

HIGHLIGHT

Sri Lanka's coastal fisheries are a vital source of livelihoods, food, and nutrition, and are integral to the country's economy, culture, and society. However, coastal fish stocks are in decline and fail to meet domestic demand, leading to negative repercussions on livelihoods. This Case Study Note explores how Social Protection and Jobs (SPJ) policies and programs can help rebuild and maintain sustainable coastal fisheries in Sri Lanka, with a focus on the spiny lobster fishery on the south coast. The authors reviewed Sri Lanka's evolving SPJ policies and programs to see how they may help fishers cope with short-term losses due to a potential extended closure aimed at rebuilding the lobster stock and complement long-term fishery management measures to, among other things, ensure that fishing effort does not increase. The authors also analyzed socio-economic survey data on coastal fishers, including their aspirations for education and livelihood improvement. Opportunities identified to link SPJ with fisheries management include:

- To strengthen governance and to design and implement more coherent SPJ policies, (i) strengthen cooperation and coordination among ministries and between governmental and other institutions, (ii) implement fisheries co-management, and (iii) enhance fisheries regulations enforcement.
- To help enhance compliance with short-term restrictions aimed at rebuilding fish stocks, support poor and severely poor fishers who may not have the means to switch to alternative income sources, such as targeting a different fish species.
- For long-term sustainability and to prevent increase in fishing effort, adopt economic-inclusion programs that promote alternative employment among poor households, including broadening active labor market programs (ALMPs). Program sustainability also requires innovative financing options to integrate SPJ approaches into fisheries management.

Blue Social Protection Series: Protecting People, Fish and Food

Integrating social protection and economic inclusion with management of Sri Lanka's coastal fisheries

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1. Introduction

Sri Lanka’s coastal fisheries represent a crucial source of livelihoods, food, and nutrition, and are integral to the country’s economy, culture, and society. The fisheries sector contributed an estimated 1.2 percent to Sri Lanka’s GDP in 2022 (MOF 2023a). The sector provides direct and indirect employment to an estimated 586,000 people; 54 percent are employed in fishing, with just over 70 percent of those engaging in marine as opposed to inland fishing, while the remainder engage in pre- and post-harvest segments of the value chain such as processing, trade, and net repair (MOF 2023a). Virdin et al (2023) estimate that women make up 26 percent of the people employed in the sector. Taking household members into account suggests that about 2.7 million people—approximately 12 percent of the total population in 2023—derive some portion of their livelihoods from the fisheries sector, either directly or indirectly. Furthermore, aquatic foods are an important part of the Sri Lankan diet, providing around 50 percent of the animal protein consumed per capita – around three times more than the global average (FAO 2022a).² Sri Lanka’s total fish catch was estimated at 397,230 metric tons in 2022, of which the majority (70.6 percent)

came from the marine sector, and just over half of that production (53 percent) comes from coastal, typically small-scale fisheries (MOF 2023a).

Yet, coastal fish stocks are in decline and fail to meet domestic demand, leading to negative repercussions on livelihoods.

Coastal fishing effort³ has sharply increased in recent decades (World Bank 2021, Haputhantri and Sharma 2021) due to a lack of fisheries management, including low enforcement of existing regulations. This situation has been exacerbated by severe fiscal cuts (Creech 2020, Joseph 2023), lack of political will (de Silva et al 2022), and difficulty of enforcing regulations on a high-poverty population of fishers (Amarasinghe 2020). Efforts are underway to carry out coastal stock assessments and develop fisheries-management plans (FMPs)⁴ consistent with the Fisheries and Aquatic Resources Act (FARA) 1996 and its amendments, but these may impose costs on fishers and fish workers. Innovative, programmatic approaches are required to enable and incentivize coastal communities to engage in, and follow, these plans, and to prevent the total number of people engaged in the capture of coastal fish from increasing. Rebuilding stocks and maintaining them at higher productivity

2 Sri Lanka’s consumption of aquatic foods has likely declined in recent years due to a decline in production, driven by factors such as fuel shortages, increased production costs, and higher fish market prices (FAO 2023) and declining fish imports (MOF 2024).

3 Coastal fishing effort is generally defined as fishing capital, including vessels, nets, and other gear, and jobs allocated to a fishery.

4 The World Bank is providing technical assistance (TA) to help the Government of Sri Lanka outline a roadmap for development of FMPs for the western and northwestern small pelagic fishery, and for the spiny lobster fishery in Hambantota District.

levels would increase local incomes to the fishers involved and may create processing jobs, in particular in export-oriented fisheries.

The aim of this Note is to explore how SPJ policies and programs could help rebuild and maintain sustainable coastal fisheries in Sri Lanka, with a focus on the spiny lobster fishery.

Social protection and jobs (SPJ) programs are risk-management mechanisms with potential to support fisheries management, while also reducing the vulnerability of coastal communities and building climate resilience (Bladon et al. 2022). This Note builds on a World Bank Advisory Services and Analytics (ASA)⁵ engagement started in 2020. The ASA supports the Government of Sri Lanka (GoSL) to prioritize investment and policy actions to enhance the welfare and resilience of coastal fishing communities. It recognizes that the national economy requires supporting coastal fisheries that have been threatened by the COVID-19 pandemic, climate risks, and the ongoing economic crisis in Sri Lanka.

The GoSL identified spiny lobster as a priority under the ASA for technical assistance (TA) to pilot fisheries management improvements.

The spiny lobster has a high value in export markets and supports thousands of livelihoods on Sri Lanka's south coast. Hambantota District on the south coast was identified as the most important location on which to focus the lobster pilot.⁶ This Note draws on several components of the pilot, including a stock assessment of the Hambantota spiny lobster fishery (Liyanage and Sharma 2022), an institutional and regulatory assessment, a value chain analysis, an integrated biological and local economy-wide impact evaluation (Bio-LEWIE) model of the fishery, and semi-structured consultations with coastal fishers and fishery inspectors (World Bank, forthcoming).⁷

This Note is structured as follows: the remainder of this introductory section provides context on Sri Lanka, its coastal fisheries sector, and the spiny lobster fishery; Section 2 describes the data and methods used in this study; Section 3 presents the main findings, drawing on these findings and the challenges highlighted in Section 1.1; Section 4 identifies the main opportunities to link SPJ with coastal fisheries management; and finally, Section 5 outlines the lessons learned from and limitations of the case study, offering suggested next steps based on this research.

5 The ASA is titled "Priorities for Sustainably Managing Sri Lanka's Marine Fisheries, Coastal Aquaculture, and the Ecosystems that Support Them," with the first report was published in September 2021 (World Bank 2021).

6 A sizeable spiny lobster fishery is located in shallow waters on Sri Lanka's south coast, from Tangalle to Amaduwa in Hambantota District (where the most substantial share of Sri Lanka's spiny lobster catch is thought to occur) and the adjacent coastal Ampara District.

7 The Hambantota lobster fishery was selected as a case study for the Blue SPJ ASA due to this rich combination of analytical and modelling work. It highlights the trade-offs that need to be made to achieve a productive and sustainable fishery and fishers' livelihoods, which may call for SPJ measures.

1.1. Country context

1.1.1. Sri Lanka's economy and social protection system

Sri Lanka—a lower middle-income country (LMIC)⁸ that had been outperforming regional peers in reducing extreme poverty and promoting shared prosperity—is currently experiencing an economic crisis. Sri Lanka's economy grew at an average of 6.4 percent per year from 2010 to 2017, and its national poverty headcount ratio dropped from 23.8 percent in 2009 to 11.3 percent in 2019 (at \$3.65 per capita, 2017 purchasing power parity [PPP])⁹ (World Bank 2022). However, years of poor governance, a restrictive trade regime, a weak investment climate, episodes of loose monetary policy, and a managed exchange rate created macroeconomic imbalances in the last two decades. These were exacerbated by several exogenous shocks, including a political crisis in 2018, the Easter bombings in 2019, the COVID-19 pandemic in 2020, and Russia's invasion of Ukraine in 2022 (World Bank 2023a). In response, international financial institutions have recommended several structural reforms to restore macroeconomic stability and debt sustainability,

including cost-effective utility pricing while safeguarding financial stability and protecting vulnerable people.¹⁰ Fiscal space is likely to remain extremely limited, forcing the GoSL to be very selective regarding publicly-funded programs.

Fisheries households were among those most harmed by the economic crisis. Food price inflation—which reached 82.5 percent per annum in July 2022 (WFP 2022)—and shortage of basic food items and productive inputs negatively affected many segments of society, particularly poor and vulnerable groups. Between 2021 and 2022, the estimated poverty rate nearly doubled from 13.1 percent to 25.6 percent (at \$3.65 per capita, 2017 PPP), increasing the number of poor people by 2.7 million (World Bank 2022). Extreme poverty (at \$2.15 per capita, 2017 PPP) is estimated to have quadrupled from 1.5 percent in 2021 to 6.1 percent in 2022 (World Bank 2022, 2024). By November 2022, around 37 percent of households were facing acute food insecurity (WFP 2022) and an estimated 75 percent of households experienced reduced incomes (WFP 2022). Fisheries households were among those facing the greatest food insecurity, in part due to the 2022 fuel shortage and subsequent

8 Sri Lanka had a total population of 22.18 million and gross national income (GNI) per capita of US\$ 3,610 in 2022 (<https://data.worldbank.org/indicator/NY.GNP.PCAP.CD?locations=LK>). Countries with a GNI per capita between \$1,036 and \$4,045 are defined as lower middle-income countries: <https://www.worldbank.org/en/country/mic/overview#:~:text=They%20are%20defined%20as%20lower,62%25%20of%20the%20world's%20poor.>

9 <https://data.worldbank.org/indicator/SI.POV.LMIC?end=2019&locations=LK&start=2000>.

10 Policy reforms include protecting vulnerable people as a pillar of policy development. In the longer term, according to the Welfare benefits Board Act, the vulnerable will have to recertify annually.

price increase (Roar Media 2022).¹¹ The economy showed initial signs of stabilization in 2023 and is expected to continue to stabilize in 2024 and beyond. Nevertheless, the modest economic recovery will be insufficient to reverse welfare losses experienced during the crisis, the poverty rate is estimated to remain above 22 percent until 2026 (World Bank 2024).

Sri Lanka has an extensive, but fragmented, SPJ system that does not address the multi-dimensional constraints of the poor and vulnerable, support economic inclusion, or adequately anticipate and respond to shocks (World Bank 2022, World Bank 2023b). Several government agencies manage different types of SPJ programs without a coherent vision or strategy. Social assistance coverage remains low, and there is a “missing middle” of people who tend to be just above the poverty line yet rely on informal employment and therefore remain uncovered by either social assistance or insurance, leaving them vulnerable to poverty (World Bank 2023b; IPC-IG and ROSA 2020).

However, SPJ reforms are underway in the country. This presents an opportunity to ensure that the system can effectively meet its citizens’

needs by being more adaptive, efficient, and coherent with other sectors, including fisheries. The Department of National Planning is for the first time drafting a National Social Protection Policy, although it does not make any statements specifically addressing the fisheries sector.¹²

1.1.2. Sri Lanka’s coastal fisheries

Sri Lanka’s governance and policy framework provides tools to sustainably manage its coastal fisheries, in collaboration with communities,¹³ but implementation is limited. Sri Lanka’s fisheries are the responsibility of the Ministry of Fisheries (MOF). The Department of Fisheries and Aquatic Resources (DFAR) is responsible for day-to-day management of fisheries through 15 district fisheries offices, and the National Aquatic Resources, Research and Development Agency (NARA) conducts research to inform fisheries management. Under FARA and its amendments, the Minister of Fisheries has already declared more than 20 coastal and brackish water Fisheries Management Areas (FMAs), including the South Coast (Hambantota District) FMA. Fisheries Management Coordinating Committees (FMCCs) are supposed to govern these Areas, having the

11 Household groups with the largest proportions experiencing food insecurity were those that relied on social assistance programs, followed by households generating income through unskilled/casual agricultural labor (31.6 percent), aid/gifts (30.6 percent), and production and sale of fish (29.8 percent) (FAO 2023b).

12 At the time of writing, this is not yet publicly available. It does not refer to any economic sectors, because the programs governed by the Act focus on vulnerable communities without considering their economic activities.

13 While FARA does not use the term “co-management”, the collaborative management arrangements it describes are consistent with the FAO definition of co-management. “Fisheries co-management is a partnership arrangement in which a community of local resource users (fishers) and government, with other stakeholders, share the responsibility and authority for the management of a fishery.” (FAO 2022b). The draft new FARA refers specifically to co-management when describing essentially the same arrangements (MOF 2023b).

mandate to prepare and implement FMPs in the FMAs. The FMCCs are supposed to include representatives from government agencies with an interest in fisheries or the wider ecosystem, as well as members of Fisheries Committees (FCs).¹⁴ However, many of these FMAs were established through internationally-funded projects, and since the approach has not been mainstreamed into policy and practice, neither the FMAs nor their committees are currently operational. In personal communications, Sri Lankan fisheries experts identified shortages of political and administrative will as barriers to implementation of past projects and policies, especially those related to fisheries co-management.

Although DFAR requires registration and licensing, access to coastal fisheries is mostly unrestricted, leading to overfishing of most coastal stocks (Figure 1.1). All fishers are required to register with DFAR annually to obtain a fisher identify card, using their National Identity Card (NIC) number.¹⁵ While it is believed that most regular fishers heed this requirement, compliance is not monitored. Fishers are not required to provide any additional information such as type of fishery they work in, type of vessel they work on, or type

of gear used. DFAR also maintains an electronic database of the country's fishing vessels, requiring vessel owners to register annually using NICs to obtain a fishing operations license. It is generally believed that most boat owners register their vessels and acquire fishing operations licenses, although there are no checks in place. The system does not currently link vessel data with licenses for catching specific fish species, nor does it link with data on crew members or other fishers who do not own a vessel. The Ministry of Fisheries Statistics Division has a separate program to collect data on active fishers through fisheries officers at the fisheries inspectorate divisions (FIDs) in the fisheries districts. However, neither system is used to manage the coastal fishing effort.¹⁶

FARA also provides other input regulations, but monitoring and enforcement is weak and compliance is low. Regulations include bans on non-selective fishing gear such as trawls and purse seines near shore, on destructive practices such as dynamite fishing and use of gillnets on coral reefs and rocks, on seasonal fishing to protect spawning stocks, and on catching juveniles of some species. Several factors have played a role in limiting monitoring and enforcement of these

14 Fisheries Committees comprise fishers and may prepare and implement programs under these plans and assist DFAR in activities such as monitoring and enforcement, including by providing a registry of fishers operating in the area.

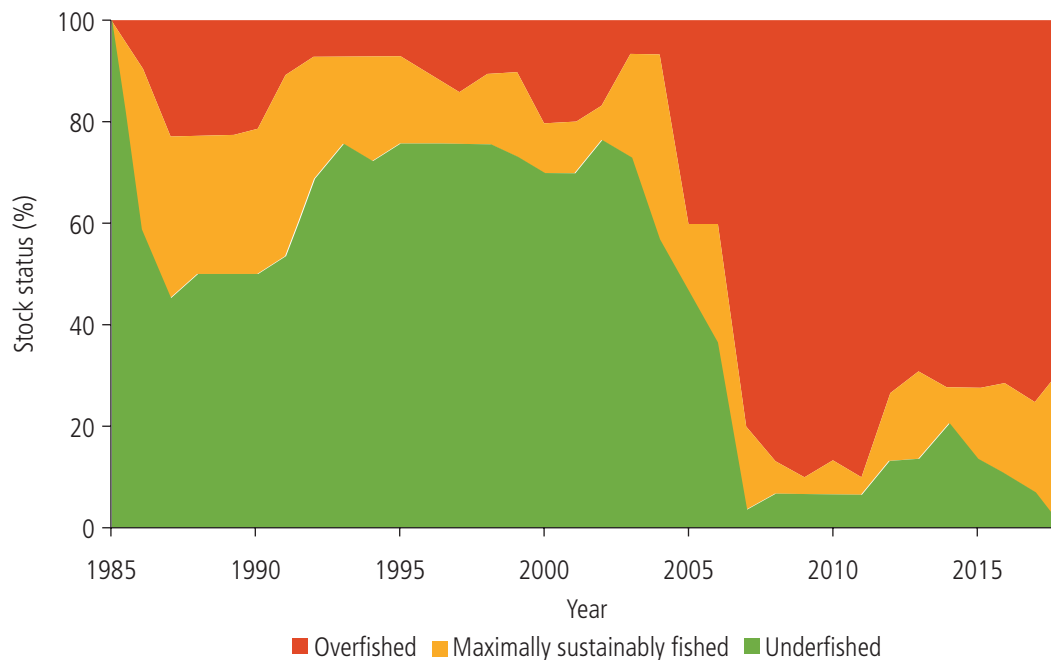
15 This process is currently mostly manual, and time consuming for fisheries officers and Assistant Directors at District level. DFAR is currently working towards electronic registration in all coastal districts.

16 There are no limits on vessel registrations or fishing operations licenses for fishers. Furthermore, no fees are charged for fisher or vessel registration as all license fees in the fishing sector were abolished in 2011. The lack of license fees is believed to have a negative impact of fishers' feeling of having a stake in the sustainable management of the fisheries. It also deprives the Ministry of Fisheries of revenues to cover administrative costs, albeit indirectly, as all administrative fees are channeled to the government's consolidated fund administered by the Ministry of Finance (MoF) and the percentage that is reverted to the respective line ministries is at MoF's discretion.

regulations. One factor is FIDs’ limited capacity in terms of staff numbers and qualification, coupled with a lack of technical guidance materials. Another factor is limited availability of vehicles and budgetary allocation for inspections. Fisheries officers are required to play diverse and conflicting roles, including catch data collector, inspector of illegal fishing activities, and provider of welfare services. Visits to landing sites combine data collection and inspection functions on one

predetermined day a week, which reduces the effectiveness of inspections. Reduced budgets and increased fuel costs have further reduced visit frequency. Furthermore, the officers’ conflicting inspection and welfare provision responsibilities reduce effectiveness in enforcing regulations with poor fishers. Finally, fishers have reported illegal use of *purse seine* fishing¹⁷ near shore by politically influential large vessel owners against whom local inspectorates have no enforcement power.

FIGURE 1.1: PROPORTION OF OVERFISHED STOCKS IN SRI LANKAN COASTAL WATERS



Source: Sharma (2023)

Sri Lanka also faces high climate risks already threatening coastal fishing communities.

The nature of coastal communities’ locations

and livelihoods expose them to numerous and cumulative climate-related shocks and stresses, making recovery difficult and exacerbating their

17 As NOAA explains it, a *purse sein* is a large wall of netting deployed around an entire area or school of fish. The *seine* has floats along the top line with a lead line threaded through rings along the bottom. Once a school of fish is located, a skiff encircles the school with the net.” (Reference: <https://www.fisheries.noaa.gov/national/bycatch/fishing-gear-purse-seines>.)

vulnerability to others (Amarasinghe 2015). Warming temperatures and sea-level rise are expected to lead to more frequent and intense rapid-onset shocks such as heat waves, droughts, floods, and severe cyclones, which directly threaten the lives and livelihoods of fishers and fish workers (WBG and ADB 2021). Ocean warming and acidification also present longer-term, slower-developing threats to ecosystems, which reduce the stability and productivity of fisheries and threaten fishing communities and wider food security in Sri Lanka (Cheung et al. 2018).¹⁸ Furthermore, coastal erosion is increasingly limiting beach seining, and in some coastal areas, habitat destruction and pollution likely compound climate change and exploitation (World Bank 2021).

1.1.3. The spiny lobster fishery

Several national and sub-national management regulations in place for lobster are mostly unenforced, and a FMP in Hambantota involving fisher participation

through fisheries committees (FC) has not been implemented. National regulations include prohibitions on catching, selling, purchasing, or possessing lobsters under certain size limits and in certain conditions, such as those carrying eggs; a seasonal ban on lobster fishing and export; and a licensing system for catching, trading, and exporting lobster. But given limited capacity for monitoring and enforcement, compliance with regulations is low. Various regulations have also been introduced specifically for lobster (and chank¹⁹) in the Southern Coast (Hambantota District) FMA.²⁰ In addition to the usual requirements for registration and licensing, vessel owners in the FMA need special and separate Fishing Operation Licenses to catch lobster or chank, which can only be issued or renewed upon recommendation by the FC where the license holder is a registered member.²¹ However, the MOF never adopted the FMP that formed the basis of the regulations, meaning they have not been enforced, and the FCs ceased to function once the project ended. As a result, the numbers of fishers involved in catching lobster or chank are unknown, and

18 Cheung et al. estimated future declines in maximum catch potential (MCP) as a result of climate change for Sri Lanka's entire EEZ using the dynamic bioclimate envelope (DBE) model and the dynamic size-based food web (DSFW) model in conjunction with an array of climate models. Estimates utilizing projections from the DBE model averaged a 7% decrease in MCP by 2050 across climate models in a low greenhouse gas emissions scenario (RCP 2.6), and a 16% decrease by 2050 in a high greenhouse gas emissions scenario (RCP 8.5). Estimates utilizing projections from the DSFW model averaged a 36% decrease in MCP by 2050 in a low greenhouse gas emissions scenario and a 44% decrease in a high greenhouse gas emissions scenario.

19 Chank is a mollusk, also known as conch, whose habitat is adjacent to that of the lobsters in Hambantota. Scuba diving fishers who target chanks often also catch lobster (see Annex B).

20 The Southern Coast (Hambantota District) FMA was designated in 2010 as part of an attempt to introduce co-management to the south coast under a donor-funded project, and regulations were introduced in 2012 for catching lobster and chank in this FMA. Eight FCs were formed (of lobster fishers only) and registered with DFAR, a participatory fishery-management plan was drafted for lobster (CENARA 2010), and various regulations were introduced specifically for lobster and chank in the FMA, including regulations to prevent chank fishers from catching lobster by scuba diving.

21 There are no restrictions on the numbers of licenses issued to catch, possess, transport, or trade lobsters, although DFAR does not issue lobster licenses to fishers with chank licences and has not issued any new licenses for lobster fishing since 2002, in recognition that this requires functioning FCs.

data on numbers of vessels licensed to catch spiny lobster in Hambantota are unlikely to be accurate.²² Illegal lobster catch by chank divers is also frequent and extensive (see Annex A).

With a high world market value, around 95 percent of Sri Lanka's spiny lobster catch is exported live, mostly to China.²³

Lobsters are purchased directly from fishers by exporter-affiliated collectors at landing sites, or by independent collectors who sell to seafood export companies (Rahman 2021). DFAR places quotas on exporters, although they can negotiate for additional quota. Since there is no processing or value addition in the live lobster trade, and there is no premium for sustainability in main markets, opportunities to incentivize more sustainable exploitation through markets are limited. Lobster fishers have experienced severe decreases in income due to declines and fluctuations in demand for lobster related to COVID-19 and by declining net revenues (World Bank, forthcoming).

Stock assessment indicates that the Hambantota spiny lobster fishery has been depleted to about 20 percent of its theoretical carrying capacity.²⁴ Other indicators

of excess fishing pressure include a decline in catch rates (the average volume of lobster estimated to be caught per vessel per day) between 2007 and 2020, as well as declines in abundance and sizes of certain species of spiny lobster in southern waters (Long and Liyanage 2009; Liyanage and Sharma 2022). Bio-LEWIE model simulations based on this stock assessment indicate that a three-percent annual increase in effort could lead to a collapse of the stock in 15 years (World Bank, forthcoming).

Two main options for rebuilding the lobster stock have been evaluated through Bio-LEWIE model simulations and consultation with fishers and exporters: (i) a one-off, extended

(three-month or six-month) closure of the fishery; and (ii) a partial ban on the catch of female lobsters for five years or indefinitely. Both options should enable partial stock recovery, but value chain actors expressed a strong preference for a one-off extended closure if strict enforcement is provided against illegal fishing during and after the closure (World Bank, forthcoming). DFAR has elaborated a roadmap to develop an FMP for the Hambantota FMA lobster fishery in collaboration with fishers and other stakeholders. The FMP may include an extended closure.²⁵ But closure would lead to losses

22 The fees to register vessels and obtain and renew licenses were removed in 2011, so boat owners have no disincentive to do so, whether or not they primarily target lobster. This contributes to the challenge of understanding how many people are targeting lobster.

23 Statistics obtained from Customs Department through MoF Statistics Department through personal communication by Leslie Joseph.

24 The theoretical carrying capacity is the expected stock biomass under natural conditions. The recommended minimum is 30 percent (Liyanage and Sharma 2022).

25 The roadmap also calls for an ecosystem approach to coastal fisheries management in the longer term. In Hambantota FMA, it would include lobster and chank, as well as other multiple overlapping coastal fisheries.

for lobster fishers and the wider local economy in the short term.²⁶ This is likely to shift pressure from lobster to other vulnerable coastal stocks, such as small pelagics (Haputhantri and Sharma 2021; World Bank 2021). There is also a risk that catch effort will increase when stocks recover.

2. Data and methods

This case study consisted of two parts:

(i) a literature review of Sri Lanka's SPJ policy and programs, focusing on their coverage and adequacy in the fisheries sector; and (ii) a descriptive, comparative multivariate statistical analysis of socioeconomic and demographic characteristics and aspirations of coastal households – with a focus on Hambantota District – conducted using household survey data.²⁷

2.1. Reviewing Sri Lanka's SPJ policy and programs

We assessed Sri Lanka's SPJ policy and programs in terms of coverage and adequacy

for Sri Lanka's coastal fisheries sector, including their administration and delivery systems.²⁸ We considered all social assistance, social insurance, active labor market programs (ALMPs), and economic inclusion programs; not only those designed specifically for the fisheries sector, but also those related to national or other broad approaches. We also explored the role of informal social protection (SP) in coastal fishing communities.²⁹

2.2. Socioeconomic and demographic profiling of households in Tissamaharama

Household-level data were collected through in-person interviews between March and April 2021 in seven coastal districts.³⁰ In each district, one Divisional Secretariat Division (DSD) was selected randomly; in Hambantota District, this was Tissamaharama DSD. Within Tissamaharama DSD, nine village divisions (Grama Niladari [GN] Divisions – GNDs) were selected using a stratified random sampling procedure accounting for seven

26 Using the Bio-LEWIE model, which was calibrated based on data collected in household and business surveys in 2021, the total short-term loss incurred by fishing households in Tissamaharama was estimated at US\$220,000, and the total short-term loss incurred by all households in the economy was estimated at US\$480,000 based on 2021 prices (Manning et al. 2022).

27 The survey was conducted to parameterize the Bio-LEWIE model used to examine long-term biophysical and economic outcomes under various fisheries-management scenarios (World Bank, forthcoming). No official or other existing survey data were available to profile Sri Lanka's coastal fishing households: GoSL's periodic Household Income and Expenditure Survey (HIES) is representative at the district level, but the number of households whose main income source is fisheries is too small to allow statistical analysis.

28 This review followed the conceptual framework outlined by Bladon et al. 2022).

29 It should be noted that SPJ reforms are ongoing and evolving at the time of writing.

30 These districts included Hambantota (for the ASA pilot on the spiny lobster fishery), Kalutara and Gampaha (for the ASA pilot on small pelagics), and four other randomly selected coastal districts. The coastal belt sample consisted of 2,501 households, of which 851 were fishing households and 1,650 non-fishing households (Filipski et al. 2022, World Bank forthcoming).

key economic sectors, including coastal fishing. This ensured data adequate data were collected for the modelling of Tissamaharama’s economy as part of the Bio-LEWIE model. Within GNDs, households were selected randomly from lists of households kept by GN officers (Manning et al. 2022; World Bank, forthcoming).

The survey gathered data on household demographics and a range of socioeconomic characteristics:

consumption and expenditure patterns, participation in economic activities, time intensity in economic activities, income, and household food and non-food consumption.³¹ Additional questions included areas such as educational aspirations for children and ways through which household members feel they can improve their personal situation.

The survey identified fishing households through a question on engagement in fishing activities—either for sale or own consumption—in the previous 12 months.³²

These were further categorized by the types of fishing trips (coastal versus multi-day³³) undertaken by household members in the previous 12 months.

Coastal fishing households were then divided into lobster-fishing households, non-lobster-fishing households, and households reporting exclusively catching lobsters.³⁴ The data formed the basis for profiling different types of coastal fishing households in Tissamaharama relative to non-fishing households to indicate SPJ needs and desires.³⁵

3. Main findings

3.1. Sri Lanka’s SPJ policy and programs

In recent years, Sri Lanka has spent 2.5 to 3 percent of total public expenditure, and 0.7 percent of GDP, on social assistance.³⁶ In 2019, about 30 percent of Sri Lankans benefited from at least one social assistance program—lower than regional and global income peers (World Bank 2022). This assistance does not always benefit the poor; about 12 percent of the wealthiest 20 percent received social assistance despite being least likely to need it, while less than half of the poorest 20 percent received support. Most assistance was in the form of

31 Readers with a World Bank email address may [view the questionnaire at this link](#). Readers without a World Bank email address may request the questionnaire from the authors.

32 The sample in Tissamaharama included 123 fishing households and 406 non-fishing households.

33 Multi-day fisheries are large-scale, taking place offshore within Sri Lanka’s Exclusive Economic Zone and in the high seas.

34 “Lobster-fishing households” were defined as any reporting lobster catches even alongside other species (N=47), as opposed to non-lobster-fishing households (N=67), and households exclusively fishing lobster (N=25).

35 Because the sub-sample sizes of the different types of fishing households—for instance, lobster or non-lobster—were small, we could sometimes not carry out statistical tests to compare them, or even when we could, the population-level differences have not been detected.

36 South Asian countries spend an average of 1.2 percent of their GDPs on social assistance (World Bank (2022))

unconditional cash transfers through the flagship *Samurdhi* program to the poor and vulnerable. In 2022, *Samurdhi* covered 32 percent of the bottom 20 percent of the population (Lirneasia 2023). Only 36 percent of the poorest quintile of households and 29 percent of the second poorest were beneficiaries of *Samurdhi* in 2019, while the program still benefited the top 60 percent of the households (World Bank 2022).

In May 2023, Sri Lanka’s parliament approved a new cash transfer scheme, *Aswesuma*, managed by the Welfare Benefits Board to replace *Samurdhi*. These reforms aim to streamline implementation of cash transfer and other social assistance programs by modifying the method of identifying and enrolling eligible households—using a social registry and ‘Multi-Deprivation Score’ (MDS)—and modifying payment levels (see Annex B). This objective criterion-based beneficiary selection method will minimize risk of politicization. It aims to cover the bottom 35 percent of the population and transfer benefits over the next three years, with a cumulative budget of LKR 589.47 billion.³⁷ Benefit amounts and eligibility period vary on MDS and the approved payment scheme. The severely poor are eligible to receive benefits for three

years, whereas the transitional poor are eligible only for six months (GoSL, 2023).³⁸ As the economic crisis prolonged, the government amended the Welfare Benefit Board’s payment scheme by increasing the benefit amount and payment period until the end of 2024 (GoSL, 2024).³⁹ However, significant challenges remain, including financing, coordination with in-kind programs under the mandate of other agencies, and functionality of the social registry (World Bank 2023b).

In addition to major national or other broad-based social assistance programs,⁴⁰ several small social assistance programs specifically target fishing communities. This has been focused on assistance for building houses and minor works for connection with the local water and electricity infrastructure, and providing subsidies to acquire fishing equipment (Amarasinghe 2005; Amarasinghe 2020; see Annex C). Fishing communities also received disaster relief in the form of cash or in-kind assistance or both following some shock events, such as the 2004 tsunami, the 2021 X’Press Pearl maritime disaster, the COVID-19 pandemic, and the 2022 economic crisis. During the economic crisis, nearly 7,000 of the most vulnerable, small-scale coastal fishers received unconditional

37 This amount is equivalent to USD 1.65 billion. It includes an allocation of LKR 187 billion in 2023 (approximately 0.67 percent of the forecasted GDP), equivalent to approximately US\$ 0.5236 billion. Exchange rate LKR 1=USD 0.0028 (as of January 2, 2023. <https://www.cbsl.gov.lk/en/rates-and-indicators/exchange-rates/daily-indicative-usd-spot-exchange-rates>)

38 As part of policy reforms, applicants were categorized as severely poor to transitional beneficiary groups. It is believed that the transitional group is likely to experience effects of economic shock for a short period.

39 The benefit amount for transitional beneficiaries will increase from LKR 2,500 (USD 7.93) to LKR 5,000 (USD 15.87). At the time of writing this paper, the Cabinet of Ministers had approved the payment scheme amendment to the Welfare Benefits Payment Scheme but it had not yet received Parliamentary approval.

40 See World Bank 2023a for details on these programs.

cash transfers to meet immediate food needs (FAO 2022a). After the 2004 tsunami, several international donors helped coastal fishing communities, including replacing lost vessels and gear, likely a major reason for the sharp increase in numbers of coastal fishing vessels and new entrants to coastal fisheries around this time (Amarasinghe 2020; World Bank 2021). The experience illustrates how unintended consequences for sustainability might arise from providing assistance for fisheries activities. However, sudden removal of this kind of support can also threaten livelihoods in the short term, as evidenced by the recent removal of fuel subsidies for fishing vessels and by past removal of harmful subsidies in other country contexts (Damania et al., 2023).

Sri Lanka spent 1.97 percent of GDP on social insurance in 2020, primarily on contributory and semi-contributory schemes for public-sector workers, which covered 7.8 percent of the population (Bird et al 2022). About two-thirds (67 percent) of direct and indirect beneficiaries who report social insurance income are in the richest 40 percent of the population (Bird et al 2022). Schemes for workers in the formal private sector also exist, but since coastal fisheries workers are mostly informal, they tend to encounter barriers in contributing to these schemes (Amarasinghe 2020). Several insurance schemes developed specifically for fishers include the government's "Fishermen's Pension and Social Security Benefit Scheme" and several private and

state-subsidized fisheries insurance schemes for loss of vessels, damage to equipment, disability, death, and related costs. However, uptake is generally limited, and the pension scheme is not financially sustainable in its current configuration (see Annex D for details).

In 2021 and 2022, Sri Lanka administered 27 active labor market programs (ALMPs), but expenditure was limited at 0.1 percent of GDP (World Bank 2023c). Most ALMP spending is directed to programs that directly support employment creation through instruments like public works programs, loans for small and medium enterprises (SMEs), and wage subsidies for disabled workers. The GoSL also offers job search and matching facilitation,⁴¹ as well as programs to improve workers' skills and employability through short-term and long-term vocational training programs (Dundar et al. 2014, Sosale et al 2023). Over the years, several different ministries have provided ALMPs, but their effectiveness has been limited due to institutional fragmentation, lack of information about beneficiaries, and lack of monitoring and evaluation and a process to learn from past experiences.

Vocational training programs often target specific groups, such as youth or migrants, looking for jobs locally and abroad, with several for fisheries household members looking to enter or exit the sector. Several public

41 This includes career guidance and counselling for students and graduates, and intermediation programs that match job seekers with employers.

and private sector training centers in Sri Lanka—specifically in Hambantota District—support those with aspirations to progress within or beyond the fisheries sector. The most prominent of these is the Ocean University, which offers diploma and certificate courses as well as undergraduate courses in various aspects of the “Blue Economy”. Training in other vocations is offered by the Hotel School Vocational Training Center, the Sri Kawantissa Vocational Training Center, the Agricultural Training School, the Foreign Employment Bureau Center, and the Vocational Training Institute (see Annex E).

Livelihood support for individuals and groups of households—including fishing households—does not always take an economic-inclusion approach,⁴² and their effectiveness and sustainability are not clear.

Government programs include a livelihood and entrepreneurship program and a microfinance program run by the Department of *Samurdhi* Development;⁴³ the “production village” programs run by the Saubagya Bureau of the Ministry of Women, Child Affairs and Social Empowerment (see Annex F); and several small-scale livelihood or entrepreneurship development programs implemented by other government institutions

such as the Women’s Bureau and the Export Development Board. Many of these programs are not directed at the severely poor or poor, and require beneficiary contributions such as land, which the poor and severely poor rarely possess.⁴⁴ No formal impact evaluations have been carried out on these programs. Several seasoned fisheries sector specialists consulted for this study spoke critically of livelihood programs. They pointed out that most are not based on an assessment of motivation, skills, entrepreneurship capacity, time, and existence of market linkages and resource constraints beneficiaries face.⁴⁵ Representatives from the Department of *Samurdhi* Development and the Saubagya Bureau indicated that they now incorporate such assessments in designing their programs. The Ministry of Fisheries also emphasized the need for such assessment for effective and sustainable livelihoods programs.

Small-scale community welfare programs are carried out in conjunction with fisheries management planning.

Under the Oceans5|Blue Resources Trust Project in Sri Lanka, grants averaging US\$1,000 per village have supported some 30 fishing villages where the program engaged in fishery management plan development. Grants

42 The economic inclusion approach recognizes that the poor often face multiple different constraints and involves gradual integration of individuals and households into broader economic and community development processes, with a focus on increasing their incomes and assets to strengthen their resilience and future opportunities (Andrews et al. (2021).

43 Please note that the Department of *Samurdhi* Development is distinct from the *Samurdhi* cash transfer program replaced with the *Aswesuma* cash transfer program. The Department of *Samurdhi* Development previously implemented the *Samurdhi* cash transfer program, but is not implementing the *Aswesuma* program. The Department continues to oversee the government’s livelihood development programs.

44 Severely poor have found it difficult to form a group to apply for group-based microfinance loans, as informal discussions with program officers and targeted beneficiaries have indicated.

45 Examples cited include fish-drying technologies that disregard the large volume of fish requiring significant space or the cost of energy in the case of electricity-powered driers.

financed diverse goods ranging from schoolbooks, uniforms, shoes, sports equipment, tents, and chairs for community events to small repairs to buildings and landscaping for volleyball courts or soccer fields. Fishing gear and larger infrastructure are excluded. The communities set the priorities. Oceans5|Blue Resources Trust Project management reports that these modest contributions have been instrumental in securing the communities' engagement in sustainable fisheries management planning.⁴⁶ This program is a smaller-scale version of the community-driven development (CDD) approach often applied in natural resource management projects (Holmlund and Rao 2021).

Community-based SP mechanisms are critical for Sri Lanka's fishing communities, but are not sufficiently supported to protect the poorest and most vulnerable from shocks – a situation that has worsened with recent fiscal limitations. Fishers' various informal strategies to cope with fluctuations in catch and income that arise from unpredictable and cumulative shocks are crucial in coastal fishing communities (Amarasinghe 2020). Fisheries community organizations—Fisheries Cooperative Societies and, more recently, Rural Fisheries

Organizations—also provide welfare and channel formal SPJ to fishers (although this function has broken down, see Annex G).

3.2. Socioeconomic and demographic profile of fishing communities⁴⁷

Surveyed fishing households in Tissamaharama differ from non-fishing households in several ways. On average, fishing households (HH)—particularly lobster-fishing households—were larger than non-fishing households (3.9 and 4.2 compared to 3.6 persons per HH). Fishing households were also younger, on average (31.4 compared to 33.7 years), had fewer elderly members aged 65 and above (3 percent compared to 7 percent), were less frequently headed by females (6 percent compared to 13 percent), and had fewer years of schooling, on average (8.5 compared to 9.2). Heads of fishing households averaged one year less schooling than heads of non-fishing households (8.0 compared to 9.0) (Annex H). However, about half of both fishing and non-fishing households expected that their children would obtain at least a university degree.⁴⁸

46 Personal communication with Steve Creech, head of pelagikos (PVT) Ltd that is part of the coalition of the [Oceans5|Blue Resources Trust Project](#).

47 This section reports key socioeconomic and demographic characteristics of the Tissamaharama sample. For comparisons between different household categories, only statistically significant differences (p value less than 0.1) are included, unless otherwise indicated. The reader may refer to Annexes H-K for a more complete set of sample statistics. Complementary findings from the coastal belt survey where available and relevant. A more comprehensive presentation of the coastal belt survey findings may be found in World Bank (forthcoming).

48 These findings were broadly similar across the coastal belt, but on female members of the fishing households surveyed across the coastal belt averaged significantly more schooling than male counterparts—a difference not observed in non-fishing households. Fishing households also had higher aspirations for their female than their male children, while boat owning households held higher expectations that their children would get at least a university education.

On average, surveyed Tissamaharama fishing households had significantly lower monetary poverty⁴⁹ than non-fishing households (12 percent rate compared 19 percent), and lower incidence of extreme poverty (2 percent compared to 6 percent).⁵⁰ Lobster-fishing households in the sample—in particular those only catching lobster—appeared to be poorer than non-lobster-fishing households, although their sample sizes and the percentages of the poor were too small to run a statistical test of comparison. (Annex I). The coastal belt survey confirmed that fishing households are significantly less poor in monetary terms than non-fishing households, but it did not indicate a difference in the incidence of extreme poverty between fishing and non-fishing households. Also, across the coastal belt, boat-owning fishing households were less poor than those not owing a boat, while female-headed households were poorer than male-headed (see World Bank, forthcoming).

Fishing households were also better off than non-fishing households in terms of productive assets,⁵¹ although both groups were equally poor in terms of livestock, mobility, and

computing assets. In Tissamaharama, 66 percent of fishing households owned boats⁵² compared with 1 percent of non-fishing households, but fishing households did not own any other productive assets. Eleven percent of surveyed fishing households owned some livestock, typically chickens and goats, but all surveyed fishing households, and 95 percent of non-fishing households, were poor in terms of livestock ownership per MDS definition of poverty (Annex J). At least 90 percent of both groups in Tissamaharama owned basic communication assets like cell phones and televisions, but ownership of computers/laptops was rare. About one-quarter of all surveyed households did not have a mobility asset, and this was more common among female-headed households (Annex J).⁵³

Fishing households had lower access to adequate sanitation than non-fishing households. Nearly three-quarters (73 percent) of surveyed Tissamaharama households had no access to adequate sanitation, and this was more common among fishing households than non-fishing households (70 percent compared to 85 percent). Just over half of both groups

49 Monthly per person expenditures below the GoSL national poverty line in 2021, LKR 7,913.

50 Monthly per person expenditures below the GoSL Multi-Deprivation Score national poverty line (LKR 5,500 per person, per year in 2021). Note that the statistical significance of this difference in the fishing and non-fishing household samples could not be tested due to a combination of poverty incidence and small sample size of fishing households. The coastal belt survey confirmed that fishing households are significantly less poor in monetary terms than non-fishing households, but it did not indicate a difference in the incidence of extreme poverty between fishing and non-fishing households.

51 Defined here as fishing boat, tractor, or other agricultural machinery.

52 In the coastal belt survey, significantly more exclusively multi-day fishers owned boats than exclusively coastal fishers.

53 Findings were similar in the wider coastal belt, but fishing households were poorer in terms of mobility assets than non-fishing households.

did not have access to clean drinking water, but significantly fewer lobster fishing households lacked access than non-lobster fishing households, while across the coastal belt, boat-owners had better access than non-boat owners. Nearly all (98 percent) of Tissamaharama households had access to electricity, but fewer fishing households consumed less than the basic amount (Annex J).

Non-fishing activities contribute little to fishing households' incomes. In Tissamaharama, fishing accounted for 86 percent of the surveyed fishing households' incomes. The other main livelihood activities were wage work, livestock raising and agriculture, business ownership, and transfers, rents, and remittances. Most activities contributed less than 2 percent to the average income, and wage work 9 percent. Aquaculture was practiced by only 2 percent of households, with negligible contribution to income. This strong income dependence on fishing holds among fishing households across the rest of the coastal belt.

Members of Tissamaharama fishing households were typically more satisfied with their personal situation than members of non-fishing households, but also showed an interest in starting their own businesses and accessing financial assistance. They showed negligible interest in agricultural livelihoods or

wage employment. In contrast, wage employment was the most popular category among non-fishing respondents, followed by being satisfied, then financial assistance. Remarkably, 15 percent of non-fishing respondents selected fishing livelihoods, with an emphasis on obtaining crafts/gear to do better fishing. This indicates the general perception in this area that fisheries represent an open-access source of livelihood accessible to anyone that can acquire the necessary tools (Annex K).⁵⁴

Aspirations in surveyed Tissamaharama fishing households varied with factors such as gender, age, education, and boat ownership status.

Compared to men, women were significantly more likely to be satisfied with their lives and significantly less likely to want improved fishing income, access to loans, financial support from state institutions, or to start their own business. Compared with working-age individuals, children⁵⁵ were significantly less likely to be satisfied with their situations and to select better incomes in fishing, but to select obtaining craft/gear for better fishing. More educated individuals were more likely to want further education or employment in services or trade or industry. Members of boat-owning households were less likely to be satisfied with their situation and more likely to want to increase their education. In general, respondents in Tissamaharama households that engage in agriculture are significantly more likely to opt for

54 These findings did not hold across the wider coastal belt, where more non-fishing households indicated being satisfied than fishing households, and only 3 percent of non-fishing households expressed interest in fishing.

55 Aged 0-14 years.

employment or improved income in agriculture than members of households with no agricultural activity, and less likely to want to improve incomes from fishing. Across the coastal belt, aspirations also varied with fishing type and region.⁵⁶

4. Opportunities to connect SPJ programs with fisheries management

GoSL development of FMPs for coastal fisheries presents opportunities to connect social protection and jobs (SPJ) objectives with fisheries management. This can occur at each stage of the delivery chain, including governance and policy and SPJ program design.

4.1. Strengthening governance and policy

More cooperation and coordination between and inside ministries is needed for more coherent SPJ policy and more effective

implementation. At the time of writing, the draft National Fisheries and Aquaculture Policy (2023) highlights the need for SPJ in fishing communities and begins to conceptualize its integration,⁵⁷ but the MOF could further improve policy coherence and coordination by establishing an inter-ministerial coordination committee to work on an integrated SPJ and fisheries strategy and action plan to systematically support the upcoming FMPs.⁵⁸ In addition, establishment of technical committees could focus on technical issues and challenges. Availability of adequate funding for SPJ programs in fisheries would be critical for the functioning of these committees.

More coordination between governmental and other institutions—particularly fisheries and other community organizations—would also be beneficial. Sharing information about available social assistance and economic inclusion programs, and coordinating activities from central to local levels will enhance programs' coverage and effectiveness. Such information sharing is more relevant during the introduction phases of new initiatives such as the *Aswesuma* program

56 Members of coastal fishing households were: (i) less likely to be satisfied with their situation than members of households engaging in both coastal and multi-day fishing, (ii) more likely to want improved incomes in fishing and crafts and gear to fish better, (iii) more likely to want to start their own business and get access to loans, and (iv) less likely to want employment in services or trade or improved income from agriculture. Individuals in western and southern regions are less likely to want improved incomes in fishing and crafts and gear to fish better, than those in the northern region. They are also less likely to want employment in industry.

57 The draft specifically highlights fisheries pension and insurance and benefits for women, children, and the elderly. The National Fisheries and Aquaculture Policy (2018) also mentions the need for SP, but the policy was never adopted.

58 The inter-ministerial committee could include the Ministry of Fisheries; the Ministry of Finance; the Ministry of Women, Child and Social Empowerment; the Ministry of Trade; and other agencies such as the Department of Fisheries, the National Aquaculture Development Authority, the Department of National Planning, and the Export Development Board.

targeting the poor and vulnerable. This could be most efficient if GoSL agencies were to speak with “one voice”; that is, to coordinate internally and task one ministry (MOF and its agencies like DFAR) to consult with fisheries organizations on SPJ on behalf of all other agencies. Sharing information and coordinating activities between central and field levels will enhance program coverage and effectiveness.

The GoSL can strengthen and potentially streamline Fisheries Cooperative Societies (FCS) and Rural Fisheries Organizations (RFO) to improve SPJ program awareness and delivery. FCSs and RFOs have lost their importance as marketing cooperatives for some export-oriented fisheries with well-established value chains linked to an export company, but these institutions’ traditional role supporting fishing communities through safety nets and informal credit is still important and worth preserving. Strengthening these institutions⁵⁹ would not only enhance these informal SPJ functions but could also play a valuable role in delivering formal SPJ and other services to fishing communities (Annex G). It may be necessary to analyze tasks performed and services offered by

both organization types to agree on functional modalities to serve fishers effectively and efficiently.

Implementing fishery co-management and strengthening fisheries governance can maximize SPJ potential to support coastal fisheries management. DFAR should operationalize FMAs by re-establishing FCs and preparing and approving participatory FMPs, as indicated by the roadmap for lobster in Hambantota FMA. In the longer term, a holistic ecosystem approach to managing all species in an FMA would be beneficial (FAO 2012).⁶⁰ Effective implementation of these FMPs will require stronger institutional capacity for monitoring and enforcement at central, district, and division levels. However, even in the absence of strong monitoring and enforcement, co-management has in some countries enabled local stewardship of coastal fisheries,⁶¹ and can put in place conditions for compensation and other support (such as that provided through SPJ) to incentivize desired behavioral changes (Gelcich and Donlan 2015). For this approach to succeed, the GoSL must ensure that FCs are truly participatory, and ensure equitable processes and outcomes.

59 Institutional strengthening could include clarification of roles and responsibilities, building capacity of officials in bookkeeping, and monitoring and evaluation of activities against targets.

60 In the case of Hambantota FMA, this would include small pelagics, marine aquarium fish, sea cucumber, and demersal finfish.

61 Particularly when combined with area-based fishing rights to well-defined groups of fishers (Gelcich et al 2019; Roa-Ureta et al 2020).

4.2. Designing and adapting SPJ programs

Two options exist to leverage SPJ programs to support coastal fisheries management:

- (i) **Focus support on avoidance of an increase in coastal fishing effort.** For lobster fisheries, this would have two components: not only preventing an increase in the numbers of fishers licensed to operate in the Hambantota FMA, but also preventing an increase in, or even reducing, the numbers of unlicensed fishers operating in the FMA.⁶²
- (ii) **Use SPJ programs to alleviate the regulatory burden on the poor and severely poor.** Management regulations, such as an extended closure of the lobster fishery can impose a short-term cost, which poor fishers may find more difficult to bear. As such, SPJ programs can encourage compliance with management regulations.

The following section evaluates the fiscal, political, and institutional effectiveness and feasibility of each option. SPJ programs can support implementation of management plans and associated management

measures, based on co-management, but improvements in monitoring and enforcement will also be essential.⁶³

4.2.1. Limiting long-term coastal fishing effort

Preventing increase in coastal fishing effort depends primarily on restricting access and strengthening enforcement, but enhancing SPJ program coverage and adequacy can help reduce poverty and vulnerability across the coastal belt. For instance, improving *Aswesuma's* adequacy and targeting, together with changes in how fisheries actors and wider coastal communities are registered and assessed for SPJ (Box 4.1), could help reduce poverty in coastal areas, therefore reducing the likelihood of the poor turning to fishing in times of shock. Economic inclusion programs could also support the goal of preventing an increase in coastal fishing effort by promoting employment among poor households, while broadening active labor market programs (ALMPs) could present alternative job opportunities. In Hambantota, targeted support to chank divers who catch lobsters illegally could enhance their livelihoods. Opportunities to strengthen and leverage these programs include:

62 A broader definition of fishing effort, namely "effective effort" includes additional elements affecting the efficiency of the effort factors, such as mesh size. In fisheries where data on vessels, fishers and gear are limited or uncertain, management control measures could focus on mesh size as well as the size of fish caught and traded along the value chain to enhance the health of the fishery.

63 Specific recommendations on improving fisheries management will be provided in World Bank forthcoming. This brief focuses on SPJ measures.

- Combine interventions to lift people out of poverty.** Strengthen the Department for *Samurdhi* Development’s livelihood programs by linking them to *Aswesuma* and other benefits, including initiatives to improve financial inclusion.⁶⁴
- Ensure that SPJ programs do not encourage new entrants to coastal fisheries.** Carry out programs involving the fisheries sector in close cooperation with DFAR to prevent addition of vessels and gear to the Hambantota FMA, and ensure that all support complies with fishery regulations. Any transfers or grants should be conditional on use outside of the sector, or used only to reduce loss, improve quality, or add value to catch, as opposed to develop fishing activities.
- Design programs specifically for fisheries households to encourage livelihood diversification and exit (for those willing), with a focus on youth.** The survey demonstrated some interest among fishing households in Tissamaharama and the wider coastal belt in starting a business, but ALMPs need to be tailored to local market conditions, household aspirations and interests, skills, and time availability.⁶⁵ Since fishing households generally aspire for their children to attend university, youth could be the best target for fishery exit, thus minimizing new fisheries entrants.⁶⁶ Similarly, children of unlicensed fishers could be targeted. Existing vocational and undergraduate programs in the district (Annex E) could represent the most effective means of moving youth into other labor markets, but awareness-raising on the availability of these opportunities and career paths may be needed, along with financial assistance for children in need. There may also be potential for training and support to engage in activities directly supporting fisheries monitoring and enforcement, possibly through courses on fisheries management and economics (Mendez-Medina et al. 2020).
- Design and strengthen programs to empower women.** Women and female-headed households are in many ways more vulnerable than their male counterparts. Global experience, including from Sri Lanka, indicates that empowering women and girls can also improve the socioeconomic situation of their households and communities, reducing pressure on fisheries (Siles et al. 2019; WorldFish

64 In March 2024, the Cabinet decided to target economic inclusion measures implemented by the Department of Samurdhi Development to poor and severely poor *Aswesuma* beneficiaries. The decision will be submitted to the Parliament for approval.

65 Although the survey results indicated negligible interest among fishing households in agriculture and livestock raising, there may be localities where there is interest in home gardening or keeping a limited number of livestock to contribute to meeting household nutrient needs.

66 Globally youth in fisheries and wider food systems are often more open to entering new labor markets than other age groups, and more motivated to support sustainability (Pollnac et al 2012; Espinoza-Tenorio et al 2022).

2020; Wedathanthrige et al. 2013). Facing diminished returns on fishing and increased cost of living, Sri Lankan fishing households now depend more on female members to earn supplementary incomes. Women consulted for this study expressed interest in being engaged in their traditional role in the fish value chain in post-harvest activities, notably fish drying (UN Women 2020; Weeratunge et al 2021) or dried fish cutting and packing, or other activities such as food preparation or sewing. Key needs expressed included training and equipment, market intelligence, marketing skills, support for enhanced financial literacy and inclusion, and transfers or credits. They also underlined the need for adequate technological support.⁶⁷

- **Replicate CDD-type programs to enhance community welfare based on community priorities.** Small grants to communities along the coastal belt could help finance purchase of goods or minor works to enhance communities' quality of life, while also incentivizing engagement in sustainable fishery management.
- **Design programs for poor, non-fishing households who might enter coastal fisheries.** The survey in Hambantota indicated that non-fishing households not engaged in an agricultural livelihood, or a wage-earning activity are more likely to turn to fisheries to supplement their livelihoods and want to acquire craft and gears for this purpose. Besides regulatory measures—such as not issuing fishing licenses to new entrants or new boat licenses, and enforcement of fishing by licensed fishers—ALMPs could be targeted to high-poverty, non-fishing communities. This would require an increase in the very low budgetary allocation to ALMPs (World Bank 2023c). Based on the survey results, a priority area for support in Hambantota should be skill building and employment-matching programs for wage employment, while across the coastal belt ALMPs should focus on entrepreneurial support tailored to specific needs and preferences.

67 Further studies to understand the vulnerabilities and barriers to entrepreneurship and employment represent priority work for the next stage in the Blue SPJ work in Sri Lanka.

BOX 4.1: REGISTERING, ASSESSING, AND TARGETING FISHERS, FISH WORKERS AND WIDER COASTAL COMMUNITIES**A functional and dynamic social registry is needed to register and assess the needs of fishing households, and to improve SPJ coverage for the wider coastal population.**

Sri Lanka's new registry currently includes only people who applied for *Aswesuma* (see Annex B), but if DFAR could partner with the Welfare Benefits Board to provide social assistance to fisheries households and requesting that they also register. However, a broader, more dynamic registry would be beneficial. The registry should cover more of the population—including fishers and fish workers, whose specific vulnerabilities are not necessarily reflected in the targeting methodology—and provide a gateway to multiple types of programs (Leite et al 2017). Enhanced registration of the poor and vulnerable from coastal areas will require awareness campaigns and customized outreach to these communities. To be continuously useful and responsive to shocks, including those related to extended fisheries closures, information should be frequently updated with changes in demographics, socioeconomics, and geospatial locations (World Bank 2023b).

Using National Identity Card (NIC) numbers could facilitate interoperability with DFAR's fisheries database. Since fishers need NIC cards to register and obtain licenses, interoperability between registries would support larger scale assessment of fishers and allow SPJ programs to be more effectively designed and adapted for their needs; for example, benefits could be allocated according to ownership of different types of vessels, or lack thereof. Since the social registry collects information on economic sectors and asset ownership, this interoperability could also support data collection on unregistered and unlicensed fishers and fish workers to improve fisheries management.

Many coastal fishers who do not own vessels, and most informal fish workers, remain unregistered in the fisheries database, which limits both fisheries management and the design and delivery of SPJ benefits. When fishery committees are established, they can require currently unregistered fishers and fisheries workers to register with the database.⁶⁸ MOF could also use surveys to capture data on unregistered individuals to integrate into the electronic database, tying SPJ and other social welfare benefits to registration, thus encouraging workers with no other clear incentive to register.

Potential trade-offs and challenges exist in targeting or prioritizing SPJ to support coastal fisheries management. Firstly, targeting SPJ to specific fisheries, such as lobster fishery, risks attracting new entrants. Without strong controls, it also risks that beneficiaries use their benefits to participate in other over-exploited coastal fisheries. While targeting already licensed fishers would reduce the risk of attracting new entrants, the fact that unlicensed fishers would not be eligible for SPJ could undermine program's behavioral goals. On the other hand, supporting only the poorest fisheries households can be perceived as unfair by others affected during the fishing ban, again undermining program effectiveness. Therefore, another option to consider would be to design a specific social assistance program for support to households only during the fishing ban.

68 But since FCs can collect membership fees, run welfare programs, and grant loans, capacity-building efforts should be coordinated with the development of FCSs and RFOs to avoid duplication.

Reforming the Fishermen’s Pension could also help limit fishing effort by reducing the numbers of licensed older fishers not yet at retirement age, while also reducing vulnerability in fishing communities.⁶⁹ The scheme already has features to help address

challenges fishers typically face in accessing social insurance—such as allowing one-time annual contribution payments rather than requiring regular contributions—but the scheme requires reforms to be viable and effective (Box 4.2).

BOX 4.2: REFORMING THE FISHERMEN’S PENSION AND SOCIAL SECURITY SCHEME

- **Objectives:** Update these to shift focus away from encouraging fishing towards encouraging sustainable practices.
- **Eligibility criteria:** To effectively support reduction in fishing effort, open the scheme not only to fishers but to all workers throughout the value chain, who are also affected by regulations and who could otherwise undermine the approach.
- **Enrollment:** Raise awareness about the benefits of membership, as well as contribution requirements. Trusted community organizations such as FCS and informal groups like community savings clubs could be the most effective channels for distributing this information.⁷⁰
- **Benefit levels and contribution rates:** To be attractive to fishers and fish workers and to mitigate risk, increase pension entitlements beyond the poverty line, and index increases to inflation. To avoid financial collapse, this will also require an increase in contribution rates.⁷¹ These could be cross-subsidized, with wealthier value chain actors contributing more so that the poor and vulnerable can afford to participate.
- **Provision:** Rather than requiring collection from the post office, send benefits electronically to bank accounts (at any bank supervised by the Central Bank of Sri Lanka) to ease accessibility.
- **Early Retirement:** Introduce a voluntary early retirement option for those willing, tied to giving up (and not renewing) vessel registration and/or fishing license, as well as physical equipment.

69 Early retirement schemes have been used with some success by other countries to support regulations on access and effort reduction (Bladon et al. 2022).

70 Community organizations and informal SP mechanisms like savings clubs can act as a conduit to promote and enroll people in formal schemes and reduce barriers to contributing (Rare 2021).

71 The revised pension scheme should be self-sustainable without any reliance on other financial resources from the Ministry of Finance or Agriculture and Agrarian Insurance Board (the current implementation agency for the pension scheme).

4.2.2. Supporting short-term fisheries regulations

Social assistance could support poor and severely poor fishers harmed by short-term restrictions—such as an extended lobster fishery closure to rebuild stock—but there may be fiscal constraints. The most rapid, low-cost option could be to use the new *Aswesuma* infrastructure to provide a “top-up” payment in addition to the basic cash transfer to eligible households who claim fisheries as an economic activity. The Welfare Benefits Board, in partnership with DFAR, would administer this scheme, and a technical committee formed to design this program would determine the amount of the “top-up”. This top-up would reach only those who already qualify for *Aswesuma* as poor and severely poor and those who become poor or severely poor due to the restrictions. Since survey results indicate that fishing households are typically not the poorest of coastal households (see Section 3.2), this is likely to be a very small group; this would contain

the fiscal burden, allowing replicability in coastal fisheries. While leaving some affected fishers without access to assistance may reduce closure compliance, lobster fishers consulted in Kirinda, Tissamaharama in May 2023 expressed that they agree to getting no-compensation if the regulation prohibiting chank divers from catching lobsters is enforced effectively during and after the closure period. They indicated that during closure they would switch to catching other fish, such as small pelagics.⁷² This points to the need to strict enforcement supported by community surveillance and self-enforcement.⁷³ Furthermore, DFAR would need to take steps to more clearly define and identify “active” fishers to ensure that non-fishers do not claim benefits.⁷⁴

Unemployment insurance might be an efficient option to support a short-term regulation that recurs each year, such as the seasonal lobster fishery closure, but it has clear drawbacks. Given current interest in reforming the contributory Fishermen’s Pension Scheme, an unemployment scheme for fishers

72 However, the poor and extremely poor segments of the fishing community may find this transition challenging, which would justify the proposed top-up targeted to them. On the other hand, it is also important to avoid additional pressure on small pelagics, which could be achieved through an integrated, multi-species fisheries management approach consistent with the Ecosystem Approach to Fisheries.

73 Community surveillance and self-enforcement by both formal and informal community fisheries organizations has helped fill gaps in government capacity in several countries (Nguyen et al. 2018; Mendez-Medina et al. 2020; Dudayev et al. 2023). In others, public-works programs have been designed or adapted to strengthen fisheries-management measures that might otherwise lead to unemployment (The Hindu, 2016). This could be a challenge in Sri Lanka, given the limited mandate of local government and current fiscal situation, but it may be worth exploring as an option to support fishery closures, where the jobs being provided consist of supporting DFAR in some way to monitor and enforce regulations.

74 Alternatively, DFAR could design a new social assistance scheme specifically for fishers and fish workers, using the social registry to target them, which could allow more flexibility in types and levels of benefits provided and in eligibility criteria. However, under the current institutional capacity and fiscal constraints this option would appear to be a less feasible one.

could be incorporated into the pension scheme as part of the reforms.⁷⁵ The unemployment portion could provide benefits to members when they are unable to fish, including closures,⁷⁶ but also for seasonal and unpredictable events such as adverse weather conditions, which may increase in frequency and intensity with climate change and exacerbate income unpredictability. However, to be most effective and equitable, this would need to be extended to all value chain actors, not just fishers. It would also need to be very carefully designed and rolled out to avoid incentivizing people trying to establish a track record just before the scheme enters into force (IPC-IG and FAO 2023). Complementary limits on new fishing operations licenses should help avoid this situation, and collaboration with FCs and FCSs or RFOs should help identify “genuine” fishers and fish workers.

Promoting, strengthening, and streamlining Sri Lanka’s fishing insurance schemes for fishing vessels, gear, and death or disability

could reduce vulnerability in the sector.

Although vessel insurance is compulsory for registration, it only covers total loss. Fishing communities in the Southern province expressed that they also need insurance for partial vessel damage, since repairing mechanized vessels can be extremely costly and time consuming (Amarasinghe 2020). Other suggestions that emerged from community consultations include providing insurance for hired workers and providing a fisheries insurance scheme through community organizations (Amarasinghe 2020). Giving fishery community organizations such as FCSs authority to collect premiums and provide damage information to insurers, could help address some current challenges around information collection costs and related high premiums.⁷⁷ In the longer term, exploring how to incorporate parametric fisheries insurance⁷⁸ might help fishers and fish workers to anticipate and cope with climate risks. Those who are better equipped to cope with cumulative shocks should also be more able and willing to comply with short-term restrictions.

75 This may be more feasible than establishing a new national unemployment insurance scheme, which could take a very long time and require in-depth review of other countries’ experiences. But a national unemployment scheme could nevertheless support fisheries management in the long-term by reducing the need for people to use fishing as a safety net, thus limiting new entrants, so would be a good option for the future (IPC-IG and FAO 2023).

76 To support specific annual seasonal fishery closures, criteria for this scheme may need to include proof that the individual has caught or traded the species in question during the last year. Based on consultations with fisheries and the approach taken in Brazil, minimum wage should be sufficient to compensate for costs foregone during fishery closure (World Bank, forthcoming; IPC-IG and FAO 2023).

77 However, this will depend to what extent these community organizations can be strengthened as recommended in Section 4.2.1, as weak institutions can provide opportunities for elite capture.

78 Parametric insurance is a non-traditional insurance product that offers pre-specified pay-outs based upon a trigger event, and which is ideal when verification of a claim is difficult since this insurance is based on third-party information (BOBP 2022). For anticipatory risk response, this type of insurance would require early warning systems to be established for all coastal fishers, as well as comprehensive and regular registration of all vessels, gear, and workers linked to the social registry (Amarasinghe 2020; Bharadwaj and Mitchell 2022).

4.3. Innovative financing

Given Sri Lanka’s challenging fiscal situation, innovative financing strategies are needed to integrate SPJ approaches with fisheries management.

Given the increased needs for social assistance associated with the economic crisis and austerity measures, the GoSL is prioritizing basic social assistance and economic inclusion programs for the lowest income groups. Support for most fisheries households, which are likely to fall outside of those groups, will have to rely on innovative partnerships with private companies that also stand to gain from stock recovery. Voluntary mechanisms like Payments for Ecosystem Services (PES)⁷⁹ could provide fishing communities with financing required to rebuild coastal fisheries, by offering an attractive mechanism through which to channel novel sources of finance such as tourism levies and crowdfunding, in addition to aid funding and philanthropy (Booth et al. 2023). In theory, funding could be secured from companies within the fisheries sector to compensate fishers for short-term losses associated with regulations—particularly for export species like spiny lobster. But although exporters would be among the key beneficiaries of increased productivity resulting

from stock rebuilding, in the short run, they likely will not be willing or able to due to recent declines in profit margins. Making it a legal requirement through collection of fees or taxation would also be challenging, given the institutional capacity required for proper financial management and transparent allocation of funds, and that this would involve changing regulations on the use of taxes and fees.

Sri Lanka could also explore international climate and biodiversity finance (including funds for loss and damage and climate adaptation) to channel towards SPJ for fisheries management.

Integrated SPJ and coastal fisheries management could also be incorporated into the sustainability considerations of the debt-for-climate-and-nature swap⁸⁰ under consideration in Sri Lanka, which would likely have a marine component (Kelly et al. 2023; De Rosairo et al. 2023). A Conservation Trust Fund may be required to mobilize these various sources of public and private finance and ensure that they are managed transparently (Bladon et al. 2014). All these options would require careful case-by-case analysis taking into account Sri Lanka’s specific conditions (World Bank 2023d).

79 Payments for Ecosystem Services are natural resource management mechanisms that can be used to channel public and private financing to fishing communities, in the form of conditional transfers, by connecting them to the beneficiaries of effective fisheries management.

80 Debt-for-climate-and-nature swaps are a financing instrument to restructure sovereign debt in exchange for nature and climate conservation programs, such as protecting forests and coastal areas.

5. Key conclusions, lessons, and next steps

While stronger monitoring and enforcement is critical, SPJ also holds potential to support coastal fisheries management in Sri Lanka, if designed and delivered in complementary and synergistic ways. Government agencies and fisheries community organizations alike have typically promoted rather than regulated entry to Sri Lanka's fisheries, which provide a safety net and increase income. ALMPs and related economic inclusion programs may represent the best long-term solution for Sri Lankan fisheries management. Given the challenges and sensitivity around regulating effort and access, and the role that coastal fisheries play in Sri Lanka's food and nutrition security and employment, supporting the capacity of youth to find skilled, well-paid employment outside of the fisheries sector is likely to be the most effective means of reducing fishing effort in the long term. In addition, lifelong skills development, reskilling, and job matching outside of the fisheries sector could support sustainable fisheries practices.

But it is crucial that SPJ program support does not conflict with sustainable fisheries management by promoting entry to the sector or increase in effort. This is a risk not only for ALMPs and economic inclusion programs that provide training and equipment

related to the fisheries sector, but also programs that provide cash transfers and grants. Ideally, support should be conditional on not increasing fishing effort, requiring strengthening monitoring and enforcement in parallel. Linking SPJ to a single-species fishery regulation, such as a closed lobster season, may not be practical or effective since most coastal fishers catch a variety of species using a variety of gear.

Significant fiscal and institutional constraints raise questions about the feasibility of an SPJ approach in Sri Lanka at this time. Follow-up work is required to explore in-depth innovation financing options and assess their feasibility. Institutional collaboration and coordination—particularly with fisheries community organizations—will also be needed to support SPJ integration with fisheries management. Organizations like FCs, RFOs, and FCSs could help to build communities' trust and fill gaps in institutional capacity⁸¹ and information for both fisheries management and SPJ, but they need government support to play this role. Strengthening and streamlining these institutions would support development and delivery of SPJ designed specifically for fishers and fish workers and strengthen responsiveness to climate shocks in coastal areas.

This case study showed that a comprehensive household survey can inform policy advice

81 Strengthening DFAR capacity to improve monitoring and enforcement, as well as to engage with the fishing communities in a co-management concept, needs to be pursued in tandem with designing SPJ measures.

on the social protection and fisheries management nexus, but caveats can exist and adding a few specific questions would strengthen its usefulness.

The household survey was designed to collect data for modelling fish stock and catch and the local economy. The comprehensive data on households allowed profiling of different groups in coastal fishing communities, including those involved in the spiny lobster fishery, although small sub-sample sizes caused limitations. The information collected on individual and household aspirations allowed us to identify specific SPJ programs that can meet these aspirations. Useful additions could include questions eliciting information on people's preferences in terms of livelihood and entrepreneurial activities, and youth interest in skill development, which would help design specific economic inclusion and ALMPs to support sustainable fishery management. Furthermore, questions on species the household is licensed to fish to complement questions on the species that the household actually targets would allow analysis of the socio-economic factors explaining fishing with and without a license. Such insights can inform possible SPJ interventions to encourage license compliance and other fishery management measures. In the case of the southern spiny lobster in Sri Lanka, this issue is particularly relevant to chank fishers who catch lobsters without a license. Moreover, identification of households or individuals involved in other fisheries value chain

activities would enable a more integrated analysis of SPJ and fisheries management. Although this was less important in the context of lobster,⁸² future studies of Sri Lanka's coastal fisheries would benefit from explicitly including other value chain workers, since they both influence fishing activities and are affected by them.

Studying how SPJ opportunities can supplement coastal fisheries management in specific Sri Lankan districts represents a priority follow-up activity.

Such research would inform World Bank and other development partners' activities pertaining to coastal resource management and rural development. The focus of the studies should be on community and household-based livelihoods and entrepreneurial activities as well as youth skills development. Specifically, studies in individual fishing communities should assess the skills and interests of households, analyze labor market demand, and identify sectors and activities with the greatest potential. Studies should systematically elicit information on the perspectives and desires of youth in coastal fishing communities, what types of vocational training they would be most interested in, and in which sectors. These studies might also help understand the changes in livelihoods, expenditures, non-monetary poverty dimensions, and aspirations among fishing communities that have likely occurred since the survey was carried out in 2021, particularly in light of the recent economic crisis.

82 Lobster does not undergo processing so involves few fish workers.

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Annex A: The conflict between chank and lobster fishers

Scuba diving – which is the method of catching chank – also provides a significant advantage over other methods of catching lobsters, which tend to hide in the crevices of rocks. Night-time diving is particularly advantageous as lobsters are nocturnal feeders. The 2012 regulations banned chank diving after 6pm and DFAR has not issued lobster licenses to fishers with chank licenses⁸³. Nevertheless, illegal lobster catch by chank divers is frequent and extensive; lobster fishers claim that chank divers use GPS to locate lobsters during the day and come back at night to catch these or steal nets with entangled lobsters, and chank divers admit to carrying out night diving in the lobster habitat-reefs off the nature sanctuary in Kirinda.⁸⁴ Regulations to separate chank fishing from lobster fishers are not enforced and chank divers reportedly constitute the largest source of illegal catch of lobsters.

Annex B: Sri Lanka's social registry and targeting of social assistance

As part of ongoing social assistance reforms, the Welfare Benefits Board (WBB) has operationalized a social registry, the functionality of which will be instrumental to the success of the *Aswesuma* program and wider reforms (World Bank 2023a). During the first round of applications, it had registered over 3.4 million households to help determine eligibility and benefits, of which about 1.8 million have selected to receive *Aswesuma* support.⁸⁵ The Board's intention is to continue to build the registry through outreach and awareness campaigns. The GoSL has also adopted a multidimensional methodology to select beneficiaries based on a Multi-Deprivation Score (MDS) including six dimensions (education, health, economic level, assets, housing condition, and family demography), each of which is measured using multiple indicators. Each household's MDS will be calculated and ranked, and based on the weighting for each district, beneficiaries will be selected, and payments transferred electronically to the beneficiary's bank account. According to the payment scheme, the beneficiary families are divided into four groups: (i) transitional group that fell into

83 While this is not explicitly required by the 2012 regulations, it was a provision in the draft lobster FMP.

84 Reported by lobster fishers and admitted by chank fishers met during the May 2023 mission.

85 This included 123,088 applications received from Hambantota district and 62,313 listed as eligible for assistance (Welfare Benefits Board administrative data - <https://wbb.gov.lk/> accessed on October 14, 2023). At the time of writing, the registry contained about 75,000 households that reported to derive income from fishing. Of these, about 36,500 households were selected to receive *Aswesuma* transfers.

poverty due to economic crisis; (ii) vulnerable; (iii) poor; and (iv) severely poor. The benefit amount and payment duration varied between LKR 2,500 per month to LKR 15,000 per month and 6 months to 3 years for beneficiary families (GoSL 2023a). The WBB commenced processing monthly *Aswesuma* payments for eligible beneficiaries from in July 2023. The Government decided to amend the payment amount for transient category and extend the payment period for transient and vulnerable groups till the end of 2024 (GoSL 2024a). This method aims to enhance targeting accuracy and transparency, compared to the previous method based on self-reported income.

Annex C: Social assistance programs for fishing communities

DFAR has run several housing and sanitation programs for fishing communities, the latest of which is the *Diyawara Piyasa* Housing and Sanitation Program. In 2019, it provided LKR 100,000 to 350 beneficiaries for home repairs, LKR 30,000 to 158 beneficiaries for complete sanitation facilities, and LKR 15,000 to 94 beneficiaries for improvement to their sanitation facilities (DFAR 2019). DFAR also runs an interest

subsidy program, in collaboration with the Bank of Ceylon, called the *Diyawara Diriya* Loan Scheme. This program provides loans of up to LKR 15 million per beneficiary with a subsidized interest rate of 4 percent to help fishers purchase and enhance the standard of fishing vessels⁸⁶. By 2019, a total of LKR 1,553.85 million had been granted in loans to 609 fishers⁸⁷, and expenditure in 2021 and 2022 was LKR 35.8 million and LKR 25 million, respectively (DFAR 2019; GoSL 2023b). However, the government's budget allocation for the program for 2024 declined by 50 percent as compared with 2022 (GoSL. 2024b).

Annex D: Social insurance for fishers

The 'Fishermen's Pension and Social Security Benefit Scheme' provides social security to fishers and their dependents with no other access to formal schemes during old age, disability, and death. It also aims to encourage fishers to continuously engage in fishing and to attract youth to the sector – objectives that are at odds with the objectives of sustainable fisheries management – and to encourage saving. However, the scheme is not attractive and has high default rates. There were 69,049 registered members

86 The program prioritized improvement of fishing vessels, construction of fishing vessels over 55 ft in length, technology enhancements and installation of longlines and winch machines.

87 While the scheme is currently targeted to multiday fishers, it could also be used to address the urgent need for coastal fishers to retrofit their motorized boats to be less polluting and more fuel efficient (Amarasinghe 2022).

in 2019-2022, which made up 23 percent of all 'active' fishers in 2019 (Amarasinghe 2020). Although the scheme allows for a flexible schedule of contributions, fluctuations in fishers' earnings and their limited savings make contributions difficult, and there is a lack of awareness at the time of enrollment of the contributory nature of the scheme. Pension benefits have also fallen below the poverty line⁸⁸ and thus cannot provide a viable retirement income into the future, as they have not been adjusted for inflation since inception in 1990. Furthermore, the scheme has faced a growing mismatch between revenues from contributions and pension payments. Most recently, the total number of contributing members increased by only 0.3 percent from 2015 to 2021, contrasted with the 61 percent increase in the number of pension recipients and a 57 percent pension payout during the same period⁸⁹, leading to a deepening discrepancy between revenues and outlays that has had to be covered through organizational resources and budgetary transfers (ILO 2016, AAIB 2015, AAIB 2021).

There are several private and state-designed subsidized fisheries insurance schemes for loss of vessels, damage to equipment, disability, death and related costs (Amarasinghe 2020). It is compulsory for vessel registration that vessel owners obtain insurance, and so most mechanized vessels

are insured⁹⁰, but the vessel insurance schemes do not cover partial damages, meaning that fishers incur huge costs while they wait for repairs to be made. Insurance is available for partial or complete damage of fishing equipment. However, uptake of both private and state-sponsored insurance is still limited due to high premiums and slow claims processes. These arise from the high costs to the insurer of collecting information, especially on activities taking place at sea, and the incentives provided by insurance to fishers to take less care of their equipment (Amarasinghe 2020).

In 2019, DFAR introduced the *Dheewara Surekum* insurance scheme, in collaboration with a private insurance company, which covers disability and death due to fishing accidents. The total engaged in the scheme at present is about 12,000, while about 28,000 have obtained personal insurance cover privately. Another insurance scheme run by the DFAR, in coordination with the National Insurance Trust Fund, is for fishers' death due to natural hazards while engaging fishing activities. The entire cost of this scheme is borne by the DFAR, but in 2021, only six people received benefits under this scheme and in 2022, only two received benefits.

The Bank of Ceylon has also designed a children's savings scheme called *Diyawara*

88 Benefits are in the range of LKR 1,000-4,166, depending on age, time of enrolment, and total contributions.

89 Administrative data of the Agrarian and Agriculture Insurance Board (AAIB), the scheme's implementing agency, indicate that from 2015 to 2021, the number of members increased from 68,840 to 69,049 and the number of pension recipients increased from 3,322 to 5,354 over the same period.

90 According to DFAR, by 2022, insurance coverage included 34,137 boats and 52,155 fishers.

Kekulu, which offers death and disability insurance of up to LKR 1 million to members of fishing households who are the mother, father, or guardian of a child for whom they started a savings account⁹¹. In addition, the account-holding child is eligible for hospital insurance coverage.

Annex E: Vocational training centers and available courses

The Ocean University – which was established specifically to develop human capacity in the blue

economy – has eight vocational training centers across the country: Colombo (main campus), Kalutara, Galle, Tangalle, Batticaloa, Trincomalee, Jaffna, and Negombo. The university offers diploma and certificate courses to 3,000 – 4,000 youth annually, mainly from rural areas (Table 5.1). In addition, based on the request of communities or organizations, specially designed mobile courses are run by the Ocean University.

TABLE E.1. OCEAN UNIVERSITY DIPLOMA AND CERTIFICATE COURSE OPTIONS

Diploma Courses	
<ul style="list-style-type: none"> Maritime and logistics management Marine Engineering Fishing Technology Aquaculture & Aquatic Resources Management 	
Certificate Courses	
<ul style="list-style-type: none"> Marine welding Fishing gear repair assistant Scuba diving Lifeguard Machinist Fibre-glass technician Air conditioning and refrigeration Ornamental fish culture and management Outboard motor technician 	<ul style="list-style-type: none"> Marine chart reading, communication Satellite navigation Computer graphics designer Computer application assistant Fishing Vessels Skipper Aquaculture technician Fishing harvest technician Fishing gear repair assistant

Source: Personal communication with Ocean University administration in 2023.

In Hambantota, the Ocean University offers at least 16 diploma and certificate level courses designed specifically for the fisheries sector,

providing training fisheries-related vocations such as scuba diving, aquaculture, post-harvest technology, and satellite navigation (Table E.2).

91 Bank of Ceylon Diyawara Kekulu marketing brochure (+ Executive, Product Development, Bank of Ceylon).

Training in non-fisheries vocations is also offered by the Hotel School Vocational Training Center, the Sri Kawantissa Vocational Training Center, the Agricultural Training School, the Foreign Employment Bureau Center and the Vocational Training Institute.

TABLE E.2. **VOCATIONAL TRAINING OPPORTUNITIES IN HAMBANTOTA**

Training center	Courses
Ocean University, Tangalle branch located in Weeravila	<p>Fisheries sector targeted programs:</p> <p>NVQ courses:</p> <ul style="list-style-type: none"> • Aquaculture technician, • Scuba diver, • Aquaculture and aquatic resource management, • Outboard motor technician, • Maritime logistics, • Lifeguard <p><i>Short-term non-NVQ courses:</i></p> <ul style="list-style-type: none"> • Repair and maintenance of marine inboard engines, • Outboard marine machine repair, • Fishing gear repair and maintenance, • Repair and maintenance of fiber glass boats, • Post-harvest technology, • Marine chart reading • Communication and operation of satellite navigator
Hotel School Vocational Training Center, Weeravila	<p>Non-fisheries sector programs</p> <p><i>NVQ courses:</i></p> <p>Professional cookery, cook, food & beverage services</p>
Sri-Kawantissa Vocational Training Center, Tissamaharama	<p>Non-fisheries sector programs</p> <p>Automobile mechanic, welder, electric motor winder, machinist, construction craftsman, cook, food and beverage service, tailor, computer hardware and networking assistant, receptionist, guest relations officer</p>
Foreign Employment Bureau Center, Tangalle	Caregiver, domestic housekeeping assistant
Agricultural Training School, Angunakolapalassa	Nursery development assistant
Vocational Training Institute, Thelabuyaya, Angunakolapalassa	<p>For disabled individuals only</p> <p>Radio, television and related equipment technology, carpentry, sewing, computing, motor mechanism</p>

Source: Personal communication with Tertiary and Vocational Education Commission and Ocean University administration in 2023.

Fishers who are interested in pursuing fishing-related overseas jobs can obtain certifications through the Recognition of Prior Learning route.

Annex F: Economic inclusion programs

Livelihood support has been provided to a limited number of poor and vulnerable people in recent years through two programs run by the Department of Samurdhi Development:

(1) a livelihood and entrepreneurship program that focuses on training and grants for households in specific sectors⁹², which benefited 153,604 people in 2019, mostly in rural areas, and (2) a microfinance program through *Samurdhi* Banks, which had a larger reach of 693,551 people (World Bank 2023a). However, it is unclear to what extent these components have been linked to *Samurdi* cash transfer program, and since they do not appear to follow the economic inclusion approach of bundling with other interventions, they are unlikely to provide an effective pathway out of poverty.

Production village programs, designed for groups of at least 20 households, are implemented by the Saubagya Bureau of the Ministry of Women, Child Affairs and Social Empowerment. These are supported by several financial inclusion programs offered by the state-owned Regional Development Bank, as well as market access programs. Some of these programs have been designed specifically for fishing

households, including women, in cooperation with DFAR and sometimes the National Aquaculture Development Authority of Sri Lanka. They have supported fisheries activities including fishing, fish drying and marketing, ornamental fish farming, and other activities such as animal husbandry, home gardening, food preparation, setting up small service shops, broom making, sewing, and traditional handicrafts.

Annex G: Fisheries community organizations

Fisheries Cooperative Societies (FCSs; previously governed by DFAR and now solely governed and audited by the Department of Cooperative Development) have historically played a critical function in providing social protection and welfare to fishers, including credit, technology, insurance, and financial or in-kind assistance for activities such as funerals, as well as channeling formal social assistance (Amarasinghe 2020d). However, this also means that they may have played a major role in facilitating uncontrolled entry to coastal fisheries.

In response to their now minimal involvement in FCSs, DFAR has introduced a parallel system of Rural Fisheries Organizations (RFOs), through which

92 Programs for the fisheries sector have mainly provided training and assisted people to purchase equipment for drying and curing fish and are run in cooperation with DFAR.

all government assistance to fishing communities is now channeled.⁹³ However, the RFOs receive no capacity building or funding from DFAR, relying on membership fees, and they remain dormant in many areas (Amarasinghe 2020). Fishers tend to be members of both FCSs and RFOs, and yet have received limited assistance – particularly in the context of fiscal constraints on DFAR over the last two years.

93 In addition to village-level RFOs, each district has a District Fisher Organization for marine fisheries and there is an overarching National Fisher Federation.

Annex H: Sample statistics on household demographics in Tissamaharama

	Household type					P-values of pairwise means or proportions tests ^a							
	all	non-fishing	fishing	Boat owning fisher	Non-boat owning fisher	lobster fishing	non-lobster fishing	exclusive lobster	fish vs non-fish	boat owner vs non-boat owner	lobster vs non-lobster fishing	excl. lobster vs non-lobster fishing	lobster vs non-fishing
Household statistics													
Sample size	529	406	123	81	42	47	67	25					
Mean household size	3.63	3.55	3.89	3.94	3.79	4.15	3.78	4.16	0.01	0.55	0.14	0.18	0.00
Head of household													
Proportion of females	0.11	0.13	0.06	0.06	0.05	0.06	0.04	0.04					
Mean age	48.39	48.66	47.50	47.96	46.60	47.13	47.72	47.96	0.36	0.54	0.79	0.93	0.43
Mean years of schooling	8.79	9.03	8.01	7.85	8.31	8.11	7.75	8	0.00	0.42	0.53	0.72	0.07
Household population statistics													
Total number of HH member in sample	1,919	1,441	478	319	159	195	253	104					
Proportion of females	0.49	0.50	0.48	0.48	0.48	0.46	0.50	0.45	0.44	0.98	0.38	0.43	0.28
Mean age	33.15	33.73	31.41	31.59	31.06	30.99	31.27	32.20	0.02	0.77	0.88	0.67	0.06
Aged 0-14	0.21	0.20	0.22	0.21	0.26	0.23	0.23	0.22	0.26	0.21	0.97	0.87	0.31
Aged 15-64	0.74	0.73	0.74	0.77	0.70	0.75	0.73	0.75	0.59	0.10	0.61	0.66	0.62
Aged 65+	0.06	0.07	0.03	0.03	0.04	0.02	0.04	0.03	0.00				
Years of schooling													
N	1834	1372	462	311	151	187	245	101					
Mean	9.05	9.23	8.52	8.51	8.55	8.60	8.30	8.65	0.00	0.91	0.37	0.39	0.02
Years of schooling (15+ population)													
N	1524	1153	371	253	118	150	195	81					
Mean	9.88	10.03	9.42	9.40	9.46	9.37	9.34	9.38	0.00	0.86	0.91	0.91	0.02

^a: No p-values reported where a small sample proportion in either or both samples renders a two-sample proportions statistical test impossible.

Annex I: Tissamaharama sample statistics on household poverty incidence and pairwise comparisons

	Household type							P-value for pairwise sample proportions or means test								
	Alls	Non-fishing	fishing	Boat owning fisher	Non-boat owning fisher	lobster	non-lobster fishing	exclusive lobster	Male-headed	Female-headed	fish vs non-fish	boat owner vs non-boat owner	lobster vs non-lobster fishing	excl. lobster vs non-lobster fishing	lobster vs non-fishing	male vs female HHH
N	529	406	123	81	42	47	67	25	470	59						
Poverty rates (calculated without excluding outliers)																
LKR 7,913 person/month*	0.17	0.19	0.12	0.15	0.07	0.23	0.04	0.28	0.17	0.24	0.08*			0.47		0.17
LKR 5,500 person/month	0.05	0.06	0.02	0.00	0.05	0.02	0.01	0.04	0.05	0.05						

Notes: *: National poverty line (DCS 2022); **: Monthly, per capita expenditure below which a family is considered poor (GoSL 2019).

Annex J: Tissamaharama sample findings on selected MDS indicators and pairwise comparisons of household categories

MDS dimension and indicator of poverty b	Sample proportions by household type and p-values for pairwise comparisons c									
	All (N=529)	Non-fishing (N=406)	Fishing (N=123)	Boat owning fishing (N=81)	Non-boat owning fishing (N=42)	Lobster fishing (N=47)	Non-lobster fishing (N=67)	Excl. lobster fishing (N=25)	Male headed (N=470)	Female headed (N=59)
Family demography: Dependency ratio (number of people aged 0-14 and >65 / number of people aged 15 -64) > 0.64	0.30	0.30	0.31	0.26	0.40	0.30	0.36	0.32	0.30	0.32
Education: No HH member has passed the G.C.E. Ordinary Level or higher (Used 'No HH member completed >10 years of education' as proxy.)	0.18	0.17	0.21	0.23	0.17	0.15	0.27	0.12	0.17	0.22
Education: Any of the household members aged 5-16 years is currently not attending school or another educational institution.	0.04	0.04	0.04	0.06	0.00	0.06	0.03	0.08	0.04	0.03
Economic level: Monthly per capita expenditure is less than LKR 5,500	0.05	0.06	0.02	0.00	0.05	0.02	0.01	0.04	0.05	0.05
Assets: Not having at least one asset related to mobility. (Considered bicycle, tuk tuk, car, truck, and motorcycle.)	0.24	0.23	0.28	0.27	0.29	0.28	0.28	0.16	0.22	0.44
Assets: Not having at least one asset related to economic activity (fishing boat, combined harvest machines, threshers) (Used fishing boats, tractors, and other agricultural machinery.)	0.77	0.90	0.33	0.00	1.00	0.21	0.37	0.28	0.75	0.88
Assets: Not having at least one asset related to livelihood (5 cattle for milk, 20 goats, 50 chickens, 50 ducks, 10 swine)	0.96	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.96	0.97
Housing condition: Electricity consumption less than 60 kWh per month.	0.20	0.21	0.15	0.11	0.21	0.17	0.15	0.16	0.21	0.14
Housing condition: Living in line room/row house/slum/shanty or other. (Used "not living in concrete/brick house" as proxy.)	0.15	0.15	0.15	0.16	0.14	0.11	0.19	0.04	0.15	0.15
Housing condition: No access to clean drinking water. (Used 'no access to private tap' as a proxy.)	0.53	0.53	0.53	0.49	0.60	0.43	0.60	0.40	0.53	0.59
Housing condition: No access to adequate sanitation. (Used 'not having indoor plumbing with flushable toilets' as proxy.)	0.73	0.70	0.85	0.83	0.88	0.83	0.87	0.80	0.73	0.80
Housing condition: Not having access to electricity.	0.02	0.01	0.02	0.02	0.00	0.00	0.03	0.00	0.01	0.07

Notes: ^a The results are in some cases different from HIES 2019 based results which may be explained by the differences in criteria definition (proxies) or possibly by the fact coastal focus of the Bio-LEWIE survey. ^b Entries in normal font are the MDS dimension and indicator definition from the Welfare Benefits Board regulation (GoSL 2022). Italic comments in parentheses describe specific proxies used in this study.

^cNo p-values reported where a two-sample proportions statistical test was not feasible

Annex K. Sample statistics on ways to improve one's situation (aspirations)

All available members of surveyed households were asked to select a maximum of 3 options (from 15) for how they would like to improve their personal situation, spanning 8 categories: financial assistance, fishing, agriculture, wage

employment, education, own business, access to loans, and being satisfied with their personal situation (needing nothing). Of the total 1,919 members of the surveyed households in Tissamaharama, 82 percent provided responses. 78 percent of these respondents selected only a single option, 17 percent selected two and just 5 percent selected three.

TABLE K.1. CATEGORIES OF OPTIONS AND PROPORTIONS OF SELECTION BY RESPONDENTS IN TISSAMAHARAMA AND THE COASTAL BELT⁹⁴

Category	Options	Fishing HHs only		Non-Fishing HHs	
		Category	Option	Category	Option
Satisfied	I am satisfied with my personal situation; it does not need to be improved	0.29	0.29	0.19	0.19
Formal/informal financial assistance	Getting financial support from the state institutions	0.17	0.09	0.18	0.06
	Getting financial support from the international organizations		0.02		0.01
	Getting financial support from the relatives abroad		0.07		0.11
Livelihood from fishing	Improved incomes in fishing	0.27	0.24	0.15	0.04
	Obtaining crafts/gears to better do fishing		0.05		0.12
Livelihood from agriculture	Improving incomes in agriculture	0.02	0.02	0.14	0.14
Wage employment	Getting employment in agriculture	0.14	0.02	0.27	0.08
	Getting employment in services or trade		0.05		0.12
	Getting employment in industry		0.06		0.08
	Leaving abroad to work		0.04		0.03
Education	Increasing my education	0.10	0.10	0.09	0.09
	Leaving abroad to study		0.00		0.01
Own business	Starting own business	0.17	0.17	0.15	0.15
Access to credit	Getting access to credit/loans	0.06	0.06	0.05	0.05

94 The sum of the proportions exceeds 100% as some respondents selected two or three options.

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