliance on fishing, improve food security, and strengthen community-based support mechanisms.

Financial Capital:

- ↗ Most small-scale fishers have limited access to formal financial services, which leads them to take high-cost credit from moneylenders and community groups called "Tampos" or get credit from traders in exchange for the catch.
- ↗ A household survey conducted by Rare in Surigao del Norte in 2019 indicates

61 Fabinyi (2012)

that 29% of the respondents had access to credit from MFIs.[62] MFIs have considerable reach and play a vital role in supporting fishing communities to recover from natural disasters, rebuild homes, purchase essentials, and pay for children's education. MFIs also provide insurance and savings products; however, these products are accessible only to active loan clients.

- Fishers earn low and irregular incomes and have minimal savings. While the government provides a provident savings product, Pag-IBIG, its uptake is low due to trust and last-mile delivery barriers. Where available, savings groups offer accessible means for saving and borrowing, supporting consumption smoothing and productive and community-level investments, and providing a safety net for emergencies. Savings clubs also offer financial literacy and household financial management training to members.
- While the Philippines Crop Insurance Commission (PCIC) and Card Pioneer Microinsurance (CPMI)[63] and others provide insurance for accidents, boats, crops, and aquaculture, uptake is very low since most small-scale fishers are not registered, and fishers are often unaware of these services.
- The few fisher households that received remittances could use it to recover from big shocks. However, remittances were not common.
- Many fishers rely on the 4Ps cash transfer program. Fishing communities also depended on humanitarian aid, a significant portion of which was paid in kind for post-shock recovery.

2.3 CHALLENGES FACED BY SMALL-SCALE FISHERS

Small-scale fishers face numerous challenges. Based on a comprehensive review of the existing literature and findings from the field research in Siargao, this section delves into five key barriers: environmental and climate-related factors, unsustainable fishing practices, the limited human capital of fishers, external shocks and triggers, and institutional challenges (see Figure 6).

Environmental and Climate-Related Factors

Over the past decade, fish stock in the Philippines has declined by an average of 20 percent,[64] adversely impacting fisher livelihoods and food security. The

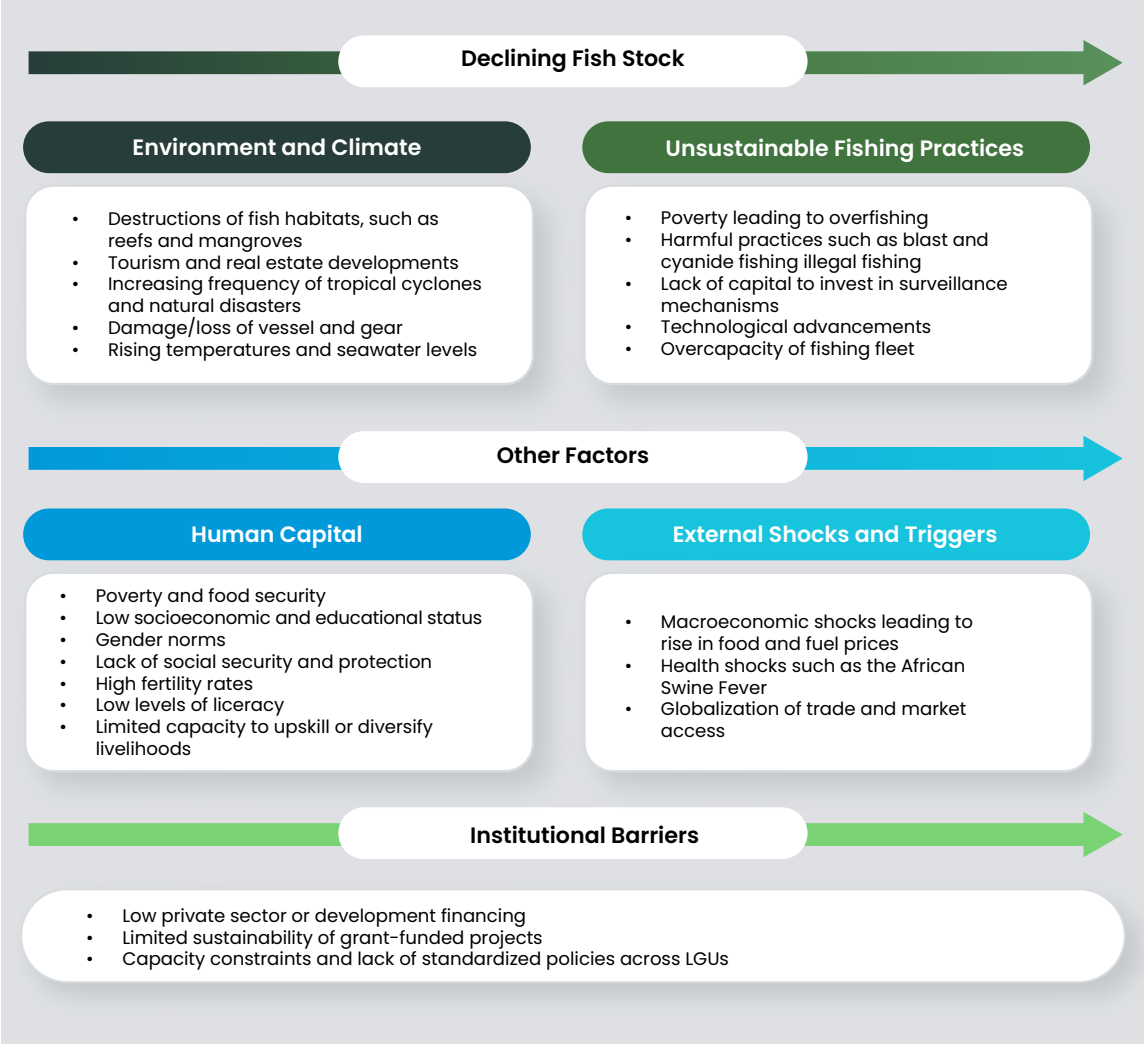
62 Fish Forever (2020). Philippines Household Survey Database. Rare. Accessed: 1st April 2025. https://portal.rare.org/en/tools-and-data/household-survey-data/

63 University of Cambridge Institute for Sustainability Leadership and Howden (CISL and Howden), 2024. Nature-related financial opportunity use case: The role of mangroves, coral reefs and seagrasses in supporting and protecting near-shore fisheries in Bolinao, the Philippines. Cambridge, UK: University of Cambridge Institute for

64 World Bank (2023)

Philippines has the world's largest and most diverse seagrass meadows and Southeast Asia's fourth-largest mangrove extent. It also has 26,000 square km of coral reefs, which provide protection against floods and tropical storms.[65] The rapid surge in coastal development due to tourism and real estate projects, overexploitation of marine resources, deforestation, farming, mining, and pollution has accelerated the degradation of coral reefs, mangroves, seagrass, and wetlands that are essential for fish and other aquatic beings to breed and thrive.[66] Furthermore, research conducted by the Asian Development Bank has shown that, in some cases, real estate developments of farmland have also forced fisher families to migrate.[67]

FIGURE 6: CHALLENGES FACED BY SMALL-SCALE FISHERS



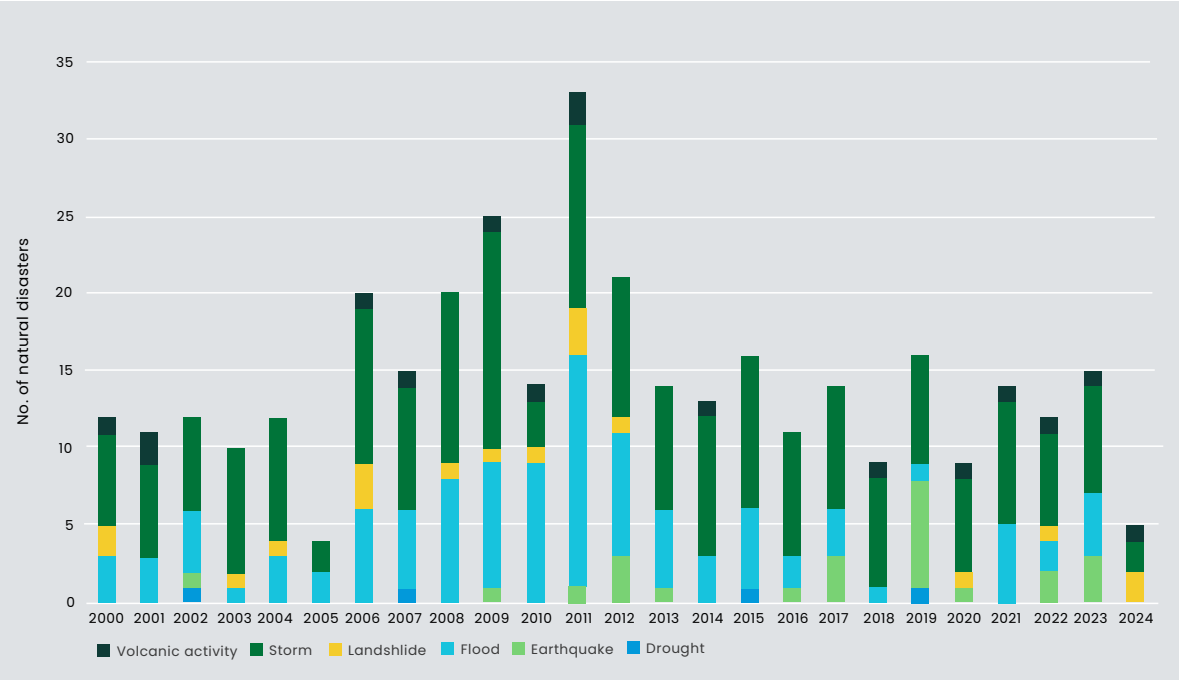
65 GIZ Manila. (2024). Report on Ecosystem-based Adaptation (EbA) and Nature-based Insurance Solutions (NbIS) in the Philippines and Asia. https://www.giz.de/fachexpertise/downloads/giz2024-en-report-eba-nbis-philippines-asia.pdf

66 Asian Development Bank (2014)

67 Asian Development Bank (2014)

The 2022 World Risk Index places the Philippines as the most disaster-prone country globally.[68] As of February 2024, the Philippines incurred 3 percent of its GDP, amounting to USD 12 billion in losses from climate-induced natural disasters.[69] It receives an average of 20 typhoons yearly, of which at least five are destructive (see Figure 7).[70] Earthquakes and volcanic eruptions are also quite frequent.[71] Additionally, erratic rainfall, landslides, rising sea surface temperatures, ocean acidification, and other climate shocks and stressors deplete fish stock. They also destroy crops and coconut trees, which can take several years to be fully productive. Natural disasters also cause damage to fishing vessels, equipment, and houses and force marginalized fishers to resort to reactive coping mechanisms such as drastically reducing consumption, selling assets, or taking children out of school.

FIGURE 7: IMPACT OF NATURAL DISASTERS IN THE PHILIPPINES[72]



Unsustainable Fishing Practices

The Philippine Statistical Authority reports that in 2021, over 30.6 percent of fisher households were below the poverty line,[73] making them one of the most economically

68 GIZ Manila (2024)

69 Banerjee, C., Bevere, L., Garbers, H., & Saner, P. (2024). Changing climates: the heat is (still) on. Swiss Re Institute. https://www.swissre.com/institute/research/topics-and-risk-dialogues/climate-and-natural-catastrophe-risk/changing-climates-heat-is-still-on.html

70 Asian Disaster Reduction Center (ADRC). (n.d.). Information on Disaster Risk Reduction in Member Countries. Retrieved July 15, 2024, from https://www.adrc.asia/nationinformation.php

71 ADRC (n.d.)

72 The data includes only natural disasters that were classified as national emergencies by the government. The chart only includes five types of disasters: drought, earthquake, landslide, storm, and volcanic activity.

73 Philippine Statistics Authority. (2023). Fisherfolks and Farmers Remain to Have the Highest Poverty Incidences Among the Basic Sectors in 2021 [Press release]. https://psa.gov.ph/system/files/phdsd/Press%20Release_5%20%281%29.pdf

marginalized population segments. The combination of poverty, environmental degradation, climate shocks, and stressors put tremendous pressure on fisher livelihoods, often compelling them to resort to overfishing and unsustainable fishing practices. Furthermore, peer pressure and the need to provide for their families motivate many young male fishers to practice blast and cyanide fishing, which causes extensive damage to coral reefs and marine habitats and has adverse environmental and climate change impacts.[74] Despite a decrease in prevalence, these practices persist.

In addition, illegal, unreported, and unregulated fishing is also rampant and exacerbated by weak enforcement, governance failure, corruption, and institutional failures. Technological advancements, such as the introduction of motorization and monofilament nets, and, in many cases, the overcapacity of the fishing fleet, have also spurred an increase in illegal fishing.[75] Illegal fishing practices range from blast and cyanide fishing to using fine mesh nets that capture juvenile fish, preventing fish populations from replenishing (see Box 5). Research conducted by BFAR reports that at least 30,000, or 30 percent, of municipal vessels in Philippine waters are unregistered, and commercial fishers do not report up to 422,000 metric tons of fish each year.[76]Additionally, in 2019, illegal fishing amounted to 27 to 40 percent of fish caught, translating into approximately PHP 62 billion (USD 1.3 billion) annually.[77] The presence of commercial fishers who often practice illegal fishing also tends to cause conflict with small-scale fishers over the decline in fish stocks and threaten the sustainability of marine ecosystems.

Box 5: Unsustainable Fishing Practices in the Philippines

Cyanide fishing involves using sodium cyanide to stun fish, making them easier to catch. This method is highly destructive to coral reefs and marine biodiversity, leading to long-term ecological damage.[78]

Blast fishing uses explosives to kill or stun fish; approximately 12 percent of capture fishers in the Philippines practice blast fishing.[79] This practice also obliterates coral reefs and endangers marine ecosystems.

74 Tahiluddin, A., & Sarri, J. (2022). An Overview of Destructive Fishing in the Philippines. Acta Natura et Scientia, 3, 116–125. https://doi.org/10.29329/actanatsci.2022.352.04

75 Asian Development Bank (2014)

76 U.S. Embassy in the Philippines. (2021, March 10). BFAR-USAID Study Calls for Public Support to Combat Illegal Fishing [Press release]. https://ph.usembassy.gov/bfar-usaid-study-calls-for-public-support-to-combat-illegal-fishing/

77 U.S. Embassy in the Philippines (2021)

78 Tacio, H. (2023, June 16). Poisoned waters: Cyanide fishing, though not common anymore, is still being practiced. Manila Bulletin. https://mb.com.ph/2023/6/16/poisoned-waters-cyanide-fishing-though-not-common-anymore-is-still-being-practiced

79 Sievert, R. (1999). A Closer Look at Blast Fishing in the Philippines. One Ocean, 2(3). https://www.oneocean.org/overseas/may99/a_closer_look_at_blast_fishing_in_the_philippines.html

Fishing with small-hole nets leads to the capture of juvenile fish, thereby hampering the growth and replenishment of fish stocks.[80]

Modified Danish seine fishing (hulbot-hulbot/liba-liba) is a fishing method where a large, weighted net is dragged along the sea floor. In addition to damaging sea beds, coral reefs, and seagrass beds, this method also leads to overfishing by capturing large quantities of fish, including juveniles and non-target species.[81]

Compressor fishing involves using a portable air compressor to supply air to divers through long hoses, allowing them to stay underwater for extended periods. In addition to posing serious health hazards, this method enables fishers to catch large quantities of marine life, leading to overfishing and depletion of local fish populations.[82] While compressor fishing is regulated in the Philippines due to the health risks and environmental impacts, enforcement can be challenging, and the practice persists in many areas, driven by economic necessity and lack of alternatives.

Deforestation of mangroves by fishing communities to provide space for nearshore fishing and aquaculture leads to severe environmental degradation. Fishers also sell and use mangrove wood for fuel and construction purposes.[83]

Fishing in MPAs, while not strictly illegal, disrupts conservation efforts, reducing the resilience of marine ecosystems meant to replenish overfished areas.[84]

Limited Human Capital

Small-scale fishers also have low literacy levels, which limits their ability to diversify their livelihoods into more high-skilled occupations or take advantage of globalized supply chains. For example, while tourism is rising in Siargao, most fishers are not qualified for skilled jobs, and jobs with low entry barriers are highly competitive, providing few opportunities for them. Furthermore, most small-scale fishers lack the entrepreneurial ability to take advantage of growing tourism and offer boat tours and other independent

80 National Coast Watch Council Secretariat. (2022). An Overview of Illegal Fishing in the Philippines: Municipal Fishing. Office of the President of the Philippines. https://www.studocu.com/ph/document/university-of-eastern-philippines/bsba-marketing/municipal-fishing-in-the-philippines/67893741

81 Supreme Court of the Philippines. (2003). Regulations on the operation of Danish Seine (Hulbot-Hulbot). BFAR Fisheries Administrative Order No. 222, S. 2003, October 30, 2003. https://elibrary.judiciary.gov.ph/thebookshelf/showdocs/10/46785

82 Fujita, R., Cusack, C., Karasik, R., Takade-Heumacher, H., & Baker, C. (2018). Technologies for Improving Fisheries Monitoring. Environmental Defense Fund. https://www.edf.org/sites/default/files/oceans/Technologies_for_Improving_Fisheries_Monitoring.pdf

83 Dieta, R., & Arboleda, F. (2004). The Use of Mangroves for Aquaculture: Philippines. Bureau of Fisheries and Aquatic Resources. https://repository.seafdec.org.ph/bitstream/handle/10862/968/RTCmangrove_p151-159.pdf?sequence=1

84 National Coast Watch Council Secretariat (2022)

services. In addition, information asymmetry and high dependence on intermediary traders to sell the catch limit fishers' ability to access bigger markets or command a fair market price. The absence of infrastructure, such as fish handling and processing areas, distribution facilities for processed products, and cold storage, further challenges their ability to meet the quality standards mandated by international buyers.

High population growth rates further exacerbate poverty in small-scale fisher households. Fishers often lack access to land, technology, and other assets. Most fishers lack IDs, credit history, and collateral. Less than 50 percent have access to financial services,[85] which impacts their ability to seek medical care or build resilience against unexpected economic, health, or climate shocks. Researchers studying the impact of the COVID-19 pandemic on Philippines fisher communities have found that in addition to affecting the health and emotional well-being of fishers, lockdowns and fishing restrictions reduced catch sizes while fishing costs remained the same or increased, putting undue financial stress on marginalized small-scale fisher households.[86] Furthermore, fieldwork conducted by CFI and Rare in Siargao revealed that the long periods fishers spend at sea lead to social isolation, which may hinder their ability to advocate for their rights. However, it is important to note that there is considerable diversity among small-scale fishers. Subsistence fishers, particularly women and older fishers, have limited access to resources and income-earning opportunities and are, therefore, more vulnerable.

External Shocks and Triggers

A combination of factors, including the Ukrainian war,[87] the onset of El Nino,[88] and the recent introduction of an excise tax on all petroleum products in the Philippines,[89] caused inflation to soar

85 National Coast Watch Council Secretariat (2022)
86 Macusi E. et al. (2022). Impacts of COVID-19 on the Catch of Small-Scale Fishers and Their Families Due to Restriction Policies in Davao Gulf, Philippines. Frontiers in Marine Science, 8. https://doi.org/10.3389/fmars.2021.770543
87 Robles, R. (2023, April 3). Asia's prices are on rise. In the Philippines, they're soaring. Al Jazeera. https://www.aljazeera.com/economy/2023/4/3/asias-living-costs-are-rising-in-philippines-theyre-soaring
88 ING. (2024, March 3). Inflation in the Philippines jumps as rice prices remain elevated. https://think.ing.com/snaps/philippines-inflation-jumps-as-rice-inflation-remains-elevated/
89 Robles (2023)

to 8.7 percent in January 2023, far above other Southeast Asian counterparts.[90] While inflation has reduced since then, it continues to be higher than expected at 3.4 percent,[91] impacting the food security of low-income households, who spend nearly 60 percent of their income on food and other essentials.[92] CFI and Rare's field research showed that the surge in tourism in Siargao has also elevated prices of essential items, which, coupled with fluctuations in catch sizes and cost and rising fuel tax, has forced fishers to make fewer fisher trips and reduce consumption levels.

Institutional Barriers

In addition to these challenges and vulnerabilities, small-scale fishers face numerous institutional barriers discussed in the subsequent chapters. Small-scale fisheries are perceived as a high-risk, low-returns industry. Consequently, the sector receives negligible private sector or development financing. While development-focused grants are available and catalyze the formation of fisher associations and community enterprise groups, these efforts are rarely sustainable, and the groups tend to disintegrate after the project ends.

Additionally, while fisheries management in the Philippines is decentralized at the local government units (LGUs), the LGUs are often resource and capacity constrained, and the quality of governance varies heavily depending on the initiative and capabilities of respective mayors.[93] Several small-scale fishers interviewed as a part of this research expressed that MPA guidelines were violated by fishers, including fishers from other municipalities and others with political clout, pointing to the need for appropriate legislation and enforcement mechanisms to prevent fishers from other municipalities from encroaching on MPAs.[94] Furthermore, the marine resource policies and processes are not harmonized across LGUs, making coordination with the national agency, BFAR, challenging.[95] BFAR's primary focus on improving fish production also fails to address the underlying causes of small-scale fishers' vulnerabilities. Finally, as discussed in Chapter 3, there needs to be fair governance, resources, infrastructure, funding, and surveillance infrastructure to ensure community institutions are incentivized to monitor MPAs and penalize defectors.

90 Robles (2023)
91 ING (2024)
92 ING (2024)
93 Pomeroy, R, & Courtney, C. (2018). The Philippines context for marine tenure and small-scale fisheries. Marine Policy, 95, 285–295. https://doi.org/10.1016/j.marpol.2018.05.030
94 Pomeroy and Courtney (2018)
95 Pomeroy and Courtney (2018)

2.4 GENDER AND AGE IN SMALL-SCALE FISHING

Historically, small-scale fishing and aquaculture are considered to be predominantly male domains. Even though women play an instrumental role in pre- and post-harvest processes and sometimes outnumber men in the trading and processing of fish, their role in fishing is almost invisible.[96] Women are involved in mending nets, collecting bait, preparing food for fishers, cleaning, salting, drying, marinating, selling the catch, and keeping accounts, many of which are unpaid activities. Without suitable infrastructure and technologies in rural areas, these activities can be considerably time- and labor-intensive. Yet, women fishers are often seen as "fish wives"[97] who "help their husbands"[98] with fishing and related activities. Women fishers are also disproportionately impacted by depleting fish stocks and natural resources and benefit the least from the globalization of fishing supply chains.[99]

There are multiple reasons why women's role in fishing is undervalued. First, gender-disaggregated data about employment in fisheries is scarce across developing countries.[100] Moreover, even when this data is available, it fails to capture women's participation in fishing on a part-time basis.[101] Women engaging in small-scale and subsistence fishing are seen as poor in the Philippines. Consequently, to avoid shame and embarrassment, women tend to downplay their role as "helping their husbands," so their contribution

96 Weeratunge, N., & Snyder, K. (2009, March 31 to April 2). Gleaner, fisher, trader, processor: understanding gendered employment in the fisheries and aquaculture sector [Conference presentation]. FAO-IFAD-ILO Workshop on gaps, trends, and current research in gender dimensions of agricultural and rural employment. https://www.researchgate.net/publication/237501068_Gleaner_fisher_trader_processor_understanding_gendered_employment_in_the_fisheries_and_aquaculture_sector

97 Weeratunge and Snyder (2009)

98 Kleiber, D., Harris, L., & Vincent, A. (2014). Gender and small-scale fisheries: A case for counting women and beyond. Fish and Fisheries, 16(4), 547–562. https://doi.org/10.1111/faf.12075

99 Weeratunge and Snyder (2009)

100 Weeratunge and Snyder (2009)

101 Weeratunge and Snyder (2009)

to fishing and related activities is often not captured.[102] The limited data on this topic points to the gendered distinction between the fishing methods and aquatic animals targeted by men and women fishers.[103]

Second, a large body of research points to the role of gender norms that define what women can and can't do and limit their mobility, access to resources, and opportunities. These systemic inequalities also influence women fishers' labor force participation and income; access to natural and financial resources, information, and markets; and participation in livelihood programs, training, and decision-making bodies. Women fishers who don't adhere to the prevailing norms or gain access to resources and power are also susceptible to gender-based violence.[104] Gender norms also shape the expected social rewards for fishing,[105] which vary considerably between men and women.

Women fishers in the Siargao region often don't own fishing equipment. Consequently, they engage in nearshore fishing and gleaning, considered secondary forms of fishing, and relegate women to the lowest rungs of the fishing value chain. Additionally, intertidal fishing and gleaning for shrimps, crabs, and other invertebrates is often not considered fishing. As a result, women's efforts in these activities are usually not recorded.[106] On the other hand, men fishers are likelier to have fishing boats and equipment, which allows them to venture into deeper seas for offshore fishing.

Furthermore, since most MPAs in the region are located near shore, women fishers' vulnerabilities will likely be exacerbated by fishing restrictions and increased competition over depleting fish stocks. This was evidenced in research conducted in the Siquijor municipality in the Philippines, which found that women fishers were poaching in the MPAs.[107] However, research conducted by CFI and Siargao revealed that savings groups (discussed in Chapter 5) have proven to be an effective mechanism for enhancing women fishers' role in society, building mutual support systems, and empowering women to ensure MPA guidelines are being followed.

Third, women's identities worldwide are linked to their reproductive and caregiving roles. Women fishers in the Philippines tend to practice lagoon fishing, intertidal shrimp fishing, and gleaning shellfish and mollusks,[108] which have guaranteed returns and contribute to household food security and nutrition. Furthermore, these activities are low risk, can be performed near

102 Weeratunge and Snyder (2009)
103 Weeratunge and Snyder (2009)
104 Clabots, B. (2020). Gender Dimensions of Community-Based Management of Marine Protected Areas (MPAs) in Siquijor, Philippines. Panorama. https://panorama.solutions/en/solution/gender-dimensions-community-based-management-marine-protected-areas-mpas-siquijor
105 Clabots (2020)
106 Clabots (2020)
107 Clabots (2020)
108 Oloko, A., Harper, S., Fakoya, K., & Sumaila, U.R. (2023). A Review of the Multi-dimensional Perspectives of Taboos on Gender Roles of Fisherfolk in the Global South. GenderAquaFish. https://www.genderaquafish.org/stories/a-review-of-the-multi-dimensional-perspectives-of-taboos.htm

home accompanied by their children, and require little time and equipment.[109] Unsurprisingly, women tend to prioritize household consumption and fish for subsistence, while men pursue more variable and commercially valuable fish and marine animals for sale and for sharing with the community.[110] Women fishers who are single, widowed, or have ailing spouses may be more likely to engage in offshore fishing.

In addition to gender, age is another critical variable determining fishers' attitudes and preferred fishing methods. Young fishers primarily engage in hook-and-line capture fishing,[111] which brings high payoffs but requires significant investment and comes with low security. They also consider fishing a temporary source of livelihood until they find a more lucrative alternative. Consequently, they are reluctant to make long-term investments in fishing.[112] Young fishers are also ambitious, status oriented, and under pressure to provide for their families. Furthermore, fishing in the Philippines is considered an "all-male activity."[113] Consequently, the opportunity to demonstrate masculinity and courage and transition out of poverty prompted many young fishers to fish within the MPAs and dive into the deep and cold waters for cyanide fishing[114] and illegal fishing. On the other hand, older fishers tend to be more physically frail and prefer having a steady source of income from traditional net fishing, which does not require them to venture deep into the sea or incur unnecessary risks.

109 Weeratunge and Snyder (2009)
110 Kronen, M. (2002). Women's fishing in Tonga: Case studies from Ha'apai and Vava'u islands. SPC Women in Fisheries Information Bulletin, 11, 17–22. https://www.researchgate.net/publication/290125081_Women's_fishing_in_Tonga_Case_studies_from_Ha'apai_and_Vava'u_islands
111 Hook-and-line fishing is a traditional method that uses hooks, lines, bait, and sometimes buoys and ballasts to catch fish.
112 Fabinyi (2012)
113 Fabinyi (2012)
114 Cyanide fishing involves spraying a sodium cyanide mixture into the desired fish's habitat in order to incapacitate the fish.

03 MA+R as an EbA Approach

3.1 MARINE PROTECTED AREAS (MPA) IN THE PHILIPPINES

There are over 1,500 MPAs in the Philippines.[115] MPAs were first introduced in the Philippines in the 1970s as a community-based approach to marine conservation. These designated areas within the ocean or coastal waters are legally protected and managed for the long-term conservation of marine ecosystems and biodiversity.[116]

MPAs aim to protect biodiversity, support fisheries management, and enhance the resilience of marine ecosystems against environmental changes by restricting activities such as fishing, anchoring, and removing marine life, thereby allowing ecosystems to recover and thrive. The regulations and management objectives of MPAs can vary widely, including strict no-take zones, multiple-use zones, or areas with seasonal restrictions on fishing activities.[117]

As discussed in Chapter 1, MA+R is an MPA approach implemented by Rare in the Philippines, which combines managed access with no-take reserves. Managed access allows local municipal fishers to

115 Chavez, L. (2021, June 30). With growing pressures, can the Philippines sustain its marine reserves? Mongabay. https://news.mongabay.com/2021/06/with-growing-pressures-can-the-philippines-sustain-its-marine-reserves/

116 The International Union for the Conservation of Nature (IUCN) defines an MPA as "any area of intertidal or sub-tidal terrain, together with its overlying water and associated flora, fauna, historical and cultural features, which has been reserved by law or other effective means to protect part or all of the enclosed environment"; IUCN. (2017). Marine protected areas and climate change [Issues Brief]. International Union for Conservation of Nature. https://www.iucn.org/sites/default/files/2022-07/mpas_and_climate_change_issues_brief.pdf

117 Strict no-take zones prohibit all extractive activities, allowing ecosystems to recover undisturbed. Multiple-use zones permit limited activities under regulation, balancing conservation with sustainable use. Seasonal restrictions limit fishing during specific periods to protect breeding or migratory species, ensuring sustainable fisheries management.

catch permissible fish species and other marine resources under predefined conditions, usually developed in a participatory matter. On the other hand, no-take reserves within these areas prohibit all extraction to provide a refuge for marine life to recover and thrive. While the MA+R model is similar to the MPA approach, a key distinguishing factor is that the MA+R model tends to be smaller and community-led. Furthermore, while MPAs primarily focus on preserving biodiversity, the MA+R model balances conservation with replenishing fish stocks and enhancing fisher livelihoods. Given this broader and more flexible approach, the MA+R model is also considered a form of Other Effective Area-based Conservation Measures (OECM). This approach ensures sustained conservation benefits regardless of the core management objectives of the initiative.[118] This report primarily uses the term MPA, even when referring to MA+R, as MPA is one of the best-known globally recognized approaches to conservation.

While initially MPAs focused on conservation objectives, primarily coral protection, they have since evolved to include socioeconomic objectives.[119] The participation of local small-scale fishers in managing the MPAs is seen as a significant factor influencing their long-term success, as it aligns MPA regulations with community needs, fostering a sense of ownership and enhancing compliance.[120] Furthermore, interviews with LGUs revealed that proactive fishers who receive mentoring and assistance often become effective MPA managers, leveraging their local knowledge to manage conflicts and unify diverse groups toward a shared vision for protecting marine ecosystems.

Box 6 summarizes the most salient policies and institutions that have influenced fisheries management and MPAs in the Philippines and highlights the shift toward decentralizing fisheries management to LGUs and communities, which have been crucial aspects of MPA implementation.

118 MacKinnon, K. (2019). Other Effective Area-based Conservation Measures (OECMs). IUCN. https://www.cbd.int/protected/partnership/vilm/presentations/15_oecm_mackinnon.pdf

119 MacKinnon (2019)

120 Tupper, M., Asif, F., Garces, L., & Pido, M. (2015). Evaluating the management effectiveness of marine protected areas at seven selected sites in the Philippines. Marine Policy, 56, 53-42. ,https://doi.org/10.1016/j.marpol.2015.02.008; Tolentino-Zondervan, F., & Zondervan, N. (2022). Sustainable fishery management trends in Philippine fisheries. Ocean & Coastal Management, 223. https://doi.org/10.1016/j.ocecoaman.2022.106149; Ostrom, E. (1990). Governing the commons: The evolution of institutions for collective action. Cambridge University Press.; Pomeroy, R, and Viswanathan, K. (2003). Experiences With Fisheries Co-Management in Southeast Asia and Bangladesh. In D.C. Wilson, J.R. Nielsen, & P. Degnbol (Eds.), The Fisheries CoManagement Experience (pp. 99–117). Dordrecht: Kluwer. https://digitalarchive.worldfishcenter.org/items/08042675-636d-49c5-a617-bacc39d05b5b

Box 6: Policy and Institutional Landscape for Fisheries Management in the Philippines

Fisheries management in the Philippines has evolved from a centralized, production-focused approach to emphasizing sustainability and community involvement. Initially, policies like the Fisheries Act of 1932[121] and the Fishery Industry Development Act of 1963[122] prioritized boosting the fisheries sector's contribution to national income. However, in the 1980s and '90s, the centralized approach started shifting toward community-based management, reinforcing the role of LGUs and communities. The Local Government Code of 1991[123] marked a significant shift, decentralizing substantial powers and responsibilities to LGUs, including delegating the management of municipal waters. This code empowered LGUs to enact ordinances and regulations tailored to their needs, including fisheries management and conservation.

The Philippine Fisheries Code of 1998[124] further institutionalized this decentralized approach in fisheries management, reinforcing the role of LGUs and mandating the establishment of Fisheries and Aquatic Resources Management Councils (FARMCs) at the municipal level. These councils include fishers, LGUs, and other stakeholders, ensuring sustainable and participatory governance.

The 1990s also saw the introduction of policies balancing sustainability and production. The Agriculture and Fisheries Modernization Act of 1997 [125] aimed to improve productivity while promoting sustainable practices. The National Integrated Protected Areas System (NIPAS) Act of 1992[126] introduced a framework to help identify, manage, and regulate protected areas. It centralized the management of protected areas under the Department of Environment and Natural Resources (DENR). The Expanded National Integrated Protected Areas System (ENIPAS) Act of 2018[127] included more areas under protection and emphasized the role of communities in co-managing protected areas to foster greater ownership and accountability at the local levels. It also widened the range of prohibitive acts and associated penalties and imposed greater

121 Fisheries Act (Act No. 4003). (1932, December 5). https://www.fao.org/faolex/results/details/en/c/LEX-FAOC072297/

122 Fishery Industry Development Act of 1963 (Republic Act No. 3512). (1963, March 19). https://jur.ph/law/summary/creating-a-fisheries-commission

123 Local Government Code of 1991 (Republic Act No. 7160). (1991, October 10). https://www.fao.org/faolex/results/details/en/c/LEX-FAOC093246/

124 Philippine Fisheries Code of 1998 (Republic Act No. 8550). (1998, February 25). https://www.fao.org/faolex/results/details/en/c/LEX-FAOC016098/

125 Agriculture and Fisheries Modernization Act (No. 8435). (1997, July 28). https://www.fao.org/faolex/results/details/en/c/LEX-FAOC022258/

126 National Integrated Protected Areas System Act 1992 (Republic Act No. 7586 of 1992). (1992, June 1). https://www.fao.org/faolex/results/details/en/c/LEX-FAOC019796/

127 Expanded National Integrated Protected Areas System Act of 2018 (Republic Act 11038). (2018, June 22). https://www.fao.org/faolex/results/details/en/c/LEX-FAOC211005/

accountability on national and local authorities.[128]

The primary authorities responsible for MPAs are the DENR, the Department of Agriculture-Bureau of Fisheries and Aquatic Resources (DA-BFAR), and LGUs.[129] DENR is mandated to explore, manage, and conserve natural resources. The DA-BFAR is the primary agency for executing fisheries policies and is responsible for regulatory, licensing, enforcement, and research functions. Their provincial offices provide technical assistance, training, policy guidance, and funding to support municipalities and cities. Despite DENR's overarching mandate, LGUs are often the most active in MPA management, supported by DA-BFAR. The Local Government Code empowers LGUs to generate and mobilize resources through taxes and fees, control fishing activities, establish sanctuaries, and limit access to marine resources.

To address the rise in overfishing and marine ecosystem degradation, BFAR developed the Fisheries Management Areas (FMA) framework in 2019,[130] aiming to curb illegal fishing by streamlining public and private initiatives. Additionally, BFAR implemented a Vessel Monitoring System (VMS)[131] to track boats encroaching within community waters, although this faced challenges from the commercial fisheries sector.[132] This evolving policy landscape highlights the importance of sustainability, local governance, and community involvement in managing the Philippines' rich marine resources.

3.2 KEY FACTORS DRIVING MPA IMPLEMENTATION

Evidence from over 35 countries suggests that MPAs can effectively drive economic growth while providing environmental benefits.[133] However, MPA implementation is not a straightforward process. There are several challenges

128 Oceana Philippines. (2021). Primer on Protected Areas and the Expanded National Integrated Protected Areas System (ENIPAS) Act of 2018 and Its Implementing Rules and Regulations. https://ph.oceana.org/wp-content/uploads/sites/16/ENIPAS-Primer_Oceana_For-viewing1.pdf

129 Balgos, M., & Pagdilao, C. (2002). Provincial and Regional Institutions in the Philippines: An Essential Element in Coastal Resource Management and Marine Conservation. University of Rhode Island Coastal Resources Center. https://www.crc.uri.edu/download/Philippines_Background_Paper.pdf; Post, K. (2016). Increasing the Resilience of Marine Ecosystems: Creating and Managing Marine Protected Areas in the Philippines. Marine Conservation Philippines. https://www.marineconservationphilippines.org/wp-content/uploads/2018/02/marine-protected-areas-in-the-philippines.pdf

130 Administrative Order No. 263, s. 2019 establishing Fisheries Management Areas (FMA) for the Conservation and Management of Fisheries in Philippine Waters. (2019, January 28). https://www.fao.org/faolex/results/details/en/c/LEX-FAOC186443/

131 Rules and Regulations on the Implementation of Vessel Monitoring Measures. (2018). Republic of the Philippines Department of Agriculture. https://faolex.fao.org/docs/pdf/phi186458.pdf

132 Chavez (2021)

133 Costello, M. (2024, April 8). From reserves to revenue: How marine protected areas can drive economic growth. World Economic Forum. https://www.weforum.org/stories/2024/04/marine-protected-areas-drive-economic-growth/

in implementing and managing MPAs in the Philippines.[134] Only about a third of the MPAs are considered well-managed. Furthermore, these MPAs protect less than 1 percent of the country's coral reefs.[135] Key factors influencing the successful implementation of MPAs include the following:

- ↗ Community buy-in and participation: Studies have shown that community members are primarily concerned about any negative impacts of MPAs on their livelihoods, penalties for non-compliance, and their promised economic and ecological benefits.[136] Given that it takes up to three to five years to reap the economic and environmental benefits of MPAs, during which fishers cannot fish in restricted zones, initial apprehensions are common among communities. Most small-scale fishers also fish outside the MPAs, so these concerns are often a perceived barrier. Furthermore, evidence from Siargao and other regions of the Philippines[137] has shown that communities become more receptive to MPAs once they witness the spillover of larval and adult fish driven by ocean currents into areas surrounding MPAs. However, the process has not been easy as small-scale fishing communities face various economic shocks that affect their capacity to participate in the co-management of MPAs.

Community support is critical for ensuring MPA implementation is effective and sustainable in the long run, and community involvement in MPA management has helped secure their trust and support.[138] Involving fishers in co-developing the MPA boundaries and regulations alongside establishing a transparent decision-making process has also catalyzed their buy-in. Studies have shown that MPA approaches that restrict catch sizes, fishing hours, or the type and length of nets can lead to unintended consequences, such as fishers adopting unregulated inputs, practicing illegal fishing, or racing to get the maximum share of the catch.[139] Rare's Fish Forever initiative recognizes the importance of involving the community in decision making and resource

134 Research efforts evaluating the effectiveness of MPAs in various parts of the globe have found mixed results in their ability to meet both conservation and economic goals: Álvarez-Fernández, I. et al. (2020). Failures in the design and implementation of management plans of Marine Protected Areas: An empirical analysis for the North-east Atlantic Ocean. Ocean & Coastal Management, 192. https://doi.org/10.1016/j.ocecoaman.2020.105178; Canty, S., & Nowakowski, A.J. et al. (2024). Interplay of management and environmental drivers shifts size structure of reef fish communities. Global Change Biology, 30(4). https://onlinelibrary.wiley.com/doi/abs/10.1111/gcb.17257; Jantke, K. et al. (2018). Poor ecological representation by an expensive reserve system: Evaluating 35 years of marine protected area expansion. Conservation Letters, 11(6). https://doi.org/10.1111/conl.12584

135 Chavez (2021)

136 Christie, P., Mccay, B., & Miller, M. et al. (2003). Toward developing a complete understanding: A social science research agenda for marine protected areas. Fisheries, 28(12), 22–26. https://www.researchgate.net/publication/297909651_Toward_developing_a_complete_understanding_A_social_science_research_agenda_for_marine_protected_areas ; Bennett, N. J., & Dearden, P. (2014). Why local people do not support conservation: Community perceptions of marine protected area livelihood impacts, governance and management in Thailand. Marine Policy, 44, 107–116. https://doi.org/10.1016/j.marpol.2013.08.017

137 Chavez (2021)

138 Cohen, P.J. et al. (2021). Characteristics and performance of fisheries co-management in Asia. FAO. https://doi.org/10.4060/cb5840en

139 IIED. (2012). Payments for coastal and marine ecosystem services: prospects and principles [Policy briefing]. https://www.forest-trends.org/wp-content/uploads/imported/Payments%20for%20coastal%20and%20marine%20IIED.pdf

management and brings together fishers to jointly agree on which areas and fish species to protect.

- ↗ Low socioeconomic resilience of small-scale fishers: Fishers' vulnerability context limits their ability to comply with the MPA regulations. As discussed in Chapter 2, small-scale fishers are a highly vulnerable community susceptible to a range of climate shocks of rising frequency and intensity. Yet, despite their poverty and vulnerability, fishers have no choice but to adapt to these shocks.[140] Most fishers in Siargao engaged in capture fisheries outside of MPAs. Consequently, their livelihoods were not directly affected by the MPA regulations. However, fishing restrictions often force them to venture into the deeper waters more frequently, significantly increasing the cost of fishing expeditions and posing more risks.[141] Women and elderly fishers,[142] fishing primarily in the nearshore areas where Rare has implemented the MA+R model, are particularly vulnerable to potential income losses from MPA implementation. Rare ensured that fishers were involved in deciding which species to fish during MA+R implementation to alleviate this issue and safeguard fishers' incomes.

For MPAs to be successful in the long run, considerable social preparation[143] is needed to help communities build awareness, adapt, and ensure that their incomes are not affected in the transition period.[144] Del Carmen LGU's proactive efforts to designate new areas for tourism and develop processes for fishers to register as boat operators illustrate an approach that can help fishers adopt alternative livelihoods and invest in sustainable fishing practices.

- ↗ Ability to enforce MPA regulations: Proper enforcement of rules is critical for MPAs to succeed. However, several challenges weaken enforcement, the most significant being the lack of capacity and infrastructure to monitor MPAs, which vary significantly in size and require considerable oversight. LGUs are severely underfunded and lack funds to scale and repair surveillance infrastructure, such as watchtowers, buoys, and patrolling boats. These require substantial investments and are frequently destroyed by natural disasters.

While most fishers in Siargao adhered to the MPA rules, LGU officials and community members reported getting pushback from fishers who do not follow the

140 Cohen et al. (2021)
141 Fabinyi (2012)
142 Interviews with the local community and LGU representatives revealed that this segment accounts for roughly 20 percent of the small-scale fishers in Siargao.
143 Chavez (2021)
144 Tupper et al. (2015)

regulations and engage in illegal fishing practices. Fishers were also concerned that the increase in fish stocks in the MPAs was attracting migrant fishers from neighboring islands, leading to increased competition. This behavior has been noted in previous research that shows that migrant fishers were more likely to engage in illegal fishing because they lacked the incentives to protect local marine resources.[145] Furthermore, research suggests that within the communities, fishing within the MPAs is not considered as egregious as blast, cyanide, or other destructive forms of fishing, and some marginalized fishers might see it as a way to "reestablish their claims over resources,"[146] which would make MPA implementation challenging. The encroachment of commercial vessels into MPAs and surrounding areas is another major threat to fisher livelihoods and the sustainability of MPAs.[147]

- ↗ Incentive alignment: LGUs have limited capacity and resources to monitor MPAs. Consequently, they rely on volunteer community members to patrol the seas and apprehend illegal fishers and mangrove loggers. These volunteers are small-scale fishers who take turns patrolling, which reduces the time they can spend on fishing and related activities.[148] In Siargao, there has been a reduction in the number of volunteers as they are often not provided with sufficient incentives or honoraria, which has further affected LGU's capacities to monitor the MPAs. Furthermore, community members reported that these volunteers and fishers with political connections were more likely to infringe on the MPAs.

- ↗ Governance and resource allocation at the LGU level: Strong governance structures are critical for sustaining MPAs. Currently, over 90 percent of the Philippines' MPAs are in municipal waters, which come under the jurisdiction of the LGUs.[150] While MPAs included in the NIPAS and E-NIPAS systems, Additionally, despite Rare's efforts, not all small-scale fishers in Siargao are registered in BFAR's Fisherfolk Registration (FishR) Program, which would enable local governments and fisheries management bodies to grant fishing rights, regulate entry to fisheries, and monitor fishing activity. Fisher registration also promotes environmentally positive behavior by increasing knowledge about the benefits of MPAs and government support for registered fishers.[149]

145 Fabinyi (2012)
146 Fabinyi (2012)
147 While small-scale fishers can catch approximately 5 kg (11 lb) of fish during a five-hour fishing trip, these vessels have the capacity to capture up to 800,000 kgs (1.76 million lb) of fish in a single trip; Chavez (2021)
148 Chavez (2021)
149 Rare. (n.d.-d). Fisher Registration. Retrieved July 31, 2024, from https://portal.rare.org/en/program-resources/fisher-registration/
150 Chavez (2021)

discussed in Box 4, receive steady government funding, community-managed MPAs are dependent on local government funding, which is often determined by tourism receipts and political priorities at the local level.[151] The quality of MPA governance varies significantly based on the local municipal mayors' capability, initiative, and political priorities. Furthermore, even if a mayor actively supports MPA and conservation initiatives, their tenure is limited, and new mayors may not continue the same policies.

↗ Relationship with tourism: The fishing and tourism industries in the Philippines share a complex relationship. The surge in tourism in Siargao, which coincided with the introduction of MPAs, offered small-scale fishers opportunities to work as boat operators and tour guides and earn additional income. However, as discussed in Chapter 2, fishers faced challenges participating in or receiving the benefits of increased tourism across the island.[152]

Additionally, research conducted in other parts of the Philippines that were not a part of this study has pointed to a tension between the fishing and tourism industries. LGUs in the Philippines view MPAs as attractive tourism sites and benefit from the revenue generated via environmental user fees from diving and other activities.[153] While some LGUs rely on tourism to mobilize resources to support

151 Chavez (2021)

152 Oracion, E. G., Miller, M. L., & Christie, P. (2005). Marine protected areas for whom? Fisheries, tourism, and solidarity in a Philippine community. Ocean & Coastal Management, 48(5), 393–410. https://doi.org/10.1016/j.ocecoaman.2005.04.013; Fabinyi, M. (2010). The Intensification of Fishing and the Rise of Tourism: Competing Coastal Livelihoods in the Calamianes Islands, Philippines. Human Ecology, 38(5), 415–427. https://doi.org/10.1007/s10745-010-9329-z

153 Fabinyi (2012)

MPA management and provide livelihood support to fisher communities, others prioritize infrastructure and solid waste management projects that primarily benefit the tourism industry, further exacerbating tensions between the two sectors. Furthermore, conservationists and stakeholders from the Philippines tourism industry often blamed fishers for being extractive and violating MPA regulations. On the other hand, small-scale fishers were frustrated that tourism operators could provide diving and other services in the MPAs and earn fees, while they were not allowed to fish in these restricted zones.[154]

Well-managed MPAs can yield significant environmental and economic benefits for coastal communities. However, as explained in Chapter 4, small-scale fishers will need different forms of incentives and support to protect their livelihoods and incomes and comply with MPA regulations. These include strategies to continue earning income from fishing and building resilience to cope with the immediate effect of shocks, strengthening existing livelihoods and diversifying to alternative livelihoods in the medium term, and transitioning to well-paying, stable, climate-resilient occupations in the long term.

154 Fabinyi (2012)

04 Understanding Fisher Livelihoods and Coping Mechanisms

4.1 UNDERSTANDING RESILIENCE

The Intergovernmental Panel on Climate Change (IPCC) defines resilience as the capacity of interconnected social, economic, and ecological systems to cope with a hazardous event, trend, or disturbance, responding or reorganizing in ways that maintain their essential function, identity, and structure.[155]

EbA approaches leverage biodiversity and nature-based solutions to increase resilience and reduce the vulnerability of people and ecosystems to climate change while improving their ability to adapt, transform, and learn.[156] The link between the resilience of communities and the environment is crucial, especially for those highly dependent on natural resources for their livelihoods.[157] Resilient communities are better positioned to deal with lifecycle events, shocks, and stressors; manage risks; and transform their lives in response to new hazards and opportunities.[158] They also have higher adaptive capacity, which enables them to effectively respond to actual or expected stimuli such as climate shocks and their effects, moderating the harm or taking advantage of the

155 Intergovernmental Panel On Climate Change (IPCC). (2023). Climate Change 2022 – Impacts, Adaptation and Vulnerability: Working Group II Contribution to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change (1st ed.). Cambridge University Press. https://doi.org/10.1017/9781009325844

156 Campbell, A. et al. (2009). Review of the Literature on the Links Between Biodiversity and Climate Change: Impacts, Adaptation and Mitigation. CBD Technical Series No. 42. Secretariat of the Convention on Biological Diversity (CBD). https://www.cbd.int/doc/publications/cbd-ts-42-en.pdf

157 Adger, W. (2000). Social and ecological resilience: are they related? University of East Anglia. https://research-portal.uea.ac.uk/en/publications/social-and-ecological-resilience-are-they-related

158 Collins M. et al. (2019). Extremes, Abrupt Changes and Managing Risk. In: Pörtner, H.O. et al. (Eds.), IPCC Special Report on the Ocean and Cryosphere in a Changing Climate (pp. 589–655). Cambridge University Press. https://doi.org/10.1017/9781009157964.008.

opportunities.[159] These communities are also more equipped to learn from experiences, make informed changes, and adapt to new social, economic, and environmental conditions.[160]

Resilience and adaptation share a mutually reinforcing relationship. Resilience emphasizes addressing the factors that make people vulnerable in the first place.[161] Addressing vulnerabilities involves identifying and mitigating systemic inequalities and barriers marginalizing communities such as small-scale fishers. Tackling these underlying causes is essential for building long-term resilience and adaptive capacities of fisher communities and the success of EbA initiatives.

4. 2 LIVELIHOOD PORTFOLIOS OF SMALL-SCALE FISHER HOUSEHOLDS

Research conducted by the FAO indicates that most small-scale fisheries are profitable.[162] However, earnings from fishing alone are rarely sufficient to sustain households above a country's poverty line. For example, a household survey conducted by Rare in Surigao del Norte in 2019 found that most small-scale fishers in the Philippines earn a net monthly income of PHP 5,745 (equivalent to about USD 99) from fishing.[163] Consequently, households that relied solely on fishing for sustenance fell well below the poverty line of PHP 10,727 (approximately USD 185) during the same period.[164] Furthermore, fishing in the Philippines is not a year-round activity, and most small-scale fishers' incomes are irregular and fluctuate based on the catch size, fishing season, and climate shocks. As discussed in Chapter 2, small-scale fishers in Siargao primarily relied on deep-sea capture fishing and related activities for sustenance (see Figure 8). Most small-scale fishers rent boats from wealthier fishers in exchange for a portion of the catch. Women and older fishers who lack fishing equipment and have limited mobility tend to engage in nearshore fishing and gleaning shellfish. Women were also involved in processing and selling fish and managing small grocery stores, locally known as sari-sari shops.

Since fishing is not a year-round activity, most small-scale fishers rely on farming for income and to meet their nutritional needs. However, agriculture is also seasonal and susceptible to climate shocks and stressors, leading to challenges in smoothing consumption to meet basic needs during low seasons. Additionally, most small-scale fishers lack access to capital and land rights and rely on sharecropping, which limits their income from farming. The lack of land ownership also disincentivizes them

159 IPCC (2023)
160 Pelling, M. (2011). Adaptation to Climate Change: From Resilience to Transformation. Routledge.
161 CARE International. (2016). Increasing Resilience: Theoretical Guidance Document for CARE International. https://careclimatechange.org/wp-content/uploads/2019/06/Increasing-Resilience-Guidance-Note-EN.pdf
162 Tietze U., van Anrooy, R. 2019. Guidelines for increasing access of small-scale fisheries t o i nsurance services in Asia. A handbook for insurance and fisheries stakeholders. In support of the implementation of the Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication. Rome, FAO.
163 Fish Forever (2020). Philippines Household Survey Database. Rare. Accessed: 1st April 2015.https://portal.rare.org/en/tools-and-data/household-survey-data/
164 UNICEF. (2019). Country Office Annual Report 2019: Philippines. https://www.unicef.org/media/90511/file/Philippines-2019-COAR.pdf

from investing in climate-smart agricultural practices and diversifying into aquaculture or seaweed farming. Besides fishing and growing rice and vegetables, fishers may also work on coconut farms. However, these plantations get destroyed by typhoons, which occur approximately 20 times a year, with varying intensity.[165] Fishers interviewed for this study reported that Typhoon Odette destroyed their coconut farms. While the trees have been replanted, it takes seven to 10 years to become productive. Some fishers also had small-scale animal husbandry, primarily pig-rearing businesses, which had suffered significant losses due to a recent onslaught of the swine flu. However, these activities remain vulnerable to climate, economic, and health shocks without adequate risk transfer mechanisms such as insurance.

Fishers also engage in carpentry and part-time jobs in tourism and construction during the non-fishing season, which is four to six months at minimum and longer in municipalities near the Pacific coast. They serve as tour guides, boat operators, surfing instructors, or in restaurants during the tourism season. While these jobs require minimal capital investment and provide additional income, they are also informal, with limited returns. Furthermore, they have high demand, and given fishers' limited education and skill levels, the more lucrative jobs are harder to come by. Consequently, these alternative livelihoods generate subsistence income in most cases, further reinforcing the community's dependence on fishing. Some fishers have diversified their incomes by investing in fish processing equipment and motorbikes to sell fish. While these opportunities are more stable, most fishers cannot make the upfront investments. Outmigration in Siargao was uncommon. During the interviews, community members cited instances of people returning to Siargao hoping to take advantage of new opportunities arising from the tourism boom.

165 Parks, S. (2021, May 6). Monitoring Natural Disasters in the Philippines. Planet. 2021. https://www.planet.com/pulse/natural-disaster-in-the-philippines/

FIGURE 8: LIVELIHOOD PORTFOLIOS OF FISHER HOUSEHOLDS

Fishing as a Primary Livelihood

- **Deep-sea fishing** mainly for commercial reasons
- **Nearshore fishing** for commercial reasons and subsistence
- **Boat owners rent boats** and earn a share of sale proceeds
- **Women fishers buy and sell fish** door-to-door or in nearby villages/markets
- **Fish processing** (drying and salting) (limited)
- **Aquaculture** and seaweed farming (limited)

Secondary Livelihoods

Nature-based:

- **Sharecropping** (root vegetables, rice)
- **Coconut farming** (to sell copra, make coconut vinegar)
- **Small-scale animal husbandry** (pigs or poultry)

Non-nature-based

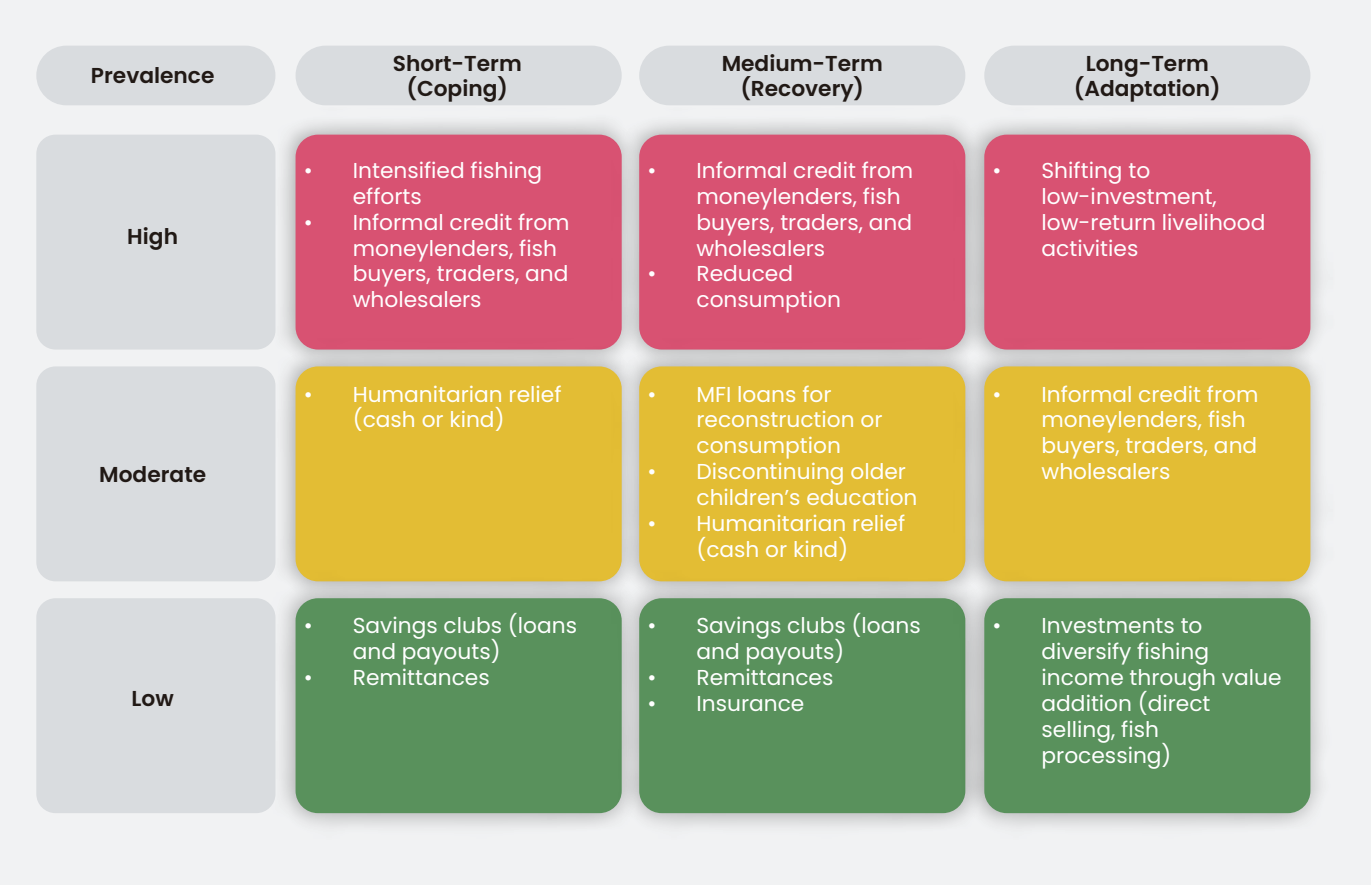
- **Labor and construction work** to support tourism and post-Odette recovery
- **Tourism activities** such as working in resorts, restaurants, and shops; surfing instructors; boat operators for island hopping; driving tricycles
- **Sari-sari stores** mainly run by women

4.3 COPING MECHANISMS ADOPTED BY FISHER HOUSEHOLDS[166]

Small-scale fishing communities have low adaptive capacity, and shocks such as Typhoon Odette are a significant setback to their economic, physical, and psychological well-being. They adopt multiple strategies to cope with, recover from, and adapt to economic and climate shocks. Figure 9 draws from the qualitative research findings from Siargao, highlighting the moderate use of formal financial services, primarily MFI loans, and heavy reliance on informal (and often costly) financial services, humanitarian aid, and non-financial services to cope with, recover from, and adapt to shocks.

166 Note that this paper recognizes that fishers adopt diverse coping mechanisms — financial and non-financial. However, given that the focus of this paper and CFI and Rare's expertise lie in financial services, this paper primarily focuses on financial services as a coping mechanism.

FIGURE 9: MECHANISMS FOR COPING, RECOVERY, AND ADAPTATION OBSERVED IN SIARGAO



Note this chart is based on the authors' perceptions of the prevalence and effectiveness of the various coping mechanisms used by fisher households in Siargao. Pink indicates negative coping strategies, yellow indicates mixed outcomes, and green indicates positive strategy.

Given fishers' limited options in the short run, strategies adopted immediately after a shock are often reactionary with potentially harmful social and environmental ramifications. For example, when faced with acute shocks and stressors, many fishers lacking alternative sources of income or savings intensify fishing efforts to meet their immediate needs as a primary coping mechanism. These intensified fishing efforts often involve using destructive fishing gear and illegal practices such as compressor fishing (see Box 4 in Chapter 2), which harms the marine ecosystem and causes health hazards.[167] This approach is particularly prevalent among fishers with many dependents, and it risks depleting marine stock and further exacerbating fishers' vulnerability. The likelihood of intensifying fishing efforts and violating MPA regulations increases in the event of significant covariate shocks that impact the entire community. Discussions with LGU officials from Pilar revealed that they had temporarily allowed fishing in the MPAs to help fishers cope with the immediate aftermath of Typhoon Odette. One LGU official commented, "Without other income

167 IIED (2012)

sources, fishers have no option but to fish more."

Other reactive coping mechanisms in the aftermath of natural disasters and acute shocks include reducing household consumption and taking children out of school. Given that the Philippines' 4P cash transfer program supports children's education until they turn 18, older children are likelier to drop out, which impedes their ability to transition into more stable, climate-resilient livelihoods and results in intergenerational losses.

While the fisher communities in Siargao were close-knit and supported each other with food and supplies during emergencies, these endeavors fell short when dealing with personal or business emergencies and health shocks, requiring a substantial amount of money. In such cases, fishers rely on informal and high-cost credit from moneylenders or borrow from fish buyers and wholesalers in exchange for a portion of the catch. While these loans are convenient, fishers are often compelled to borrow from other sources or intensify fishing efforts to repay their debt.

Informal arrangements and traditional coping mechanisms often prove inadequate when faced with covariate shocks like Typhoon Odette. Fisher households exposed to these shocks are often unable to return to pre-shock levels in the short-to-medium term or adapt to new social, economic, and environmental realities and be better prepared for future shocks. In such cases, fisher communities relied heavily on humanitarian assistance to rebuild housing and ensure food security. Fishers participating in the study mentioned receiving digital cash transfers, food, cleaning supplies, and other in-kind support immediately after Odette. They also received construction materials to repair homes, fishing boats, and kayaks to pursue opportunities in tourism as a part of recovery efforts. However, humanitarian cash transfers were a short-term coping mechanism at best. The transfers were limited and declined over time, with most aid distributed in material forms rather than cash, further constraining their financial flexibility. Furthermore, not all fisher households received this support, which was available for a limited time and provided primarily to fishers registered with the LGUs.

Most fishers lack access to formal financial services beyond MFIs. MFIs are crucial in helping fishing communities manage consumption and recover from shocks. Community members reported an upsurge in MFIs on the island soon after Odette, which, in turn, helped fishers gain an entry point into formal financial services. Fishers who were MFI customers could secure credit to repair and rebuild their homes and buy essential supplies to recover from Odette. Some entrepreneurial community members used microfinance loans to open sari-sari stores or make agricultural investments. However, by and large, the credit helped fisher households smooth consumption during this period

of acute stress. Most fishers were unaware of the government-provided subsidized insurance products and their benefits. Furthermore, as discussed in Chapter 3, in light of the time and cost required to register with the LGUs, the majority were unregistered, making them ineligible for social protection and government-provided insurance products.

Interviews with community members suggested that most people did not receive remittances. However, those who did were able to use it and could recover faster from the aftermath of Odette. Savings clubs, facilitated by Rare and other NGOs (discussed in Box 7 in Chapter 5), are another powerful mechanism that helped the community, particularly women, access emergency funds and cope with the immediate effect of shocks. Savings club members interviewed for this study reported receiving payouts at the end of the year, which is when Odette struck. Consequently, they had some financial resources that helped them recover from the event. Mature savings club members could use the funds accumulated via multiple rounds of savings to rebuild homes and make productive investments. Members also used the savings to take group loans for consumption during lean seasons or times of bad weather, highlighting how savings clubs enabled positive coping strategies. However, savings clubs have limited outreach, and the payouts are often insufficient to cope with the aftereffects of large covariate shocks that cause widespread destruction.

CFI's research indicated that while fishers adopted diverse strategies to cope with and recover from shocks, stable and lucrative long-term adaptation strategies were few and far between. Only a few fishers had the resources to buy productive assets such as motorbikes and fish processing equipment, allowing them to diversify into more stable livelihoods. As discussed in Section 4.1, most community members relied on low-risk, low-return jobs in tourism and construction to supplement their incomes.

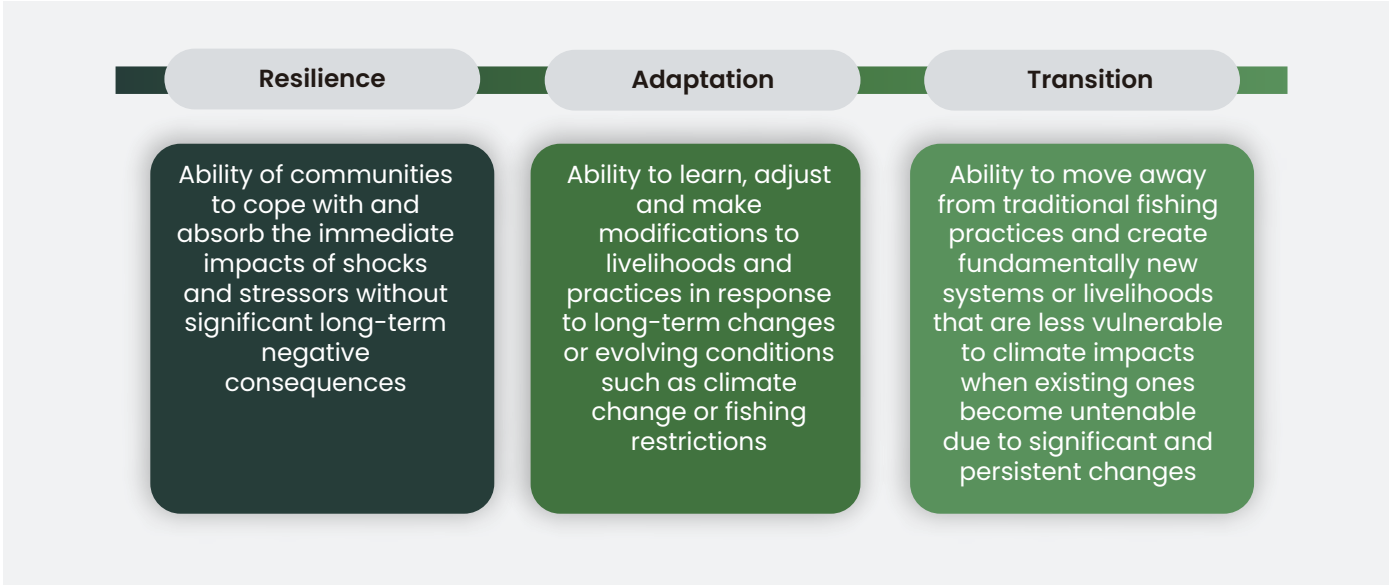
While the coping strategies outlined in Figure 9 temporarily alleviate hardships, these mechanisms are often suboptimal and do not fundamentally change the precarious nature of fisher livelihoods. The underutilization of formal financial services, such as savings, insurance, and formal credit, which are crucial for productive investments and risk coverage, further perpetuates fishers' vulnerability, forcing them to take reactionary measures. Reactive coping strategies also affect long-term adaptation behavior, including the sustainable use of natural resources and compliance with the MPA guidelines. Consequently, fishers remain vulnerable to future shocks and stresses, ultimately undermining long-term resilience and livelihood security.

4.4 PATHWAYS FOR ADAPTING AND DIVERSIFYING FISHER LIVELIHOODS

Successful long-term adaptation for small-scale fishers involves developing resilience to absorb and recover from shocks, adapting fishing practices to

adjust to and proactively prepare for long-term changes, and transitioning to alternative livelihoods less vulnerable to climate shocks and stressors (see Figure 10).

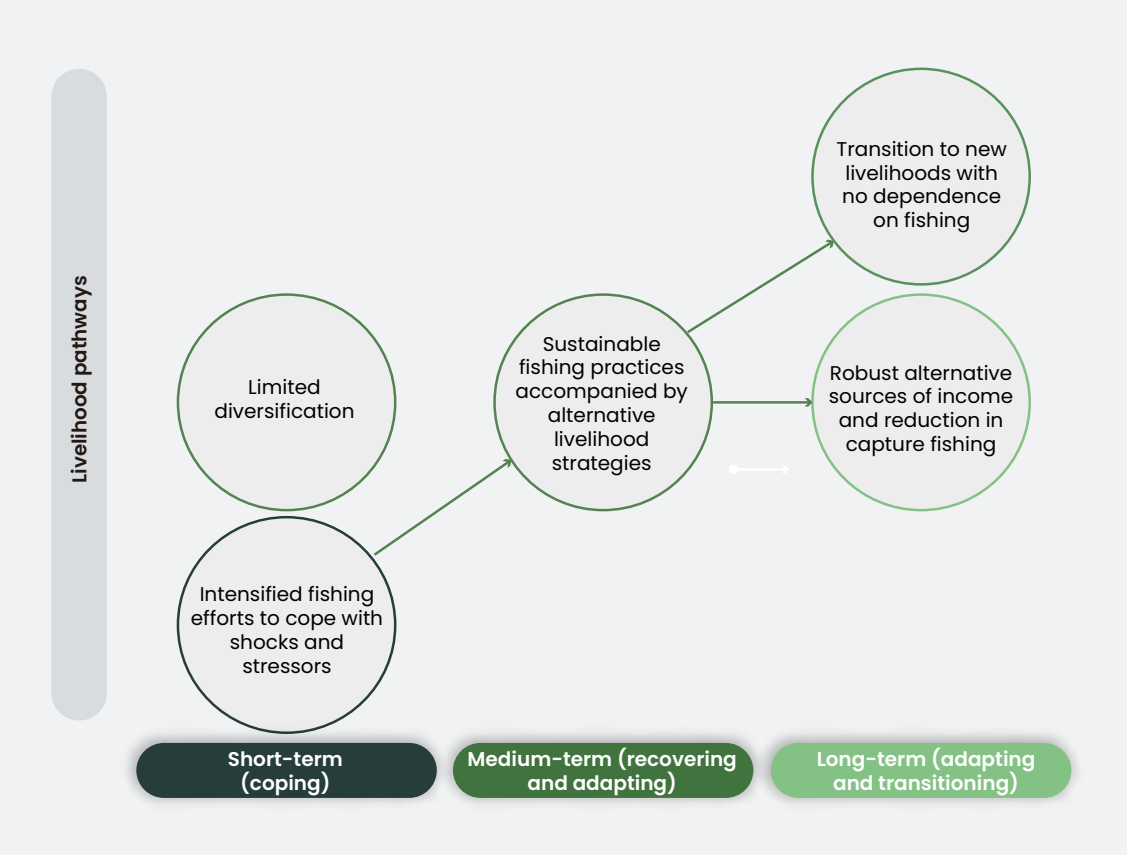
FIGURE 10: PATHWAYS TO STRENGTHEN FISHER LIVELIHOODS



Source: Authors

Small-scale fishers need more choice to secure their livelihoods in the face of environmental and economic challenges. For many, fishing is an integral part of their identity. These fishers will need support to practice sustainable fishing alongside alternative livelihoods in tourism, fish processing, and aquaculture, aiding their adaptation to environmental changes. Others, for whom fishing is not desirable or tenable, will need strategies to upskill and transition to alternative livelihoods that are stable and not as susceptible to climate change. Access to capital and markets supported by training and technical assistance will catalyze these shifts and equip fishers to effectively manage existing and emerging risks. Figure 11 charts these shifts in the livelihood pathways, moving from reactive strategies such as intensified fishing toward a more stable and diversified livelihood portfolio.

FIGURE 11: LIVELIHOOD PATHWAYS FOR SMALL-SCALE FISHERS



As discussed in Section 4.3, small-scale fishers will likely intensify fishing efforts immediately after a shock to meet consumption needs. Access to social protection, emergency funds, and savings groups can help small-scale fishers access funds to weather the immediate impacts of shocks and return to fishing and agricultural activities. As fishers recover from shocks, productive capital, emergency and commitment savings products, and insurance can give fishers a cushion for emergencies, make productive investments, and protect themselves and their assets from future climate, health, and other shocks.

In order to strengthen livelihood outcomes, small-scale fishers will need to adapt by investing in sustainable fishing practices, including environment-friendly boats and fishing equipment in the medium term. Furthermore, to comply with the registration requirements and MPA regulations, fishers must use legally approved fishing gear and adopt sustainable fishing practices, which require investment and risk management strategies. However, the low returns from fishing leave little for reinvestment, making it difficult to buy new equipment or maintain existing equipment. Similarly, MPA implementation will not be sustainable without measures to help fishers maintain their income and consumption.

Recognizing the importance of supporting fishers, Del Carmen's mayor actively promoted tourism opportunities to help fishers supplement income losses from fishing restrictions. Long-term adaptation of fisher livelihoods involves integrating alternative income-generating activities, such as farming or tourism-related jobs, alongside improved and sustainable fishing methods. Most fishers don't own land and have limited skills and access to capital, which limits their ability to diversify into more predictable methods like aquaculture. Other activities like drying, pickling, and processing fish require less specialized skills and investment. However, since fishers have limited access to markets, they have limited opportunities to be scaled.

Moreover, access to assets is often not enough to help fishers transition to alternative livelihoods. Evidence from Siargao suggests that even when fishers have access to boats to support livelihood expansion, they may not have the management and marketing skills to attract tourists and set up a viable business. To that end, fishers need access to financial services and to receive technical assistance and capacity-building support to pursue alternative livelihoods successfully.

While transitioning from fishing to other climate-resilient livelihoods over the medium to long term is the most sustainable option, only a few fishers have the investment capital, educational qualifications, and skills to make the shift. For example, while the tourism industry in Siargao offers more secure and higher-paying jobs, opportunities are rare and seasonal, and the more stable opportunities require higher education and skills. Similarly, most small-scale fishers cannot invest in assets that would allow them to pursue more stable entrepreneurship opportunities. In light of fishers' low levels of education and awareness of employment options, fishers also have limited access and motivation to migrate from Siargao to bigger cities in search of better opportunities. Fishers must develop new skills and access capital, markets, and risk transfer mechanisms to successfully transition to new livelihoods. Financial services will be crucial for them to make necessary investments and plan their future. Access to financial services will also enable fisher households to invest in building human capital by sending their children to school and creating opportunities for higher education and migration.

05 Inclusive Finance to Support Resilience, Adaptation, and Transition for Small-Scale Fishers

5.1 FINANCIAL INCLUSION FOR SMALL-SCALE FISHERS IN THE PHILIPPINES: AN OVERVIEW

The 2021 Findex notes a significant improvement in the uptake of financial services in the Philippines, with account ownership increasing from 26.6 percent in 2011 to 51.4 percent in 2021. Much of this growth accelerated during the COVID-19 pandemic.[168] Despite the progress, significant gaps remain. While historically, the country consistently reported a higher share of accounts owned by women, this trend appears to have reversed between 2011 and 2021. According to the Findex, in 2011, women were 15 percentage points more likely than men to own either a financial institution account or a mobile money account. However, despite an overall increase in account ownership levels, men were eight percentage points more likely to own an account than women in 2021. A similar trend was noted in the Bangko Sentral ng Pilipinas's 2021 Financial Inclusion Survey.[169] Furthermore, in rural areas, only 34 percent of adults have a bank account.[170] Moreover, the 2021 Findex reports that financial resilience remains low, with many Filipino adults unable to meet daily needs, access emergency funds, or save for old age.[171]

168 Demirgüc-Kunt, A., Klapper, L., Singer, D., & Ansar, S. (2022). The Global Findex Database: Financial Inclusion, Digital Payments, and Resilience in the Age of COVID-19. World Bank. https://openknowledge.worldbank.org/handle/10986/37578

169 Zapata. R. (2024). Shifting Trends: The Decline of Women's Financial Account Ownership in the Philippines https://poverty-action.org/shifting-trends-decline-womens-financial-account-ownership-philippines#:~:text=The%202021%20Financial%20Inclusion%20Survey,equal%20between%20men%20and%20women.

170 Demirgüc-Kunt et al. (2022)

171 According to the Findex, 50 percent of adults primarily worry about covering medical costs for serious illness or accidents, 22 percent are concerned about managing monthly expenses, and 16 percent are focused on securing funds for old age.

Unsurprisingly, financial inclusion among small-scale fishers is very low. An FAO study found less than 50 percent of surveyed fishers used formal financial services, and only 29 percent had bank accounts.[172] Rare's 2019 household survey of small-scale fishers in Surigao Del Norte found that while 29 percent of surveyed fishers reported having access to microfinance institutions, less than 7 percent had bank accounts.[173] FAO's research notes that financial service providers (FSPs) expressed interest in serving fishers but faced several demand- and supply-side barriers.[174] The National Financial Inclusion Strategy (NFIS) 2022–2028[175] and the Agriculture, Fisheries, and Rural Development Financing Enhancement Act of 2022[176] aim to address those barriers and improve financial access for rural communities, including small-scale fishers.

Figure 12 summarizes the usage and perceived effectiveness of the various financial services available to fisher communities in Siargao, drawing from the field research findings. It highlights that while financial services such as insurance and formal credit can be highly effective in driving resilience and adaptation, they have low uptake. Similarly, savings groups are a lifeline in areas lacking financial institutions. However, they have limited outreach and moderate ability to support long-term adaptation, which can be strengthened through linkages with formal FSPs. The rest of this section discusses the barriers to improving access to formal credit, insurance, and social protection for small-scale fishers, while Chapter 6 provides concrete recommendations to enable fishers to access and benefit from formal financial services.

172 FAO. (2021). Financing small-scale fisheries in the Philippines. https://openknowledge.fao.org/server/api/core/bitstreams/af3c359c-6c68-4981-bd1e-dcf94103d215/content

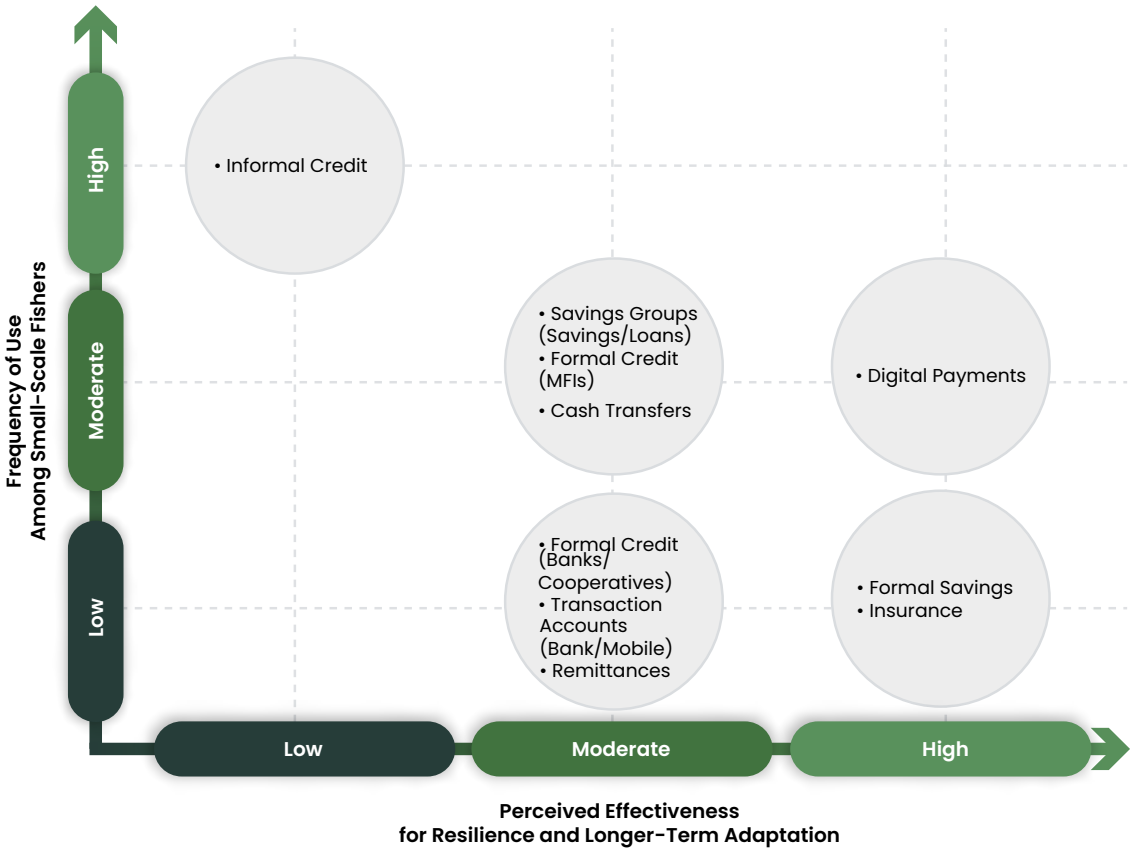
173 Fish Forever (2020). Philippines Household Survey Database. Rare. Accessed: 1st April 2025. https://portal.rare.org/en/tools-and-data/household-survey-data/

174 Fish Forever (2020). Philippines Household Survey Database. Rare. Accessed: 1st April 2025. https://portal.rare.org/en/tools-and-data/household-survey-data/

175 Financial Inclusion Steering Committee. (2022). National Strategy for Financial Inclusion 2022–2028. Bangko Sentral ng Pilipinas. https://www.bsp.gov.ph/Pages/InclusiveFinance/NSFI-2022-2028.pdf

176 Agriculture, Fisheries, and Rural Development Financing Enhancement Act of 2022 (Republic Act No. 11901). (2022, July 27). https://jur.ph/law/summary/the-agriculture-fisheries-and-rural-development-financing-enhancement-act-of-2022

FIGURE 12: USE AND PERCEIVED EFFECTIVENESS OF FINANCIAL SERVICES USED BY FISHERS IN SIARGAO



Credit

The Philippines Small Farmers and Fisherfolk Indebtedness Survey (SFFIS) 2016–2017 found that even though over 90 percent of the respondents recognized the importance of credit for advancing fishing activities, only 38 percent had access to formal credit. Key demand-side barriers include a lack of awareness about institutions lending to fishing segments, concerns about not being creditworthy, and fears about becoming overindebted.[177] The need for formal documentation and registration further excludes many fishers and most banks prefer physical collateral, which limits access for fishers without land ownership.[178] Consequently, most small-scale fishers relied on informal credit from friends and family, local moneylenders, businesspeople, wholesalers, and fish buyers. Credit provided by moneylenders, boat owners, and fish buyers often came with high interest rates or required fishers to pay in kind with a sizeable share of the

177 FAO (2021)
178 Department of Agriculture - Agricultural Credit Policy Council (DA-ACPC), & Bangko Sentral ng Pilipinas (BSP). (2023). The 2022 Countryside Bank Survey Report. https://www.bsp.gov.ph/Media_And_Research/Countryside_Bank_Survey/2022_Countryside_Bank_Survey_Report.pdf

catch. While these arrangements were convenient and provided immediate access to money, they also introduced the risk of predatory lending, which could trap fishers in a vicious cycle of overexploitation and exacerbate their vulnerability.[179] Members of fisher cooperatives or associations are better positioned to navigate these barriers.[180]

As discussed in Chapter 4, small-scale fishers in Siargao reported that the community relied on MFIs for credit to support consumption, children's education, and livelihood investments following Typhoon Odette. These loans, delivered via the group lending model, provided social collateral and reduced MFIs' risks and operating costs.[181] The credit helps fishers purchase or repair fishing vessels, engines, equipment, and gear and provides working capital for buying fish to sell. Furthermore, fishers engaging in deep-sea capture fishing require bigger boats with powerful engines, which is a significant investment. Access to credit can also help fishers purchase sustainable fishing equipment. While credit plays a vital role in supporting fishers to smooth consumption and make productive investments, increased reliance on credit can pressure fishers into overfishing, negatively affecting their resilience. In such cases, small-scale fishing households are likely to fall into poverty and debt traps, particularly if they don't have insurance.

On the supply side, the 2022 Countryside Bank Survey[182] found that while almost half of the participating banks offered loans for agriculture and fisheries, small-scale fishers formed a negligible proportion of their borrowers — only 3 percent across all bank categories and 16 percent in the case of rural and cooperative banks. For example, Land Bank, a large government-owned bank, allocates less than 1 percent of its portfolio to this sector despite its mandate to serve small-scale fishers.[183] Lenders were deterred by the information asymmetry and the high cost of serving these remote and geographically dispersed customer segments. Most lenders had limited technical expertise in small-scale fishing and expressed concerns about the volatility of small-scale fishing livelihoods and the lack of insurance to protect against damage or loss of fishing assets.[184]

Furthermore, MFIs and FSPs serving small-scale fishers have limited staff capacity and offer standard microfinance loans not tailored to diverse small-scale fishing segments' unique needs and constraints.[185] FSPs in climate-vulnerable regions like the Philippines also struggle to manage climate risks. According to the World Bank, the Philippines' financial sector

179 Grace, L., & van Anrooy, R. (2019). Guidelines for micro-finance and credit services in support of small-scale fisheries in Asia. A handbook for finance and fisheries stakeholders. FAO. https://openknowledge.fao.org/server/api/core/bitstreams/db549605-0519-4389-82f8-c8d1316ea3a6/content
180 FAO (2021)
181 FAO (2021)
182 DA-ACPC and BSP (2023)
183 Grace and van Anrooy (2019)
184 Grace and van Anrooy (2019)
185 Grace and van Anrooy (2019)

is highly vulnerable to physical and transition risks from climate change.[186] Catastrophic natural disasters can disrupt business operations and force branch closures, preventing clients from accessing savings and credit or receiving insurance payouts when most needed.[187] Filipino FSPs also face liquidity constraints when many clients withdraw savings simultaneously or cannot repay in the event of extreme climate episodes, which further limits their ability to support clients in times of crisis.[188]

Recently, MFIs in the Philippines have started incorporating basic environmental considerations into their products, though this practice is still developing.[189] Publicly listed MFIs are required to report on environmental performance. Some MFIs have adopted strategies to mitigate risks in their operational areas, which face high climate risks through client training and green financing products for renewable energy and resilient housing.[190]

Insurance

With 57.75 million insured lives, the Philippines has the highest percentage of the population covered by microinsurance;[191] however, the

insurance market for small-scale fishers in the Philippines remains underdeveloped. The Philippine Crop Insurance Corporation (PCIC) offers insurance for farmers and fishers, including indemnity insurance, compensating for damages to motorboats, fish cages, and inland fish ponds, as well as accident and disability insurance.[192] Despite subsidized premiums, uptake is low due to limited awareness and low registration among fishers.[193] Most fishers also lacked savings or checking accounts with banks to facilitate premium payments and claims payouts.[194] Furthermore, coverage

186 Regelink, M. (2019). Philippines Financial Sector Assessment Program Technical Note Climate Change and Environmental Risks and Opportunities. World Bank. https://documents1.worldbank.org/curated/en/244321629266625579/pdf/Philippines-Financial-Sector-Assessment-Program-Climate-Change-and-Environmental-Risks-and-Opportunities-Technical-Note.pdf

187 Zetterli, P. (2023). Climate Adaptation, Resilience, and Financial Inclusion: A New Agenda. CGAP. https://www.cgap.org/research/publication/climate-adaptation-resilience-and-financial-inclusion-new-agenda

188 Bayangos, V.B. et al. (2021). Impact of extreme weather episodes on the Philippine banking sector – Evidence using branch-level supervisory data. Latin American Journal of Central Banking, 2(1). https://doi.org/10.1016/j.latcb.2021.100025

189 Interview with Microfinance Council of Philippines; Bangko Sentral ng Pilipinas. (2022). Circular Letter No. CL-2022-011. https://www.bsp.gov.ph/Regulations/Issuances/2022/CL-2022-011.pdf; Microfinance Council of the Philippines. (2024, March 8). MCPI, Cerise+SPTF introduce Environmental Performance Management to FSPs. https://microfinancecouncil.org/mcpi-cerisesptf-introduce-environmental-performance-management-to-fsps

190 Interview with Microfinance Council of Philippines

191 GIZ Manila (2024)

192 Interview with PCIC official from Siargao City

193 Van Anrooy et al. (2022)

194 Tietze, U., & van Anrooy, R. (2019). Guidelines for increasing access of small-scale fisheries to insurance services in Asia. FAO. https://openknowledge.fao.org/items/0c57f44d-beda-4aae-949c-497889fd8085

is often limited, given the high cost of insuring small-scale fishers.[195] Existing insurance products in the Philippines do not adequately cover risks like income fluctuations due to weather conditions that small-scale capture fishers face,[196] nor do they cover related activities such as fish processing, packaging, and retailing.

In Siargao, efforts to increase awareness, especially after Typhoon Odette, have led to some improvements, but as of 2020, over 10,000 out of approximately 140,000 fishers are insured.[197] The absence of local PCIC branches in coastal areas has made premium collection and claims processing challenging.[198] While PCIC is partnering with digital payment providers to address these issues, many fishers are unregistered and unfamiliar with insurance. Interviews with fishers who had obtained insurance from PCIC suggested that they were unhappy with the lack of communication during the claim settlement process, which eroded their trust in insurance. Rare is working with PCIC's regional office in Siargao to address these issues. Additionally, Rare is conducting financial literacy training programs with savings group members and general awareness campaigns with the community to help them understand the benefits of insurance in helping manage risks and fishers' rights and obligations.

A study conducted by the CAFI-SSF Network identified the lack of customer-centric products, complex policies, and long claims processing as factors deterring small-scale fishers from accessing insurance.[199] To that end, Card Pioneer Microinsurance's (CPMI) efforts to engage with its low-income customers to understand their pain points, redesign processes, form new partnerships, and expand its distribution network to improve reach and customer experience can offer important lessons for the Philippines' insurance industry.[200]

Apart from PCIC, Mutual Benefit Associations (MBAs)[201] play a significant role, covering half of the country's population under microinsurance policies as of 2023.[202] However, data specific to policies taken by small-scale fishers is not available. MFIs with MBAs have good outreach in coastal areas but offer insurance primarily to active loan members, focusing on credit life coverage rather than comprehensive insurance coverage.[203] Community-based organizations, such as cooperatives, also provide insurance at subsidized rates due to lower transaction costs and a nonprofit model; however, membership among small-scale fishers was limited. Furthermore, MBAs and

195 Tietze and van Anrooy (2019)
196 Van Anrooy et al. (2022)
197 Rare Innovative Finance. (2019). Microinsurance. https://rare.org/wp-content/uploads/2019/02/Microinsurance-Innovative-Financie-2-pager.pdf
198 Focus group discussion with small-scale fishers in Siargao and interview with PCIC official from Surigao City
199 Insurance Development Forum & Microinsurance Network (2023). Inclusive Insurance in the Philippines Country Diagnostic and Roadmap
200 ILO. (2017). Pioneer Case Brief
201 Mutual Benefit Associations (MBAs) in the Philippines are member-owned, non-profit organizations providing affordable insurance and financial services to low-income communities. They operate on mutual aid principles, pooling resources to cover risks like life, health, and calamities, promoting financial inclusion.
202 Republic of the Philippines Department of Finance Insurance Commission. (2024). Microinsurance premium contribution grows 17.55% to Php13.54 in in 2023. https://www.insurance.gov.ph/microinsurance-premium-contribution-grows-17-55-to-php13-54-in-in-2023/
203 Interview with Microfinance Council of Philippines

cooperatives face challenges due to limited organizational capacity and the risk of decapitalizing their funds[204] during natural disasters.[205]

Given the challenges of last-mile outreach and on-site damage inspection, there is growing recognition of indexed or parametric insurance as an approach to address covariate risks and support communities during natural disasters. For example, the Philippines has recently started offering indexed insurance for aquaculture.[206] While parametric insurance helps provide liquidity to local governments after disasters,[207] designing and distributing index insurance contracts and ensuring accurate and equitable payouts due to high basis risk are complex and costly exercises that require high levels of technical expertise.[208] Furthermore, the risks covered by weather-indexed insurance are often highly localized, limiting the scalability of these products.[209] Low-income communities are also often unaware of parametric insurance. Furthermore, even when people have access to weather-indexed insurance, given the mismatch between the payouts and the on-the-ground observations of community members, these products often have low trust and credibility.[210] Moreover, parametric insurance does not cover specific assets or losses caused by accidents, making it challenging to provide coverage for affected households. Rare's partnership with WTW to pilot a parametric insurance solution with 50,000 fishers in the Philippines is an example of a novel approach to support communities coping with income losses during prolonged periods of adverse weather when they cannot fish.[211] Along similar lines, the United Nations Capital Development Fund (UNCDF) and the United Nations Office for Disaster Risk Reduction (UNDRR) have partnered with Sun Insurance Company Limited in Fiji to provide farmers with anticipatory insurance where they receive payouts before a natural disaster strikes.[212] More evidence is needed to understand the longer-term impacts of these products on community resilience.

In addition to the above, insurers

204 This refers to the depletion of financial reserves of these organizations. This can occur when they must pay out large sums of money in claims following natural disasters, as many policyholders might file claims simultaneously. If the insurance funds are not sufficiently replenished or the claims exceed the available reserves, the organizations could face financial strain, reducing their ability to offer insurance coverage effectively or continue their operations.

205 Tietze and van Anrooy (2019)

206 Van Anrooy et al. (2022)

207 Signer, B., & Poulter, R. (2021). Disaster risk insurance: 5 insights from the Philippines. World Bank Blogs. https://blogs.worldbank.org/en/climatechange/disaster-risk-insurance-5-insights-philippines

208 In the context of weather index-based parametric insurance, "basis risk" refers to the discrepancy between the actual losses experienced by insured parties and the payouts provided by the insurance. This risk arises when the index used to trigger payouts (such as weather data or disaster indicators) does not perfectly correlate with the actual losses suffered. For small-scale fishers or coastal communities, this means that the compensation they receive may not accurately reflect the extent of their losses, either providing too much or too little coverage relative to the damage experienced.

209 Hazell, P. et al. (2010). The Potential for Scale and Sustainability in Weather Index Insurance for Agriculture and Rural Livelihoods. International Fund for Agricultural Development and World Food Programme. https://www.ifad.org/documents/38714170/40239486/The+potential+for+scale+and+sustainability+in+weather+index+insurance+for+agriculture+and+rural+livelihoods.pdf

210 Hazell et al. (2010)

211 Ocean Risk and Resilience Action Alliance (ORRAA). (n.d.). Weather Index-Based Parametric Insurance for Small-Scale Fishers – Rare and WTW. Retrieved January 7, 2025, from https://oceanriskalliance.org/project/weather-index-based-parametric-insurance-for-small-scale-fishers/

212 United Nations Office for Disaster Risk Reduction. (2023, September 19). Pacific's first anticipatory action pilot insurance scheme to provide Fijian farming groups with better funds to prepare for cyclones [Press release]. https://www.undrr.org/news/pacifics-first-anticipatory-action-pilot-insurance-scheme-provide-fijian-farming-groups-funds

worldwide are piloting innovative insurance products and models to protect natural ecosystems like mangroves and coral reefs, which act as natural defenses against climate impacts. These Nature-based Insurance Solutions (NbIS)[213] reduce risks and support ecosystem restoration and protection. GIZ's recent feasibility study focusing on the impact of insuring MPAs in the Philippines against typhoons highlights the potential of NbIS in safeguarding both natural and economic assets. However, these innovations are still in the early stages. More work is needed to address issues of limited data availability, complex valuation of ecosystem services, aligning stakeholder interests, and securing practical funding, failing which scalability will be challenging.[214]

Savings

Access to savings helps households cover daily needs, manage emergencies, plan and fulfill lifecycle goals, and prepare for retirement. The Findex 2021 reports that the Philippines has one of the highest proportions of savers globally. However, most people do not use their bank accounts to save money.[215] Similarly, a financial inclusion survey conducted by the Bangko Sentral ng Pilipinas in 2021 finds that 52% of savers, particularly those with low literacy and incomes, preferred saving at home, followed by banks (31%), cooperatives (14%), microfinance NGOs (13%)[216], and savings groups (6%)[217] This trend was echoed in research conducted by FAO, which observed that even though most fishers considered savings more important than accessing credit, less than 20% of the survey respondents had saved with a formal FSP. Most respondents either did not save or relied on informal channels mainly because they did not have access to an FSP or believed the amount and frequency of savings was inadequate for a formal FSP.[218]

In Siargao, savings clubs played a vital role in supporting members to cope with climate shocks, build financial and social capital, and adhere to the MPA guidelines (see Box 7 for a summary of the FGDs with savings club members in Siargao).[219] Despite having limited outreach, these clubs provided a mechanism for regular savings for coastal communities in areas where formal financial institutions had a limited presence.

213 GIZ Manila (2024)
214 GIZ Manila (2024)
215 Demirgüç-Kunt et al. (2022)
216 People can save with deposit-taking microfinance NGOs, but they must be active loan clients to be able to deposit.
217 Bangko Sentral ng Pilipinas. (2021). 2021 Financial Inclusion Survey. https://www.bsp.gov.ph/Inclusive%20Finance/Financial%20Inclusion%20Reports%20and%20Publications/2021/2021FISToplineReport.pdf
218 Tietze and van Anrooy (2019)
219 CARE. (2015). The Resilience Champions. https://careclimatechange.org/resilience-champions/; Sandri et al. (2021)

Box 7: Role of Savings Clubs in Supporting Adoption of MA+R

Through its Fish Forever Program, Rare supports small-scale fishing communities in the Philippines to form savings groups. Typically, these groups have 15 to 20 members, both men and women, who meet once a week to contribute according to their economic circumstances. These contributions are used to offer low-cost credit to members in need.

Members interviewed as a part of the research appreciated how savings club payouts and loans helped them manage consumption during lean fishing seasons, avoid taking loans to pay for children's education, and even start small businesses. One member shared, "Before these savings clubs, I had multiple loans from MFIs to support my three children studying in Surigao City." Savings clubs also provide flexible savings and quick access to funds during emergencies, which helps members cope with the immediate aftermath of shocks.[220] A savings club member who had received her payout just before Typhoon Odette noted, "After Odette, we used the share-out money to buy food, medicine, and other necessities." Communities with active savings clubs and where fishers were registered and insured could recover faster without violating the MPA rules. Some groups also used their payouts to give loans to non-members struggling to cope with the aftermath of the typhoon.

Savings clubs also help build social capital. Mature groups report strong bonds and use the funds for community activities and festivals. Savings clubs operate autonomously and sustainably, unlike fisher or farmer associations that may dissolve if group projects fail. A significant proportion of savings club members in Siargao were women, who could increase their awareness, confidence, and involvement in economic activities by participating in savings clubs. This shift has helped change gender norms and enhance women's economic agency. This finding is corroborated by research showing that women's participation in savings clubs boosts community resilience in crises.[221]

Additionally, savings clubs provide a platform to build awareness about marine conservation and support MPA co-management. Members reported that fisher households participating in savings clubs are more likely to follow environmental rules due to peer pressure.[222] Members, especially women, often monitor and influence fishing behaviors, using social funds to patrol MPAs and organize

220 Informal savings were found to play an important role in recovering after Typhoon Yolanda in 2013: Hudner, D., and Kurtz, J. (2014). Do Financial Services Build Disaster Resilience? Examining the Determinants of Recovery from Typhoon Yolanda in the Philippines. Mercy Corps Working Paper. https://www.fsnnetwork.org/sites/default/files/2020-09/REAL%20RiA_Financial_Services_Final_Oct2019.pdf

221 CARE. (2022-a). COVID-19 and Women: Saving for Resilience. https://reliefweb.int/report/burundi/covid-19-women-saving-resilience; Kuhn, L. (2024, October 1). Magnifying the Power of Women's Savings Groups. FinDev Gateway. https://www.findevgateway.org/blog/2024/10/magnifying-power-of-womens-savings-groups

222 Villasante, S. et al. (2022). Resilience and Social Adaptation to Climate Change Impacts in Small-Scale Fisheries. Frontiers in Marine Science, 9. https://doi.org/10.3389/fmars.2022.802762

coastal clean-ups.[223] Savings clubs also foster trust and participation within the community, which can help strengthen the governance of MPAs.[224]

However, savings clubs in Siargao face limitations. While they offer crucial support for managing income disruptions immediately after a shock, the payouts are often insufficient to support investments in adaptation, such as buying new boats or equipment or diversifying income sources. Additionally, frequent income disruptions from recurrent and covariate shocks can strain the group's resources, making it challenging to support all members. After Typhoon Odette, some groups struggled to recover outstanding loan repayments, threatening their sustainability. Moreover, given that most savings clubs are informal and not linked with FSPs, they have limited capacity to provide credit and other financial services. Despite these limitations, savings clubs are a powerful mechanism to strengthen social capital and enable access to financial services to help fisher communities build resilience, adapt to climate shocks, and adopt MPA guidelines. Chapter 6 offers recommendations to enhance their capacity as a community-driven coping strategy.

223 Experience from other locations in the Philippines has shown the role of women in marine conservation: Chan, J. (2022, October 22). On a Philippine island, Indigenous women get their say on marine conservation. Mongabay. https://news.mongabay.com/2020/10/on-a-philippine-island-indigenous-women-get-their-say-on-marine-conservation/

224 Kushardanto, H., et al. (2022). Household finances and trust are key determinants of benefits from small-scale fisheries co-management. Marine Policy, 145. https://doi.org/10.1016/j.marpol.2022.105284; Pomeroy, R. S., & Viswanathan, K. K. (2003). Experiences with Fisheries Co-Management in Southeast Asia and Bangladesh. In D. C. Wilson, J. R. Nielsen, & P. Degnbol (Eds.), The Fisheries Co-management Experience: Accomplishments, Challenges and Prospects (pp. 99–117). Springer Netherlands. https://doi.org/10.1007/978-94-017-3323-6_7

Payments and Social Protection

Digital payments are central to the Bangko Sentral ng Pilipinas' efforts to enhance financial inclusion and resilience among vulnerable communities.[225] Following the COVID-19 pandemic, digital payments soared globally and in the Philippines. The Findex reports that in 2021, 43 percent of adults in the Philippines made or received digital payments,[226] with digital payments further surging to 53 percent of retail transactions in 2023.[227] The rise in digital payments was catalyzed by the growth in e-wallets that fueled a 68 percent growth in person-to-person transfers in 2023.[228] This growth was also observed in Siargao, where fishing communities reported using GCash and other mobile payment services to send money to children studying outside the island. Some fishers also reported receiving remittances during emergencies; however, this number was small, as most fishers had limited social networks outside the island. Efforts are also underway to digitize fishing and agricultural value chains, enhancing financial services, credit access, social protection, and market-based incentive mechanisms, such as Payment for Ecosystem Services (PES) (see Box 8).[229]

Despite these initiatives, digital literacy, internet accessibility, cost, and security concerns hinder coastal communities' access and use of digital payments.[230]

225 BSP Digital Payment Transformation Roadmap 2020-2023
226 Demirgüç-Kunt et al. (2022)
227 Bangko Sentral ng Pilipinas (BSP). (2024). 2023 Status of Digital Payments in the Philippines. https://www.bsp.gov.ph/PaymentAndSettlement/2023_Report_on_E-payments_Measurement.pdf
228 BSP (2024)
229 House, B. (2023, December 1). GCash and Mayani unite to bridge Philippines' $6B agri-fisheries credit gap. The Fish Site. https://thefishsite.com/articles/gcash-and-mayani-unite-to-bridge-philippines-6b-agri-fisheries-credit-gap
230 Better than Cash Alliance. (2019). The State of Digital Payments in the Philippines. https://btca-production-site.s3.amazonaws.com/document_files/505/document_files/The_State_of_Digital_Payments_in_the_Philippines.pdf?1577119102

Box 8: Payments for Ecosystem Services (PES)

PES is a market-based mechanism that compensates users for the sustainable use and management of natural resources. While PES has been used primarily for forest conservation and watershed management projects,[231] well-designed programs can help incentivize small-scale fishing communities to comply with MPA regulations and practice sustainable fishing. PES can take many forms:

- ↗ Incentive programs to compensate fishers for the income lost due to MPAs or during seasonal bans
- ↗ Subsidized credit and investments for technology upgrades or alternative livelihoods, such as ecotourism, helping fishers diversify income and reduce pressure on marine resources
- ↗ In-kind support by providing sustainable boats and fishing equipment that are aligned with environment conservation goals
- ↗ Market linkage facilitation to enable fishers to receive higher prices for sustainably caught seafood due to complying with MPA guidelines

Tourism revenues are a vital funding source for PES in coastal areas,[232] and financial services can play an important role in facilitating these incentives. For example, banks and MFIs could provide green finance products for sustainable tourism projects, nature-based insurance products could cover potential losses from environmental degradation, and digital payments could streamline fee collection and fund distribution. The collaboration between stakeholders — including the tourism sector, government, and fisher communities — ensures that tourism revenue supports marine ecosystem conservation, benefiting both the environment and local communities.

However, there are several challenges in implementing PES.[233] Given the difficulty in accurately valuing ecosystem services and funding limitations, ensuring adequate compensation to offset opportunity costs is difficult. Furthermore, unlike forests, monitoring the flow and replenishment of mobile fish stocks is another challenge.[234] Other challenges include effective monitoring and enforcement, equitable distribution of benefits among community members, and securing long-term funding. In light of these limitations, maintaining community engagement and support over time can also be challenging.

231 IIED (2012)
232 OECD. (2017). Marine Protected Areas: Economics, Management and Effective Policy Mixes. https://www.oecd-ilibrary.org/environment/marine-protected-areas_9789264276208-en
233 Bladon, A. J., Short, K. M., Mohammed, E. Y., & Milner-Gulland, E. J. (2016). Payments for ecosystem services in developing world fisheries. Fish and Fisheries, 17(3), 859–859. https://doi.org/10.1111/faf.12095
234 Bladon et al. (2016)

Social protection provides small-scale fishers essential support during emergencies.[235] While the Philippines offers several programs, coverage for small-scale fishers is not well documented. The 4Ps program, established in 2008, is one of the world's most extensive cash transfer programs, providing conditional cash transfers to low-income households, including fishers, to support health and education needs.[236] Payments are digitized and delivered using prepaid cards that can be cashed at ATMs or money transfer outlets. Still, most small-scale fishers lack access to full-service bank accounts, limiting their ability to save and access other financial services.[237] As a part of its pandemic response, the Philippine government developed the Social Amelioration Program (SAP),[238] which includes mechanisms for rapid scaling during emergencies and integrating long-term strategies to build resilience against future risks.[239] While this program enabled the government to increase outreach and offer digital transfers to 4P beneficiaries, identifying and providing cash transfers to non-4P beneficiaries was considerably more challenging due to the lack of a comprehensive beneficiary registry, reliance on manual processes, and lockdown restrictions.[240]

The Philippines government also provides healthcare services through PhilHealth; however, most small-scale fishers are unfamiliar with the program and its benefits. Additionally, there is limited outreach and availability of these programs in remote areas, which makes accessibility another critical challenge.[241] Other initiatives, such as the Philippines' Social Security System, also offer comprehensive social insurance,[242] but the minimum monthly contribution of PHP 400 is often unaffordable for small-scale fishers.[243] Similarly, the Sustainable Livelihood Program provides skills training and financial assistance; however, these

235 Costella, C. et al. (2021). Social protection and climate change: scaling up ambition. Social Protection Approaches to COVID-19: Expert Advice (SPACE). https://socialprotection.org/system/files/Social%20protection%20and%20climate%20change%20-%20scaling%20up%20ambition.pdf; Hallegatte, S., Vogt-Schilb, A., Bangalore, M., & Rozenberg, J. (2017). Unbreakable: Building the Resilience of the Poor in the Face of Natural Disasters. World Bank. http://documents.worldbank.org/curated/en/512241480487839624

236 World Bank. (2017). FAQs about the Pantawid Pamilyang Pilipino Program (4Ps). https://www.worldbank.org/en/country/philippines/brief/faqs-about-the-pantawid-pamilyang-pilipino-program

237 Interview with BRAC Philippines and focus group discussions with small-scale fishers

238 The Social Amelioration Program (SAP) in the Philippines was a government initiative launched during the COVID-19 pandemic to provide financial assistance to low-income households affected by the crisis.

239 Adaptive social protection systems enhance resilience to long-term challenges like climate change by integrating social protection, climate adaptation, and disaster risk reduction. It includes cash transfers, livelihood support, and capacity building to help communities adapt and reduce vulnerabilities.

240 Yoonyoung, C., & Johnson, D. (2022). COVID-19 and Social Assistance in the Philippines: Lessons for Future Resilience. World Bank G2PX. https://documents1.worldbank.org/curated/en/099535004082237964/pdf/P1735800c78b50000b7c406e14ddbadab7.pdf

241 National Economic Development Authority. (n.d.). Executive Summary: National Health Insurance Program (NHIP) Validation Study. https://www.philhealth.gov.ph/about_us/studies/other/3.ExecutiveSummary_NHIPValidationStudy.pdf

242 Maya, R. (2016). Philippines - Review of the social security system: Considerations for strengthening sustainability and coverage. World Bank. https://documents.worldbank.org/en/publication/documents-reports/documentdetail/528641466736355290/Philippines-Review-of-the-social-security-system-considerations-for-strengthening-sustainability-and-coverage

243 Interview with Mayor of Del Carmen, Siargao; Based on a monthly income of PHP 9,000, the minimum monthly contribution of 4% to the SSS is prohibitive for small-scale fishers.

programs are only available to registered fishers.[244] These examples indicate that despite the prevalence of various social protection initiatives, the lack of integration and coordination among different programs affects timely and sufficient support during climate-related crises.

5.2 ROLE OF FINANCIAL SERVICES IN SUPPORTING SMALL-SCALE FISHERS

Small-scale fishers face a multitude of risks with varying frequency and intensity. These risks range from minor health ailments and recurring events like tropical storms to catastrophic natural disasters, requiring multi-pronged strategies, including a range of financial services to address them. Additionally, as fishers adapt or transition their livelihoods, they are exposed to the risk of livelihood failures. Financial services and safety net measures can help fishers plan for and manage these risks. Understanding these risks (outlined in Figure 13) can help identify the most effective financial services and safety net measures to help fisher households plan for, recover from, and develop resilience against these risks.

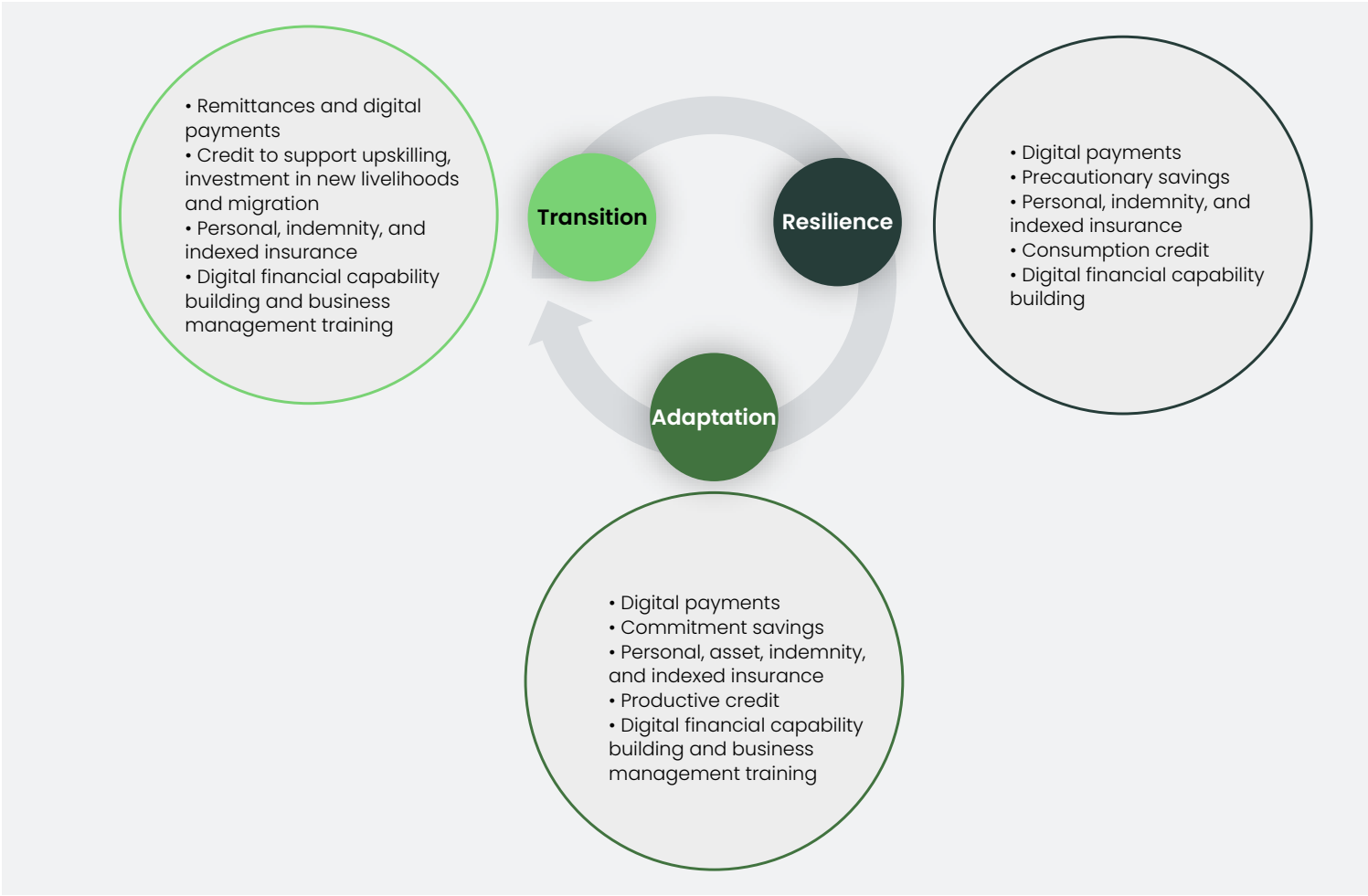
FIGURE 13: RISKS FACED BY SMALL-SCALE FISHERS

TYPE OF RISK	EXAMPLE	RELEVANT FINANCIAL SERVICES
Low Frequency, Low Severity	↗ Minor health shocks ↗ Damage to fishing equipment	↗ Emergency savings ↗ Savings group payouts ↗ Emergency credit
High Frequency, Low Severity	↗ Annual storms ↗ Rising temperatures	↗ Savings ↗ Insurance ↗ Formal credit ↗ Remittances
Low Frequency, High Severity	↗ Catastrophic natural disasters ↗ Business failures ↗ Pandemic ↗ Long-term illness or disability ↗ Price fluctuations	↗ Social protection ↗ Insurance ↗ Remittances ↗ Formal credit
High Frequency, High Severity	↗ Recurring typhoons and cyclones ↗ Livestock or fish disease ↗ Decrease in fish stock	↗ Financing/remittances for migration to new locations ↗ Financing to invest in vocational training for a new livelihood

244 Acosta, P. A., & Avalos, J. (2018). The Philippines Sustainable Livelihood Program: Providing and expanding access to employment and livelihood opportunities [World Bank Social Protection Policy Note]. World Bank. https://www.worldbank.org/en/country/philippines/publication/the-philippines-sustainable-livelihood-program-providing-and-expanding-access-to-employment-and-livelihood-opportunities

Drawing from the GIF framework (see Chapter 1), this section explores how financial services can play a pivotal role across the impact pathways of resilience, adaptation, and transition for small-scale fishers. These pathways are interlinked and mutually reinforcing, providing a comprehensive approach to meeting the diverse financial needs of fishers. At any point, fisher households may require a range of financial services to build resilience, adapt to changing conditions, and transition to new, sustainable livelihoods. Figure 14 identifies the financial services that align with these three interconnected pathways.

FIGURE 14: FINANCIAL INCLUSION PATHWAYS TO SUPPORT SMALL-SCALE FISHER



Savings

Savings are fundamental across all pathways. Precautionary savings provide fisher households with a cushion for emergencies and meeting immediate needs following a shock without resorting to harmful coping strategies like taking children out of school or intensifying fishing efforts. Precautionary savings are particularly important for women fishers, who are likely to save for childcare, health, and other emergencies not

covered by insurance.[245]

Commitment savings products help households plan and accumulate funds for long-term productive investments, such as setting up a small business or upskilling, helping fishers adapt and transition.[246] These products help build resilience by balancing the need to lock in funds to build a corpus while maintaining some liquidity for emergencies.[247] Access to liquid funds could ensure that investments in productive assets or children's education remain protected even when unexpected crises arise.[248] Savings groups with a commitment savings feature while allowing members to take group loans are a case in point. Despite being an informal mechanism, the flexibility offered by savings groups helps low-income communities access much-needed liquidity immediately after a crisis, especially in areas with limited formal financial infrastructure.[249]

Insurance

Insurance is a vital risk transfer mechanism that can protect fishers from shocks and help them build resilience and make adaptive investments. Affordable life, health, and accident insurance products help fisher households recover from setbacks without depleting their savings, while parametric insurance payouts can support communities during natural disasters and other covariant events. Parametric insurance products such as Rare's pilot with WTW to provide fishers with payouts amounting to a month's income (approximately USD 100) during periods of inclement weather can help vulnerable households recover from frequent shocks with low to moderate impact.[250] Insurance can also enable adaptation by safeguarding investments in sustainable fishing equipment and other livelihood assets, ensuring fisher households don't have to divert productive credit to meet basic needs during crises.[251] Furthermore, by protecting assets and income streams, insurance provides a safety net and helps households safely transition to new, potentially more climate-resilient livelihoods.

Credit

Well-designed credit products can help build resilience by providing funds to repair assets, rebuild homes, and manage consumption after a shock. Credit also enables fishers to obtain productive assets, engage in sustainable fishing practices, and pursue value-added services like fish processing. Fishers can also use credit for education,

245 Delavallade, C. et al. (2015). Managing risk with insurance and savings: experimental evidence for male and female farm managers in the Sahel. World Bank. http://documents.worldbank.org/curated/en/684751524225397589

246 Ashraf, N., Karlan, D., & Yin, W. (2010). Female Empowerment: Impact of a Commitment Savings Product in the Philippines. World Development 38(3), 333–44. https://doi.org/10.1016/j.worlddev.2009.05.010; Dupas, P., & Robinson, J. (2013). Why Don't the Poor Save More? Evidence from Health Savings Experiments. The American Economic Review 103(4), 1138–1171. https://www.aeaweb.org/articles?id=10.1257/aer.103.4.1138

247 Moore et al. (2019)

248 Moore et al. (2019)

249 Sandri et al. (2021)

250 ORRAA (n.d.)

251 Leavy, J., Boydell, E., McDowell, S., Sladkova, B. (2018). Resilience Results: BRACED final evaluation. BRACED. http://www.braced.org/resources/i/resilience-results-braced-final-evaluation/

learning new skills, starting new businesses, or migrating to more climate-resilient areas. Despite its benefits, overreliance on credit, particularly for consumption, can cause irreparable harm and trap fishers in a vicious cycle of debt. To that end, FSPs must ensure that credit products are responsibly designed with adequate safeguards to protect vulnerable fishers from overindebtedness and other consumer protection risks.

Digital Payments

Digital payments can enhance last-mile access to financial services and facilitate resilience, adaptation, and transition by providing a secure, efficient way to manage finances. They enable fisher households to receive remittances, credit, insurance payouts, social protection, and emergency cash transfers, as well as pay for goods and services. Digitized transactions also help fishers manage their finances more effectively and give lenders better visibility into their financial lives. Digital payments can support adaptation by connecting fishers with external markets and enabling them to participate in value chains. They can also facilitate payments for PES and other incentive mechanisms (see Box 8) and cash-for-work programs, which boost fisher incomes and encourage compliance with MPA guidelines. Digital payments can support livelihood transitions by integrating fisher-owned microenterprises into online marketplaces and streamlining the management of cash transfers and remittances for those migrating from Siargao.

Digital Financial Capability and Business Training

Financial capability training enables fishers to understand the benefits and risks of various financial products and learn to use digital payments. Fishers also need budgeting and cash flow management training to make intentional decisions and not become overindebted. These trainings equip fishers with skills to use financial services effectively, helping them avoid overindebtedness and manage risks, particularly when engaging with digital financial services. Fishers must also develop capabilities to address transaction failures, correct errors, and recognize and protect themselves against fraud, scams, and other consumer protection issues.

As fishers diversify their livelihoods, they need support in cash flow management, marketing, packaging, and distributing value-added fishery products. Skill building for new livelihoods is also crucial for fishers transitioning to new livelihoods or exploring entrepreneurship opportunities. FSPs with a local presence and understanding of the community's needs are well-positioned to provide this support.

06 Conclusion and the Way Forward

6.1 PUTTING IT ALL TOGETHER

This paper has three key learnings. First, MPA adoption can provide considerable economic and environmental benefits to small-scale fishing communities. However, as discussed in Chapter 3, community support and trust are critical for MPAs to succeed. Due to the fragile nature of their livelihoods, small-scale fishers require incentives and support to ensure that MPA regulations do not negatively impact their income or consumption. Additionally, effective enforcement mechanisms are needed to ensure the community complies with the fishing guidelines set for effective MPA implementation to discourage illegal fishing by commercial vessels and migrant fishers and prevent any negative externalities arising from MPA implementation.

Second, inclusive finance plays a critical role in helping fishers sustain their livelihoods and income during periods of stress. Evidence from Siargao shows that fishers who had access to MFI loans or were savings club members could use financial services to recover from the devastating aftermath of Typhoon Odette. Financial services, such as savings groups, also helped build a sense of ownership and accountability and motivated fishers to comply with MPA regulations.

Third, longer-term pathways for fishers to adapt to and build resilience against climate change should focus on giving fishers security and agency to pursue the livelihoods of their choice. Many small-scale fishers take pride in their occupation and want

to continue fishing. Financial services can help them adopt sustainable fishing practices, protect fishing assets, and improve their livelihoods. Others, such as younger fishers, can use financial services to plan, upskill, and transition to more stable, climate-resilient livelihoods.

This chapter outlines a few key recommendations to enable small-scale fishers to use financial services to adopt MPA and other sustainable fishing practices, diversify their livelihoods, build longer-term socioeconomic resilience, and thrive. While this research was conducted in the Philippines — a climate-vulnerable country with a long history of implementing MPAs and other sustainable fishing initiatives — the insights and findings apply to other coastal nations facing significant climate risks.

6.2 RECOMMENDATIONS FOR THE INCLUSIVE FINANCE SECTOR

Inclusive financial services can help catalyze MPA adoption and help fishers adapt and build resilience against climate change, yet until now, the two sectors have been siloed. Rare and other NGOs have recognized the vital role of financial services in ensuring the success and sustainability of conservation efforts and have started incorporating financial services into their programs and interventions. Interviews conducted by financial sector stakeholders also suggest that despite their interest in serving small-scale fishers, FSPs did not sufficiently understand this segment and were apprehensive about the high costs, risks, and viability of serving them. This section proposes a few recommendations to bring the worlds of inclusive finance and conservation closer and create better outcomes for small-scale fishers.

Building Financial and Digital Capabilities of Fishers

Most small-scale fishers have low levels of financial literacy. At the same time, fishers earn low and unpredictable incomes. Consumption smoothing pressures force fishers to borrow from informal lenders, often at high interest rates, exposing them to the risk of becoming overindebted. Consequently, fishers must learn to plan, save, manage cash flows, and minimize debt. Financial literacy training, focused on building fishers' awareness, knowledge, and skills, is critical for helping them make financial decisions and manage household and business finances. It is equally important for fishers to develop a conceptual understanding of the benefits and risks associated with various credit, savings, insurance, and other financial services. Fishers with sound financial literacy will also be more likely to engage with the formal financial system and practice sustainable fishing. These fishers are more likely to open accounts, access credit after evaluating the consequences, and build credit history. Finally, as the line between inclusive and digital financial services is increasingly blurred, financial service providers should also help fishers develop digital

financial capability[252] so they can confidently use digital payments and other financial services as needed.

Strengthening Savings Clubs

Many small-scale fishing households prefer to save, as it is lower risk than credit and provides a cushion for emergencies. Savings can help fisher households make productive investments, purchase assets, and diversify livelihoods. As discussed in Chapter 5, savings clubs were a powerful mechanism that helped residents of Siargao save and access credit and provided them with a safety net. Savings clubs also played a crucial role in empowering women fishers, promoting ecologically positive behaviors such as organizing coastal cleanups and ensuring adherence to the MPA regulations. However, while savings clubs helped members cope with and recover from the immediate effects of shocks, the payouts are inadequate to support fisher households in making investments to improve their adaptive capacities.

While savings clubs have several limitations, including their limited capacity to support community members when major covariate risks strike, they are nonetheless a powerful, community-led mechanism. Savings clubs, facilitated by organizations such as Rare, provide FSPs quick and easy access to members, enabling them to open bank accounts and access formal financial services. Digitizing savings club records can improve transparency and security and create financial histories that help members

252 CFI defines digital financial capability as the ability to access, manage, understand, integrate, and evaluate financial services offered through digital technologies: Arnold. J., & Venkatesan. J. (2022). Building Women's Financial Capability: A Path Toward Transformation. Center for Financial Inclusion. https://www.centerforfinancialinclusion.org/building-womens-financial-capability-a-path-toward-transformation/

access formal credit and other financial services to make productive investments. Additionally, savings clubs can be an entry point for FSPs to provide financial literacy training and insurance, social protection, and other services. NGOs mobilizing savings clubs can facilitate partnerships with various FSPs, while local FSPs can engage and train mature savings club members to serve as agents distributing their products and services.[253] However, FSPs and NGOs implementing savings clubs need to be cautious and ensure adequate safeguards are in place to protect members — who are vulnerable and may have limited awareness —from data privacy, cybersecurity, and other consumer protection risks.

Enabling Access to Credit

As discussed in Chapter 5, a growing number of small-scale fishers are accessing credit from MFIs. Access to credit from MFIs and formal FSPs can help fishers avoid harmful coping mechanisms immediately after a shock. The credit allows fishers to continue their children's education, make productive investments to strengthen current livelihoods, diversify into new livelihoods, and manage consumption while complying with the MPA guidelines. MFIs also have the potential to partner with providers of insurance, money transfers, and other financial services to offer a suite of financial services to small-scale fishing communities. Additionally, collecting data on fisher households and their cash flows can enable MFIs to design tailored products with interest rates adjusted to the household's risk profiles, thereby helping advance financial inclusion within small-scale fishing communities.

Demand-side measures focusing on building digital and financial capabilities will help fishers manage cash flows and improve their understanding of the benefits and terms of the loan products. It will also enable them to make intentional decisions to prevent overindebtedness. On the supply side, lenders have a limited understanding of the small-scale fishing industry, the diversity of fishing value chains, livelihood portfolios and assets of fishing households, the risks faced, and the coping mechanisms adopted, which increases their apprehension in lending to this segment. Measures, such as capacity building of FSP staff through partnerships with fisheries experts, local universities, and NGOs, can offer insights and practical knowledge to help lenders understand fishing value chains, financial needs, and cash flow patterns of different small-scale fishing segments. Integrating environmental assessments at the institutional and client levels can help FSPs examine their vulnerabilities, ecological impacts, and disaster resilience levels and incorporate measures to prevent unintended harm to clients or the environment.[254]

253 India's Bank Sakhi model is an example of this: Acharya, G. (2020). Self-Help Group Members as Banking Agents for Deepening Financial Inclusion. World Bank. http://documents.worldbank.org/curated/en/662851590658776125

254 European Microfinance Platform. (n.d.). Green Index. Retrieved August 12, 2024, from https://www.e-mfp.eu/ags-sub-sections/green-index%3A-assessing-environmental-performance

Additionally, a nuanced understanding of the small-scale fishing segment will enable lenders to offer a suite of credit products tailored to the needs of specific fishing segments — gleaners, capture fishers, fish processors, and fishers practicing aquaculture, to name a few. FSPs can further protect small-scale fisher clients from shocks by bundling micro and disaster insurance with credit products. Similarly, combining skills training and asset transfers with credit can support small-scale fisher communities in adapting to climate change.[255] Guarantees and credit enhancement mechanisms provided by the Development Finance Institutions and governments can further ease some risks and encourage more FSPs to develop flexible credit products for small-scale fishers, as evidenced in Papua New Guinea, where the National Microfinance Bank partnered with the National Fisheries Authority to offer a guarantee-backed credit product for coastal fisheries.[256]

FAO's research shows that small-scale fishers who were members of fisher associations were more successful in receiving loans.[257] Fisher associations are pivotal in helping fishers register, prepare for and recover from natural disasters, purchase group insurance, and make connections with FSPs. FSPs can leverage fisher associations and cooperatives to provide financial capability and business management training, communicate offerings, and even distribute their products and services. Additionally, as evidenced in coffee and cacao value chains, mature associations can pledge assets and take loans on behalf of their members.[258] Similar approaches can help fisher associations procure storage, distribution, and transportation infrastructure and create long-term value for small-scale fishers. In addition to fisher cooperatives and associations, fish processing plants can serve as a screening, delivery, and repayment collection point in more peri-urban areas, thereby reducing costs and last-mile access issues for FSPs.[259]

Risk Management Through Insurance

Insurance is a crucial risk transfer mechanism to help small-scale fishing communities cope with shocks. However, most fishers who were a part of the research did not have insurance, mainly because they were not registered and were unaware of insurance and its benefits. Most fishers were also unfamiliar with good practices in fishing and aquaculture, which further increased the riskiness of their livelihoods. In addition to digital and financial capability training, extension services on risk management can help fishers adopt better fishing practices, be more diligent in recordkeeping, and improve their understanding of and demand for insurance.

CFI's research revealed that PCIC and other insurers in the region face

255 Miller et al. (2023)
256 Grace and van Anrooy (2019)
257 FAO (2021)
258 Grace and van Anrooy (2019)
259 Grace and van Anrooy (2019)

significant capacity constraints that limit their ability to serve fishers at the last mile during climate shocks and other emergencies. Insurers often lack critical data on prices, fish diseases, causes of fish mortality, harvest, yields, and losses, and gathering this information would significantly increase the cost of serving these segments.[260] Furthermore, most fishers have limited literacy levels and do not record data on fish stocks and yields, which can help estimate losses. Insurers also have a limited distribution network in remote, rural areas and lack enough staff with knowledge of fishing practices, pointing to the need for capacity building to develop expertise in assessing the risks these segments face. Efforts to increase data collection on small-scale fisheries and aquaculture and leveraging satellite, AI, and new technologies can provide insurers with more granular insights that will help them better assess risks and price insurance products, estimate losses incurred, and offer parametric insurance products with minimal basis risk for small-scale fishers. Capacity building will also help providers design insurance products tailored to fishers' livelihoods. Examples include providing credit-linked insurance, introducing affordable and flexible premium payment options aligned with fishers' cash flows, simplifying the assessment and claims settlement processes, and expanding coverage to include gleaning, processing, and other activities performed by women and older and more marginalized fishers, to name a few.

Additionally, PCIC and other insurers can partner with fisher cooperatives and associations, boat owner associations, and local NGOs to help insurance providers overcome last-mile delivery challenges. Efforts to engage LGUs and improve coordination between PCIC and LGUs responsible for offering services to coastal communities may lead to an uptick in fisher registration and demand for insurance. Insurers can also leverage digital channels to collect premiums and send payouts to customers.

As discussed in Chapter 5, insurers worldwide are developing AI-driven tools and innovative risk management frameworks and services and piloting parametric insurance products to protect coastlines, mangroves, coral reefs, MPAs, and other marine habitats

260 Van Anrooy et al. (2022)

from tropical storms and other weather-related events.[261] Conducting small-scale pilots is a low-stakes approach to testing and improving these products. Additionally, involving and training LGUs, who play a central role in locally led disaster management and conservation, is critical for ensuring that the solutions are contextually relevant and acceptable to fisher communities.

Incentivizing Fishers Through Market-Based Mechanisms

Market-based mechanisms, such as PES, can be a powerful incentive alignment mechanism. Incentives can compensate fishers for the lost income, encourage them to adhere to the MPA rules, monitor implementation, and help restore declining fish stock and the larger marine ecosystem. If implemented well, these mechanisms can support the most vulnerable fishing segments, including women and older fishers whose livelihoods are most impacted by MPA regulations. Incentives can take several forms — from direct cash paid into fishers' accounts to in-kind contributions, such as sustainable fishing gear with positive environmental benefits. Leveraging digital channels can improve transparency and ensure timely incentive payments.

However, several design considerations are needed for these mechanisms to work. Intense competition exists between conservationists, tourism sector actors, and fishers to acquire control over marine resources. Moreover, small-scale fishers are a diverse segment with varying needs. Consequently, exercising fishing communities' rights over aquatic resources is a complex and political process with trade-offs that need careful consideration.[262] ADB's research in the Coral Triangle shows that LGUs in certain parts of the Philippines, such as Calatagan and Bantagas, have started granting fishers exclusive rights at the municipal level.[263]

Additionally, the incentives must be attractive enough for fishers to comply with the regulations. Evidence from the implementation of PES projects suggests that the equitable distribution of benefits was a critical challenge. For these market-based mechanisms to work, it will be necessary for implementors to assess the ecosystem benefits of these initiatives accurately, determine the actual costs of complying with the regulations, and identify fishers most impacted by the rules and the detractors.[264] Concurrently, project implementors will need to evaluate the funding sources, as relying solely on revenues from ecotourism to compensate fishers can hinder the longer-term viability of these schemes.

Enabling Fisher Registration and Access to IDs

The lack of IDs and registration is perhaps the most significant roadblock

261 GIZ Manila (2024)
262 GIZ Manila (2024)
263 Asian Development Bank (2014)
264 GIZ Manila (2024)

preventing small-scale fishers from accessing government programs and financial services. The World Bank's ID4D Findex survey estimated that 16.5 million Filipinos did not have any identity proof in 2017,[265] resulting in 20 percent of the country's poorest people being unable to access government services, including government-provided financial services.[266] Despite impressive strides by the government to enroll over 85 million people in the Philippines Identification System (PhilSys),[267] last-mile access continued to be a challenge in Siargao.

Most small-scale fishers interviewed as a part of the study were unaware of the benefits of registration and cited the time and cost involved in registering as deterrents. Registration with LGUs will legitimize fishers' identity and profession and enable them to access government-provided boat and health insurance, provident savings, social protection, and cash transfers. These services can help small-scale fishing communities develop absorptive capacities and cope with risks without resorting to harmful coping mechanisms. Furthermore, fishers can also use the registration documents to access formal financial services and open bank accounts. While LGUs are primarily responsible for fisher registration, FSPs can work with NGOs like Rare to support LGUs, create more awareness about the benefits of registration, organize community-level mobile registration camps, and help navigate the process and documentation requirements.

6.3 CONCLUDING THOUGHTS

This paper focuses on how financial services can sustain fisher livelihoods and enable them to comply with sustainable fishing practices. While financial inclusion plays an integral role in supporting fishers in complying with MPA regulations, it is crucial to ensure that financial resources are available throughout the design, implementation, and monitoring phases. FSPs and climate- and conservation-focused organizations must work together to develop a nuanced understanding of fishers' livelihoods and financial needs, as well as the opportunities and risks posed by MPA programs, and ensure sufficient resources are available to make these initiatives succeed.

Fishers also need support on multiple fronts — beyond this study's scope — to transform their livelihoods. As discussed throughout this paper, small-scale fishing households have various needs and aspirations and face a range of shocks with varying levels of severity. Several fishers interviewed as a part of the study expressed a desire to transition from fishing to more climate-resilient livelihoods, requiring higher skills and qualifications. Additionally, almost all fishers were invested in their children's education and hoped they would have a

265 Porcalla, D. (2019, October 11). National ID system to benefit farmers, fisherfolk. The Philippine Star. https://www.philstar.com/headlines/2019/10/11/1959506/national-id-system-benefit-farmers-fisherfolk

266 Elfayez, F. (2022, March 31). A digital Philippines: Leveraging ID for a digital social protection delivery. World Bank. https://blogs.worldbank.org/en/eastasiapacific/digital-philippines-leveraging-id-digital-social-protection-delivery

267 Philippine Statistical Authority. (2024, March 27). PhilSys Registration Reaches 85 Million [Press release]. https://philsys.gov.ph/philsys-registration-reaches-85-million/

promising future. Despite these aspirations, fishers often struggled to find work during lean seasons or manage consumption levels immediately after a shock. During periods of extreme stress, social protection and cash-for-work programs can help fishers maintain food security and avoid overfishing, reducing consumption, or taking children out of school. Fishers need a broad range of livelihood options that meet their current needs while protecting them from shocks and allowing them to upskill and shift to alternative livelihoods.

Consequently, strategies to support fishers should focus on building capacities and diversifying assets and livelihoods at the household level.[268] The SLF, referenced in Chapter 1 and underpinning this research, provides a helpful structure to examine the vulnerability context and access to various forms of capital that shape the strategies and choices made by fisher households. It is equally important to adopt a systems lens and review the infrastructural, regulatory, and institutional contexts that influence their access to resources and opportunities and take action to address the gaps. This approach will require multi-stakeholder coordination and concerted action from the national and local governments, policymakers, funders, FSPs, NGOs, humanitarian actors, and fishing communities. Figure 15 summarizes the role of each of these stakeholders.

FIGURE 15: STAKEHOLDER ROLES IN IMPROVING FINANCIAL INCLUSION AND MA+R ADOPTION

STAKEHOLDER	ROLE	ACTIONS
National governments	Provide a supportive framework for financial inclusion and livelihood diversification	↗ Implement national policies promoting financial inclusion ↗ Provide subsidies for insurance premiums and support the digitization of financial services
Local Government Units (LGUs)	Enhance local implementation and support for financial inclusion initiatives	↗ Create awareness and facilitate fishers' registration process ↗ Coordinate with FSPs and provide logistical support for financial literacy programs ↗ Partner with fisheries experts to provide training on good fishing practices to fishers ↗ Implement local economic stability programs such as cash-for-work ↗ Help fishers get enrolled in social protection programs

268 Pomeroy, R. (2013). Sustainable Livelihoods and an Ecosystem Approach to Fisheries Management. USAID Asia. https://repository.library.noaa.gov/view/noaa/44204/noaa_44204_DS1.pdf

STAKEHOLDER	ROLE	ACTIONS
Funders	Provide financial support and resources for program implementation and innovation	↗ Fund initiatives for financial inclusion and livelihood diversification ↗ Participate in innovative financing mechanisms such as credit guarantees and PES to support innovation and align incentives ↗ Support capacity-building programs for financial institutions and fishers ↗ Invest in infrastructure and technology for digital financial services
Financial sector regulators	Provide a supportive environment to improve access to financial services and enhance resilience	↗ Include small-scale fishing as a development priority and mandate FSPs to serve them ↗ Develop policies encouraging tailored financial products for small-scale fishers ↗ Undertake policies and measures to strengthen the resilience of the financial systems
FSPs	Improve access to financial services and enhance resilience	↗ Improve the digital and financial capability of fishers ↗ Facilitate capacity building of staff to develop expertise on fishing value chains, risks, and opportunities ↗ Leverage data and analytics to deepen understanding of fisher livelihoods and cash flows ↗ Partner with insurance providers, fisher associations, cooperatives, and buyers to cost-effectively deliver services to fishers ↗ Invest in digital solutions to improve last-mile access ↗ Partner with conservation NGOs to facilitate linkages with savings groups ↗ Conduct awareness campaigns about registration and financial services

STAKEHOLDER	ROLE	ACTIONS
Conservation NGOs	Promote sustainable practices and support financial inclusion	↗ Provide training on sustainable fishing practices and MPA adoption ↗ Collaborate with FSPs for conservation-friendly financial products ↗ Support and facilitate savings groups, including creating new opportunities for savings group members ↗ Conduct awareness campaigns about registration and financial services
Local NGOs and humanitarian organizations	Support community resilience and financial inclusion	↗ Offer training programs in alternative livelihoods and financial literacy ↗ Partner with FSPs for microfinance programs, insurance, and low-interest loans ↗ Support savings groups and organize community-based initiatives
Fish processors, buyers, and wholesalers	Act as collection and distribution points for financial services	↗ Partner with FSPs to share deep knowledge of small-scale fishing segments ↗ Act as guarantor for credit ↗ Partner with FSPs to serve as a channel for loan disbursement, collection, and insurance premium collection and payout
Fishing communities and associations	Strengthen fishers' bargaining power and socioeconomic resilience	↗ Facilitate registration ↗ Provide digital and financial training ↗ Partner with FSPs to market products and serve as disbursement, collection, and premium payment points ↗ Provide emergency credit ↗ Support mature fisher groups to pledge assets and secure loans from FSPs

6.4 AREAS OF FUTURE RESEARCH

This research attempts to bring the worlds of conservation and inclusive finance closer and demonstrates financial services' critical role in supporting MPA adoption. It identifies some knowledge gaps that could benefit from further exploration. First, more research is needed to understand EbA approaches such as MPAs.[269] MPAs worldwide have a high failure rate, and more than 90 percent of them in the Philippines have failed to achieve their intended objectives.[270] More research is needed to understand why these MPAs fail, uncover successful models — particularly those that have integrated financial services as a critical component — and identify unintended positive or negative consequences resulting from MPA implementation.

Second, while there is a considerable body of literature on PES and other incentive-based mechanisms for agriculture and forestry projects, there is limited evidence about their impact in small-scale fishing contexts. Implementing incentive-based mechanisms in small-scale fisheries is also more challenging, given the complexities of assigning rights to marine resources.[271] Further research may help uncover conservation approaches that have successfully determined the ecosystem benefits of conservation initiatives and identified who is most impacted by MPA and other fishing restrictions, which is crucial for securing community buy-in. Additionally, more research is needed to understand the linkages between financial inclusion and incentive-based mechanisms and how community-based models, such as savings groups, can be leveraged to implement and monitor these schemes.

Third, while this research did not find evidence of a high inflow and use of remittances by small-scale fishers in Siargao, there is considerable evidence pointing to the potential of remittances in helping communities and households cope with covariate risks.[272] Further research can provide insights into how remittances can support coastal communities in the Philippines to strengthen and diversify livelihoods while improving their socioeconomic resilience against climate shocks.

Fourth, this research notes that while women play a significant role in small-scale fishing, gleaning, and related activities, there is a lack of sex-disaggregated data about women's employment in fisheries, further marginalizing them. More research is needed to understand the unique preferences, constraints, and financial needs of women fishers, as well as gender and social norms and other contextual factors that influence women's mobility, access to resources, and opportunities. Finally, as stated in Chapter 1, CFI and Rare conducted qualitative research across five municipalities in Siargao. However,

269 GIZ Manila (2024)
270 Chavez (2021)
271 IIED (2012)
272 Bettin, G., Presbitero, A., & Spatafora, N. (2014). Remittances and Vulnerability in Developing Countries. International Monetary

contexts and needs can vary widely, even within the same country or region. To better appreciate the lived experiences, vulnerabilities, and coping mechanisms of small-scaling fishing communities, more research — both qualitative and quantitative — is needed to develop a nuanced understanding and propose holistic, actionable recommendations.

Annex

1. LIVELIHOOD ASSETS EXPLAINED

STAKEHOLDER	ACTIONS
Human Capital	↗ The quality of an individual's human capital depends upon their levels of education, health and well-being, knowledge, skills and ability, mobility, and ability to migrate, to name a few. ↗ At a household level, the amount and quality of labor available depends on the household size, age, skill levels, leadership potential, and health status of household members.
Social Capital	↗ Social capital refers to the social resources people rely on for informal safety nets and to build trust, facilitate exchange and cooperation, and reduce transaction costs as they pursue their livelihoods. ↗ Examples include networks and connectedness with patrons/clients (vertical), peers and others with shared interests (horizontal), access to institutions, and membership in formal associations.
Natural Capital	↗ Natural capital is most closely related to the vulnerability context and livelihoods of agriculture and fisher communities dependent on resource-based activities. ↗ Examples include intangible public goods such as biodiversity as well as assets such as land, trees, forests, marine resources (fish stocks, mangroves, coral reefs), and water and air quality.
Physical Capital	↗ Physical capital includes public goods such as infrastructure and producer goods that support livelihoods and improve productivity; producer goods may be owned by individuals or groups or can be rented or accessed in exchange for a usage fee. ↗ Examples include information, infrastructure (roads, electricity, internet, transportation, water, and sanitation), producer goods (boats, equipment and fishing gear, livestock, and other tangible livelihood assets), land, and housing.
Financial Capital	↗ Financial capital is the most versatile livelihood asset that people rely on for consumption and livelihood activities. It can be accessed from formal and informal financial institutions, microfinance institutions (MFIs), and savings clubs. ↗ Examples include savings (cash, bank deposits, liquid assets such as livestock and jewelry), earned income, access to pensions, remittances and transfers, and insurance.

Source: Adapted from DFID's Sustainable Livelihoods Framework

2. OVERVIEW OF STUDY PARTICIPANTS

ORGANIZATION/ PARTICIPANT	STAKEHOLDER TYPE	TOOL USED	LOCATION
Philippine Crop Insurance Corporation (PCIC)	Insurance service provider (government-owned)	Individual interview	Virtual: Representative based in Surigao City
Pag-Ibig	Housing finance agency and national savings program (government-owned)	Individual interview	Virtual: Representative based in Surigao City
Microfinance Council of the Philippines	National network of microfinance institutions	Individual interview	Virtual: Representative based in Manila
BRAC, Philippines	International NGO	Individual interview	Virtual: Representative based in Manila
Sikat	Filipino NGO with a local presence in Siargao	Individual interview	In-person: Siargao office of the organization
Community and Family Services International	Filipino NGO with a local presence in Siargao	Individual interview	In-person: Siargao office of the organization
Better than Cash Alliance, Philippines	UN-based partnership for digital payments advocacy	Individual interview	Virtual: Representative based in Manila
Innovations for Poverty Action, Philippines	International research institution	Individual interview	Virtual: Representative based in Manila
Ms. Shayne Bulos, Consultant	Microinsurance consultant	Individual interview	Virtual
Local small-scale fishers and savings group members	Community members	Focus group discussion (total of five, including 21 male and 18 female participants)	In person: Covering five LGUs — Del Carmen, Pilar, Santa Monica, General Luna, and San Isidro
Municipal Fisheries and Aquatic Resources Management Council (MFARMC)	Community representatives at the municipal level	Focus group discussion (one group including three male and one female participants)	In person: Covering five LGUs — Del Carmen, Pilar, Santa Monica, General Luna, and San Isidro

ORGANIZATION/ PARTICIPANT	STAKEHOLDER TYPE	TOOL USED	LOCATION
Municipal Agricultural Officer	Local Government Unit (LGU)	Individual interview	In-person: LGU offices of Del Carmen, General Luna, and Santa Monica
Municipal Mayor	Local Government Unit (LGU)	Individual interview	In-person: LGU office of Del Carmen
Bureau of Fisheries and Aquatic Resources (BFAR) representative in the Caraga region	Regional government	Individual interview	In-person: Siargao

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