



Fishing for Life

The Saga of Marine Small Scale Fisheries in Sri Lanka

*Oscar Amarasinghe
Kaumi Piyasiri*

A BOBP Publication



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Preferred Citation

Amarasinghe O & Piyasiri K.H.K.L (2026). Fishing for Life - The Saga of Marine Small Scale Fisheries in Sri Lanka. Published by BOBP-IGO, Chennai-600018, India p362.

ISBN: 978-81-998571-8-6

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Design: BOBP Design Factory

Cover page painting by Dr. Oscar Amarasinghe

Photographs by Authors and BOBP-IGO

Publisher's Note

It is both a privilege and a pleasure to introduce this important volume by Professor Oscar Amarasinghe and Ms Kaumi Piyasiri, scholars whose work have long illuminated the complexities and contributions of small-scale fisheries in Sri Lanka and beyond.

This book arrives at a particularly significant moment. Small-scale marine fisheries, which is the focus of the book, are recognized not merely as a subsector, but as a cornerstone of resilient coastal economies and ecosystems. In Sri Lanka, they represent a vibrant tapestry of traditional knowledge, adaptive practices, and community-based stewardship. Yet, they also continue to face challenges, from climate variability and resource degradation to market pressures and governance gaps, which continue to mount, even escalate, largely due to the negative externalities imposed on them by other stakeholders who compete for the same coastal resources.

Professor Amarasinghe's work stands out for its depth of analysis and clarity of insight. Drawing on decades of research and engagement with fishing communities, this volume offers a nuanced understanding of the socio-economic, institutional, and ecological dimensions of small-scale fisheries. It bridges the gap between academic inquiry and policy relevance, providing evidence-based perspectives that can inform national strategies and regional cooperation. It not only lays out the issues plaguing the sector but also suggests some key directions that would help the fisher and policy-maker in making right decisions in future.

Importantly, the book aligns closely with the principles underpinning the FAO's Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries, emphasizing inclusivity, equity, and sustainability. It underscores the need for integrated approaches that connect value chains, resource management, and social protection.

I am confident that this publication, a 'one stop shop' will serve as a valuable resource for policymakers, researchers, and practitioners alike. It not only enriches our understanding of Sri Lanka's fisheries sector but also contributes meaningfully to broader regional and global dialogues on sustainable aquatic food systems.

Dr. P. Krishnan

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Foreword

Sri Lanka is a remarkable fishing nation. Surrounded by sea on all sides, its inhabitants have relied on its marine waters not only for transportation and security, but also for food. 'Blue foods' have recently become an international hype and there is much truth in the suggestion that mankind has much to gain from relying more on the ocean for its nutrition. But Sri Lanka has already put this maxim into practice. The average consumption of seafood in Sri Lanka is 23.9 kilos per year, which is three times as much as average consumption in nearby India and fifteen times as much as in Pakistan! In view of the ubiquity of fish on the menu, it would be difficult for a traveller in the country to identify a person who does not eat fish at all!

Most fish consumed in Sri Lanka derives from its own waters and its own marine and inland fishing population. Limiting ourselves to the scope of this book, which concerns the marine fisheries, the figures are still staggering. The number of marine fishing villages in Sri Lanka is almost identical to the length of the country's coastline, which means that for every kilometer of strand there is a fishing village! In total, the country now counts 189,000 marine fishing households!

It is to the dynamics of marine fisheries in Sri Lanka that this book is devoted. The author, Oscar Amarasinghe, is exactly the right person to have taken up this task, as his professional life has been almost entirely dedicated to understanding the condition of marine fisheries in the country. Being the person he is, he has focused less on the fisheries taking place in larger harbor towns than on the rural sector, which consists largely of what are known as small-scale fisheries. Making use of small craft and relatively simple fishing gear, these men go to sea while the women are often engaged in processing and marketing the catch. Fishing is known as a dangerous profession and the circumstances of life are inevitably tough. It is no wonder that fisher parents frequently prefer their children to go to school and ultimately leave the sector, if such a chance occurs.

Dr. Amarasinghe's first research focused on the workings of the beach seine fishery of southern Sri Lanka, which is known for its intricate system of rotation. He has subsequently spent many years understanding how small craft fishers have adjusted their livelihood practices, shifting from outrigger canoes (oruz) and log rafts (kattumarams) to fiberglass boats and synthetic gears. In addition, these fishers are now targeting a whole range of species for the

domestic as well as the export market and thereby making a major contribution to the economy as a whole.

Although Dr. Amarasinghe is an economist by training, his intellectual versatility and enthusiasm has taken him into the fields of legal pluralism and governance, where he has engaged with customary law and the multiple dimensions of rulemaking. This has allowed him to move beyond fisheries management as it is understood by scholars and officials to how it is practiced on the beaches. He has subsequently translated the real-life character of this experience into numerous newspaper articles, academic publications as well as very useful recommendations for the country's policymakers. In this way he has become the premier analyst of marine fisheries in the country.

Dr. Amarasinghe is the founder of the Sri Lanka Forum for Small Scale Fisheries (SLFSSF) and an instigator of the SSF Guidelines in Sri Lanka. The second author, Ms. Kaumi Piyasiri, is a member of the executive committee of SLFSSF, and a fisheries scholar in her own right.

The book, which leans on a lifetime of experience, will be of great use to all those who seek to fathom the nature of marine fisheries and their challenges in Sri Lanka.

Maarten Bavinck

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3rd December 2025

Preface

This is a book about the small-scale fisheries (SSF) in Sri Lanka, with a focus on marine fisheries. SSF sector was relegated to the background in the past, with priority accorded to the offshore and deep-sea sector because of its significant contribution to export earnings, bringing in valuable foreign exchange. Yet 90 percent of the fishing people are employed in the SSF sector, which provides them with food and nutritional security and means of coping with vulnerability and poverty. Due to their open access nature, marine fisheries have been subject to unregulated entry and along with Malthusian influences and limited employment opportunities elsewhere, fishing pressure has been growing continuously. Stemming from the hazardous nature of marine fishing, declining and degrading resources, coastal pollution, threats to tenure rights of fishing people, weak community organisations, etc. the SSF communities are considered to be a group of vulnerable people, some of whom have fallen into the dumps of poverty. Being only one stakeholder group in the coastal region, coastal fishers need to resolve negative externalities imposed on them by other stakeholders who also use the same coastal resources. ICZM type of co-management mechanisms have been proposed to resolve multi-stakeholder conflicts although they have never been effective in Sri Lanka. In a nutshell, while SSF fishers suffer from an array of issues that threaten their livelihoods, the governors have not been successful so far in effectively addressing them, although diverse interventions have been made by successive governments in the past.

The major aim of this volume is to present the reader not only a birds eye view of the whole SSF sector, but also comprehensive analyses of, and strategies that could be adopted to resolve, some of the salient issues of the sector such as governance and management, sea and land tenure, social protection, community organisations, wellbeing of fishing populations, etc., that have surfaced in the past. This being said, it is also to be noted that the book does not give prescriptions to resolve issues confronted by fishing communities, but some key directions, guidelines and propositions that could put the planner, policy maker and manager on the right tract. Information furnished in this volume will also be of interest to international donor agencies facilitating sustainable development of the SSF sector through the provision of financial and technical aid, because socioeconomic information furnished in this volume are of great value as they cannot be easily

accessed from official sources or literature. In a nutshell, this volume is expected to be a 'one stop fish shop' for those who want to understand the marine small-scale fisheries sector of Sri Lanka.

The initial impetus for writing this book came from the first author's engagement with the World Bank in the year 2020, when he was consulted to provide the Bank with information on SSF after it was badly hit by the Covid 19 Pandemic. This assignment produced a series of reports under a number of thematic areas, providing the foundation for this volume. The World Bank kindly consented for incorporating such information into a book that will benefit all those interested in securing a sustainable small-scale fisheries sector, which is greatly appreciated. In the preparation of this volume, the authors also used a host of information found in the final report of the SSF Guidelines Implementation Project carried by the Sri Lanka Forum for Small-Scale Fisheries (SLFSSF) sponsored by the FAO. Another important source of information was the book, *Modernisation and Change in Marine Small Scale Fisheries of Southern Sri Lanka* (2005), edited by the first author of this book. Apart from the above, an array of gray literature was accessed by Kaumi (co-author) which also provided important inputs in enriching and strengthening the arguments presented.

This volume has 11 chapters. Chapter 1 presents a brief account of the marine small-scale fisheries sector of Sri Lanka, taking the reader on a journey of discovery, starting with resources, production, consumption, trade and contribution to national economy. Fishers and their communities, the craft-gear combinations they use, the revolutionary change in fisheries in early 1960s focusing on 'blue revolution' and its aftermath, and the present status of resource exploitation are narrated in Chapter 2. Governance and management of fisheries are given momentous importance in this volume because most of the SSF issues are related to governance and management failures. Chapter 3 deals with these issues, where incidences of governance failures are unearthed and issues uncloaked showing the need for inclusive and participatory governance. Models of integrated coastal zone management (ICZM) are also proposed in this chapter. Marketing of fish landed by SSF crafts is the focus of Chapter 4, where methods of fish selling at landing sites, market channels, role of marketing middlemen including their oligopsonistic powers in fish buying and boat tying arrangements which reveals credit and product market interlinkages, are discussed at length in this chapter. Finally, the role of the Ceylon Fisheries Corporation in fish marketing and

correcting its inefficiencies, are discussed. A comprehensive analysis of fisher community organisations is presented in Chapter 6. The evolution of credit societies into fisheries cooperatives, their subsequent development, threats to their functioning, shortcomings and the consequences of establishing a parallel community organisation called Rural Fisheries Organisation (RFO), and quite importantly, the competence, dexterity and capacity of fisheries cooperatives to adopt relevant FAO Voluntary Guidelines for securing sustainable small scale fisheries are also brought into light in this chapter. Since fish processing in Sri Lanka is dominated by dry fish and 'maldive fish' (umbalakada) making, largely undertaken by women fisherfolk, 'fish processing and gender' are clubbed together in Chapter 7. While a good account of key fish processing activities by Sri Lankan women are presented, this chapter also discusses at length, issues related to gender equality and empowerment of women to strengthen household resilience by generating supplementary incomes. The potential for producing canned fish in Sri Lanka is also examined here. Chapter 8 deals with opportunities that exist in coastal areas for fishing communities to engage in tourism related alternative livelihoods. Called 'Integrated Sustainable Tourism', this chapter describes how nature-tourism can be combined with fishing, agriculture, cultural heritage, etc. to produce a more comprehensive and holistic tourism package that will benefit all stakeholders in a coastal setting, including fishing communities, while providing the visitor with an array of recreational benefits and opportunities to discover a variety of natural, cultural and historical heritages of the coastal region and communities. Next, an interesting account of the aspirations of fishing communities is given in Chapter 9. Using gender disaggregated data, the chapter reveals that, relationships are central to the wellbeing of fishing communities, as opposed to the general belief that the foremost wellbeing aspiration of the people is high cash income. Relationships form a strong source of insurance in dealing with shocks and it is revealed that people at times sacrifice individual wellbeing for community wellbeing. Empowerment of fisheries cooperatives is suggested as an important means of meeting the wellbeing needs of the marine fishing populations. Chapter 10 examines the social protection discourse, that has received enormous attention recently. The status of the major social protection schemes that cover risks and uncertainties in fisheries, namely the fishermen's pension scheme and insurance schemes are discussed at length, along with reasons for their

failure. The chapter also shows the importance of operating social protection schemes, such as the pension scheme and insurance scheme, through fisheries cooperatives to minimize informational asymmetries and to make them more effective and attractive to fishing communities.

Chapter 11, the final chapter, is titled 'Way Forward', which gives some concluding remarks and an array of guidelines to put certain governance and management processes on the right track, based on the outcome of some of the analyses. The need to correctly understand the system to be governed; the ecosystem and the human system, is strongly emphasized. This chapter also addresses major ecosystem and human system issues and put strong emphasis on the need to do further research into 'life above water' or the fishing communities and understanding their culture and socio economic status; their values, beliefs, legal system, aspirations, living standards, issues of vulnerability and poverty, etc. Finally, an attempt is made to synthesize together all facts, arguments, and prescriptions into a kind of 'node-link' diagram which will form a summary of the outcome of the analyses under major thematic areas.

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1st January 2026

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Chapter 1

An Introduction to Fisheries in Sri Lanka







Preamble

Situated in the Indian ocean, Southeast of India, Sri Lanka is a small country having a land area of 65,510 km² lying within the latitude 6°-10° N and longitude 79°-82° E. Sri Lanka being close to the equator, the mean temperature on the plains ranges from 80-82°F. Rainfall in Sri Lanka is of three types; monsoonal, convectional and depressional. Two -monsoonal rains, namely, the South-west monsoon and the North-east monsoon, have caused the rainfall to display a bimodal pattern which in turn determines the major agricultural and fishing seasons. The South-west monsoon prevails during May to September, is known as the *Yala* season for agriculture. Rough seas during these monsoonal times hamper operation of traditional crafts in the southern and western fishing grounds and this is called the *Warakana* (or off-season) for traditional fisheries. The same is true in respect of traditional fisheries in the Northern and Eastern areas during the North-east monsoon prevailing during November to March. This is called the *Maha* season for agriculture.

Sri Lanka has a total population of 21,763,170 (in 2024) consisting of 74.9% Sinhalese, 11.2% Sri Lankan Tamils, 4.1% Indian Tamils, 9.3% Moors, while the rest consist of Burghers, Malays and others. Apart from being a multi-ethnic country, Sri Lanka's population is also characterised by its multi-religious (with Buddhists, Hindus, Muslims & Christians forming 70.1%, 12.6%, 9.7% and 7.6% of the population respectively) and multi-ethnic nature (see above). Many social indicators of the population remain quite favourable for development. People are highly literate with an average literacy rate of 93.3% (in 2023). With the extension of health facilities to even the remotest areas of the country, the crude death rate and infant mortality rate have

fallen substantially, to levels of 6.0 and 7.4 per thousand (in 2019) respectively. The population enjoys a life span of 76.9¹ years, a quite high figure compared to that of many other Asian countries. Sri Lanka is now categorised under lower middle countries, with an average per capita income of US \$ 4,515 (in 2024²). Its Human Development Index (HDI) stands at 0.78 (in 2021³), the highest in South and South East Asia. Nevertheless, 14.3% of the population remain below the income poverty line (MFAR, 2024).

The post-war development efforts in Sri Lanka were mainly characterised by high priorities placed on the achievement of food self-sufficiency and generation of employment opportunities to large numbers of rural youth. Fisheries sector was considered as having a good potential for providing proteins to the growing population and generating employment. Demand for fish was growing continuously with increasing numbers of consumers, increasing incomes and growing demand for tropical fish species by consumers in western countries.

With the declaration of the Exclusive Economic Zone in 1976, Sri Lanka has Sovereign rights over an area of about 517,000 km² of the Sea (Amarasinghe, 2005) (see *Figure 1.1*). The country has a 1,585 km coast line, a large extent of which consists of sand beaches. The coastal zone of Sri Lanka is of considerable socio-economic importance. It occupies about 25 percent of the land area of the country, inhabited by around 25 percent of the population. More importantly, it contains a variety of coastal habitats that include estuaries and lagoons, mangroves, sea grass beds, coral reefs, large extents of beaches, and dunes that are vital for the ecological functioning and maintenance of biodiversity. The country has a narrow continental shelf with an average width of 22 km. Sri Lanka also has extensive freshwater and brackish water resources to sustain viable fisheries and aquaculture activities in the form of lagoons/estuaries (158,000 ha), mangrove areas, mud flats and salt marshes (71,000 ha.) irrigation reservoirs and villus (260,000 ha.). In addition, Sri Lanka has extensive land areas and sea areas suitable for aquaculture development (Chandrasoma et al., 2019).

¹ <https://data.who.int/countries/144> (accessed on 21 July 2023)

² <https://www.bing.com/search?q=per+caputa+income+Sri+Lanka&q&form=QBRE&sp=-1&lq=0&pq=per+caputa+income+sri+lanka&sc=10-27&sk=&cvid=7B7279D82EA944D082BBD00F01B36BC0&ghsh=0&ghacc=0&ghpl=> (accessed on the 21st of July 2023)

³ <https://www.undp.org/srilanka/press-releases/undp%E2%80%99s-global-human-development-report-launched-sri-lanka> (accessed on 21 July 2023)

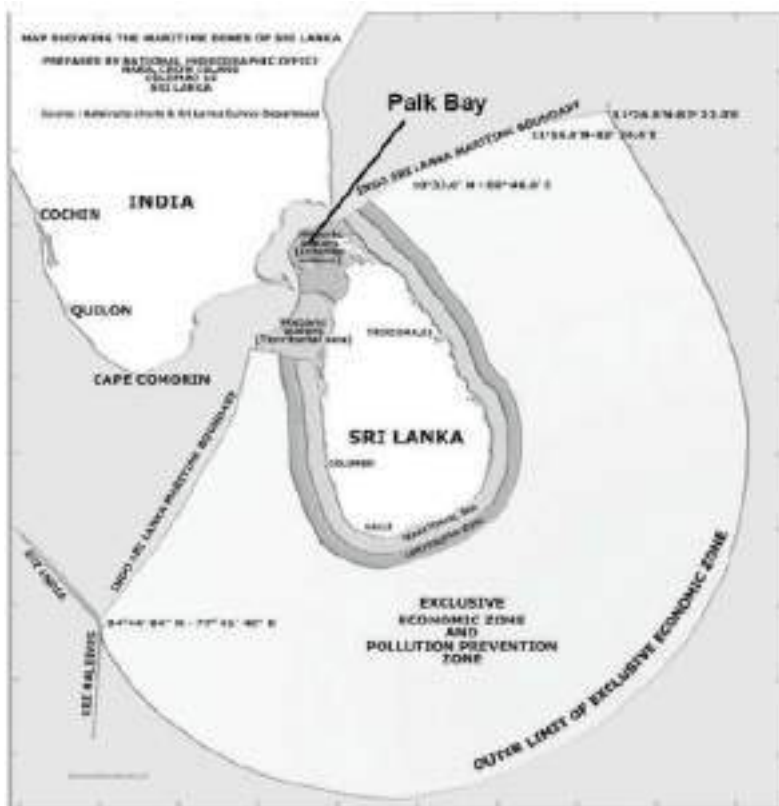


Figure 1.1: Maritime boundaries of Sri Lanka

Source: National Hydrographic Office, NARA (n.d)

Fisheries Resources

Fish living in the sea form the marine fish resources, those found in freshwater (rivers, streams, reservoirs, etc) the freshwater fish resources and those in estuaries and lagoons are called the brackish water fish resources. Thus, fisheries resources are categorised under three broad types: Marine, Inland and Brackishwater.

Marine fish resources:

The marine resources and the fishers exploiting them are categorized further into two sub-sectors: the coastal fisheries and the offshore and deep-sea fisheries. These resource areas differ in a number of physical,

biological and ecological properties. Temperature, pressure, density, turbidity, etc. form the major physical differences while the production of carbohydrates, plankton fish, other flora and fauna, etc. form the major biological properties. Ecologically, the fish fauna in the above regions are grouped under pelagic fish (fish living in the water column) and the demersal fish (fish living on the sea floor).

Coastal fish resources:

Fishing activities concentrated within the area of the sea extending up to the edge of the continental shelf (16-40 km from the shore line) are considered as the coastal fishery (Amarasinghe & Amarasinghe, 2005). About 610 species of coastal fish have been reported in Sri Lanka, of which the more common species are *Salaya* (*Sardinella melanura*), *Soodaya* (*S. albella*), *Hurulla* (*Amyblygaster* sp), *Pesalaya* (*S. longiceps*), *Kumbala* (*Rastrelliger kanagurta*), *Jelawa* (*Sphyræna* sp.), *Laagga* (*Thrissoles* sp.), *Karalla* (*Leognathus* sp.), *Katuwalla* (*Chirocentrus dorab*), *Alagoduwa* (*Auxis thazard*), *Haalmessa* (*Anchoa commersoni*) and *Piyamessa* (flying fish) (*Hirundichthys coromandelensis*). Most of these species live near the surface of the water or in the water column (Pelagic). Species such as *galmalu*, *uruhota* (*Lithrinus* sp.), *Savalaya* (*Trichiurus savala*), some species of *Para* (*Caranx melampygus*), *Meevatiya* (*Lithrinus* sp.), *Maduwa* (species of skatas and rays), flat fish (species of *Cynoglossus*) and *Pannawa* (species of *Joynius* and *tolithus*) live at the bottom of the coastal seas (demersal). Also there are various species of fish that live between the surface and the bottom (see Jinadasa 1993).

About 200 species of fish live in the shallow or coastal sea bed off Sri Lanka. Some of the more common of these species include rock fish or mullet carrangids or *parau* sciaenids or croakers, reefcod or *kossa*, snake mackerel or *savalaya* and wolf herring or *katuwalla* and, about 40 species of rays and skates (Jinadasa, op.cit).

The major stock assessment studies in Sri Lanka were conducted by the Norwegian research vessel Dr. Fridtjof Nansen during 1978/1979/1980, where the annual sustainable yield from a stock of $\frac{3}{4}$ million MT was estimated at 250,000 MT of which 80 000 MT consisted of demersal and semi-demersal fish. Recent ecosystem survey conducted by the same vessel (2018), reported 175,000 tons of coastal biomass (122,000 pelagics and 53,000 demersals). These results also

revealed that the demersal fish resources in the coastal waters of Sri Lanka have depleted significantly, from 250,000 – 350,000 tonnes reported in 1978-1990 to 53,000 due to the replacement of commercially important species by species of less commercial value, but with high recovery rates (thus less vulnerable to overfishing) (Chandrasoma et al., 2019). The results also revealed the availability of more demersal fish species in the east coast and more pelagic fish species in the west coast. According to the results of the same survey, there is no indication of decline of pelagic fish species in the coastal waters of Sri Lanka, although stocks found in the east coast have declined to a certain extent.

Offshore and deep sea fish resources:

Sri Lanka's offshore and deep sea fisheries consist of fishing activities concentrated beyond the continental shelf up to the edge of the 200 nautical mile EEZ.

About 90 species of oceanic pelagic species of fish have been reported to live in Sri Lankan offshore and deepsea waters, of which the most common species are, skip jack or *balaya* (*Katsuwonus pelagis*), yellow fin tuna or *kelawalla* (*Thunnus albacares*), Big Eye Tuna (*Thunnus Obesus*) Spanish mackerel or *thora* (*Scombracromorous commersoni*), *pirimithora* (*Acanthocybium solandri*), Sail fish or *thalapatha* (*Histioporus orientalis*), short bill spear fish or *habara* (*Telrapturus angustirostris*), striped marlin or *koppara* (*T. audax*), Blue marlin or *sappara* (*Makaira nigricans*), Black marlin or *kalu koppara* (*M. indica*), sword fish or *sappara* (*Xiphus gladius*), Dolphin fish or *Vannava* (*Caryphaena hippurus*). Moreover, it has been reported that about 60 species of sharks live in the oceanic waters off Sri Lanka. Some of the more common species are: white tipped shark or *sudumora* (*Carcharias longimanus*), Black tipped shark (*C. melanopterus*), Thresher shark or *Kasamora* (*Alopias pelagicus*), Hammer head shark (*Sphyrna zygaena*), Great hammer head shark (*S. lewini*). Some species are reported to be feeding on tuna, which are as long as 120 cm. *Baracuda* (*Sphyrna* sp), *kattawa* (*Chrinemus* sp), *anjillawa* (*Scomberomorus guttatus*) and *lena* or rainbow runner (*Elagatis bipinnulata*) have also been reported to live in oceanic waters, but in lesser numbers. The number of species of fish and their population size decline with increase in depth and the great ocean floor is almost devoid of any living organism.

Brackish water resources:

These resources are situated in the coastal belt such as estuaries or lagoons or marshes which amount to 120,000 hectares, of which 80,000 ha consist of deep lagoons and estuaries. The rest are shallow lagoons, tidal flats, mangrove swamps and saline marshes. The deep lagoons and estuaries are ideal for fishery and aquaculture. The estimated suitable land available for brackish water coastal aquaculture is about 6,000 ha (Samaranayake, 1986), where the salt content of the water varies between fresh water and that of the sea or between 0.5 and 35 ppt. Sri Lanka's brackish water habitats are rich in biological diversity. There are about 110 species of brackish water fish, of which the most important species are groupers (*Promicrops* sp), mullets (*Mulgi cephalus*), Milk fish (*Chanos chanos*), Silverbids or *Karalla* (*Leogathus dussumeri*), Pearl spot (*Etroplus suratensis*) and *Kalanda* (*Awaous grammepous*). Further, there are shellfish like prawns and crabs too in these resources.

Sri Lankan lagoons and estuaries are mostly inhabited by finfish and other species such as *Siganus* sp., *Lates* sp., etc., while crustacean species such as *Penaeus monodon*, *P. semisulcatus*, *P. latisulcatus*, *P. menoceros*, and *Macrobrachium rosenbergii* also are found to a significant extent. Crab species such as *Scylla serrata*, the bivalve species *Perna viridis*, Oysters such as *Crassostrea* sp., the cockle species *Anadara granosa* and the sea weed *Gracilaria* sp., are also abundant in the east and west coast of the island (Subasinghe and Siriwardena, 1990). These species are almost equally distributed in the 46 major estuaries and lagoons of Sri Lanka. The annual total production of the brackish water fishes and prawns is about 10,000 mt. These are caught using traps, cast nets, gillnets, encircling nets and various kind of other traps.

The Sri Lankan coastal lagoons are not numerous but they are diverse in size, shape, configuration, ecohydrology, and ecosystem values and services (Silva et al 2013). Sri Lanka is endowed with 82 lagoons and, in respect of lagoon area, the North and the North east account for 65% of the lagoon area in the country. Shrimp (*P. indicus* being the dominant species) and fin fish (to a lesser extent), form the major extractive values generated by lagoons, followed by fuelwood, salt, fodder, ecotourism, anchorage, recreation, etc, all of which form a bundle of natural capital generated by the lagoons. Non-use values, such as

habitat preservation, biodiversity, ecosystem linkages, etc. too contribute positively towards improving human wellbeing. Yet, among the many values of lagoons in Sri Lanka, only the extractive values are generally utilized at present, by way of fish and shrimp catches, salt production and use of mangrove for various purposes.

Inland fisheries and Aquaculture:

Sri Lanka has 103 perennial rivers, locally known as *Ganga*, *Oya*; of these, 23 river basins are larger than 500 km² and about 80 of them are located in the dry zone (Subasinghe and Siriwardena, op.cit.). Of the total area of 280,000 hectares of inland water bodies, 160,000 hectares are lakes and ponds while the rest (120,000 hectares) consist of lagoons and marsh-lands. The inland reservoirs and tanks usually carry water all the year round (70,000 hectares) and other reservoirs and tanks (76,000 hectares) usually do not carry water all over the year and are called seasonal tanks. Present (2024) production in the inland fisheries is estimated at around 87,210 MT (21% of the total fish production) (MFAR, 2024).

The number of species of freshwater fish in Sri Lanka is about 65 (Jinadasa op.cit.) most of which are not acceptable as food fishes due to their small sizes, e.g. species of *Rasbora* or *Puntius* and *Dandia*. However, reservoirs in Sri Lanka sustain a number of freshwater fishes, which are introduced into Sri Lanka, eg: Tilapia (*Oreochromis mossambicus* and *Oreochromis niloticus*), grass carp (*Ctenophoryn godonidella*), big head carp (*Hypophthalmichthys nobilis*) and major Indian carps such as *catla*, *mrigal* and *rohu*. The tilapia species introduced to Sri Lanka contributes to more than 80% of the total freshwater fish production. Capture fisheries is the most significant among the many types of inland fisheries activities, while community-based seasonal village pond/tank culture is too gathering popularity. However, culture of fish for food still remains at its infant stage of development.

More than 90% of the production from this subsector, comes from capture fisheries and culture-based fisheries. The main culture systems adapted in Sri Lanka are culture-based fisheries in irrigation reservoirs, shrimp farming and Tilapia farming in ponds (Chandrasoma et al, op.cit). Seabass farming using cages, sea weed farming with the involvement of communities, sea cucumber farming, ornamental fish farming for exports, have all been initiated and run as small scale

business enterprises. While shrimp farming is practiced at large scale in the North western province ornamental fish farming is quite popular in rural areas and, apart from the international demand, the local demand for ornamental fish too is growing.

Aquaculture:

Brackish water aquaculture in Sri Lanka is completely dominated by shrimp farming in the northwestern province. The major species cultivated is *P.monodon*. At present industrial shrimp farming is mainly practiced in the north-western province of Sri Lanka. By the year 2000, there were about 1,400 shrimp farms with over 70 hatcheries, and a total area of 4,500 ha (Senarath & Visvanathan, 2001) In maximising profits from this lucrative investment, shrimp farmers started to stock their ponds at high densities increasing the risk of spreading of diseases (shrimp farms were hit by a viral infection in 1996, caused by *monodon baculovirus* causing a 50 percent reduction in the output). Nevertheless, with a view to controlling the haphazard expansion shrimp farming, the government commissioned the National Aquatic Resources Agency (NARA) in 1994 to prepare a zonal plan and government approval was only given for those farms located in the zones allocated for shrimp farming. Provisions were also made in the Fisheries and Aquatic Resources Act of 1996, requiring aquaculture farms to obtain a license from the Department of Fisheries and Aquatic Resources.

It is estimated that about 11,000 ha are available for land-based coastal aquaculture, other than shrimp. About 10,000 ha for milk fish culture, 1,000 ha for *Artemia* culture and 50 ha for crab culture are available for brackish water aquaculture development. Although the potential of cultivating brackish water species such as Milkfish or *Weekkaya* (*Chanos chanos*), Moonies or *Handaya* (*Monodactylus*), Seabass or *Moda* (*Lateolabrax niloticus*), Grouper or *Galkossa* (*Epinephelus* sp.), Crab or *Kakuluwa* (*Scylla serrata*), Mussel or *Depiyan Bella* (*Perna* sp.) and Oyster or *Mutti* (*Cassostrea* sp.) is there, commercial scale culture of these species has yet to be undertaken.

There also exists the potential for culture of Giant Freshwater Prawn (*Macrobrachium rosenburgi*) on commercial scale, but the technology of producing the seed requirement is not widespread.

A number of initiatives can be found in increasing the production of non-traditional aquaculture. Examples are, seabass cage culture in the Negombo lagoon, Puttlam and Galle with the involvement of the private sector; National Aquaculture Development Authority (NAQDA) facilitates sea cucumber culture in pens and ponds with the involvement of the private sector (projects found in Thewanpitti, Mannar south bay, Ambupuram Kilinochchi, Valaipadu Kilinochchi, and Nachchikuda Kilinochchi). Breeding of Sea cucumber in a private hatchery was started under an MOU between Vietnam and NAQDA; with technical assistance from Vietnam, a pilot project to farm sea weeds was implemented in Kilinochchi district while a pilot project on Oyster farming was started in Kandakuliya, in the North Western Province. Other sectors of aquaculture which have been identified for development and promotion in coastal Sri Lanka include mangrove crabs. A traditional mud crab fisheries has existed in Sri Lanka, but due to overexploitation this fishery has declined in importance. With current advances in the hatchery production and the possibility of stocking into ponds and enclosures, this is a culture which has a promising future.

Ornamental Fish and Aquatic Plants:

Wild capture of marine ornamental fish for export has become a very popular activity in many parts of the country. At present, about 60 freshwater species and 200 marine species are exported. Nearly 70 percent all ornamental fish are of marine origin. Of the freshwater species of ornamental fish, about 60 percent are produced by aquaculture, including Guppy (*Poecilia reticulata*), Angel (*Pterophyllus* sp.), Gold Fish (*Carassius auratus*), Swordfish (*Xiphorus* sp.), Barbs (*Puntius* sp.), etc. About 13 species have been banned from export. Since Sri Lanka's ornamental fish is highly demanded in the international market, this activity offers a very lucrative avenue of investment and a means of generating employment.

Recently, exporters were found to export a number of aquatic plants like, *Diyahawariya* (*Blyxa aubereei*), *Kekatiya* (*Aponogaton crispus*), *Manel* (*Nymphaea stellata*), *Ketala* (*Lagenandra ovata*), etc. However, a number of wild aquatic plants have been banned from export. Yet, several incidences of attempts at illegally exporting aquatic plants have been reported in the recent past.

Coastal Habitats and Non-living resources

Coastal habitats include coral reefs, estuaries and lagoons, mangroves, seagrass beds, salt marshes, barrier beaches, sandstone reefs, and dunes.

Coral reefs in Sri Lanka can be found along 2 to 3 percent of the nation's total shoreline. Fringing type is the most common, which occur adjacent to the shore and grow from the sea floor. There are about 171 reef building corals in Sri Lanka, staghorn coral (*Acropora spp.*) being the dominant type. Spatial homogeneity is a key reef characteristic providing diverse living opportunities for a multitude of plants and animals, which will be lost when corals are broken (Coast Conservation Department, 1997). Coral reefs are extensive in the Gulf of Mannar region and west of Kalpitiya area. They are also found in the southwestern, eastern and northern coastal waters. Apart from providing recreational values, they provide a number of use values (extractive values) such as ornamental fish, food fish and coral lime. In terms of biodiversity, coral habitats are of mammoth importance. On the other hand, barrier reefs, which are ridges of corals lying some distance from shore and running parallel with it, are rare in Sri Lanka. Some can be found at Vankalai and Silavathurai.

Mangroves are salt tolerant, woody, seed-bearing plants ranging in size from small shrubs to trees. They occur along sheltered intertidal coastlines, and in association with estuaries and lagoons. Sri Lanka has about 19,894 hectares of mangroves⁴. The most extensive mangrove stands occur in Puttalam, Batticaloa, Trincomalee, Jaffna and Gampaha Districts. About 14 species of mangroves and 12 species of mangrove associates are found in Sri Lanka. The mangrove ecosystem can be a major source of food and nutrients to estuarine, lagoon and nearshore coastal waters, and a nursery for the early stages of commercially important crustaceans and fish.

Seagrass beds are composed of rooted, seed-bearing, marine plants (halophytes). They occur in shallow, near-shore waters that are sheltered from high wave energy, and in estuaries and lagoons. They are abundant along Sri Lanka's coast, but no accurate information exists about their extents. They comprise a highly productive habitat that supports many commercially important organisms.

⁴ <https://lankamangrovemuseum.lk/mangroves-distribution-map-of-sri-lanka/>

Salt marshes consist of herbaceous, salt resistant plants growing in sandy or muddy tidal flats in arid areas which are predominantly inundated by sea water. They occur mainly in areas where the dry season is prolonged, as in the north, northwest, northeast and southeast. The major function performed by them are the provision of nutrients to near-shore waters, provision of bird habitats, supply of fish seed for coastal aquaculture, and absorption of storm water runoff. They are not heavily utilized at present.

Barrier beaches are accumulations of unconsolidated sediment transported ashore by waves and molded into a form that lies across a body of water and isolates it from the sea.

Fish Production

Reliable statistics with respect to fish production in Sri Lanka in the pre-World War II period are not available. Available information reveals that the production of marine fish in 1950 was 25,000 MT. The period from 1958 -1965 is characterised by efforts to mechanise the indigenous craft and to introduce mechanized motorized boats; FRP boats (Fibre Reinforced Plastic Boats) and 3.5 ton crafts with inboard engines (offshore craft) etc. Within this 7-year period, production more than doubled reaching 95,300 MT in 1965 (Amarasinghe, 2005). With the introduction of new techniques of fishing (the nylon gill net), along with the continued process of motorization of the fishing fleet, fish production increased steadily, reaching 188,000 MT by 1980. The sudden fall in the production of marine fish in 1984 and after is a result of the communal disturbances in the northern and eastern provinces of the island. Due to communal violence caused by the demand for separate Tamil state by the revolutionary Tamil group - the Liberation Tigers of Tamil Eelam (LTTE), many fishermen belonging to all ethnic groups were compelled to refrain from fishing due to tight naval security in the waters of northern and eastern coastal areas. Notice should also be made of the growth of the inland fisheries and aquaculture in mid-1970', which is due to the growth of the aquaculture sector, especially shrimp culture in the North-Western province.

In the year 1989, the state withdrew its patronage and sponsorship extended to inland fisheries due to protests staged against the

Table. 1.1: Fish production in Sri Lanka by sector

Fish Production in Sri Lanka (MT)					
Year	Coastal	Off Shore /Deep Sea	Total Marine	Inland & Aquaculture	Total Fish Production
1950					25,000
1955	30,103	-	30,103	-	30,103
1960	48,768	2,235	51,003	1,524	52,527
1965	85,547	1,524	87,071	8,230	95,301
1970	86,563	3,258	89,821	8,331	98,152
1975	114,863	970	115,833	13,370	129,203
1980	165,264	2,148	167,412	20,266	187,678
1985	140,270	2,400	142,670	32,740	175,410
1990	134,120	11,670	145,790	38,190	183,980
1995	157,500	60,000	217,500	18,250	235,750
2000	175,280	88,400	263,680	36,700	300,380
2005	63,690	66,710	130,400	32,830	163,230
2010	202,420	129,840	332,260	52,410	384,670
2015	269,020	183,870	452,890	67,300	520,190
2017	259,720	189,720	449,440	81,870	531,310
2018	249,020	190,350	439,370	87,690	527,060
2019	242,580	172,910	415,490	90,340	505,830
2020	182,560	144,370	326,930	101,810	428,740
2021	178,260	153,415	331,675	104,235	435,910
2022	149,440	131,170	280,610	116,620	397,230
2023	164,995	128,950	293,945	113,125	407,070
2024	165,040	143,390	308,430	102,330	410,760

Source: Amarasinghe & Amarasinghe, 2005; MFAR, 2020, 2022, 2024

breeding, culture and killing of inland fish by the Buddhist clergy in the country. Inland fish production, which remained at 38,190 MT in 1990, dropped to 18,250 MT by 1995. Yet, no sizeable drop in total fish production took place due to the emergence of deep-sea fishing in 1990's by multiday crafts. Offshore/deep sea fish production recorded a 11-fold increase during the 1990-2000 period.

The fisheries sector was seriously affected by the Tsunami of December 2004, which led to a drop in fish production to very low levels in 2005 (45.5% reduction) (see figure 1.3). However, thanks to the inflow of foreign assistance to reconstruct the fisheries sector, the production reached pre-tsunami levels (135% increase) at a fast space, reaching 531,310 MT in 2017; 449,440 MT of marine landings and 81,870 MT from inland fishing and aquaculture (MFAR 2018). The sharp rise in production (more than 200 percent) following the process of post-Tsunami rebuilding of the fisheries sector (2005-2010) (see *Figures 1.2 and 1.3*) could be attributed to a number of reasons. Fishing remained poor during the immediate post-tsunami period (2005) both due to factors related to supply and demand. On the supply side, fishing could not be carried out due to colossal damage to craft, gear and lives, while the demand dropped to low levels as many consumers refrained from eating fish because of the large number of dead bodies washed into the sea. This has probably provided space for stock recovery to a certain extent. This process was also facilitated by low fishing pressure during the period of civil war, where fishing restrictions were imposed in the Eastern and the Northern coastal areas of the country.

It is worthy of note that during the process of post-tsunami rebuilding, an excessive number of crafts and gear were provided to fishers, with little monitoring of the rebuilding process by the authorities (see Amarasinghe, 2005). It is probably the excessive fishing pressure on

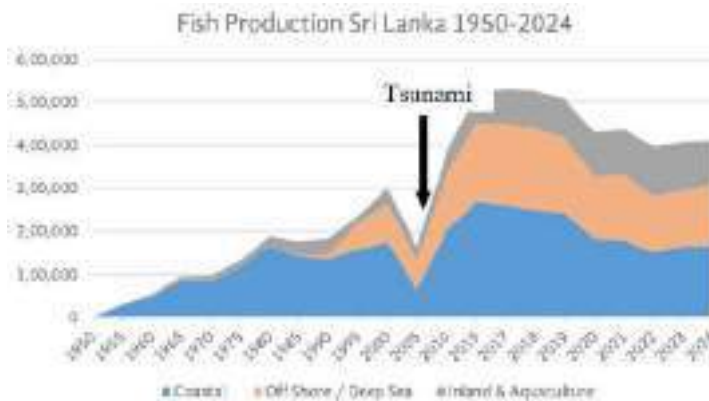


Figure 1.2: Fish production (MT) of Sri Lanka 1955 - 2024

Source: Amarasinge & Amarasinghe, 2005; MFAR, 2006, 2008, 2020, 2022, 2024

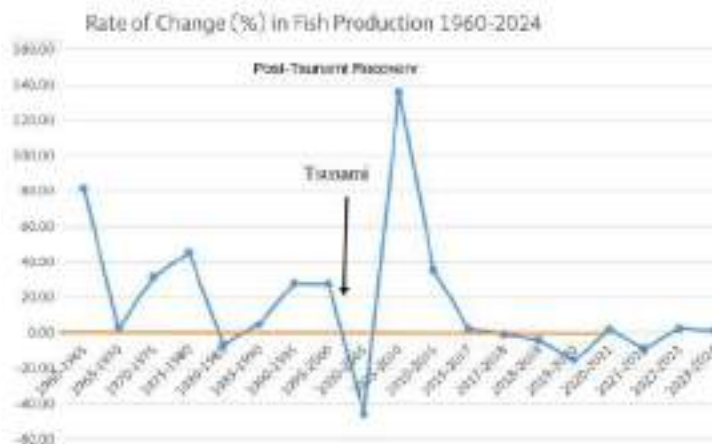


Figure 1.3: Rate of Change in Fish Production (percentage change)

Source: Amarasinge & Amarasinghe, 2005; MFAR, 2006, 2008, 2020, 2024

stocks that had caused a sharp increase (45.6%) in post-tsunami fish catches (from 2005-2015). However, this high rate of increase dropped after 2017 and a negative rate of -15.24% was recorded during 2019-2020.

Apart from the impact by the Tsunami of 2004, negative growth rates in production have only been reported during the period of the civil war 1980 – 2008. It is quite evident that the rate of growth of the almost all fisheries subsectors are on the decline, and might even move towards the negative growth region, as shown in *Figure 1.4*.

The growth in the offshore fisheries sector and inland fisheries and aquaculture sector is to be noted in maintaining fish production at high levels (*Table 1.1*). Inland fisheries and aquaculture subsector has shown an appreciable increase during the past years (From 36,700 MT in 2000 to 81,830 MT in 2017) mainly due to the introduction of culture-based fisheries into irrigation reservoirs, stock enhancements through enhanced stocking and better management of the inland fisheries. The entry of multiday fishing into Sri Lanka fisheries took place in late 1980's, as shown by the sharp rise in offshore fisheries production since 1990's. The Tsunami of 2004 and also the civil war led to a drop in offshore fishing activities 2000-2009.

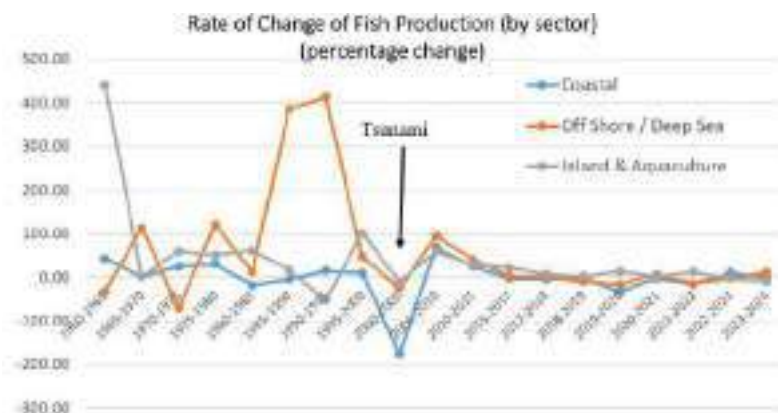


Figure 1.4: Rate of change in fish production, by subsector

Source: Amarasinge & Amarasinghe, 2005; MFAR, 2006, 2008, 2019, 2024

By 2022-2024, all sectors had recorded almost zero growth rates, giving a warning signal to all parties working towards fisheries development of this country.

Fish consumption

Demand for Fish

Demand for fish was continuously increasing due to increasing population, increasing incomes, and growing demand for tropical fish species by consumers in western countries. Fish is the most preferred animal protein source of Sri Lankans, compared to many other animal protein sources such as beef, poultry, pork and mutton etc. Therefore, demand for fish is high. It is important to note the impact of Buddhism on the food habits of the people, As aptly described by Fernando *et al*, 1985 "non-violence to living beings is a cornerstone of Buddhism". It is a vital component of the state of spiritual attainment toward which all Buddhists are expected to strive. However, in Sri Lankan society, as in all Buddhist societies, the slaughter of animals for food is a part of empirical reality". But what is important to note is that fishing is the only widespread activity of animal slaughter that is adopted by the Buddhists in the country, while other slaughter trades are less acceptable to them. This fact is also reflected in their food habits. In

the Sri Lankan diet, fish forms the most important source of animal proteins.

A demand function estimated for fish, taking, price of fish, price of beef, price of chicken, price of mutton, and per capita income as independent variables, found that prices of substitutes such as beef, mutton and chicken had no strong relation to fish consumption (Amarasinghe, 2005). The demand function estimated in this study was the following.

$$q_f = 11.7897 - 0.0313 p_f + 0.0005 y \quad (R^2 = 60.1)$$

q_f = quantity of fish demanded (consumed)

p_f = price of fish

y = per capita income

In this exercise only the coefficient of income was found to be significant. The above results indicate that fish consumption in Sri Lanka is mostly influenced by consumer's income. This is not surprising in a country like Sri Lanka where the predominantly Buddhist population prefer fish to meat. We must also note that fish is not a homogenous product. The poorer groups usually consume small shore-seine species of fish, which are cheap, while the high-income groups consume large fish species, which are relatively expensive. Moreover, in the absence of any close substitutes for fish, it is not surprising that consumers are not very responsive to price changes (low price elasticity). There is also the possibility of moving from expensive species of fish to less expensive ones, when the prices rise.

Per capita consumption of fish

Statistical data indicate that per capita fish consumption in 1958 remained at a level of 15.56 kg per year (Amarasinghe & Amarasinghe, 2005) What is surprising is that, even with tremendous production increases facilitated by the modernisation and motorization drive, the annual per-capita consumption was only 16.8 kg/year in 2016. (see table 1.2). This is still below the global per capita fish consumption of above 20 kg / year⁵. Pushpalatha (2025) reported a per capita fish consumption of 15.1– 17.3 kg/year during the recent past, but official statistics on fish consumption are not quite clear after 2016.

⁵ <https://www.un.org/sustainabledevelopment/blog/2016/07/as-global-per-capita-fish-consumption-hits-all-time-high-un-warns-on-overharvesting/> [accessed on 2 May 2020]

Table 1.2: Per capita fish consumption in Sri Lanka: 1995/1996 to 2016

Type	Item	Per Capita Consumption of Fish (Kg/yr)					
		1995/ 1997	2002/ 2003	2006/ 2007	2009/ 2010	2012/ 2013	2016
Fresh Fish	Marine large	2.6	3.7	3.9	4.3	4.4	4.5
	Marine small	3.5	3.3	3.4	4.4	4.3	4.5
	freshwater	0.6	1.3	1.6	1.7	1.8	2.3
	Other	0.1	0.2	0.2	0.4	0.4	0.5
	Total	6.8	8.5	9.1	10.8	10.9	11.8
Dried Fish	Marine	3.3	3.9	3.8	3.7	3.5	3.5
	Freshwater	0.1	0.04	0.1	0.1	0.1	0.1
	Total	3.4	3.9	3.9	3.8	3.6	3.6
Canned	Canned	0.26	0.75	0.7	0.7	0.6	1.4
	Grand Total	10.46	13.15	13.7	15.3	15.1	16.8

Source: Amarasinge & Amarasinghe, 2005; MFAR, 2006, 2008, 2020

Trends in fish consumption

As noted above, detailed information on fish consumption are available only up to year 2016 (MFAR, 2020). Consumption of fresh fish account for 70 percent of the total fish consumption. During the 20 year period from 1995/1996 to 2016, fish consumption has increased by 60 percent, with an annual average increase of 3 percent (*Table 1.2*). Freshwater fish consumption has recorded the highest increase; 283 percent, followed by large fish (77 percent) and small fish (29 percent) (*see Figure 1.5 and Table 1.2*). However, in absolute terms, freshwater fish represent only 14 percent of the total fish consumption. Consumption of dried fish does not show any sizeable increase during the 20 year reference period, which could probably be due to lack of preference for dried fish by the present young generation. Dried fish represents 21 percent of the total fish consumption, while canned fish represents only 8 percent. Yet, the latter has shown more than 400 percent increase in consumption during the reference period, showing the growth in demand for this fish product. It is thus evident that freshwater fish, marine fresh fish and canned fish have recorded the

highest growth rates in the realm of consumption of fish and fish products (see Figure 1.5).

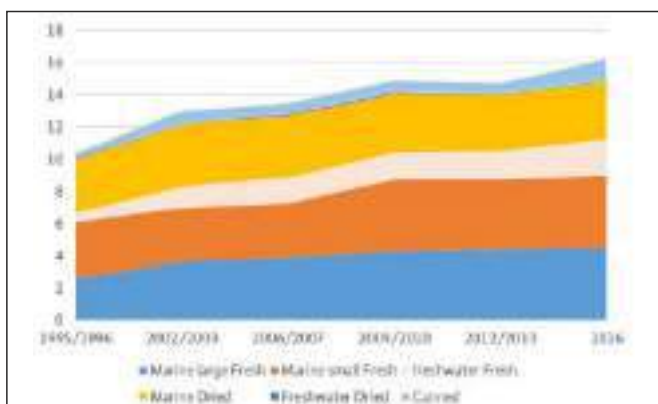


Figure 1.5: Per capita fish consumption of Sri Lanka (Kg/yr) from 1995/1996 to 2016

Source: Amarasinge & Amarasinghe, 2005; MFAR, 2006, 2008, 2020

Per capita availability of fish and fish products

Per capita availability of fish and fish products, based on Food Balance Sheets is a measure globally used to compare food supply situation of a country. The food balance sheet shows for each food item the sources of supply and its utilization. On the *utilization* side a distinction is made between the quantities exported, fed to livestock, used for seed, processed for food use and non-food uses, lost during storage and transportation, and food supplies available for human consumption at the retail level, i.e. as the food leaves the retail shop or otherwise enters the household. Annual food balance sheets tabulated regularly over a period of years will show the trends in the overall national food supply in respect of all food items. *Table 1.3* shows information on available fish and fish products supply situation of selected south Asian countries⁶.

Among the South Asian nations, Sri Lankans enjoy a per capita availability of 31.4 kg/yr (FAO, 2019), which remains only below Maldives which reveals a very high per capita availability of fish and fish products (142.3 kg/yr), the highest in the world.

⁶ <http://www.fao.org/3/X9892E/X9892e01.html> (accessed on 2nd May 2020)

Table 1.3: Available supply of fish and fish products in selected Asian countries

Country	Available per capita supply of fish and fish products during 2016 (Kg/Yr)
Afghanistan	0.2
Bangladesh	23.8
India	6.6
Nepal	2.7
Pakistan	1.8
Sri Lanka	31.4
Maldives	142.3

Source: Department of Census & Statistics, Food Balance Sheet 2018

Nutritional adequacy

In respect of daily consumption of fish, more than 60 grams of fish is consumed by an average Sri Lankan, meeting the nutritional recommendations of the Medical Research Institute of Sri Lanka (Amarasinghe & Amarasinghe, op.cit.).

The daily intake of proteins recommended by Harvard Health Blog is 0.8 g / kg of body weight⁷. It could safely be assumed that the average body weight of an adult in Sri Lanka falls in the range of 50–70 kg (given the small body size of Asians). In this respect, the daily recommended intake of proteins per capita would be 40–56 g for an average Sri Lankan (average of 48 g). Given that the average annual per capita consumption of fish is 16.8 kg per year (in 2016), it is evident that the average per capita daily intake of fish proteins is 46 grams per day. Assuming that fish contains 20–23 g (21.5 on an average) of proteins per 100 g (British Nutrition Foundation⁸), the daily per capita consumption of fish proteins would be 9.89 g of proteins, supplying roughly about 21 percent of the required protein supply.

International Trade in Fish and Fish Products

Trade in fish started long ago. Fishing was always associated with trade because fishers could not live on fish alone and, therefore, fish had to be traded to meet other subsistence requirements. Granted that trade is

⁷ <https://www.health.harvard.edu/blog/how-much-protein-do-you-need-every-day-201506188096> (accessed on 28 July 2023)

⁸ <https://www.nutrition.org.uk/> (accessed on 3 May 2020)

innate to fisheries, even those who are trade-averse, cannot write off trade from the fisheries development agenda. What needs to be done is to design and direct trade to achieve the goals of development and human welfare.

Fish exports

Major exports of fish and fish products in Sri Lanka include, prawns (shrimp), lobsters, crabs, *beche de mer*, ornamental fish, chank & shells, shark fins, molluscs, fish maws and fish. Table 1.4 gives exports of fish and fish products from 1990 to date by type of fish exported.

Sri Lanka's prawns, lobster and crab had a good international demand, but a slowing down of the quantity exported of the first two types is evident. Meanwhile crab exports have been increasing steadily. Exports of Bech de Mer and molluscs have been increasing at a fast pace until

Table. 1.4: Fish Exports of Sri Lanka, by type of fish, 1990-2024

Exported Item	1990	1995	2000	2005	2010	2015	2019	2021	2024
Prawns	1,855	2,781	4,855	1800	1,262	1,341	2,115	4,747	3,432
Lobsters	165	283	164	183	166	204	229	196	82
Crabs	na	898	555	1012	1848	1,710	1,818	1,662	2,187
Beche de Mer	36	248	87	258	178	169	503	336	252
Ornamental Fish	na	na	na	na	na	na	n	na	Na
Chank & Shells	na	746	698	546	617	289	275	306	465
Shark Fins	na	127	119	74	69	39	91	95	100
Molluscs	1	51	15	300	496	1,371	2,590	2,168	2,211
Fish Maws	na	1	1	1	1	2	4	4	10
Fish	821	1,978	11,873	10,960	13,372	11,807	19,885	16,130	13,451
Others	-	12	188	851	316	529	1,261	1,105	367
Export Quantity	2,879	7,126	18,554	15,985	18,325	17,461	28,771	26,749	22,556

Source: MFAR, 2006, 2008, 2020, 2022, 2024

2019, and then show a decline during the Covid 19 pandemic (2020-2022) . The other important export item during recent times has been food fish exports. From 821 MT exported in 1990, fish exports have reached a record 19,885 MT in 2019, a 10-fold increase, as it is evident from *Figure 1.6*. However, this too shows a decline during 2020-2022. Of the total quantity of fish exported in 2024 (22,556), 13,451 (59.6%) has been tuna (fresh fish) exports.,

Fish exports have grown at a steady pace, recording a five-fold increase from its 2000 level, but the contribution of fisheries to total exports has remained around 2.08% during this period (2000-2024) because the total exports too have grown. Value of exports and the contribution of fish to total export value are given in *Table 1.5*. Taking into consideration the potential Sri Lanka has with its huge endowment of natural capital, the contribution of fish exports appears to be too small.

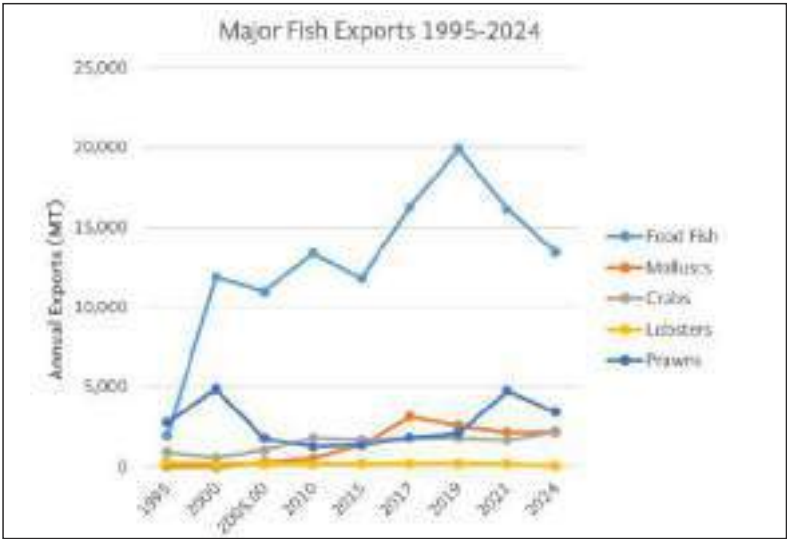


Figure 1.6: Major fish exports (MT) of Sri Lanka (1983 to 2019)

Source: Amarasinghe & Amarasinghe, 2005; MFAR, 2006, 2008, 2020, 2022

Table 1.5: Contribution of Fish to Total Export value- Sri Lanka

Year	Export Value of fish (Rs.m)	Total Exports (Rs.m)	Value of fish exports as a % of total exports
1972	11	2,009	0.55
1973	22	2,617	0.84
1974	27	3,472	0.78
1975	22	3,933	0.56
1980	173	17,595	0.98
1985	453	36,207	1.25
1990	848	79,481	1.07
1995	3,656	195,092	1.87
2000	10,328	420,114	2.46
2005	10,696	619,497	1.73
2010	19,834	974,387	2.04
2015	24,716	1,431,431	1.73
2017	39,230	1,933,533	1.45
2019	53,483	2,133,081	2.51
2021	63,222	2,486,943	2.54
2024	86,241	3,894,850	2.21

Source: Amarasinge & Amarasinghe, 2005; MFAR, 2006, 2008, 2020, 2022/ Central Bank of Sri Lanka 2000, 2010, 2022, 2024)

Fish Imports

Sri Lanka's major imports have always been dried fish and canned fish accounting for 68 percent of the total quantity of fish and fish products imported (in 2024). The total quantity of imported fish and fish products has grown 6 fold, from 16,778 MT in 1983 to 106,020 MT 2017. The decline in dried fish imports (see *Table 1.6 and Figure 1.7*) from 2000 onwards could be attributed to the increase in canned fish and dry fish production in the country, as it will be explained under a separate section on fish processing.

What is noteworthy is the significant rise in food fish and canned fish imports until the year 2015. The rise in canned fish imports in 2015 is due to the government decision to bring down the levy charged on canned fish imports by half (from Rs. 102 to Rs. 50 / kg), which led to a sharp increase in canned fish imports. Most of the food fish imported go to high-class restaurants, mainly to cater to the needs of the tourism sector

Table 1.6: Imports of fish and fish products (Quantity in MT)

Item	1983	1990	1995	2000	2005	2010	2015	2017	2019	2021	2024
Maldivian Fish	840	1615	3371	4317	5,542	2,871	2,216	2,674	2,521	2,188	1,943
Dried Fish	10345	24115	44799	50550	44,608	45,781	33,053	33,012	35,059	32,585	35,192
Canned Fish	5594	3684	20169	21894	20,229	16,705	49,016	40,614	36,806	8,758	4,476
Food Fish	-	26	4	468	4,912	13,635	33,867	27,782	18,536	10,166	11,697
Others	-	4	4	112	1,293	1,022	1,894	1,938	2,803	2,480	4,827
Import Quantity	16,778	29,444	68,348	77,340	76,584	80,013	120,046	106,020	95,637	56,177	58,135

Source: MFAR, 2006, 2008, 2020, 2024

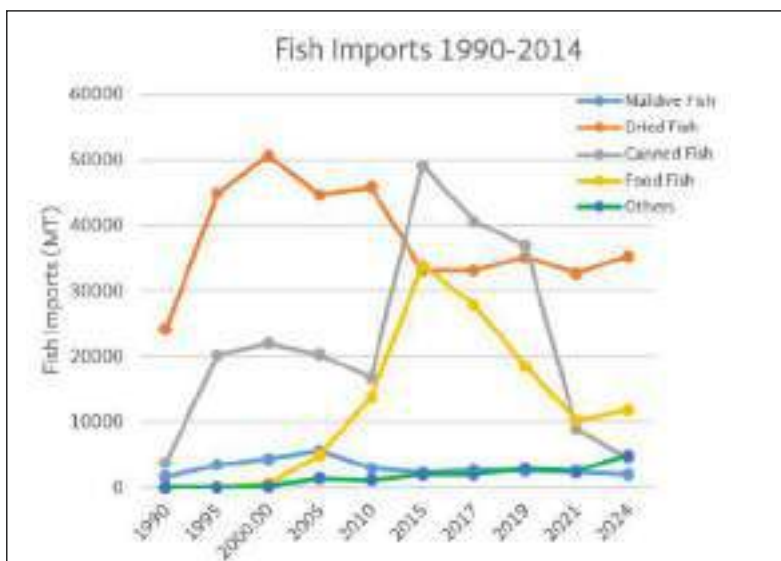


Figure 1.7: Changes in fish imports, 1990 to 2024

Source: Amarasinge 2006; MFAR, 2006, 2008, 2020, 2024

Value of fish imports to total fish imports in the year 2024 was quite small in percentage terms, but it is quite big in absolute terms (36,673 m). This is a seven-fold increase from its 2000 level. Fish imports increased significantly in 2015, when canned fish was imported in large quantities, after the import levy on this item was reduced, leading to a rise in the ratio fish imports to total imports (*Table 1.7*). A drop in the ratio of fish imports to total imports was noticed during 2015-2024, which could be ascribed to the adverse impacts of Covid 19 pandemic (2020-2022) on the fisheries sector and a steady increase in Sri Lanka's import bill.

Balance of fish trade

In general, Sri Lanka has been a net exporter of fish. But it became a net importer in 2015, when the trade balance reached Rs. -6,013 m. However, Sri Lanka regained its position as a net exporter of fish and reached a trade balance of Rs. 49,568 m in 2024 (*Table 1.8*).

Table 1.7: Value of Fish imports as a percentage of total imports

Year	Value of Total imports (Rs.m) (1)	Value of Fish imports (Rs.m) (2)	Value of Fish imports as a percentage of total imports [(2)/(1)]*100
1985	54,049	754	1.4
1990	107,729	1,739	1.61
1995	244,323	3,369	1.38
2000	554,290	5,132	0.93
2005	891,359	7,099	0.80
2010	1,519,737	14,162	0.93
2015	2,572,467	30,729	1.19
2019	3,564,355	38,952	1.09
2021	4,104,218	25,080	0.61
2024	5,608,950	36,673	0.65

Source: Amarasinge 2006; MFAR, 2006, 2008, 2020, 2024

Quantity of fish imports have been growing at a very fast pace since 2005 (post Tsunami recovery period) than fish exports although the trade balance does not display any significant decrease as a result of this situation, except for 2015 (see Table 1.8 and Figure 1.8). This could

Table 1.8: Balance of trade in fish and fish product in Sri Lanka: 1990 – 2024

Year	Export Value (Rs. M)	Import Value (Rs. M)	Export Value- Import Value (Rs. M)
1990	819	945	-126
1995	3,655	3,395	260
2000	10,328	5,158	5170
2005	10,696	7,099	3597
2010	19,834	14,162	5672
2015	24,716	30,729	-6013
2017	39,230	33,969	5261
2019	53,483	38,952	14,531
2021	63,222	25,080	38,142
2024	86,241	36,673	49,568

Source: MFAR, 2006, 2008, 2020, 2022, 2024; Central Bank 2024

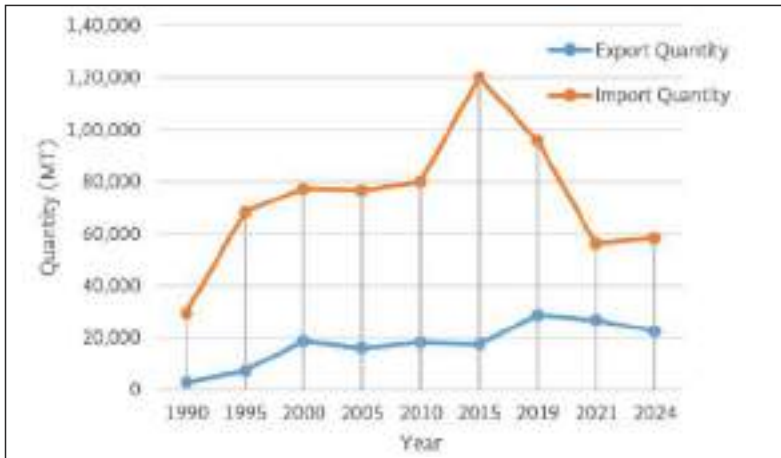


Figure 1.8: Changes in exports and imports of fish and fish products (MT): 1990 - 2024

Source: Amarasinge 2006; MFAR, 2006, 2008, 2019, 2024

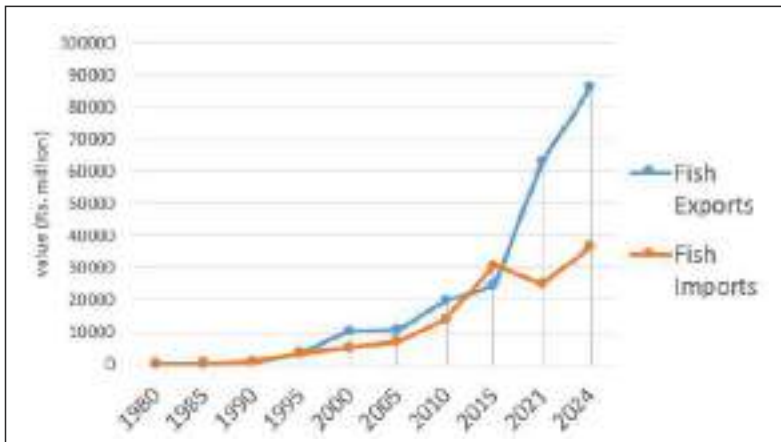


Figure 1.9: Changes in value of fish exports and imports (Rs. Mn)

Source: Amarasinge 2006; MFAR, 2006, 2008, 2020

probably be due to the recent increases in export of high-valued fish species such as tuna, which fetched very high prices in the export market, while the imports consisted of low-valued canned fish (figure 1.9).

International trade in fish and fish products in Sri Lanka is part of the process of Sri Lanka's integration into the global economy. Like many other developing nations, Sri Lanka made tremendous efforts at achieving high rates of growth of GNP by adopting open-economic policies and fully integrating into the world economy - a process popularly known as globalisation, which placed high reliance on the role of market forces in achieving the desired economic goals. In the realm of fisheries, all barriers to trade were removed by the year 1977, and significant changes in the exports and imports, in terms of types of products, volumes and values added, product mix, numbers and types of importers and exporters, etc. took place from 1977 to date (Amrasinghe & Amarasinghe, 2005). Trade was considered to be the "engine of growth" and several institutions were established to provide assistance to exporters. This expansionist process attracted many local and foreign investors into fisheries, which became a lucrative avenue of investment. The gains from trade were easy to understand. As it was evident above, high-valued fish were exported and the low-valued fish were imported. John Kurien calls this "trading luxury consumption for nutritional consumption". Evidently, there were ample dynamic gains to be enjoyed from trade than losses. This happy state of affairs did not last long, because the process of globalisation or "internationalisation" failed to pay the dividends expected of it as we shall see in the next chapters to follow.

Contribution of the Fisheries Sector to the Gross National Product:

The contribution of a particular sector or sub-sector to the Gross Domestic Product of a country gives an indication of that sector's economic importance in a particular country. *Table 1.9* shows the contribution of the fisheries sector to the Gross Domestic Product of the country. Value added by the fisheries sector in 1950 was Rs.5,859 million, which accounted for 1.8 percent of the Gross National Product of the country. Since then, the contribution of fisheries to GDP has fluctuated ,but remained between 2% (1995) and 0.95% (2024) (*Table 1.9*).

Table 1.9: Contribution of Fisheries to the Gross Domestic Product (GDP) of Sri Lanka

Year	GDP of Sri Lanka (Rs. M)	GDP of Fisheries (Rs. M)	Contribution of Fisheries to GDP
1990	317,904	5,859	1.8
1995	662,384	13,309	2
2000	1,253,622	25,749	2.1
2004	2,086,925	33,511	1.6
2010	6,413,668	87,316	1.36
2015	10,950,621	162,228	1.48
2019	15,016,142	196,989	1.31
2021	17,685,654	188,088	1.06
2024	29,898,564	284,072	0.95

Source: Central Bank of Sri Lanka (1991-2020), MFARD/MOF, 2006, 2008, 2020

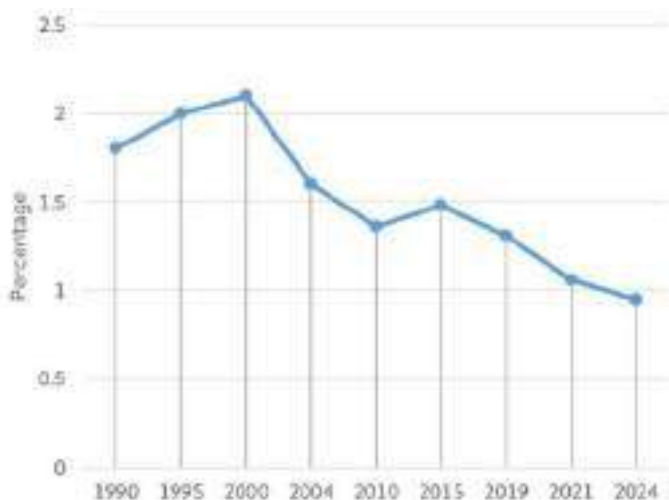


Figure 1.10: Contribution of Fisheries to Gross Domestic Product

Source: Central Bank of Sri Lanka (1991-2020), MFARD/MOF, 2006, 2008, 2020, 2022

For a country endowed with 517,000 km² of sea and rich inland water bodies; rivers, lakes, tanks, reservoirs, lagoons, etc. this contribution is quite small.

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Chapter 2

A group of people are on a sandy beach, pulling a large, colorful net (red, yellow, and blue) into the shallow water. The net is being held by several individuals, and the water is shallow and calm. The sky is overcast.







Preamble

Sri Lanka's marine fishing villages are ribbon like settlements along the coast of the country. In general, each village is separated from the other in respect of productive activities, but social relations could extend beyond village boundaries. However, their relations with interior villages are quite few. The distance maintained between villages in respect of productive activities served the very important function of controlling entry into open access marine fisheries. Craft anchorage site of a certain village is solely reserved to crafts of that village and outsiders

are not allowed to anchor their crafts in such a site, thus barring them the access to waters bordering that village. Social controls on entry would have probably emerged to prevent over-fishing that could arise in an unregulated (open-access) fishery. Information on the resource status, and



Figure 2.1: Artisanal fishers of the Rekawa coastal area in Sothern Sri Lanka

what is happening in economic and social domains within the village remain near perfect. Knowledge of one's neighbours is quite strong and personal anonymity within the community is almost zero. Social cohesion remains high, and it is common to see men gather in

boutiques, small tea/coffee shops to have a chat over a cup of tea/coffee. These are arenas of interaction for people in the village where common issues are discussed. The unity among people remains very strong, which could, among other things, serve as a risk insurance mechanism for people engaged in a very hazardous occupation that is fought with diverse risks and uncertainties.

Fishing community

About 1,269 fishing villages are found in the marine sector and 1,289 villages in the inland sector (Amarasinghe & Amarasinghe, 2005), which add up to a total of about 2,558 fishing villages. The number of households in the marine sector is estimated as 188,940, while the corresponding figure for the inland sector is 83,960 households, with a total of 272,600 fishing households in Sri Lanka (see *Table 2.1*). About 225,480 people are engaged actively in marine fishing (active fishers) and about 94,990 persons are actively engaged in fishing in the inland sector, which add up to a total of 320,470 persons actively engaged in fisheries in the country. Surprisingly there is no standard definition as to who a 'fisher' is, although numbers exist. The fisheries sector provides employment (direct and indirect) to about 586,000 (including all value chain actors). Studies have revealed that, nearly half of the fishers fall in the age group of 35-54 years, and about 40 percent of the fisher population have completed their primary school education, revealing that Sri Lanka's fishermen are fairly energetic and literate.

Table 2.1: Number of fishers, fishing households and fisheries dependent population

Description	Marine sector	Inland sector (including aquaculture)	Total
No. of fishing villages	1,269	1,289	2,558
No. of fishers (men and women)	225,480	94,990	320,470
No. of fishing households	188,940	83,960	272,600
Fishing household population	807,550	223,610	1,031,160
Direct and Indirect employment (marine and inland)		586,000	
Fisheries dependent livelihoods		2,700,000	

Source: Amarasinghe & Amarasinghe, 2005; MFAR 2018, 2022, 2024

Information furnished in *Tables 2.2 and 2.3* shows the distribution of active fisher population among the districts of the country. Evidently, half of the active fisher population in the marine sector is concentrated in the North and East of the country (Batticaloa, Trincomallee, Jaffna and Mannar). The Batticaloa district possesses the highest active marine fisher population in the country, equal to the active fishing population of whole of the southern province (Galle, Matara and Tangalle districts). Moreover, more than one fisher lives in a fishing household (1.4) in Batticaloa showing that the livelihoods of many in the households are dependent on fisheries, in comparison to fishing households in other districts, which appear to possess around one active fisher per household. Other fisheries districts of importance are

Table 2.2: Number of marine fishers and fishing households by district (2024)

	Coastal District	Fishing Households (no.)	Active fishers (men & women) (no.)	Fishing household population (no.)
1	Negombo	9,450	10,730	42,270
2	Colombo	2,010	2,150	8,850
3	Kalutara	3,960	4,020	15,530
4	Galle	7,730	9,350	35,700
5	Matara	12,630	15,760	53,300
6	Tangalle	10,040	14,510	40,050
7	Kalmunai	14,920	16,460	77,190
8	Batticaloa	29,120	42,050	125,190
9	Trincomalee	27,950	28,070	100,430
10	Mullativu	6,330	8,780	27,510
11	Kilinochchi	4,640	4,800	16,110
12	Jaffna	23,940	26,150	107,260
13	Mannar	17,590	18,350	74,390
14	Puttalam	9,360	13,130	42,500
15	Chilaw	9,270	11,170	41,270
	TOTAL	188,940	225,480	807,550

Source: MFAR, 2024.

Kalmunai, Tangalle, Matara, Galle, Negombo, Puttalam and Chilaw. In respect of inland fisheries, fishing population is concentrated in the districts of Hambantota, Batticaloa, Ampara, Kurunegala, Puttalam, Anuradhapura, and Polonnaruwa. Fishing populations engaged in aquaculture are highest in Hambantota and Puttalam districts

Table 2.3: Number of fishers in Inland Fisheries and Aquaculture, by district (2024)

District	No. of active fishers		
	Inland Fisheries	Aquaculture	Total
1 Colombo	251	793	1,044
2 Gampaha	457	2,002	2,459
3 Kalutara	966	992	1,958
4 Kandy	638	297	935
5 Matale	2,355	448	2,803
6 Nuwara Eliya	2,585	365	2,950
7 Galle	764	882	1,646
8 Matara	392	576	968
9 Hambantota	5,166	5,592	10,758
10 Jaffna	187	2,105	2,292
11 Mannar	539	1,120	1,659
12 Vavuniya	1,410	465	1,875
13 Mulativu	778	795	1,573
14 Kilinochchi	660	1,833	2,493
15 Batticaloa	2,646	671	3,317
16 Ampara	8,600	3,443	12,043
17 Trincomalee	2,063	822	2,885
18 Kurunegala	4,188	2,760	6,948
19 Puttalam	3,028	4840	7,868
20 Anuradhapura	7,999	2,625	10,624
21 Polonnaruwa	5,176	1,036	6,212
22 Badulla	1,851	605	2,456
23 Moneragala	2,495	2,274	4,769
24 Ratnapura	820	1,099	1,919
25 Kegalla	139	401	540
TOTAL	56,153	38,841	94,994

Source: MFAR, 2024.

Women and Children

The role of women in fisheries varies with ethnicity and religion. In the catholic communities along the western coast, women play an active role in fish handling and marketing on the beach. Participation of women in active fishing and net mending activities is also noted in these communities. The same is true with women in the northern and eastern provinces. In the predominantly Buddhist southern coastal fishing communities, the presence of women on the beach is not socially accepted and they hardly get involved directly in fisheries activities. Women claim that they play an increasingly important role along with the pace of development of the fisheries sector, which is especially true in the ultra-modern deep sea fisheries sub-sector (*see chapter 7 on Fish Processing and Gender*).

Children of fishers are also involved in the provision of various supporting services to fisheries activities in the mechanised sector. Although many fishers do not encourage their children to take up employment in fisheries, some children, especially school-dropouts, are involved in fish marketing on a smaller-scale, removal of fish from nets, providing fuel, drinking water and other goods to multi-day crafts, functioning as caretakers of such crafts when in anchorage, etc. Ornamental fisheries, is another activity mainly carried out by the young in fishing communities. The more educated fishing families always prefer their children to take up non-fishery employment due to the comparatively low social status accorded to those involved in fisheries.

Social Relationships

Fishing communities are closely knit communities where the social relations among fellow community members remain quite strong, unlike in the modern self-centered societies, where even the community feeling does not exist (Amarasinghe, 2015). Figure 2.2 provides information furnished by members of a fishing community in the Gandara fishing village of Southern Sri Lanka, about the strength of their relationship with various persons and institutions in their area of operation. Here the term relationship should be described as the extent of interaction. For example, weak relationships mean little interaction. Relationship with kin, friends and neighbors are quite strong because, they form a source of help at distress, assistance in fishing operations (beach seining, towing crafts), cash and labour in kind when hit by

storms, moral support, source of credit and insurance, etc. Moreover, they closely interact with their kin (many of whom are also fishers) on the beach. Strong relations exist with fish merchants not only because they market the catches, but because they perform the functions of patrons, providing diverse livelihood assistance. Relationships with village money lenders are also quite strong because, in the absence of collateral acceptable to formal lenders in the credit market, personal trust among agents performs a collateral function. Fishers' relationship with the Department of Fisheries is a strong one, due to their close interaction with the Department in registering their crafts, obtaining operational licenses, and accessing help extended to fishers by the government, etc. In small scale fishing societies, the role played by the shop keepers is enormous and very important, positively affecting the lives of fishers. Generally, shopkeepers provide food and oil (fuel) on credit, which help fishers and their families to cope with the problem of uncertain catches and income. A fisher putting his craft to sea does not know whether there will be fish to catch. This gives rise to the risk of zero catches (and thus, zero incomes). Yet, family consumption needs remain stable and borrowing from village boutique is quite common in fishing societies. The loans are paid back when fishing is good. The same is true with shops that sell fuel.

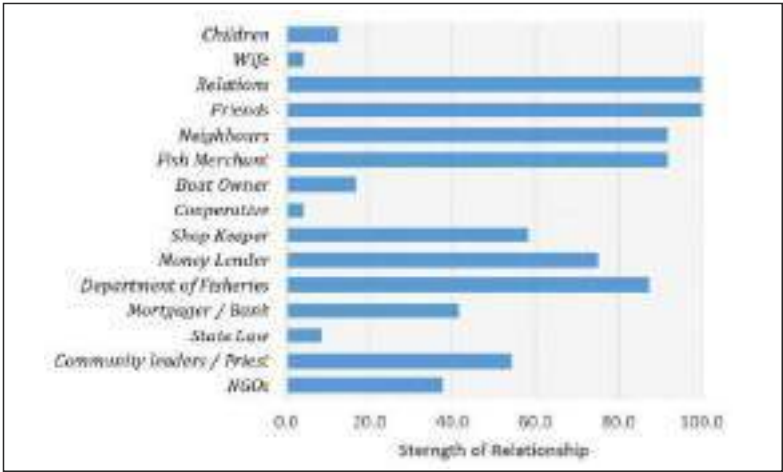


Figure 2.2: Strength of Social Relationships in a fishing community, Gandara in the south of Sri Lanka
 (n=60; only craft owners were interviewed)
 Source: Amarasinghe, 2015

Some of the relationships could be strong but negative. In this study, some fishers have expressed strong negative relationships with fish merchants.

Surprisingly, a fisher's relation with his own family is very weak. In fishing communities, the major arena of interaction is the beach, where fishers spend their social life. They go home to sleep and after a good rest, they return to the beach. Although a fisherman's physical contact with family members could be weak, his responsibilities in respect of food, education for children, meeting social obligations, etc. could be quite strong. Besides, the women are responsible for taking care of children and other household chores. However, a sizeable change in the role of women has been observed recently, where they have assumed functions such as financial management, taking part in social activities and even going for work outside the sector. Relationship with the cooperative is also weak, because fishers expect their wives to participate in cooperative activities while they concentrate on fishing. Their participation at monthly meetings of the cooperative was found to be quite low (which was dominated by the presence of women fisher folk), which was particularly true with southern fishing communities.

Techniques of fishing in Coastal Sri Lanka

A technique consists of a craft-gear combination which is largely a function of the target species caught. Techniques also differ according to whether one is targeting pelagic or demersal species of fish, and also on certain socio-cultural-religious differences of the fishers who exploit these resources; people belonging to different ethnic groups, religion and location. One could also observe differences in type of techniques having a historical dimension: i. Traditional craft-gear combinations and ii. Modern craft-gear combinations. *Figures 2.3 to 2.7* give the diverse crafts used by Sri Lankan fishers.

Crafts used by Sri Lankan fishers

The common indigenous crafts of Sri Lanka are, Planked Beach Seine Craft or *paru*; the Outrigger Canoe or *oruwa*; the Log Raft or *teppam* / *kattamaran* and the *vallam*.

A. The Outrigger Canoe (oruwa) (NTRB)

Oruwa or the outrigger canoe is a dugout, which is quite narrow. The hull of the craft is raised with side stakes, which are sharply raised at both ends, giving it a spear-shaped look. A porous float tied to the hull



Figure 2.3: Out rigger Canoe (oruwa)



Figure 2.4: Beach seine craft

by two curved beams help to balance the craft. The length of the craft vary from 3-10 m. The smaller ones are used for nearshore fishing and in lagoons, The craft is propelled by oars and some by sail (in the western province of Sri Lanka) and used for prawn fishing with trammel net, trolling, hand-lining, and drift net fishing from 3 to 5 miles off the coast (see Figure2.3). *Oruwa* is the most popular crafts among Sinhalese fishermen in the southern province, although it is generally found in all parts of Sri Lanka. The craft carries 1- 2 member crew.

B. The beach seine craft

These are large outrigger canoes (or vallam, see below), which carry beach seine nets to the sea, (also called *paru*) (figure 2.4). They are not engaged in fishing.

C. Log Raft (teppam and kattamaran) (NTRB)

The log raft is made of pieces of wood tied together to form a platform. It has two variants; Teppam and kattamaran, which are powered by oars or sail. Teppam is a smaller craft of 4-5 meters and has become quite popular among the catholic fishermen of the western and north-western coasts (see figure 2.6). A larger log raft called *kattamaran* (lengths reaching up to 7 meters), is popular among Tamil fishermen in the north and Muslim fishermen in the eastern part of the country. One of the differences between the two



Figure 2.6: Teppam

is that the middle log of the *kattamaran* juts out at both ends. The most

common fishing technique practiced by fishers using these crafts is Small-meshed gill netting. These crafts usually carry a 2 member crew and operates 3-5 miles off the coast (non-motorised). Today many are being made of Fibre Reinforced Plastic and are fitted with outboard motor. They are capable of fishing beyond 5 km from the shore.

D. Vallam (NTRB)

Vallam is a craft devoid of an outrigger. It is wider than the *oruwa* with length varying from 3 to 6m. This was also a dugout earlier, but they are made today of either planks or fibre glass. They are also propelled either by oar or sail, and are generally used in shallow waters. *Vallam* is popular among Tamil and Muslim fishermen in the North and the East, who use them for small-meshed gill netting and cast netting in lagoons. For beach seine operations in these coastal areas, fishers use a larger *vallam* called *paru*. Even in the southern areas, a large fibre glass *vallam* is now being used for ring-net operations (an encircling net used to catch small tuna varieties of fish). With the introduction of the outboard motor, some *vallams* are now fitted with outboard motors, which operate up to 15 km from the shore. In general, *vallams* carry a crew of 2 members (Figure 2.7).



Figure 2.7: Vallam



Figure 2.8: FRP Boat with Outboard Motor

All above crafts are designated as NTRB (Non-Mechanised Traditional Boat).

E. The Mechanised Traditional Craft (MTRB)

Any type of traditional craft fitted with an outboard motor is called a 'Mechanised Traditional Boat', known as MTRB. In these crafts, the outboard motor is fixed either to the aft of the craft or to one side of it. Under the craft mechanisation programme of the 1960's and early 1970's, the MTRB was widely adopted by many fishermen in the

country. As in the case of NTRB, these crafts are commonly engaged in small-meshed gill netting technique. Today fishers are using a larger version of this craft (>34 ft) for ring netting. With the popularization of the outboard motor, these crafts are now being replaced by fibre glass boats with outboard motor (Figure 2.8).

F. The 17-23 Feet FRP Boats (OFRP)

These boats are made of Fibre Reinforced Plastic (FRP), powered by 15 – 40 hp engines using either diesel or kerosene as fuel (Figure 2.8). They have been adopted from a speed boat design which popularly have planing hulls. They have larger storage capacities in their decks than traditional crafts and are capable of taking a large portfolio of gear types to the sea (hooked lines, nets of different sizes, etc.). The most common techniques practiced by fishers using such crafts are small-meshed gill netting and long-lining. This is the most popular coastal craft today, comprising half of the total marine fishing fleet. The craft is known as the OFRP (FRP boat with outboard motor), which carries a 2-3 member crew.

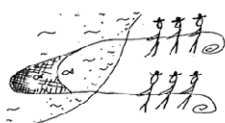
Techniques of fishing

Fishermen in Sri Lanka use two basic types of fishing gear: lines and nets. Lines can be single hooked lines, generally used by those fishing with non-motorised crafts, while mechanized crafts use both single hooked lines and multi hooked lines (for trolling - running with the hooked lines). One of the popular fishing technique with nets is beach seining, a techniques that accounted for nearly 90 percent of the fish landings in the 1950's (see figure 2.8), in which a large beach seine net is laid in smooth bottomed near-shore waters and hauled by groups of fishers who pulls the net to the shore by two hauling ropes fitted to either side of the net.

In coastal fisheries the small-meshed gill netting is the most popular technique used by all types of coastal crafts. In general, net fishing is used during monsoonal times (when the sea is rough and the nets are less visible to fish), while fishing with hooked lines is practiced during the lean season when the sea is calm (*see Figure 2.8*).

Stationary gear (stake nets)

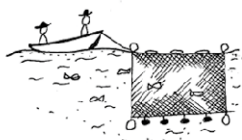
While a number of traps and stationary gear are being used in coastal waters, the most popular is the stake net (*Kattu del*). These nets are particular type of traps which are commonly used in lagoons, to catch shrimp. They are generally managed by families who possess traditional



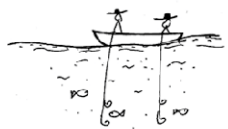
Type of technique: **BEACHSEINING**
 Type of craft: *beachseine craft (paru)*
 Type of resource: *coastal*
 Type of fish: *shore seine varieties*



Type of Technique: **ROD AND LINE**
 Type of craft: *small outrigger canoe*
 Type of resource: *coastal*
 Type of fish: *groper (parawa), sear (thora), rock fish, etc*
 Type of bait: *live bait (squid)*



Type of technique: **SMALL-MESHED GILL NETTING (bible net)**
 Type of craft: *both mechanised (small) and Non-mechanised crafts*
 Type of resource: *coastal*
 Type of fish: *herring, Bolla, anchovies, karaila*
 Type of bait: *nil*



Type of technique: **HAND LINING**
 Type of craft: *both small-mechanised traditional crafts*
 Type of resource: *coastal & offshore*
 Type of fish: *parawa, rockfish, mullet, sear, etc.*
 Type of bait: *herring, bolla, lagga, imbura, etc.*



Type of Technique: **LARGE-MESHED GILL NETTING**
 Type of craft: *large and small mechanised crafts*
 Type of resource: *coastal, off-shore and deep sea*
 Type of fish: *skipjack (balaya), Yellow fin tuna (kelawalla), shark, marlene (kappara), etc.*



Type of technique: **BOTTOM SET NETS**
 Type of craft: *mechanised crafts*
 Type of resource: *coastal and off-shore*
 Type of fish: *parawa, mullet, rock fish, etc.*
 Type of bait: *nil*



Type of Technique: **LONG LINING FOR YELLOW FIN (MARUWEL PANNAYA)**
 Type of craft: *mechanised crafts*
 Type of resource: *off-shore & deep sea*
 Type of fish: *yellow fin tuna, shark, marlene, spear fish, sail fish*
 Type of bait: *herring, bolla, etc.*



Type of technique: **PURSE SEINE**
 Type of craft: *mechanised crafts*
 Type of resource: *coastal & offshore*
 Type of fish: *frigate mackerel, bolla, karaila, anguluwa, etc. herring, etc.*
 Type of bait: *nil*



Type of technique: **CAST NET**
 Type of craft: *traditional craft & from shore*
 Type of resource: *coastal, lagoon and inland*
 Type of fish: *herring, lagga, udassa, parati, godaya,*
 Type of bait: *nil*

Figure 2.8: Fishing techniques in coastal fisheries

Sketches: Amarasinghe & Amarasinghe, 2005

user rights to the net laying areas. As mentioned, the stake net is a passive gear. It has two wings attached to a cod end fixed in narrow channels close to the lagoon mouth. The net is fixed to the bottom using sticks and against the direction of the water current. Along with the current all varieties of prawn, crab and fish get trapped in the net (figure 2.9).

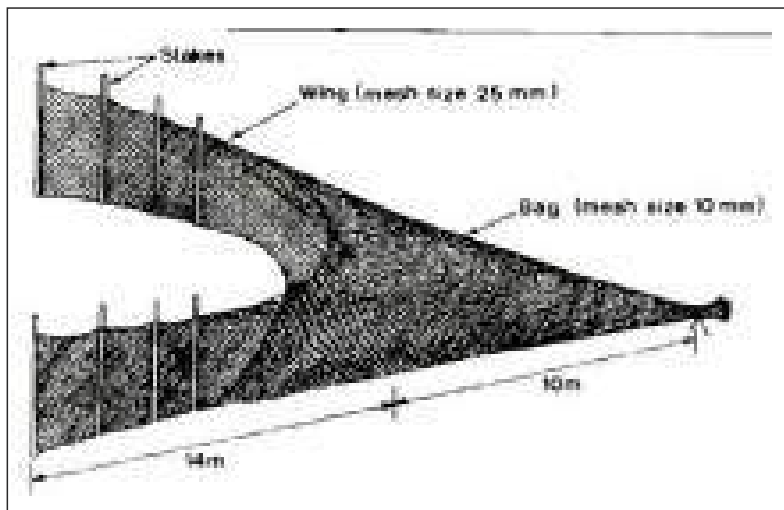


Figure 2.9: Skate net: (Kattu del)

The Coastal Fishing Fleet

As shown earlier, the coastal fishing fleet consists of non-motorised traditional crafts, motorized traditional crafts, mechanised (motorized) crafts with outboard motor and beach seine boats. The following codes are used by the Ministry of Fisheries, to indicate the different craft categories.

Non-Mechanised Traditional Boat	= NTRB
Mechanised Traditional Boat	= MTRB
Non-motorised Beach Seine Boat	= NBSB
Fibre Reinforced plastic boat with Outboard motor	= OFRP

The two offshore crafts are the following.

Day Boat with Inboard Engine	= IDAY
Multiday Bot with Inboard Engine	= IMUL

All crafts used by the small scale fishers, number 53,169, accounting for 90 percent of the total fleet of 58,918 crafts. The small mechanized boat with outboard motor (OFRP) is the most popular and abundant craft in coastal fisheries (24,389 crafts). The degree of mechanization remains at 56 percent (all mechanized crafts accounting for 56 percent of the total fleet (See Table 2.4).

The Blue Revolution (The Long 1950's)

(the following section is based on work done earlier by the principal author; Amarasinghe O. (2005), Technological Change in Sri Lanka's Fisheries, in Amarasinghe O. (ed.), *Modernization and Change in marine small-scale fisheries of Southern Sri Lanka*, Navamaga Printers, Colombo, P 52-102).

Table 2.4: Fishing crafts in Sri Lanka by type and number (2024)

Area	Type of Craft	Code	Number	Percentage	Degree of Mechanisation
OFF-SHORE	Multi-Day Boats (High Seas)	IMUL	1,803	10%	Mechanised Sector (56%)
	Multiday Boats	IMUL	3,066		
	Day Boats with Inboard Engine	IDAY	880		
COASTAL	Fibre Glass Boats with OBM	OFRP	24,823	90% Small Scale (coastal +inland crafts)	Non-Mechanised Sector (44%)
	Mechanised	MTRB	2,709		
	Traditional Boats	NTRB	15,037		
	Beach Seines	NBSB	953		
TOTAL MARINE			49,271		
INLAND	Inland Crafts		9,647		
GRAND TOTAL			58,918		

Source: based on MFAR, 2024

The drive towards mechanisation

During the immediate post-war period, the government took the initiative to improve the traditional fishing crafts of Sri Lanka; *oruwa* (outrigger canoe), *vallam*, *cattumaran*, etc. by motorizing them. Due to the high dependency of traditional crafts on human energy, these crafts could not be taken to the sea unless the sea was calm; fishing operations had to coincide with changes in wind movements. As a consequence, traditional fishing operations were confined to periods between monsoons. The bimodal pattern of rainfall in Sri Lanka has given rise to two periods of stormy and rainy weather which in turn influence traditional fishing operations, confining them to the non-monsoonal periods.; September to April for the southern and western coasts, and March to October for the northern and Eastern coasts. The monsoon period is popularly called the *warakana* (in the jargon of fishermen) and the non-monsoon period is called the *haraya*. One of the major aims of the state-led motorisation programme was to minimize the impact of seasonality and to pave way for year-round fishing. Since many of the smaller traditional crafts confined their fishing operations within 3 km from the coast, the motorization or mechanization efforts of these crafts gave them access to larger and richer fish resources beyond their traditional area of operation.

The drive towards mechanization (motorization) comprised of 4 processes.

1. Mechanisation of traditional crafts (which was done simply by fixing an outboard motor (8 - 15 HP) to the craft (MTRB).
2. Introduction of mechanised crafts with outboard engines (OFRP).
3. Introduction of a day boat with inboard engine (popularly known as the 3.5 ton craft) (IDAY)
4. Introduction of Multi-Day Craft with inboard engine, cabin, built in fuel and ice compartment (fish hold) (IMUL).

Of the crafts mentioned above, the OFRP boat which was introduced in early 1970's, operates in coastal waters but beyond the area of operation of traditional crafts and beach seines. The 3.5 ton one-day operating craft (IDAY) is meant to fish in off-shore waters, beyond 40 km from the coastline. This craft was introduced in late 1950's and soon became popular due to its ability to exploit fish resources that remained under-utilised until then. However, it was not equipped with facilities to

ice the fish catch and, therefore, the fishermen had to confine their fishing activities to one-day fishing trips (day boat). By late 1980's, fishermen started introducing an ice compartment (inserting a plastic tank by making a hole in the deck) to the existing fleet of day-boats and subsequently, this modified boat (which was referred to as 'tank boat'; *tanki bottuwa*) was replaced by the multi-day boat (by 1989), which was slightly larger in length (32 – 40 ft. and beyond) and equipped with built in ice compartment (fish hold), cabin for the crew, fuel tank and water tank. Today, the day boat is losing its popularity (only 880 crafts in operation), while the multiday crafts fish up to the EEZ and beyond in high seas.

Introduction of Improved Gear and New Fishing Techniques

Along with the mechanised craft, the nylon gill net was introduced into Sri Lankan fisheries that replaced all traditional hemp and cotton nets. The nylon gill net has many advantages over the cotton and hemp nets in that, it is more durable (lower rate of depreciation than cotton and hemp nets) and lighter in weight. With the introduction of the nylon net, gill netting became a popular technique of fishing, which led to a considerable increase in catches. The sharp increase in fish production from the 1950's was the combined result of both the introduction of the nylon net and mechanised crafts. Today, the nylon net is used by all types of crafts, the mechanised and traditional alike.

The Characteristics of the New Technology : fishing with mechanised crafts:

The new fish-catching technology introduced to Sri Lankan fisheries was essentially an 'output-enhancing' technology. The average catches obtainable from the new technology far exceeded that obtained from traditional craft-gear combinations. However, their adoption and use required a high degree of capital commitment and demanded an array of inshore and offshore facilities. Some studies reveal that, the new technology has resulted in the concentration of fishery capital in the hands of more wealthy individuals in fishing communities (see for example, Amarasinghe, 1988). The major features of the modern technology included the following.

a). Year-round Fishing: The greatest advantage of the mechanised craft is its ability to sail under rough weather conditions and its independence of changes in wind directions. These crafts can be operated during any time of the year.;

b). Increased number of trips to the sea: Due to the ease of operations and its faster trips to the sea, the mechanised craft can make several trips during a given time, depending on fish abundance and the distance to the resource. Such possibilities are widely open to the small mechanised crafts (MTRB & FRP) which operate in more shallow waters where a trip to the resources sometimes takes less than two hours;

c. Increased catch per trip: Fishing techniques such as gill-netting, trolling, purse-seining etc., which were introduced along with the mechanised crafts are more superior to traditional techniques in harvesting pelagic varieties of fish. In contrast to traditional crafts (which consist of spear like narrow hulls with limited storage capacity), the modern crafts consist of wider hulls having larger storage capacities. Therefore, mechanised crafts having high storage capacity and equipped with efficient fishing gear, could bring in large quantities of fish than traditional crafts;

d). Ease of operation: Traditional crafts were powered by sail and rowing required a high degree of skill on the part of the fishermen. They had to be physically fit to row the boats over long distances and, when the sail was used, some fishermen had to climb on to the outrigger (the balancing log) to balance the craft in rough windy weather. Traditional fish-harvesting techniques such as the use of pole and line for skip jack also required a high degree of skill to be successfully operated - hence the emergence of a category of skilled fishermen known as *marakkalahe* (skippers) in traditional fishing communities, who enjoyed a high social status. As the new mechanised crafts are powered by inboard and outboard engines, fishing operations do not demand such high expenditure of human energy. Even manoeuvring of crafts require only a basic knowledge of 'fishing routes' and expenditure of human energy is moderate to low.

e). Capital Intensity: One of the major features of the new fish catching technology is its high capital intensity. The adoption of mechanised fishing technology (mechanised crafts and accompanying gear) requires a large capital outlay unlike in the case of traditional craft-gear combinations. Not only the modern technology is capital intensive, but

it is also 'import dependent'. Amarasinghe, 2005 estimated that the external cost of mechanised crafts vary from 80-90 percent of the total cost. Moreover, the engines were imported from Japan or United Kingdom. The major disadvantage of highly import-dependent and foreign-exchange intensive technology is that Sri Lanka has no control over the input prices, which have been escalating at a rapid pace during the last three decades.

Over 50 percent of the fishing fleet of the country consists of mechanised crafts, and the high rate of adoption of mechanized fishing could probably be attributed to various incentive schemes provided to popularise the new technology, and the high financial returns from mechanised fishing which would have outweighed the costs by a significant margin. Operation of mechanized crafts is not permitted in inland waters. *Figure 2.10* shows the degree of mechanisation of fishing crafts in marine fisheries, which is given as the number of mechanised crafts in operation as a percentage of the total number of fishing crafts in the marine sector. The 1960's and 1970's mark the era of 'blue revolution' (the technological revolution in marine fisheries), where the rate of adoption of mechanised fishing took place at a rapid pace. This period also coincides with rapid increases in fish production as well: from 52,527 MT of fish in 1960 to 187,678 tons in 1980. The degree of mechanisation of marine fishing crafts reached the 50 percent mark by mid-1980's. The sharp rise in the degree of mechanization after 2005 was due to the over-supply of fishing crafts (especially OFRP) during the process of post-tsunami rebuilding of the fisheries sector, following the weak regulatory process that did not provide right guidelines to donors. Degree of mechanisation of marine fishing crafts is around 67 percent today (2024).

The widespread use of traditional technology (47%) may also be attributed to technological factors. With the development of purse-seining, dual fishing units: a fishing unit consisting of a mechanised and a traditional craft, commenced operations as one unit, to catch migratory fish using bag-like purse seines. The mechanised craft usually tows the traditional craft to the fishing grounds and the crew in the traditional craft is expected to lay the net encircling shoals of fish, while the crew of the mechanised craft is expected to participate in hauling operations. This is a technological complementarity between modern and traditional crafts, which can also emerge from physical factors. When physical barriers make access to the sea difficult,

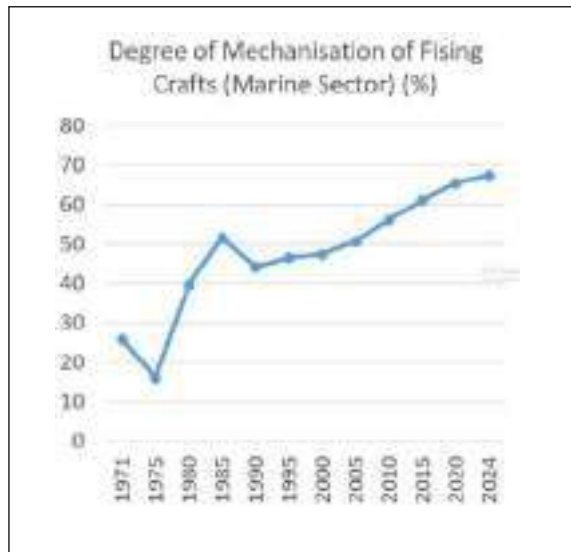


Figure 2.10: Degree of mechanization of fishing crafts in the marine sector

Source: Amarasinghe 2005, MFAR 1999, 2006, 2008, 2022, 2024

mechanised crafts are usually anchored beyond the barriers and the crew, gear and fish are carried back and forth by traditional crafts (the Weligama and Gandara landing centers of the Matara district are good examples). Moreover, in the presence of physical barriers (such as reefs), exploitation of coastal resources using traditional crafts may be the only feasible course of action. Needless to say that the presence of physical barriers, such as rocky sea bottoms, may prevent fishermen from adopting mechanised fishing, because of possible risk of damage to engine propellers, such as the stretch of coastline from Unawatuna to Weligama in the Galle district of Sri Lanka. Moreover, in the exploitation of fish resources in lagoons and estuaries, the traditional craft has a relative advantage over the mechanised crafts because of the shorter fishing trips, calm sea conditions, and possible presence of rocky bottoms (which is usually the case with fishing grounds rich in crayfish).

The State as an agent of change

State Assistance; subsidies

The new fishing crafts introduced under the mechanisation drive in the late 1950's and early 1960's were too expensive for the fishermen to purchase outright, and the state designed a highly subsidised loan scheme. Funds were channeled through the fisheries co-operatives, to provide the fishers with access to the new technology under a hire-purchase scheme. The boats were to be operated collectively by the co-operative or the latter could nominate a caretaker-skipper who would be the ultimate owner. Credit facilities and subsidies up to 50% of the cost of the boats were granted to fishermen as incentives.

In the drive towards mechanisation of fishing crafts, the state has played a commendable role, as an 'agent of change' or a 'catalyst'. A large amount of subsidies have gone into fisheries since early 1960's to enable fishermen to acquire mechanised crafts and engines. *Table 2.4* gives the issue of crafts and engines under the subsidy schemes since 1960. Subsidies in 1960's were directed at helping people to adopt off-shore fishing by acquiring 3.5 ton crafts with inboard engines (IDAY). 1970's saw the introduction of the outboard engine which led to the emergence of the MTRB. Greater emphasis on coastal fisheries development was placed during the early 1980's and issues of small mechanised crafts (OFRP) and outboard engines received priority over other subsidy schemes. However, the extent of government support to fisheries declined during the latter part of 1980's (see table 2.5), which can be attributed to one or several of the following reasons. First, structural adjustment policies that accompanied liberalisation of trade in 1977-1978 have led to a gradual decline in capital expenditure by the state. Most of the borrowing countries were required by the I.M.F. to resort to devaluation of currency, reduction of government spending, curtailment of welfare expenditure, encouragement of foreign private investment by providing incentives, removal of exchange controls, etc under 'stabilisation programmes' (see *Ponnambalam, 1982*). Such reductions in capital expenditure, which was a major feature of the stabilisation programme, would have reduced the volume of state support to fisheries. Second, budget allocations going to the fisheries sector (as well to other productive sectors) would have diminished, following increased expenditure on defense purposes to cope with the communal riots that commenced in 1983 (civil war in the North and the

Table 2.5: Number of crafts and engines issued under subsidy schemes

Year	Crafts with inboard engines (IDAY)	Inboard engines	Small mechanized crafts (OFRP)	Outboard motors
1961	362	56	-	-
1962	154	59	-	-
1963	213	37	-	-
1964	92	73	-	-
1965	85	24	-	-
1971	219	68	-	902
1972	-	-	-	-
1973	104	22	-	310
1974	37	-	-	538
1975	117	58	-	768
1981	374	12	676	850
1982	76	2	658	1343
1983	8	4	226	651
1984	11	8	308	684
1985	27	4	155	340

Source: MFAR, 1999

East). However, assistance to fisheries continued at a smaller scale, which was channeled through fisheries cooperatives. One of the serious issues was the distribution of non-motorised traditional crafts at 90 percent subsidy, which generally took place just before an election, when those in power used public funds to help their political clientele. This would definitely have increased fishing pressure in coastal fisheries.

Due probably to increased defense expenditure, government assistance to fisheries was terminated by 1994.

Institutional development in fisheries

Although fishing has been in practice for centuries, the development of fisheries in the country has been a slow and gradual process, with little state assistance going to fisheries during the pre-blue revolution period. In the early part of the 20th century, state assistance was directed mainly towards revenue generating fisheries such as pearl, chank and window pane oyster fisheries. The major impetus to fisheries development emerged with the establishment of the

Department of Fisheries in 1941, whose role became significant only in mid 1950's. During this time the Sri Lankan government felt the need to uplift the fisheries sector, which appeared as an important sector in providing the required proteins to the population while having the potential to offer employment opportunities to rural youth. As mentioned earlier, the state intervened in the development of fisheries by introducing new fishing crafts and gear, and loans and subsidies to those who were willing to adopt the new technology. An extension division was added to the Department of Fisheries in 1957 and, in 1958, crafts with inboard engines (28 ft crafts powered by 30 hp diesel inboard engines) were introduced. The first loan scheme to fisheries was also launched in 1959. In order to improve the sea-going power of the traditional crafts, outboard engines (8-15 hp) were introduced to traditional fishing villages in 1962. A program of fisheries subsidies came into operation and crafts and engines were issued to fishermen with subsidies up to 50% of the cost. Fisheries co-operative movement (which too started around 1941) was also promoted and crafts, loans and other assistance was channelled to fishermen through the village level cooperatives.

A separate Ministry of Fisheries was established in 1970, which became the major fishery policy making body. In general, promotion, development and management of fisheries in Sri Lanka is the responsibility of the Ministry and it carries out the regulatory, extension, research, training and welfare functions supporting the fishing industry. The Ministry of Fisheries was restructured in 1977, and today, it is organised into 6 divisions; Planning and Monitoring, Export Development, Social Development, Monitoring, Control and Surveillance, Finance and Administration. Re-named several times, the ministry is called the 'Ministry of Fisheries and Aquatic Resources' today, which has under its purview several institutions; Department of Fisheries (DOF), Ceylon Fisheries Corporation (CFC), Ceylon Fisheries Harbour Corporation (CFHC), National Aquatic Resources Research and Development Agency (NARA), National Aquaculture Development Authority (NAQDA) of Sri Lanka, and Cey-Nor Foundation Limited. Two entities, namely, National Fisheries Federation (consisting of fisher community organisations called Rural Fisheries Organisations) and the Wholesale Fish Market Complex at Peliyagoda too come under the purview of the Ministry.

Management, Regulation, Conservation and Development of fisheries and aquatic resources are the functions of the Department of Fisheries (DOF). Today, the responsibilities of the Department are confined to marine and brackish-water capture fisheries (including lagoons). The necessary legal provisions for the functioning of the DOF have been provided by the Fisheries and Aquatic Resources Act of No. 2 of 1996. It was observed that, lagoons were neglected when an active fishery was not found in them, although lagoons generated a number of non-fishery values which are not adequately captured.

The Ceylon Fisheries Corporation (CFC) was established in 1964, vested with responsibilities in fish marketing but, even by the year 1998, the CFC handled only 1.47% of the total quantity of fish produced in the country. Today, the CFC is expected to carry out a number of functions; i. Purchase and sale of fish; ii. Production and sale of ice; iii. Provision and maintenance of cold storage facilities; and iv. Production and sale of fishery by-products. Even after undertaking these functions, the CFC handles less than 3 percent of the country's fish (*see Chapter 3 under Marketing of fish*).

The need for proper landing facilities for newly introduced mechanised crafts was greatly felt and, vested with the responsibilities of construction, maintenance, operation and management of harbours and anchorages, the Ceylon Fishery Harbours Corporation (CFHC) was established in 1972. Subsequently, the mandate of the CFHC was extended to include the collection of user charges to cover part of its operational expenditure. Apart from managing a number of harbours, the CFHC is also responsible for carrying out regular dredging activities.

The fisheries research arm of the Ministry; the National Aquatic Resources Research and Development Agency (NARA), was established in the year 1981, which conducts research on all living and non-living aquatic resources in Sri Lanka. Apart from being engaged in research, it is also responsible for development, management and conservation of aquatic resources, and knowledge dissemination activities and provision of advisory services. NARA is organised into eleven research divisions; Environmental Studies Division, Fishing Technology Division, Inland Aquatic Resources and Aquaculture Division, Institute of Post Harvest Technology, Marine Biological Research Division, Monitoring and Evaluation Division, National Hydrographic Office, National Institute of Oceanography and Marine Sciences, and Socio-economic and Marketing Research Division. The research capacity of NARA is not fully utilized today and the

importance attached to research work on small scale fisheries seems to be quite low. The research-policy link is also weak and a precise research agenda is not prepared through an effective dialogue between decision makers at the Ministry level and the researchers at NARA.

For conservation of the coast and coastal resource management, a separate Department; the Coast Conservation Department (CCD), was established in 1984, with responsibilities to undertake surveys and research to describe the status of the coastal zone, prepare coastal zone management plans, regulate and control development activities in the coastal zone and to carry out work related to coastal protection and conservation. The CCD has already carried out an array of studies on important coastal environments and formulated conservation and resource management plans for more sensitive areas along with the legislature required for implementing these plans. Under the Coastal Resource Management Project (CRMP), funded by the Asian Development Bank, the CCD has undertaken work to stabilize a number of coastal reaches in the country. Under the concept of SAM (Special Area Management), several Integrated Coastal Management activities have also been undertaken by the CCD in a number of locations. Today, the Department of Coast Conservation comes under the Ministry of Mahaweli Development and Environment, and renamed as Department of Coast Conservation and Coastal Resources Management, and its link to the Ministry of Fisheries remains very weak.

Another important turning point in institutional development in fisheries was the establishment of National Aquaculture Development Authority (NAQDA) in February 1999, which was vested with the functions of development and management of all aquatic resources in the country. Apart from being responsible for conservation, management and development of the aquatic resources of the country, NAQDA is also responsible for the promotion and development of aquaculture.

The Cey-Nor Development Foundation established in 1967 with support from a Norwegian Non-Governmental Organisation, aiming at enhancing the education and welfare of fishing communities, and was incorporated as a public limited liability company in 1990. Today, its major responsibilities include manufacturing and selling of fishing crafts, engines and gear and, the operation of repair workshops for fishing crafts, motors and fishing equipment.

New knowledge had to be provided to fishermen who were willing to adopt new fishing crafts and techniques and, in order to cater to this need, the Sri Lanka Fisheries Training Institute was established in 1975. The training needs then became the responsibility of the National Institute of Fisheries and Nautical Engineering (NIFNE) established in 1999. NIFNE offers vocational training programs for those who are engaged in fisheries and for those who are willing to get engaged in the sector. It is also responsible for conducting seminars, symposia and to engage in research, surveys and investigations and also to develop and maintain links with other educational and training institutions in the field of nautical engineering. Today NIFNE is elevated to the status of a university (Ocean University), which offers a number of degree programs apart from providing vocational education. Although it was earlier believed that NIFNE would offer the youth from fishing communities different skill development courses and programs, whether this objective has been reached is questionable.

Infrastructure Development

Harbours

The state has invested heavily in infrastructure development in the fisheries sector. About 24 are in operation and many of them possess, facilities such as auction halls, net mending area, fuel store (diesel and kerosene) water storage, etc. In respect of berthing capacity (number of vessels), the largest is the Oluvil harbor in the Eastern Province (750), followed by Trincomalee (700), Beruwala (530), Dikowita (455), Kudawella (400), Valachchenai (400) and others. About 4 new harbours have been proposed; Balapitiya, Gurunagar, Point Peduru and Pesalai. Harbours come under the control of the Ceylon Fisheries Harbour Corporation (CHFC), and user charges are levied by the CHFC from boats in anchorage and those obtaining harbor services. The harbours generally provide anchorage to larger crafts with inboard engines, mostly the multiday boats. Most of the High Seas vessels (more than 23 meter) are anchored at the Dikowita harbor (MFAR, 2019).

Anchorage

Anchorage provide a safe area for landing of crafts. There are about 19 anchorage points scattered all around the country. Apart from this, there are about 1,083 minor landing centres (*thotupola*), providing landing facilities to traditional crafts, motorised traditional crafts and small mechanised crafts with Out Board Motor (MFAR, 2024). Some of

these landing centres have been provided with auction sheds, net mending facilities and amenities such as water and electricity. However, many remain in a poor state in terms of fish marketing facilities, sanitation and amenities.

Ice plants

There are 109 active ice plants in the country, and except for a handful of them, others are all private. The highest number of ice plants are found in Tangalle (18), Chilaw (12), Negombo (11) and Matara (10), which account for half of all ice plants in the country. The total capacity of all the ice plants today is 4,222.8 MT a day, which shows a 148% percent increase from its 2010 level (1,697 MT). The need to increase the capacity of the Ceylon Fisheries Corporation is strongly felt (see chapter on Fish Marketing). The need for ice is fairly low in small scale fisheries because the catch is not iced until it reaches ashore (short fishing trips). Even after landing, catches are sold without icing them, which is generally carried out by merchants depending on the distance to the market. However, when there are surpluses, fish is iced and stored until they are sold later or transported to distant urban centers.

Increasing Fishing Pressure and the need for resource management

As we have already noted, modernisation (motorization) of Sri Lankan fisheries stemming from both technical and institutional changes, has resulted in considerable increase in catches. More than half of the fishing fleet is mechanized at present. The sharp increase in the number of OFRP boats was the principal cause of the huge increase in the fleet (*Figure 2.11*).

The sizeable increase in fishing fleet would have led to the buildup of huge fishing pressure (pressure exerted by increasing numbers of crafts, fishers, gear, etc.). It was earlier noted that mechanization enabled fishers to carry out year-round fishing, and if weather and time permitted, to make even more than one trip to the sea on a particular day. Fishing pressure build up would naturally have serious implications for resource sustainability and it is thus important to see the impact of such increases fishing pressure on the resources, which will highlight the need for properly managing the sector.

Unfortunately, island-wide studies that have policy implications for management are scarce or absent. In such a context, even studies undertaken on a smaller scale could give a signal to management about the health of the ecosystem. In *Figure 2.12*, the results of a study carried

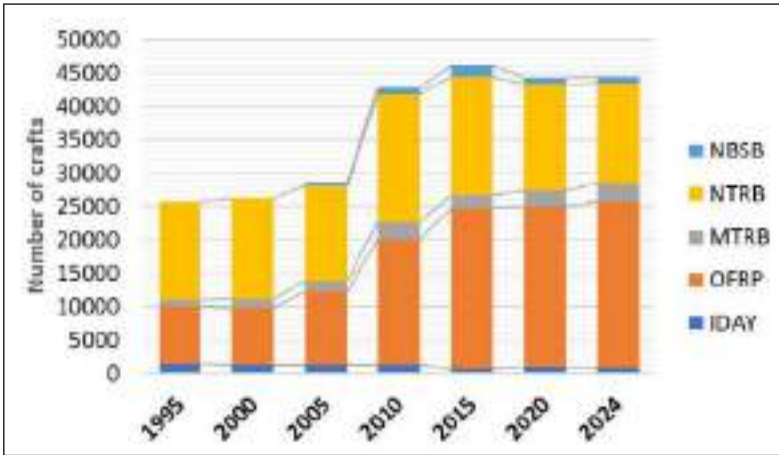


Figure 2.11: Growth of the Sri Lanka's coastal fishing fleet

Source: MFAR 2008, 2019

out in the Hambantota district of southern Sri Lanka, are presented. The study attempted at finding out the status of resources in coastal fisheries of the Hambantota District using bio-economic modelling. Catch Per Unit of Effort (CPUE) was worked out using standard effort units. What is interesting to note is the sharp decline in the catch per unit of effort. This is the reason for the usual complain of fishers that 'catch per boat', and thus income, are on the decline.

The CPUE in 2017 has been only $\frac{1}{4}$ of that in 1999. Such a significant decline in CPUE would have had serious impacts on fishers: falling catches, falling incomes and threatened livelihoods.

Fishing effort is a 'composite variable' which is made up of a number of individual variables such as the number of crafts, number of fishers (crew), the skill of the crew, catchability of the fishing unit, type and quantity of gear carried, time spent on fishing, etc. Since the number of fishers entering a fishery too is an important determinant of the number of boats put into the sea and the amount of labour that goes into catching fish, it will be of interest to study the growth of the number of fishers or the extent of 'entry into coastal fisheries'. Figure 2.13 reveals a four-fold increase in the number active fishers in the marine sector from 58,298 in 1972 to 225,480 in 2024. However, since 2010, new entrants to coastal fisheries have been marginal, which could be attributed to low returns from coastal fishing which has made coastal fishing unattractive.

Status of resource exploitation

The Fishery harvest function: a theoretical essay

The fishery harvest function (sustainable yield curve) shows the relationship between fishing effort (eg. number of boats, gear used, time spent on fishing, number and skill of the crew, etc.), which is a composite variable, and the catch that can be removed from the fishery on a sustainable basis. Harvest function helps to understand how much fish can be harvested from a fishery using different levels of effort, which will assist in sustainably managing fisheries resources.

In Figure 2.13, the curve in red (the parabola) is the sustainable yield curve; the relationship between sustainable yield and fishing effort which is drawn using the Gordon-Schefer (GS) model (Gordon, 1954). Sustainable catch (yield) is a catch that can be taken from a stock of fish without causing any depletion of it. In fact, what you are catching is the net growth (in biomass), where net growth is equal to, “individual growth + recruitment – mortality”. It is called sustainable because the catch will not decrease the stock size or fish population (in sustainable use of the fishery, catch=growth). The maximum harvest one can sustainably extract from a stock of fish is called the Maximum Sustainable Yield (MSY). In nutritional terms, this is the catch that will give you the highest amount of protein from the resource. Increasing fishing effort beyond this point (E_{MSY}), will lead to a decline in sustainable yield, which is termed “Biological Over-exploitation” (fishing beyond MSY). Multiplying the sustainable yield function by the

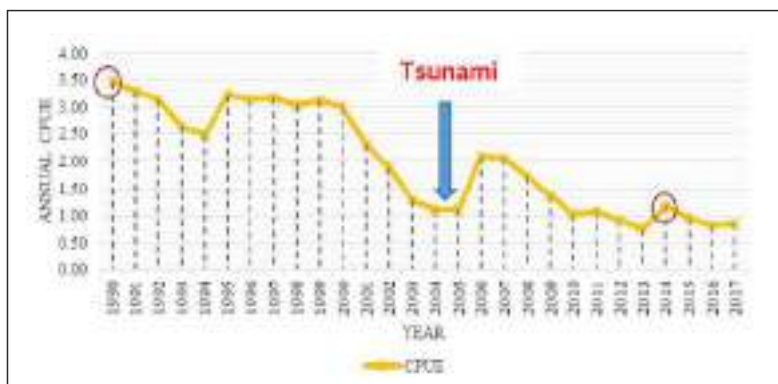


Figure 2.12: Changes in Catch per Unit of Effort - Coastal Fisheries, Hambantota

Source: Weralugolla et al, 2019

price of fish, gives the Sustainable Revenue (TR), depicted in figure 2.14 as TR (the Total Revenue function) (the revenue that can be obtained by selling the sustainable catch).

Under the assumption of fish price remaining constant, the TR curve will have the same shape like the sustainable yield curve. However, catching fish involves a cost, which is depicted in figure 2.13 as TC, the Cost of Effort (variable and fixed costs involved in catching fish). The difference between TR and TC gives profits. Now the benefits to the society from a fishery will be at a maximum when the difference between Total Revenue and Total Costs is at its maximum. This will take place at MEY; the Maximum Economic Yield. Fishing beyond this point will cause a decline in profits and a wastage of society's resources (capital, labour, etc.). Thus, fishing beyond MEY is called “Economic Over-exploitation”. In an open access fishery, no single fisher has exclusive control over resource use and thus cannot prevent entry of others into the fishery. Therefore, as long as profits exist, fishers will enter the fishery (black arrows in Figure 2.13). In an open access fishery, without any regulation, this will happen until all profits (rents) are dissipated. The point of zero profits (rents) is called the Open Access Equilibrium (OAE₁). It is believed that open access fisheries in many developing countries, with high degree of unemployment, are confronted with this situation: economically and/or biologically over exploited (too many fishers, too many crafts catching too few fish) (TC₁). When fishers complain of low incomes, the government is forced

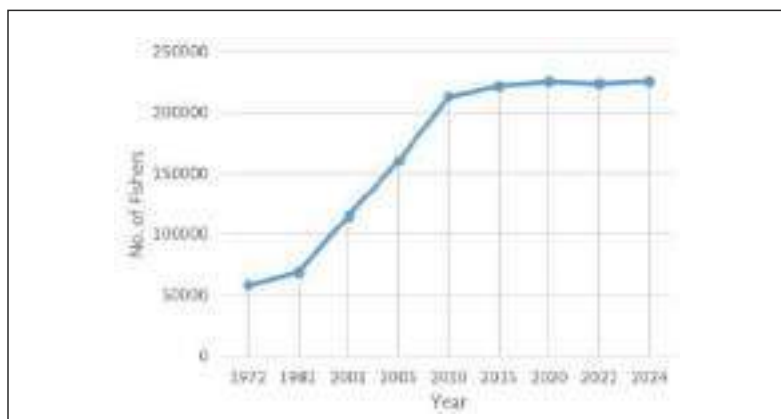


Figure 2.13: Growth in the number of active fishers in the marine coastal fisheries sector (1972-2024)

Source: MFAR, 2024

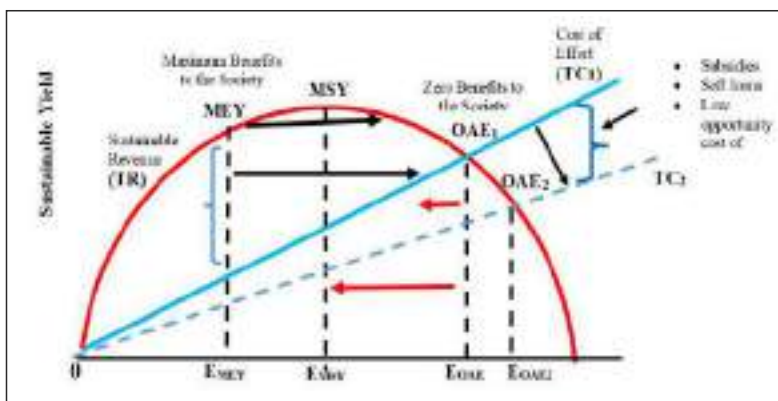


Figure 2.13: Sustainable harvest and sustainable resource exploitation criteria

$\text{Sustainable Revenue} = \text{Sustainable Yield} \times \text{Price of fish}$

$\text{MSY} = \text{Maximum Sustainable Yield (Revenue)}$

$\text{MEY} = \text{Maximum Economics Yield}$

$\text{OAE} = \text{Open access equilibrium}$

$\text{EMEY, EMSY \& EOE} = \text{Level of effort at MEY, MSY and OAE}$

to provide various kinds of assistance, such as subsidies, loans at low rates of interest, etc. which will reduce the cost of effort further, as depicted in Figure 2.13 as TC_2 . This allows more entry into the fishery causing further exploitation of resources, until a new equilibrium is reached; OAE_2 .

Sometimes governments (of developing countries) intentionally tend to perpetuate this situation (over-exploitation) because in a context of high degree of unemployment it would be politically wise to keep fishers there. By removing them from the fishery, a fishing proletariat would be created, who would cry for jobs, assistance and who will even revolutionize to topple governments.

Status of resource use in small scale fisheries

Studies on the status of resource exploitation in Sri Lanka are quite rare. An attempt was made in a previous study to estimate the resource status of small-scale fisheries (coastal fisheries) in the Hambanthota district using the Gordon-Schaefer (GS) bio-economic model applied to data obtained during pre and post tsunami periods (Weralugolla et al, 2019). A change in the resource status was clearly evident after the Tsunami.. The GS model estimated the pre-tsunami level of effort (E) at

MSY = 14,155 units, MEY = 11,841 units and OAE = 23,682 units. The actual level of effort in 2004 by the time tsunami hit the nation was 18,232 units, which stood between MSY and OAE. The fact that the actual level of resource exploitation was beyond MSY showed that the resources were biologically overexploited, leading to a decline in sustainable catches (table 2.6). Since the actual level of effort was below that at OAE, the results also revealed the possibility of further entry into fisheries, increasing the pressure on resources.

The GS model applied to the post tsunami situation (see also BOX 2.1), estimated the effort (E) at MEY = 37,305 units, MSY = 52,797 units and OAE = 74,609 units. The actual level of resource exploitation by the year 2017 was 58,825 effort units, which still stood between MSY and OAE. The post-Tsunami shift suggests not only a sharp increase in effort, but also a structural change in the fishery, likely reflecting expanded capacity and possible changes in catchability.

Results similar to the above were also obtained by Amarasinghe (2006b) from his studies of the resources of Welipatanwila of the Hambantota district. The estimated levels of effort at Welipatanwila were, MSY = 11,887 units, and MEY = 8,760 units, whereas the actual effort exceeded 15,000 units. Evidently, the fishery was operating close to the Open Access Equilibrium (OAE) (where benefits equal costs), revealing that the fishery was both economically and biologically overexploited and that rents that the fishery was capable of generating have been on the decline under the heavy fishing pressure even during mid-2000s.

Table 2.6: Level of fishing effort at MSY, MEY and OAE in the Hambantota small scale fisheries- for pre-tsunami and post-tsunami scenario

Context	Level of Effort at MSY	Level of effort at MEY	Level of Effort at OAE	Actual Effort
Pre-Tsunami	14,155	11,841	23,682	18,232
Post-Tsunami	52,797	37,305	74,609	58,825

Source: Weralugolla et al 2019 (op.cit)

MSY = Maximum Sustainable Yield (the maximum catch that can be harvested from a certain stock without leading to a decline in fish population

MEY = Maximum Economic Yield (the point at which the fishery generates maximum profits [rents])

OAE = Open access equilibrium (the point where returns from fishing equal costs [zero rents])

Effort is expressed in standard effort units

BOX 2.1

While the INGOs which offered assistance to rebuild the fisheries sector (following the Tsunami of December 2004), were expected to work with the Ministry of Fisheries and Aquatic Resources in identifying the type of help and the beneficiaries, this was hardly done. On the part of NGOs, they were not very keen in yielding to government requests for several reasons; First, the NGOs were suspicious that the government officials were corrupt and that they would not do a proper job. Second, they had their own approach, and working with the government meant conflicts with regard to interests. Third, rather than catering to the needs of the industry, the NGOs were primarily concerned with satisfying some of the urgent needs of the affected people and perhaps their donors. Fourth, some of the NGOs were already working in various parts of Sri Lanka, and they only wanted to extend help to areas in which they already had various programmes. Thus, the whole process of craft distribution was not properly regulated. Lists of beneficiaries were prepared by various parties and some fishers received several crafts for his only craft that was damaged or lost. Moreover, without giving concern to country's laws, even banned gear were distributed (ex. monofilament nets) (Amarasinghe, 2006).

The above situation could be true in many parts of the country, because complains were heard from the people all over the country of low catches and low incomes¹. However, this high fishing pressure, as we have noted above, has to be reduced. This is tantamount to reducing effort (people, crafts and gear) from OAE towards the MEY (see red arrows in figure 2.14). If this process of moving towards MEY is set in motion, one can be happy that one is on the right tract.

The following could be sighted as strategies that could reduce effort, to ensure that those who are taken out of the fishery are not 'worse off', if not better off.

- Shifting effort towards under-exploited resource areas (ex. Shifting effort beyond the contiguous zone of 24 nautical miles from the shore).
- Shifting effort towards deep sea fishing and high seas fishing, which is a sub-sector which has already gathered momentum.
- Provide fishers with alternative livelihoods, probably fisheries related and beach-based; Coastal Tourism, etc. (see Chapter 8)
- Expand fish processing industry: new products and new technology (Value addition)

¹ FAO/SLFSSF/ICSF, 2019

- Promote coastal and marine aquaculture: crab, mussels, etc.
- Provide vocational training opportunities to children of fishers, to prevent them from taking up father's vocation.

It is also to be mentioned that there is a need to undertake more frequent stock assessment studies. At present almost all recognized stock assessment studies have been conducted by the Norwegian research vessel Dr. F. Nansen. The research vessel possessed by NARA could undertake such studies, if it is equipped with all the necessary scientific instruments, which could be quite costly. Given the urgency of the need to undertake stock assessment studies to ensure sustainable management of resources, investment in fully equipping this vessel will be environmentally, economically and socially beneficial.

A serious deficiency in understanding the status of resource exploitation is the absence of bioeconomic modelling research which can be attributed to the dearth of fisheries economists in the country.

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Chapter 3

Governance and Management of Sri Lanka's Fisheries







Preamble

As aptly described by Bavinck (2005), governance is not simply “what governors do” but consists of “the whole of public as well as private interactions that are initiated to solve societal problems and create societal opportunities. It includes the formulation and application of principles guiding those interactions and care for institutions that enable them”. In reaching these objectives, the governors try to shape the behavior of people by establishing rules and regulations (the State Law). In simple terms, governance is about formulating broader guidelines and policies in reaching multiple goals of the society: healthy environment, sustainable use of resources, improvement in human wellbeing, etc. Whereas governance is concerned with ‘doing the right thing,’ management is concerned with ‘doing things right’ (Tricker, 1999). According to World Bank (2000), management concerns the day-to-day operation of strategies, policies, processes, and procedures that have been established by the governing body. In reaching society's goals both governance and management have to be put on the right track. Since management follows the guidelines given by the governance, before everything governance has to be put 'right' so that it will give the correct signals to management. Many call this 'good governance' or 'wise governance'.

Evolution of Governance and Management in fisheries of Sri Lanka

Fisheries in Sri Lanka and elsewhere are in crisis today, caused mainly by over-exploitation of resources and failure to enforce the required management options (Pauly and Christensen 1998; Amarasinghe O., 2006). If left, unattended the crisis might lead to a collapse of the ecosystem and serious threats to the livelihoods of the fishers and their families. This crisis arises to a great extent, from the fact that many

policies which promote environmental sustainability often conflict with human development considerations. From time immemorial, fishers have devised various norms and laws to guide the behaviour of community members. It appears that such community laws are based on the principles of equality (equal opportunities of access to resources and earning incomes to all), wellbeing (that object of fishers is "wellbeing", which is defined as a state of being with others, where human needs are met, where one can act meaningfully to pursue one's goals, and where one enjoys a satisfactory quality of life (Gough. & McGregor 2016) and social harmony.

Before the World War 2, fisheries were managed by people themselves according to community laws. The government intervened only to collect revenues (tax) from fisheries. There is no evidence of the existence of any management mechanism during the pre-war era. However, this period is characterized by the abundance of resources and low population densities. This post-war period saw high rates of growth of population, which led to a gradual increase in fishing pressure. This situation is depicted in figure 3.1.

	Low Population	High Population
Abundant Resources required	1. Conservation Rules not required/ Access Rules not required	2. Conservation Rules not required / Access Rules
Limited resources	3. Conservation Rules required / Access Rules not required	4. Conservation Rules required / Access Rules required

Figure 3.1: The need for conservation and access rules with population growth and resource scarcity

(source: adapted from Balland & Platteau 2000)

In general, governance of resources involves two basic sets of rules: access rules and conservation rules. Access rules establish how the user groups are provided with access to resources, while conservation rules establish rules that controls the behavior of resource users to ensure sustainable use of resources (to maintain a healthy ecosystem). The pre-war situation is depicted in box 1 in *Figure 3.1* and the last scenario depicting a situation where resources are over exploited due to heavy

fishing pressure. Heavy use of resources needs rules to conserve resources and a large fishing population requires regulations to access resources.

While neither conservation rules nor access rules existed during the pre-war era (box 1 above), the post war period saw the gradual establishment of conservation rules and access rules. Initially, these rules were established by the communities themselves, but the state had to intervene later in establishing such rules, when the communities failed to manage the situations as the status of resource exploitation was moving towards box 4. Looking at this process, one could clearly identify two legal systems: the community legal system and the state legal system. The legal pattern in contemporary fishing communities is one in which the two systems co-exist.

The Community Legal System (community governance)

Norms, Customs and Community Laws:

Norms and customs are rules of behaviour which are not explicitly stated (Amarasinghe, 2002). In fact, these are 'unwritten' laws. Identification of such unwritten laws are difficult and they are only implicit in the day to day behaviour of the fishers. Therefore, what follows is not an exhaustive list, but a handful of some of the norms and customs of the fishers which guide their behaviour in coastal resource use.

Most of the community laws have their roots in certain principles of the peasantry, of which what matters most are the principles of Reciprocity, Equality, Wellbeing and Social Harmony. Behavioural norms, values, customs, etc., too have a strong influence in shaping the behavior of village people.

Based on the principle of equality

1. Shaving-Off Beard (livelihood assistance)

When crafts land their fish catches, people gather around the catch and some of them could be seen taking a few fish away for home consumption (without paying for them), for which the craft owners or the crew do not object. In general, those who remove fish without paying for them are usually the old, retired, disabled fishers or members of families whose breadwinner had died. This practice is called *Raula Kapanawa* (shaving off beard), which is consistent with Scott's description of the two moral principals of the peasant: "the right to subsistence" and "the norm of reciprocity" (Scott, 1976). *Raula*

Kapanawa aptly describes how the principle of “right to subsistence” was firmly rooted in the norms and customs of fishing communities in Sri Lanka.

ii. *Equal Access to Resources and Equal Opportunities of Earning Incomes: Beach Seine Fisheries:*

The principle of equality is firmly embedded in the institution of beach seining ‘net sequence’. The seine fishermen form a clearly defined group enjoying common rights of use of the near-coastal resource areas called *padu*. Net laying and hauling operations take about three hours and therefore, in a single *padu*, only four nets can be laid on a particular day. Due to within-day variation in catches, the nets that are laid in the morning will have more fish than those laid in the afternoon. An institution called the ‘net sequence’ ensures all participants equal access to resources and income. All nets are numbered; net no. 1, net no. 2, net no. 3, etc. and they are operated in a sequence. Assuming that only 8 nets are present and only 4 nets are laid during a particular day, the net laying follows the sequence 1, 2, 3, 4, and in day 1, four nets are being laid - starting from net. no. 1 and ending with net no. 4. In the following day (day 2), net no. 2, which was laid after net no. 1 in the previous day gets the early morning turn, and the net sequence follows 2, 3, 4, 5. A sequence of net laying until the end of the eighth day shows that all nets had equal chances of participating in the morning, noon, afternoon and evening turns, and at the end of the eighth day, a ‘net cycle’ is complete.

Net-sequence is a good example of an insurance strategy adopted by traditional communities through which risks inherent in a production activity is shared by all participating agents. The resource is managed in such a way preventing any increase in effective effort. The closely-knit structure of the community of seine fishermen and the low degree of anonymity among participants facilitated successful enforcement of the terms and conditions of the ‘net sequence strategy’.

Based on the principle of Wellbeing

i. *Barriers of access to resources:*

A special feature of a typical traditional fishing village is its ‘village identity’. Each village is separated from the other in relation to

productive activities, and its links to the interior agricultural villages are few. The social distance maintained between villages has performed the important function of controlling 'entry' into open access fisheries. The access to the waters bordering a certain village is limited to the inhabitants of the village and outsiders are not even allowed to anchor their crafts or fish in coastal waters of that village. Such a social control of 'entry' seems to have evolved out of the particular danger of over-fishing that could have resulted in an unregulated or open-access fishery. Nevertheless, with the construction of fishery harbours to provide anchorage facilities to the modern mechanised crafts, these traditional forms started to disintegrate, with the entry of boats owned by individuals outside the village.

ii. Reciprocity & Reciprocal Credit (livelihood assistance)

Based on the principle of "reciprocity", fishermen are often willing to transfer funds among each other to manage short term catch (and therefore, income) fluctuations. The fact that fishermen do not confront covariant catches gives rise to the emergence of mutual insurance mechanisms by which small loans are exchanged among fishermen giving them inter-temporal flexibility in adjusting to consumption needs. All fishermen know that they are not lucky or unlucky every day, which allow the lucky ones to lend part of their earnings to an unlucky one. In general, income transfers among fishermen represent important sources of insurance against consumption shocks and the risk of loss of operational capital, in the absence of insurance markets dealing with the risk of income shortfalls. Mutual insurance schemes aiming at providing subsistence-credit are not commonly observed among the owners of large mechanised crafts who usually operate above the level of subsistence, but where they exist, they perform the function of hedging the fishermen against the risk of damage to crafts and gear and loss of operational capital.

iii. Performance of Rituals

Fishers generally give alms when a new craft is launched into the sea. This is called the *Deva danaya* (alms for gods). Such alms are also given during the off-season, in expectation of sufficient income to meet family subsistence needs. When catches are very low and fishing remains at a low ebb (especially during the off-season) the fishers organise a ritual called "*Garathoil*" (Ex. in Kalamatiya of Southern Sri Lanka).

iv. *Attending religious ceremonies on 'Poya' Days:*

No fishing is carried out on 'poya' days (there are 4 poya days: full moon, quarter moon, half moon and three quarter moon), which are religious days for Buddhists. The Buddhist fishers generally attend religious ceremonies at the village temple during poya days. It is also to be mentioned that killing of animals for flesh is an unacceptable occupation because the first of the five precepts which all Buddhists are expected to observe says "I refrain from killing living beings". Knowing very well that they are engaged in an occupation which violates Buddhist principles, the fishers make it a point to attend religious ceremonies to compensate for the sins that they have committed. On the other hand the catholic communities are keen in attending the Sunday mass which they would not miss, but will continue their fishing operations in the evening (after attending the morning mass). For both Hindu and Muslim communities, the religious day is Friday. The Hindu's refrain from engaging in any fishing activity on Friday, but some Muslims may engage in early morning fishing and would be back for prayers at the mosque, held at noon. Other Muslims may completely refrain from going to the sea.

iii. *Safety at Sea*

In case of an emergency or when a particular fishing unit is missing (failing to return from a fishing trip), it is the duty of all to look for it. Irrespective of personal grudges, fishers act immediately to organise search operations.

Based on the principle of social harmony

i. *Craft fishing Times*

Fishing with traditional crafts (*oruwa*), mechanised traditional crafts (MTRB) and small mechanised crafts (17-21 ft FRP boats) are carried out at set times. Usually two time periods are evident; the Morning Period (*eliwana yamaya*), where fishermen leave the shore between 2 - 5 a.m. (those who aim at large fish varieties using gill nets, leave around 2 - 3 a.m., while those aiming at small species such as herrings, leave around 4 - 5 a.m.) and, the Evening Period (*perakada*) where they leave for fishing around 5 - 6 pm.

There can be two reasons why all fishermen leave for fishing around the same time. First, there is the risk factor. When all fishers leave for fishing

and return around the same time, the risk of any sea hazard to a fishing unit is kept to a minimum because ample help is available from others. Second, when all fishing units operate together, the fishers could ensure that each fishing unit operates according to accepted norms and rules governing resource appropriation.

ii. *The Institution of Dal Paya*

Fishers of a particular geographical area often operate in the same resource areas and therefore, they fish close to each other. However, when the first to reach the resource area locates a shoal and lays his net (the laid net is called the “*dal paya*”), others are not allowed to lay their nets in a way that blocks movement of fish towards the former fisher's net. Therefore, the institution of *dal paya* prevents conflicts among users of the common property coastal resources (see also Wickramasinghe, 2010).

iii. *Access to pre-identified stationary resources*

Another occasion of observing a similar rule is found in a situation where fishers are engaged in fishing for rock fish; around rocky areas or decaying logs (tree trunks). This activity is carried out with baited hooks and lines. The first to reach the resource is given priority and others fish little away from him. Moreover, if a fisher feels that the catch is low, he may not use all his bait but would throw the remaining bait into the waters around the rock or the log and may come back the following day in expectation of a higher catch. The following day, this fisher has priority access to the resource over the others.

Some Concluding Remarks on Norms, Customs and Community Laws:

Community norms/laws such as the beach seine net sequence, restriction of fishing to perform religious rituals and various laws governing access to resources, all indicate that community laws are generally based on the principles of equality, wellbeing and harmony. Community rules aiming at resource conservation are hard to find. Laws which emerge from the community have legitimacy within the community and rule breakers are few. Community rules, to a great extent, ensure that conflicts are resolved either at sea or on the beach, without the involvement of an outside authority. They are self-reinforced without the involvement of any enforcement authority and thus involve low transaction costs.

The legal pattern at the time of independence was quite simple, with community laws playing a very dominant role. The state legal system was used mainly when fishing disputes could not be settled at the community level. Even though some less-commonly used traditional gears and fishing techniques were detrimental to the sustainability of resources, provisions were hardly made to restrict their use. This apathy or no-action policy of the government could be attributed to the low level of fishing pressure, low population and the abundance of resources. 'Fishing Problem' was not a term much heard.

The State Legal System

Among the numerous Ordinances and Acts which have relevance to fishing at the time of independence (in 1948), the Village Communities Ordinance of 1889 (VCO) and subsequent amendments, and the Fisheries Ordinance of 1940 (FO) and subsequent amendments were the most relevant, which covered fishing and fisheries management. What is interesting about the VCO is its emphasis on regulating fisheries according to local customs and, the involvement of the state only when there was a need to settle disputes, which was done at the local level, by a fisheries committee chaired by the GA (Government Agent). The FO of 1940 was enacted mainly to establish the Department of Fisheries. The decentralised type of management designed under the VCO worked well under the conditions at that time, where management decisions were made at the local level, respecting especially the traditional norm of *'equal access to resources and equal income earning opportunities to all'*. Such forms of management worked well under the conditions of low level of fishing effort (low population levels and therefore, low fishing pressure), low levels of education among fishers and, weakly felt need for any management measures. However, over time, an official representing the government, but a person from the village, called *Patabendi Arachchi*, was recruited to ensure smooth operation of fishing activities, and settlement of disputes at the landing site level. By electing the *Patabendi Arachchi* from among members of elite families having history of fishing, these positions were well accepted by the fisher communities and complains of any inefficiencies of the system were hardly heard.

1950's to 1970's, marked the dawn of a new era in fisheries, which began with the expansion and development of fish marketing, first by the Fish Sales Union and then by the Department of Fisheries

(Amarasinghe 2005). The subsequent change in the role of the state from 'regulation' to 'reformism' and the introduction of mechanised crafts, nylon nets and new fishing techniques led to a revolutionary change in fisheries. The emerging market opportunities and the forces of national integration, technological change and state intervention, along with high post-independent rates of growth of population all led to increased fishing pressure. Moreover, new economic opportunities outside the fisheries, demanded "cash" from the people. In fact, the modern forces discussed above enhanced economic, social and geographical mobility of the people, gradually detaching them from their traditional settings. People no longer believed that their own future, less that of their children lied with the natural resources surrounding their native village. Since their traditional rights and obligations were not tradable on a perfect market, they were led to neglect or overexploit the resource. Here we witness the emergence of, what we call 'fishing problems' (Amarasinghe, 1989). Use of environmentally unfriendly gear was on the rise. Along with the introduction of mechanised fishing and new fishing techniques, 'year-round' fishing was made possible. In addition to a Malthusian crisis (overexploitation of resources due to population growth), slow economic progress causing very low rates of employment generation outside fisheries, made fisheries a last resort employment, causing heavy pressure on resources. All these changes led to the application of very high fishing pressure on coastal resources, extracting more rents from open access fisheries. People also resorted to destructive activities such as coral mining, to meet the increasing needs for cash. There were new entrants to fisheries to take up mechanised fishing, which was becoming a lucrative avenue of investment. Conflicts among different stake holders trying to increase their share of the rents were becoming serious. There were threats to age old norms such as the 'traditional barriers to entry' along with the construction of public fisheries harbours. The traditional community norms and laws could not address the newly emerging fishing problems successfully and the state had to intervene to protect the common property fisheries from further degradation (see Amarasinghe, 1989). Rather than regulating fisheries and implementing purely production-oriented policies, the state felt the need to design fisheries management measures aiming at sustainable exploitation of fisheries resources.

The intervention of the state meant more forceful implementation of state laws. A fisheries official of the state, the Fisheries Inspector (FI),

was stationed at each landing centre, with the responsibility of strictly enforcing state law. The Fisheries and Aquatic Resources Act No. 2 of 1996 (FARA) and subsequent amendments further introduced new state laws in fisheries: compulsory registration of crafts, obtaining licenses for all fishing operations, ban on the use of explosives and poisons, ban on the use of destructive gear (use of bottom set gill nets, triple nets for lobster), seasonal ban on lobster, ban on catching juvenile lobsters, ban on catching marine mammals, etc.

The Fisheries and Aquatic Resources Act No. 2 of 1996 (FARA)

FARA is the principal legal instrument that determines the opportunities and constraints for aquatic resources users in the country. The Department of Fisheries is responsible for implementing the provisions in the Act. FARA repealed the Fisheries Ordinance of 1940 and all the amendments to it along with other legislations such as the Chank Fisheries Act, the Pearl Fisheries Ordinance and the Whaling Ordinance. While there have been a series of regulations and amendments to FARA subsequently, another major Act of significant importance is the Regulation of Foreign Fishing Boats Act No. 59 of 1979 and its 2018 amendment.

The Fisheries and Aquatic Resources Act is complemented by a number of other Acts, guiding different aspects of utilizing aquatic resources, which are not covered under the fisheries act.

Among the most important ones are:

1. National Aquaculture Development Act (1998)
2. The Fishermen's Pension and Social Security Benefit Scheme Act No. 23 of 1990
3. Coast Conservation Act No. 57 of 1981
4. Marine Pollution Prevention Act
5. The Fauna and Flora Protection (Amendments) Act 1949 (No 38). 1964 (No. 44), 1970 (No.1) and 1993 (No.49)
6. National Environmental Act No 47 amended by No 56 of 1988
7. Forest Act 34 of 1951 amended in 1954, 1966 and 1979

It is to be noted that, a new fisheries act is under preparation now, which will take into account Fisheries and Aquatic Resources Act, No.2 of 1996 and all its amendments, which would be repealed once the new Act comes into force.

Pressure on the community legal system

It appears that the forces of market expansion, technological change, state intervention have all had a negative impact on the community legal system, meaning that fishers started to break community rules. Along with the penetration of the new value system, with cash assuming greater importance, the wellbeing objectives of the past changed gradually. Naturally, the moral principles such as 'equality' will not be strictly respected in a system where competition plays a very important role. Probably, benefits obtained from rule breaking would have been higher than the expected costs like sanctions from the community.

Effectiveness of state laws

Present laws of the state governing fisheries are clearly laid down in FARA of 1996. In a nutshell, state laws that affect day- to- day fishing activities could be categorised as follows.

Conservation Rules

- Ban on destructive gear
- Ban on catching juvenile fish (lobster)
- Seasonal bans (lobster)
- Ban on catching marine mammals

Access Rules

- Boat registration
- Beach Seine Registration
- Fishing licenses
- Fisheries Management Areas and Authorities

Although banned, many incidences of the use of environmentally harmful gear are reported all over the country as described in the section to follow. Use of such gear and techniques has given rise to a number of conflicts among users of coastal resources. Dynamiting of fish is reported from all around Sri Lanka. Fishers in the south usually blame outsiders for employing this technique. The fishers claim that

even the police are turning a blind eye when complains are made, due to the high economic and political power wielded by those employing this technique. Another source of increasing conflicts among users of coastal resources is the harvesting of mussels, lobster and ornamental fish by using diving gear (scuba diving). This technique is again said to be destructive because it disturbs and kills the fish eggs and other marine life found under the rock crevices. Again, fishers claim that, this technique is employed usually by outsiders whose diving gear is being financed by big investors (See Amarasinghe 2009).

The use of monofilament nets in harvesting both marine and inland fish resources, use of trammel nets, bottom set gill nets, moxy nets (small-meshed gill net to catch ornamental fish) and ring seines in near shore waters, are few examples of the use of environmentally unsafe gear. In this respect, the state has a responsibility to intervene in preventing the use of destructive gear and the promoting the use of eco-friendly gear.

Catching lobsters during the months of February and September is banned, which coincide with the breeding season of lobster. The lobster trade comes to a halt during such periods. Yet, incidences of fishers breaking this rule are quite common. Catching of lobsters carrying eggs is also prohibited, yet fishers keep the caught lobsters in cages during the banned months. It appears that this rule has legitimacy within the community legal system because the majority of fishers seems to abide by this rule.

Another rule that has legitimacy within the fishing community is the ban on catching marine mammals (dolphin fish) and turtles. Fishers refrain from intentionally catching dolphin fish because there is no demand for dolphin fish in the market. In respect of turtles, fishers believe that a turtle caught in the net would bring them bad luck, and thus fishing in turtle nesting areas is avoided. However, poaching of turtle eggs, which is also banned, is practiced by some fishers and other community members.

Although boat registration has been made compulsory by all fisheries Acts and Ordinances, some have not registered their crafts. They think that it is not fair to ask them to register their crafts which are operated within the community territorial limits. However, during the process of post-Tsunami reconstruction of the fisheries sector, a huge over supply of fishing crafts was noticed, and the government decided to carry out

a boat census in 2006 and to register all crafts. Every craft was given a number, which had to be clearly displayed (painted) on the hull.

Fishers were also required to obtain a fishing license (by paying a fee) for all fishing operations they carried out. Such licenses were issued by the landing site level fisheries officer; the Fisheries Inspector (FI). Today licenses to coastal fishers are issued free of charge.

Enforcement of State Fisheries Law at the village level

The Fisheries Inspector is expected to ensure that fishing activities in landing centres under his purview do not violate state laws as described in various ordinances and acts. The FI is entrusted with a number of functions including, the enforcement of the provisions of the Fisheries and Aquatic Resources Act, No.2 of 1996 and its amendments, registration of fishing crafts and gear, issuing of fishing licenses, dealing with welfare issues such as, issuing identity cards for fishermen, facilitate the implementation of craft subsidy programme, operate social welfare schemes, deal with fishing disputes, etc. He is also supposed to work in close association with the local police. For example, if he detects the use of dynamite in catching fish, he would call the local police for assistance to catch the culprits, who would then be prosecuted.

Concluding Remarks on State laws.

It appears that state rules generally aim at resource conservation and sustainable use of the resources. As laid down in FARA, regulations mainly included input control methods, which had little concern for human development objectives and fisher wellbeing. While these measures would provide benefits to fishers in the long run, they tend to violate the immediate livelihood objectives of the fishers at certain instances. Then such laws would have little legitimacy with the community and the majority might resort to 'rule breaking'.

Rule breaking and conflicts

The pervasive use of Destructive Gear: the rule breakers

The most common methods of destructive fishing in Sri Lanka's waters include dynamite fishing (which indiscriminately kill large numbers of fish and other marine organisms in the vicinity), monofilament nets or

gill nets with a single filament (which are less visible in water and catch unprecedented quantities of fish), wing nets with galvanized pipes (which damage craft and gear of others), bottom set gill nets (which are laid on rocks damaging life at the bottom), trammel nets or triple nets (which damage the resources in a similar way), moxy nets and other nets with tiny mesh sizes, stake nets (*jakotu*) mounted on galvanized pipes (the latter causing damage to boats and nets of small scale fishers) and those that are used as traps (*kuudu del*) trapping all life - big and small, scuba diving (where the users completely disturb the bottom to find bottom-dwelling fish and cray fish), unregulated brushpile fisheries (where cut mangrove branches are used as fish aggregation devices), etc.

FARA and its amendments have banned the use of a number of fishing gear and techniques which are deemed harmful to fisheries resources and the ecosystem. Moreover, fishers are supposed to obtain licenses for all fishing operations and this condition imposes limits on techniques that they are permitted to employ for fishing. At present, the Department of Fisheries and Aquatic Resources Development issues licences for only 17 fishing operations which are considered as 'permitted or allowed'. All this point to the fact that Sri Lanka has taken the necessary steps to prevent any harm being done to its aquatic environment and fisheries resources. If these laws are respected, one cannot expect incidences of fishing crimes in this country (*Section 27, Part IV of the Fisheries and Aquatic Resources Act 1996 says, no person shall "use or attempt to use any poisons, explosives or stupefying substance or other noxious or harmful material or substance in Sri Lanka waters for the purpose of poisoning, killing, stunning or disabling any fish or other aquatic resources"*).

The type and extent of the use of destructive gear vary from location to location. Field studies carried out in Mannar and Jaffna of the Northern Province revealed the extent of use of destructive fishing techniques by the people in the North, who were then asked to rank them according to their prevalence. Results of this exercise are presented in *Table 3.1*.

In respect of the extent to which a certain fishing method was considered destructive, stake net fixed with galvanized pipes was ranked first. These nets are commonly found in the Mannar region, causing severe damage to other crafts operating in the area. Laying purse seine nets in near coastal waters (violating the law that 'nets should be laid 7 km beyond the shore line') and use of brushpiles (using

Table 3.1: Destructive fishing practices commonly used in Mannar and Jaffna of Northern Sri Lanka. (Tool: Pair-wise Ranking)

Fishing Techniques	1	2	3	4	5	6	7	8	9	10	11	T	R
1. Stake net	X	1	1	1	1	1	1	1	1	1	1	10	1
2. Dynamite		X	2	4	2	6	7	2	2	2	2	6	4
3. Diving			X	4	3	6	7	3	3	3	3	5	6
4. Purse seine net				X	4	4	7	4	4	4	4	8	2
5. Drag net					X	6	7	5	5	10	11	2	
6. Trawl net						X	7	6	6	6	11	6	4
7. Brush pile							X	7	7	7	11	8	2
8. Hand lines								X	9	10	11	0	
9. Long lines									X	10	11	1	
10. Prawn Cage										X	11	3	
11. Monofilament net											X	6	4

(T = Total; R = Rank)

Source: Amarasinghe et al, 2018

cut mangrove branches to aggregate fish, causing large scale destruction of mangroves) was ranked next, followed by monofilaments, dynamite and diving. The incidence of the use of destructive fishing practices has increased since the end of the civil war in the country in 2009.

Deliberations of an Interactive Platform held in 2018 (Amarasinghe et al, 2018), to discuss the issues of the pervasive use of destructive fishing gear in Sri Lanka, revealed that, the term 'destructive' is quite subjective, which differs from the points of view of different actors and where the gear are being used. Trammel net or the triple net appears to be a very efficient technique in harvesting lobster and had been in use for decades, though it was banned by authorities because the nets get entangled in rocks and corals which damage and degrade the marine ecosystem. Use of monofilament nets for fishing is also banned because this net is considered as over efficient and destructive. Mechanised Bottom trawling is an efficient technique to harvest shrimp resources living in muddy ocean floor, yet it threatens the livelihoods of the small scale fishers when they carry out their operations in trawl grounds and when resource recovery is low in such areas. Setting bottom-set gill nets on rocky bottom and on coral reef areas is banned, but is the most common technique used by southern fishers to catch lobsters which is quite abundant in rocky ocean floors widespread in the southern region.

While all these are banned techniques to catch fish according to the laws of the country, they are permitted in areas where their use has been found to possess a comparative advantage over the other techniques and, when alternative techniques to catch the target species are non-existent.

On the question of 'who are involved in breaking the law against the use of destructive gear', the above deliberations revealed that, the more damaging practices, such as dynamiting, are often employed by fishers with the support of more affluent and the powerful in fishing villages, or in the jargon of fishers, the '*mudalalis*' (merchants). They often possess a few trawlers, several stake nets, or *kattu del*. This could also be a reason as to why the use of destructive techniques continue to be employed and why the users escape punishment. However, this does not make the poorer fishers more environment-conscious, because incidences of using banned monofilament nets are often reported from such populations. But this could be the oft-sighted grievance argument, where for lack of their access to diverse livelihood capitals to cope with vulnerability, the poor are compelled to use fish resources more intensively using destructive gear / practices, many of which tend to bring in large catches, although the long term implications for resource health are alarmingly adverse. Migration of fishers from 'outside' is another reason for increased use of destructive fishing practices. These fishers are often IDPs (Internally Displaced Persons) from civil war or those who migrate in search of better resources. Being outsiders, they are not obliged to respect village values, culture and laws and protect the village resources. It was suggested that such fishers should be registered and charged for harvesting resources.

One cannot also forget the Malthusian influences, where fishing pressure (increase in the number of fishers) is on the rise pushing down the catch per fisher. When the share of the 'common pool cake' is too small to feed the family, the system would collapse or take a different turn, to meet the aspirations of the actors. The situation is more serious in the North of Sri Lanka where the use of destructive gear is often being heard. Amarasinghe et al (2018) reported from their studies in the North of the country (Mannar and Jaffna) that the major threats to fishing have been the Indian Trawl Intrusion, high fishing pressure and lack of alternative livelihoods (see figure 3.2). However the problem of the Indians illegally fishing in Sri Lanka's waters has receded during the past few years due to increased arrests for violating maritime boundary

and for trawling in Sri Lanka's waters, which is banned. Thus, it is quite clear that the common reasons for the current situation are “too many fishers chasing too few fish” (high fishing pressure) and lack of alternative livelihoods. Under such a situation, the fishers would be forced to fall back on natural resources and use them more intensively.

However, this argument cannot be fully supported because, apart from the extremely marginalized minority, even small-scale fishers who are not confronted with such serious livelihood crises, too break laws. Another important point highlighted was the lack of awareness among many fishers of the environmental impacts of certain gear types and fishing techniques, which has also caused the present situation of rising fishing crimes. Absence of communication tools that explain fishing laws, environmental impacts etc. in the language of the ordinary was identified as a serious deficiency in securing sustainable small-scale fisheries in the country. The need to disseminate information on efficient and environmentally-friendly means of harvesting resources was also emphasized.

The weakness of the law enforcement mechanism was noticed as one of the serious flaws of the state legal system during the above deliberations in the North of the country. Laws have no meaning unless they are enforced. However, the Fisheries Inspectors, who are the state officers on the beach or at the landing site to enforce the fisheries acts and ordinances, are burdened with an array of administration matters covering large areas of operation. Moreover, they are supposed to assist

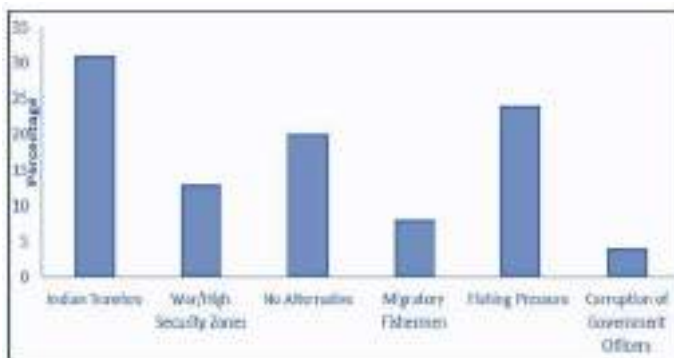


Figure 3.2: Percentage of fishers reporting reasons for using harmful gear- Mannar and Jaffna of Northern Sri Lanka (n=944)

Source: Amarasinghe et al, 2018

people in securing crafts, gear, credit, and public goods and, also to take action against law breakers, showing the contradictory nature of these different functions. The adviser, the extension officer and, the policeman cannot be the same!

As institutions of the people, cooperatives were not able to control entry into fisheries and sue members for illegal practices. Yet, in a context of increasing fishing pressure and escalating use of destructive gear, cooperatives should function as true fisheries management platforms. In this respect, interventions by fisheries cooperatives would mark a historical turning point; adoption of measures of prevention, rather than cure- the latter being quite costly and difficult.

The role of Interactive governance

While fisheries were governed according to community norms until the time of Independence (1948), with the state playing a minor role, increased state intervention occurred in the post independent era. After Independence, the state spearheaded a mechanisation drive, introducing mechanised crafts and new gear and fishing techniques. Increased fish production and consumption were the objectives of fisheries development. Apart from community governance the state entered fisheries as another actor of governance. The modern developments, including trade liberalization in 1977 exerted heavy pressure on fisheries and signs of resource degradation began to emerge. In order to protect the resources from further degradation, the Fisheries and Aquatic Resources Act was enacted in 1996. Yet, fisheries laws are not always strongly enforced and incidences of law breaking giving rise to conflicts are also observed.

If these issues continue to remain unattended, we will have an ocean with a few fish and a community of fishers threatened with acute poverty, food insecurity and illbeing, exerting more pressure on resources. "If they don't fish they starve, and if they fish, they will degrade the resources and then starve" (Jentoft, 2008). What has caused this sad state of affairs, after so much work has been done to develop the fisheries sector? We are now compelled to accept that we have failed in our efforts to ensure both the wellbeing of the fishers and that of the ecosystem- which is indeed a governance failure.

A serious flaw in the system of fisheries governance is the lack of knowledge about the people: the human system. A Fishery comprises of

a group of people exploiting a stock of fish and our knowledge of the latter is quite commendable, but that of the former remains quite meagre. Human system can be efficiently managed only if we know the people we are dealing with: their aspirations, incomes, levels of poverty, quality of life, social development issues, social security issues, etc. Unfortunately, fisheries authorities of Sri Lanka are in the dark in respect of their knowledge of the people. A very comprehensive study on the social and economic characteristics and the behaviour of the fisher people is of paramount importance for good governance. Figure 3.3 shows the two subsystems of the major system to be governed: the Fisheries System. The two subsystems have their own goals. It is now believed that the goal of the human system is “wellbeing” (Gough and McGregor 2007; White 2010; Coulthard et. al. 2011). In respect of the ecosystem, the goal is to ensure sustainable use of the resources and maintain a healthy ecosystem. It is known that resource exploitation by humans will cause some form of resource depletion and degradation. The government is the custodian of resources and it may impose access rules and conservation rules in shaping human behavior to ensure a healthy ecosystem. Yet, some of these laws may not allow people to achieve their wellbeing goals and, then they tend to violate the rules. A good example is catching lobsters during the lobster ban (during the breeding season) by some fishers, when their families are confronted with subsistence crises. None of the members in the community complain about them to authorities.

Another example is the introduction of purse seining with lights by the government (recommended by NARA) more than two decades ago (ex. in Dodanduwa of southern Sri Lanka, 20 licenses were issued). Only a few people who could afford this expensive gear (boat, generator, lights, purse seine nets, etc.) and huge amounts of fish were caught by

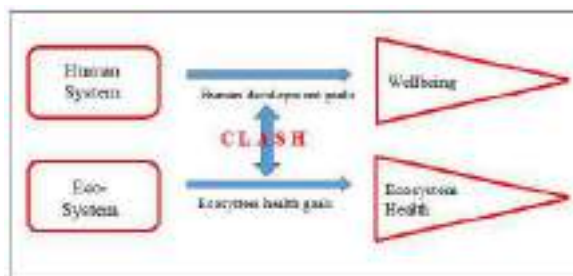


Figure 3.3: Clash between goals of the Human System and Ecosystem

those using this technique. Within a matter of a few weeks, the rest of the fishers took to the roads, protesting against the use of this technique by a 'privileged' few who were issued with licenses to use this technique. The argument of the rest of the fishers was that, this violated the principle of equality; few people taking a large share of the society's resources! (the technique was later banned, also taking into account the fact that it took away a huge amount of juvenile fish). What is to be noted in the above cases, is the prevalence of the community norms of 'equality' and 'wellbeing'. These are incidences, where the unwritten laws of the community or the community laws were strongly expressed.

We are now compelled to accept that we have failed in our efforts to ensure both the wellbeing of the fishers and that of the ecosystem-which is indeed a governance failure. It has now been realized that the existence of laws of the community has not received the attention of authorities (see Bavinck et al., 2013) in planning and policy making. This is the essence of Legal Pluralism, which is defined as 'different legal mechanisms applicable to identical situations' (Vanderlinden, 1972; p. 20). It recognizes that there are legal systems other than the system of state law (formal law). When different legal systems are applicable at the same time to a similar situation, conflicts are likely to emerge (Bavinck 2005). It is evident that, in the presence of legal pluralism, collaborative partnerships or platforms are required to ensure close interaction of diverse stakeholders which would prevent conflicts and promote collaboration among them, while allowing room for sustainable management of resources. This brings us to 'Interactive Governance', which is an approach that provides the means to achieve 'collaboration' among agents. It emphasises the diversity, complexity and dynamics of fisheries, which can only be addressed through governance systems' responsive to these qualities (Kooiman & Bavinck, 2005). In interactive governance, all stakeholders are brought to an 'interactive platform', where they actively participate and deliberate upon their experience, knowledge and aspirations, to come to a common agreement on issues of common interest (see *Figure 3.4*). The decisions taken through interactive governance mechanism will be acceptable to all and rule breaking would be minimal. However, such a governance mechanism will work only if all understand that legal pluralism exist, and that there is a need to respect the laws of other systems.

Interactive governance seems to be the essence of policy making. Today, fisher people are hardly invited to the policy making table.

Interactive governance requires the participation of all, including fisher communities. However, in order to ensure the active participation of the fisher people who are the true representatives of the human system, there is a strong need to build the capacities of the fishing communities, especially the community organisations such as cooperatives to actively participate in policy making interactive platforms.

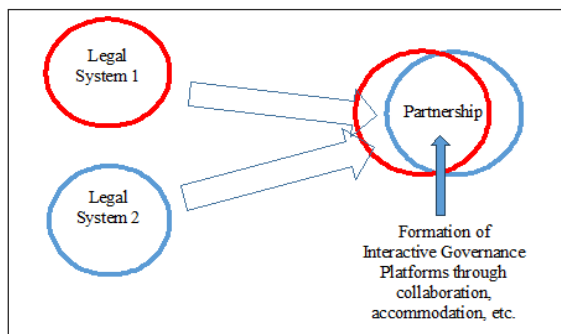


Figure 3.4: Formation of Interactive Governance Platforms

The Fisheries Policy Development Process

One of the notable features of the development of Sri Lanka's fisheries is the absence of a national fisheries policy until 2018. There have been a number of initiatives made in the past and several 'fisheries policy' documents were uploaded into the website of the Ministry of Fisheries, which did not have any legal validity (for not going through the parliamentary process). Fisheries sector was guided along paths indicated in fisheries development plans and yearly action plans. In this context, many Ministers decided on policy strategies and implemented them according to their wish, which were seen by outsiders as 'Ministers' Policies'. The establishment of Landing Site Management Committees in 2001, and Rural Fisheries Organisations in 2010 are strategies of such kind, both had hardly hit the age old system of fisheries corporation in this country.

The first attempt at developing a national fisheries policy dates back to 2004. The impetus for this initiative came when a new Minister of Fisheries was appointed, who represented the leftist party, *Janatha Vimukthi Peramuna* (Peoples Liberation Front). A valuable input to the initiative was also provided by an island-wide consultation process carried out by the National Fisheries Solidarity (NAFSO), a civil society organisation based in Negombo, during the period 2001 - 2003. This

policy had several important implications for small-scale fisheries development, through stock enhancement, coastal zone management, demarcating coastal boundaries, intervention in fish marketing and favourable prices, strengthening fisher community organisation, promotion of research, etc. It could be considered a strongly people-oriented policy. The white paper of this policy (National Fisheries Policy 2004) was submitted to the cabinet of Ministers on the 22nd of December 2004. Unfortunately, the country was hit by the giant tsunami wave on the 26th of December, completely devastating fisheries, coastal communities and their livelihoods. This policy paper never surfaced again. While a policy document appeared in the website of the Ministry of Fisheries subsequently (National Fisheries Policy 2006), it never went through a proper consultation and did not have the approval of the parliament.

National Fisheries Policy 2018

With assistance provided by the Norwegian Government, the Ministry of Fisheries (MOF) prepared a White Paper on National Fisheries Policy (2018), which was accepted by the Cabinet but was never presented to the parliament.

“Small-Scale Fisheries Policy 2019”

Under an FAO initiative to implement SSF Voluntary Guidelines for securing sustainable small-scale fisheries in the context of food security and poverty eradication (FAO/SLFSSF/ICSF (2019)), the Sri Lanka Forum for Small Scale Fisheries (now, Forum for Small Scale Fisheries: FSSF) undertook to implement the SSF Guidelines in Sri Lanka under an agreement with International Collective in Support of Fishworkers (ICSF) of Chennai, India, funded by the FAO. A number of very important issues which have not received much attention earlier but that were found to be quite important in securing sustainable small scale fisheries emerged from island-wide consultations (covering 12 of the coastal districts).

Enumerated below are some of the important policy strategies that emerged from the discussions.

- *Holistic approach to management decision making.*
- *Need for cross sectoral collaboration and institutional coordination.*
- *Active participation of all stakeholder groups in management decision making.*

- *Need to ensure that Co-management platforms are, integrated, inclusive, participatory and holistic.*
- *Build capacities of both state and community stakeholders for effective participation in co-management*
- *Respect and protect legitimate tenure rights of fishers to land, water and fish resources*
- *Demarcate of boundaries in the coastal zone.*
- *Establish co-management platforms at local levels (area specific or at district levels), rising up to the national level, with the participation all local governance actors and communities.*
- *Revise and improve the fishermen's pension scheme,*
- *Fisheries Insurance schemes to be operated jointly with fisheries cooperatives to minimize informational asymmetries commonly associated with fisheries insurance.*
- *Build awareness among community members about the right of women for fishing related or other employment*
- *Minimize wage discrepancies based on gender.*
- *Increase women representation in the committees of community organisations (minimum of 25 percent).*
- *Government intervention in marketing and trade to cope with unfair producer prices and unfair trade*
- *International trade to be regulated so as to ensure that nutritional needs of the poorer groups of this country are not threatened.*

The Small-Scale Fisheries policy of 2019 included several important strategies towards securing small scale fisheries (that includes coastal fisheries), which were absent in the National Fisheries Policy of 2018. It was pointed out that there was an urgent need to combine the two to form a comprehensive policy document, before the National Fisheries Policy 2018 was sent for approval by the parliament.

"Inland Fisheries Policy of 2021"

It was felt that the recommendations given in the Small-Scale Fisheries Policy of 2019 fell short of addressing some major issues related to inland fisheries. Subsequently, a separate consultation process was conducted by the National Fisheries Solidarity and the SLFSSF in areas

where inland fisheries were widespread. This produced another policy document: the Inland Fisheries Policy of 2021.

“National Fisheries Policy 2023”

The SLFSSF combined the two above policy papers to prepare a comprehensive policy paper, which compared the new policy prescriptions with the policy recommendations of the existing National Fisheries Policy of 2018, under various thematic areas. The aim was to improve the 2018 policy by taking into account the recommendations of the above comprehensive policy prescriptions. This proposed 'remodeled' policy document was sent to the ministry in February 2021, and this was accepted in principle.

The COVID-19 pandemic delayed the work that was revitalized in 2022. The ministry prepared a remodeled policy and appointed a panel of experts. It included SLFSSF and other fisheries experts to ensure that all relevant SSF Guidelines are incorporated. This move on the part of the fisheries authorities was commendable. This work took place in the last two months of 2022. By mid-January 2023, the final remodeled policy document was completed. After several rounds of talks among fisheries officials, senior officials of the Ministry, along with the panel of experts, unanimously approved the policy with some minor rewording. This remodelled policy was again subject to scrutiny in 2025, to find its agreement with the political manifesto of the present government and was finally submitted to the cabinet of Ministers. It is yet to go through the parliamentary process

Sustainable Resource Management

The multi-stakeholder issues in the coastal zone

While the coastal zone represents approximately 10% of the earth's surface, its coastal lowlands are inhabited by more than 50% of the world population. The coastal zone has become the major site for extensive and diverse economic activities. An array of stakeholders with different interests use resources in the coastal zone, which have given rise to conflicts among them, as identified in previous studies (Perera 2018; Piyasiri 2018; Bavinck et al 2013; FAO/SLFSSF/ICSF 2019) (see Table 3.2).

Table 3.2: Conflicts among multi-stakeholders in the coastal zone-Rekawa Sri Lanka

Activity and the Impact/Externality occurred (negative)	Involved Stakeholder groups	Is there a conflict? (Yes/No)	If "Yes" Type of the conflict?	Any resolution mechanism? (Yes/No)	If "Yes" What are they?	If "Not" suggestions for resolution
Breaching of the lagoon sand bar by farmers	Lagoon fishers and Farmers	Yes	Latent	Yes	Often through negotiation	--
Breaching of the sand bar by the hoteliers	Lagoon fishers and Hoteliers	Yes	Moderate	No	--	Intervention by the government
construction hoteliers, blocking access to beach	Fishers and Hoteliers	Yes	Moderate	No	--	Government Intervention and ICZM
Pollution of the lagoon due to garbage disposal	Lagoon Fishers and Hoteliers	Yes	Moderate	No	--	Government Intervention
Contamination of lagoon by agricultural runoff	Lagoon Fishers and Farmers	Yes	--	No	--	--
Mangrove felling for tourism related activities	Lagoon Fishers, conservationists. Hoteliers	Yes	Moderate	Yes to certain extent	CSO work with police & Forest Dept. to enforce laws	Strictly enforce laws with government intervention
Damage to fishing nets by boats carrying tourists	Lagoon Fishers & tourism stake holders	Yes	Latent	No		

Source: Piyasiri & Amarasinghe, 2018

In her studies in Rekawa of Southern Sri Lanka, Piyasiri (2018) found conflicts between the hoteliers and lagoon fishers because hoteliers use their power to forcefully breach the sand bar at the lagoon mouth, in order to protect their lands from flooding. Hoteliers also violate marine fishers' traditional access to the beach and the sea, by building tourism related structures in the coastal zone, blocking pathways to the beach and forcefully using beaches for their private use. Artificial breaching of the lagoon sand bar is also done by the farmers, to protect their cultivated lands from flooding. This causes a destruction of the shrimp life cycle (which is completed both in the lagoon and the sea environment) reducing the shrimp catch in the lagoon. When farmers want to breach the sand bar, they discuss the issues with fishers and agreement is reached through mutual understanding between the two parties. But, this is not the case with hoteliers who breach the sand bar without prior notice and no consultation takes place between the affected parties. Coastal pollution due to garbage dumping on the beach, and lagoon water pollution from waste water released to the lagoon by the hotels, have also created conflicts between the fishers (both marine and lagoon) and hoteliers. Both, lagoon and marine fishers, strongly emphasize the importance of state intervention to recognize their rights of access and strict enforcement of laws through an appropriate coastal zone management mechanism. Large scale destruction and felling of mangroves was also widely practiced earlier by the tourism stakeholders, but lesser number of incidences have been reported recently due to more stricter enforcement of laws against mangrove felling. Yet, the participants reported continued mangrove felling by some hoteliers, and the Department of Forest conservation, which is the authorised state institute in this regard, was blamed for their apathy and sluggishness in taking actions against those who break the law. The incident of "damaging the fishing nets by launching and operating tourist boats in the lagoon" was also pointed out as an activity causing friction between the two parties; tourism stakeholders and fishers.

Some interesting results were obtained in the above study, in its attempt at understanding the issues that have led to the emergence of the above-noted stakeholder conflicts through focus group discussions and subsequently tested with the aid of a questionnaire survey. The issues were ranked from 1 to 8; (rank 1st to the most influencing issue and the 8th to the least influencing issue). These ranks were re-scaled into scores from 1 to 8, giving a score of 1 to the lowest rank, and 8 to the highest rank. The average /mean of the scores for each attribute (in

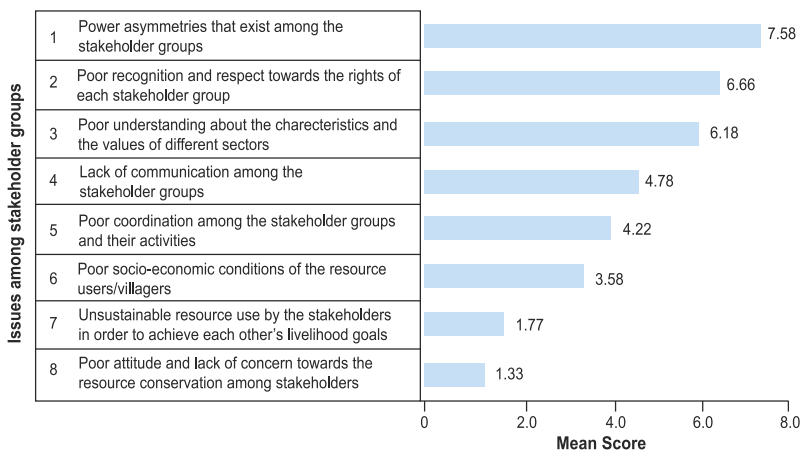


Figure 3.5: Issues among stakeholder groups which have affected/contributed towards the emergence of conflicts, ranked according to the mean score (ANOVA of mean scores; $P < 0.05$)

Source: Piyasiri & Amarasinghe, 2018

this case, the issue) was calculated and the results of this exercise are presented in Figure 3.5.

Evidently, power asymmetry that existed among stake holder groups was identified as the most crucial issue that has given rise to conflicts among stakeholder groups. This phenomenon was quite evident in the tourism stake holder group, who belonged comparatively to the more powerful stake holder group, both financially and politically. These stronger parties use their accumulated social, political and financial capital, to govern a particular situation (Scholtens 2016), as it is evident from beach encroachment, illegal constructions on the beach, mangrove felling etc. carried out by them. As Jentoft (2007) states, when compared to other forms of governance, fisheries, and coastal management rests ultimately on power; power to decide, enforce, and implement management decisions. It is further argued that the power can also be disruptive, corruptive, and, hence, negative as could be used to block management initiatives creating thus inequity and injustice.

Poor recognition and respect towards the rights of other stakeholder groups was identified as the second most influencing factor which could also be considered as an indirect effect of power asymmetry whereas it was obvious that the customary rights of certain stake

holder parties (especially of fishers) were being violated by the comparatively more powerful groups (hoteliers and tourism stakeholders). The respondents ranked poor understanding about the characteristics and the values of different sectors as the third factor triggering conflicts. This phenomenon is clearly evident in the case of forced breaching of the sand bar at the lagoon mouth. The respondents ranked 'lack of communication' and 'poor coordination' among diverse stake holder groups as the fourth and fifth most influencing factors respectively. In fact, these two factors highlight the need for a community organisation representing all stake holder groups to facilitate effective communication among stakeholder groups and to coordinate the activities of all in order to prevent the emergence of conflicts. The poor socio-economic conditions of the resource users/villagers also have contributed towards the emergence of conflicts among the stake holder groups. The lower the socio-economic status of the resource users the more they tend to seek non-sustainable and often environmentally unfriendly means of exploiting coastal resources in achieving livelihood goals, which could trigger conflicts with other stake holder groups using the same resources.

Resource management issues in the coastal zone

Following from the above, it is now evident that coastal zone management requires, among other things, resolving conflicts among diverse stakeholders using the same coastal area for different purposes. Apart from the issue of multi-stakeholders, an array of issues has received the attention of authorities who have responsibilities in managing the coastal zone: Department of Fisheries, Coast Conservation Department, Department of Forestry, Department of Wildlife Conservation, Department of Agriculture, etc.

During national consultations that were carried out under FAO/SLFSSF/ICSF (2019), a number of Resource Management issues were identified by the participants, who included fishers, women fisher folk, fisher community organisations and state actors belonging to the above departments (Table 3.3). The island-wide consultations covered 12 of the 15 coastal districts. The coastal management issues identified were as follows.

1. Use of destructive gear that includes IUU fishing
2. Loss of beach area due to coastal erosion and tourism activities,
3. Increase in fishing pressure (too many boats and too many fishers)

Table 3.3: Management issues identified by participants at National Consultations, covering 12 out of 15 coastal districts

Management Issue	Northern	Southern	Eastern	North-Western
Increase in Fishing Pressure		X	X	
Use of Destructive Gear in lagoons /coastal waters	X	X	X	X
Excessive quantity of gear carried		X		X
Trawling	X			
Open access nature of the resource		X	X	
Poor coastal infrastructure		X		
Poor knowledge of resources & communities		X		
Coastal pollution	X	X		X
Gradual loss of space for craft anchorage		X		X
Not identifying areas for co-management		X		
Poor coordination among government institutes		X		X
Low quality fishing equipment	X			
Obsolete technology			X	
Lack of education and training on resource management	X			X
Migratory Fishermen	X			
Dearth of skilled officers			X	
Unauthorised constructions around lagoons & coastal area	X		X	X
Depletion of lagoon resources			X	
Degradation of lagoon environment			X	
Mangrove destruction	X			X
Post harvest losses		X	X	
Poor post-harvest facilities (including preservtion facility)		X		
Loss of beachseine padu			X	
Fishing for parent stock (lobsters)				X
Weak law enforcement (including seasonal bans)	X			X
Lack of technology to catch target stocks		X		

Management Issue	Northern	Southern	Eastern	North-Western
Fishing immature stocks		X		
Lack of collaboration of fishers for sustainable fishing		X		
Coastal erosion	X			X
Lack of demarcation of coastal boundaries (inclu. buffer zones)	X	X		X
Conflicts among government institutes (different mandates)				
Climate Change impacts				X
Political influence				X

Source: based on FAO/SLFSSF/ICSF, 2019

4. Illegal constructions on the coast (especially by tourism stakeholders),
5. Lack of access to areas around lagoons and the beach,
6. Coastal pollution,
7. Lack of knowledge and awareness about coastal resources and communities,
8. Lack of trained/skilled officers, weak post-harvest handling of fish,
9. Obsolete fishing and fish processing technology,
10. Poor concern for protecting resources during breeding periods,
11. Failure to demarcate coastal boundaries (buffer zones, no-build zones, etc.).

Resource management issues appear to be more location specific. However, illegal and destructive fishing practices, including trawling and increasing fishing pressure have ranked top of all issues in almost all areas showing the pervasiveness of these practices. In the North of the country the major problem has been trawling by local fishers. The need to educate people and train officers was mentioned as a resource management issue by fishers in Eastern and Northern provinces, which has important implications for capacity building of state officers and fisher leaders (in fisheries community organisations). Gradual loss of

beach area for craft landing has also been reported by fishers in areas popular for tourism (South and South West areas). Loss of beach seine *padu* (net laying areas) and illegal constructions around lagoons, which too are associated with the expansion of tourism, have been reported by fisher stakeholders in the eastern province, probably revealing either weak enforcement of laws and/or dominance of tourism interests in that area. The incidences of harvesting immature stock (juveniles) appears to be another resource management issue. Allegations are directed at Large scale fishers in this regard. Fishers have also reported that the fishing technology (catching, preservation and post-harvest handling) are obsolete and of low quality, revealing the importance of introducing innovations along the diverse links in the fish value chain. Among the other issues mentioned under sustainable resource management were, depletion and degradation of resources in coastal waters and lagoons, and high post-harvest losses. The Northern fishers also mentioned the incidence of southern fishermen (from Negombo, Chilaw and Puttalam) migrating to the North and harvesting resources to which they had customary rights. The issue is not only taking a large share of the resources 'belonging' (customarily) to the people in the north but also the use of destructive fishing techniques by the migratory fishermen. The differential power among institutions leading to dominant and weaker institutions preventing coordination among them, political influence and lack of knowledge of institutions about their responsibilities, etc. were also reported by stake holders in the North Western province.

Another important management issue mentioned by the fishers in southern and north-western provinces was the 'lack of collaboration among fishers', which reveals the need to work jointly and through collaborative efforts to secure sustainable fisheries. In the context of SSF, this shows the need for fisher community organisations to establish links with similar organisations horizontally (bridging social capital) to work towards resource management.

Discussions with state actors, revealed a number of issues which were not given strong emphasis by fisher stakeholders. Increasing fishing pressure in the context of the open access nature of fisheries resources was highlighted as one of the more serious management issues. Another important issue underlined was the increasing number of unauthorized constructions on the beach, even on the buffer zone. This is a serious issue which not only violates the Coast Conservation Act but also results in loss of beach for beach seining fishing, craft anchorage, fish drying,

etc. With regard to state institutions functioning in the coastal zone, two management issues were strongly emphasized; the lack of trained officers who could effectively participate in resource management in the coastal zone and, poor collaboration among institutes to coordinate the diverse activities of the coastal zone.

What is evident from the results of the focus group discussions with all actors concerned is the need for collaboration and coordination of diverse activities, the lack of which appears to be a serious deterrent to achieve effective management of the coastal resources, including fisheries.

In resolving the diverse management issues, an array of propositions were made by the participants of the above workshops.

- a) In respect of the use of illegal fishing methods, especially trawling, it was suggested to enforce the Trawl Ban law, which came into effect in 2017. Surprisingly this act is not enforced. In the case of other destructive fishing methods, strict enforcement of laws and strengthening the Monitoring, Control and Surveillance (MCS) activities was proposed.
- b) Bringing in new laws to prevent illegal constructions on the beach and in lagoon environment was also proposed. However, according to Coast Conservation Acts and Regulations, clear cut laws against illegal constructions on the beach exist thus showing that it is more a case of lack of enforcement of laws than the absence of laws that have caused this situation. Thus the Department of Coast Conservation and Coastal Resource Management needs to strictly enforce laws to protect the coastal environment.
- c) There is a need to revise fishing laws, especially those banning the use of certain gear and techniques. It is most appropriate to formulate laws by region, province or district, which vary, among others, on type and abundance of resources, ecology, oceanography, society, etc.
- d) Strictly enforce country's laws (the Fishers and Aquatic Resources Act No. 2 of 1996 and its amendments, the Coast Conservation Act, No. 57 of 1981 and its amendments, etc.), to stop illegal methods of harvesting fish and coastal resources. Law enforcement could be carried out with assistance from fisheries cooperatives, who can impose sanctions on member law breakers.

- e) Laws banning the use of harmful substances / materials as described in section 27 of Part IV of the Fisheries and Aquatic Resources Act of 1996, should be amended and modified and produced as a separate regulation made by the Minister of Fisheries under Section 61 (1), (j) of the Act, which shall prevent the use of any gear or technique that is deemed harmful to fish resources and the ecosystem
- f) In resolving the conflicts between fishers and tourism stakeholders it was suggested to apply Marine and Coastal Spatial Planning Techniques and resort to zoning of the coastal area for fisheries, tourism and other, to ensure that tourism does not adversely affect fisheries activities in the coastal zone.
- g) As a means of easing the pressure on coastal resources, it was suggested to promote shifting coastal fishers towards offshore/deep sea fishing. Provision of offshore crafts at concessionary prices was suggested. Limits on the number of crafts owned by one person was also proposed as a means of controlling entry. To ease pressure on resources, the state actors emphasized the need to provide alternative livelihood activities to fishers.
- h) Establishment of fish breeding centers was also proposed in increasing the productivity of inland, reservoir and lagoon waters.
- i) Several suggestions were made to prevent fishers from harvesting immature and breeding stock. Education and awareness building programmes for fishers, strengthening MCS activities and strict enforcement of laws against law breakers were proposed to deal with this issue.
- j) Moreover, provision of more durable and good quality equipment and the development of necessary infrastructure such as good anchorage facilities and those for post-harvest processing activities were proposed. Lack of innovative new technology in most spheres of activity was noted by fisher stakeholders and the need to replace obsolete technology with more productive new technology was proposed.
- k) One of the important needs arising out of discussions was capacity building. For lack of knowledge about the fisheries sector of the country, it was proposed to introduce fisheries education into the syllabus of secondary schools. Capacity

building of fisher stakeholders and state officers in fisheries management was strongly emphasized, while training and capacity building in the field of fish processing (especially for women) was also highlighted.

- l) The need to recognize and empower fisheries cooperatives as true fisher community organisations that can perform management functions and to link up with similar organisations horizontally to form formidable fisheries cooperative federations that can influence policy, were also proposed by fisher stakeholders.
- m) It was proposed to provide fishers with facilities to run tourism activities on the beach as alternative livelihoods, such as operating boat services for tourists (marine and coastal tourism), which will not clash with their fisheries activities.
- n) Carrying out conservation measures, without violating the customary rights of fishers to the beach and adjoining land was also proposed. It was also recommended to establish co-management platforms, with the participation of all stakeholders to secure fishers right to the beach and adjoining resources.
- o) Development of pollution management plans and brining in new laws to curb coastal pollution was also suggested.
- p) In an effort towards building partnerships among different state and non-state actors to coordinate the activities of all and to make decisions collectively, the establishment of co-management committees at the district level was also suggested. Given that, there is near-perfect knowledge of the resources at the district level, and that close interaction among state actors representing diverse institutions already exists at the district level, this could be an important step towards establishing District Co-Management Committees for Sustainable Management of the resources in the coastal zone. This also means decentralization and transfer of management decision making powers from the center to the periphery. Of course, this requires a strong political will to do so.

Special Area Management

The Coastal 2000 strongly advocated a policy of achieving “effective and participatory resource management by governmental and non-governmental agencies”. The Revised Coastal Zone Management Plan,

Sri Lanka (CCD 1997) states that “a comprehensive strategy was needed to cope with the impacts of these individual resource use decisions and conflicts over an area that might include resources not in the legally designated coastal zone. That strategy is Special Area Management (SAM)”.

The Coastal Zone Management Plan of 1997, introduced the Special Area Management process (SAM), which was considered as a 'bottom up' approach that would complement the existing 'top down' approaches. It was a collaborative approach to planning resources management within a defined geographical area. It assumed that residents of a particular coastal area and the local government know their resources well and also have an incentive to resolve resource use problems collectively. This plan identified 23 SAM sites and were rated according to the severity of resource management issues.

An example of a successful SAM process: Rekawa SAM.

Rekawa of Southern Sri Lanka is very rich in biodiversity. Yet, the people are poor. In meeting their wellbeing goals they are exerting heavy pressure on natural resources. The multi-stakeholder nature of Rekawa coastal resource use (marine fishers, lagoon fishers, farmers, hoteliers, turtle conservationists), has given rise to conflicts among stakeholders. Rekawa has a high potential for the development of ecotourism, agro-tourism, cultural tourism, organic farming, and various alternative employment activities for women and youth, by making use of the various forward and backward linkages that exist among activities. In addressing the diverse issues related to coastal resource use and exploit the opportunities offered for integrated development, a Special Area Management Process was initiated in Rekawa (see *Figure 3.6*).

The SAM process in Rekawa is a unique type of a public-private partnership where all stake holders in this environmentally sensitive coastal area participate to decide on activities in that area. This is a very successful story of 'interactive governance' (at the local level), coordinated by the Special Area Management Coordinating Committee (SAMCC), consisting of all stakeholders: resource user groups as well as community leaders and state officers working in the area.

The SAM process effectively dealt with multi-stakeholder conflicts in the coastal zone through SAM Coordinating Committee. At the meetings of the latter, all resource use conflicts were brought to the

notice and were resolved through common agreement. SAM process also ensured sustainable coastal resource use and the conservation of biodiversity, through sound environmental management. The Rekawa Special Area Management Process provided not only an example of merging of both state and non-state legal systems, but also a means of governing coastal resources through the interaction of all relevant stakeholders. The success of the process revealed the need for governance to be interactive, although this process took place at a divisional level. Nevertheless, this exercise shows that, when the behaviour of different stake holders with different aims are governed by different laws and when different legal systems are applicable to the same situation, policy making through interactive governance would provide a key means of meeting both wellbeing aspirations of the people and ecosystem health considerations.

However, this process did not continue due to leadership issues and legal issues, because the SAMCC did not have a legal status.



Figure 3.6: Multi-stakeholders in Rekawa lagoon area covered by SAM, Hambantota District, Sri Lanka

The new Coastal Zone and Coastal Resource Management Plan of 2018, intends to continue to manage the coastal area by identifying and managing certain environmentally sensitive areas; Special Management Areas (SMA) (Formerly, SAM sites). About about 41 more sites are to be managed under this process. These include the most environmentally sensitive areas in the coastal zone. SMA is a typical example of integrated, participatory and holistic management. SMA is conducted by a SMA Coordinating Committee representing all stakeholders in the coastal zone.

Fisheries Management Areas and Fisheries Committees

According to Article 31.(1) of the Fisheries and Aquatic Resources Act No. 2 of 1996 (FARA), the Minister may, by Order published in the Gazette-

- (a) *designate prescribed areas of Sri Lanka Waters or land adjacent thereto or both such waters and land as fisheries management areas for the purposes of this Act;*
 - (b) *designate the fisheries committee established under section 32 in respect of any fisheries management area as the fisheries management authority of that area;*
- and*

Article 31 (2) says,

A fisheries management authority designated or established by an Order made under subsection (1), may make recommendations to the Minister on-

Moreover, Article 32. (1) says,

Registered fishermen residing or engaged in fishing in each fisheries management area or part thereof, or migrant fishermen may form themselves into a fisheries committee.

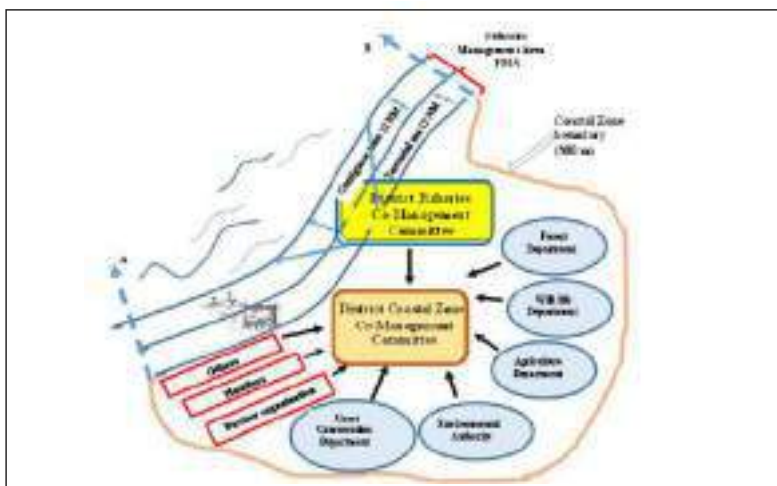
Sri Lanka's lagoons came under the management of Lagoon Fisheries Management Authorities (LFMA) and all decisions concerning resource use were taken by the LFMA, which controlled the number of crafts allowed to fish, the type and amount of gear to be used, etc. LFMA's worked quite well and Rekawa and Negombo lagoons provided the best evidence of successful resource management under LFMA.

The 1996 Act was amended in 2013, which repealed section 31 of FARA, to empower the Director General of Fisheries to designate FMCs on his own motion or a request made by the fishers. Sections newly added to this amendment made provisions for the establishment of a Fisheries Management Coordinating Committee (FCC) for every FMA, which was entrusted with the responsibility of preparing a fisheries management plan for the relevant FMA. The Ministry of Fisheries declared 18 Fisheries Management Areas (FMAs) for lagoons, each having one or more fisheries committees, of which 13 FMAs are in operation today. While the fisheries committees function as co-management committees where decisions are made with the participation of all stakeholders, these committees do not possess any legal right to the resources although they are allowed to manage and regulate activities in the relevant management area.

This process was not implemented in other fisheries, like coastal fisheries, in which prevailed open access regimes, where boundaries for FMA could not be established.

A hypothetical model of Integrated Coastal Management / Co-management

Information furnished earlier in this chapter provided a host of evidence that point to the need for institutional coordination and integrated coastal zone management at the local level; which could be either at the divisional level or district level. It assumed that the divisional level would be too small for a management area, and moreover, fisheries boundaries have little to do with divisional boundaries, although the district boundaries have a fair degree of overlap. A hypothetical model of a Integrated Coastal Management process is depicted in Figure 3.7. All state officers operating in the coastal zone; agriculture, forest, wildlife, fisheries, coast conservation, tourism, etc., operate at the district level and therefore it is rational to select the district level as a management unit. Representatives of all sectors will form the District Coastal Zone Co-Management Committee (DCZCC), which includes all state officers, Divisional Officers, representatives from fisher and farmer organisations, those from hoteliers, people's committees, etc. In such a platform, all stakeholders should enjoy equal rights of participations and expression. Such a platform will provide opportunities for the participants to deliberate upon their knowledge, experience and their interests to arrive at resource use decisions which would be acceptable to all. DCZCC will operate within the boundaries of the coastal zone in that district.



coastal management. While coastal fisheries extend from the shoreline to the edge of the continental shelf, in actual fact, the modern mechanised coastal craft (OFRP) hardly fish beyond the contiguous zone of 24 Nautical Miles from the coast. Thus, if the district is to be taken as the coastal management unit for the co-management model, then the relevant fisheries management area would be the area bordered by the shore line, the edge of the contiguous zone and the district boundaries extended to the edge of the contiguous zone (see figure 3.8). All fishers residing in such a management area will be members of one or more fisheries committees, which will send their representatives to a District Fisheries Co-Management Committee (DFCC). The DFCC will make decisions regarding the management of fisheries resources within the FMA.

Selected officials of the District Fisheries Co-management Committee will participate in the DCZCC, while the Assistant Director of Fisheries will participate in the co-management platform as an ex-officio member. If a lagoon is present in the district, the representatives of the Lagoon Fisheries Co-Management Committee of the relevant FMA will participate in the DCZMCC in managing the coastal zone activities, while keeping its own authority in managing fisheries in the lagoon.

In *Figure 3.7* what one is looking at is a typical example of integrated management / collaborative management / co-management in practice. In fact, such a management mechanism will have four unique characteristics; Integrated (sectoral integration), Inclusive (inclusive of all stakeholders, including women, as represented by their organisations), participatory (active participation of all) and holistic (a systems approach to management). Yet, if such a co-management model is to succeed there are two pre-requisites. First, the capacities of both state actors and community actors will have to be built on the principles of co-management. Second, the conflicts among the mandates of different institutions will have to be resolved.

The above co-management mechanism is strongly embedded in a number of policy strategies laid down in the draft National Fisheries Policy (2023) which will have very important implications for the wellbeing of the coastal fisher populations and sustainability of aquatic resources.

Addressing Dichotomy in Fisheries Management

As mentioned earlier in this book, a study carried out in the Hambantota District in 2019 (Weralugolla et al, 2019) revealed that

the fishery was operating close to the Open Access Equilibrium (OAE) (where benefits equal costs), revealing that the fishery was both economically and biologically overexploited. Fishers are earning low incomes and their livelihoods are threatened, while at the same time the ecosystem is degrading under heavy fishing pressure.

The above situation reveals the basic dilemma in fisheries management. On one hand, people operating close to OAE and thus threatened with non-sustainable livelihoods need social protection. If this is done people will be able to remain in the fishery and even one could expect more entry because the cost of labour will be lowered by the size of social assistance. On the other hand, there is a need to reduce fishing effort towards MEY, to protect ocean resources from overexploitation and degradation, which is not possible when alternative livelihoods for fishers are not available and when there is high rate of unemployment in the country. This is the dichotomy in fisheries management (figure 3.8).

Reducing effort while regulating further entry into fisheries

Section 5.20 of SSF Guidelines states “States should avoid policies and financial measures that may contribute to fishing overcapacity and, hence, overexploitation of resources that have an adverse impact on small-scale fisheries”, while the draft national fisheries policy of 2023

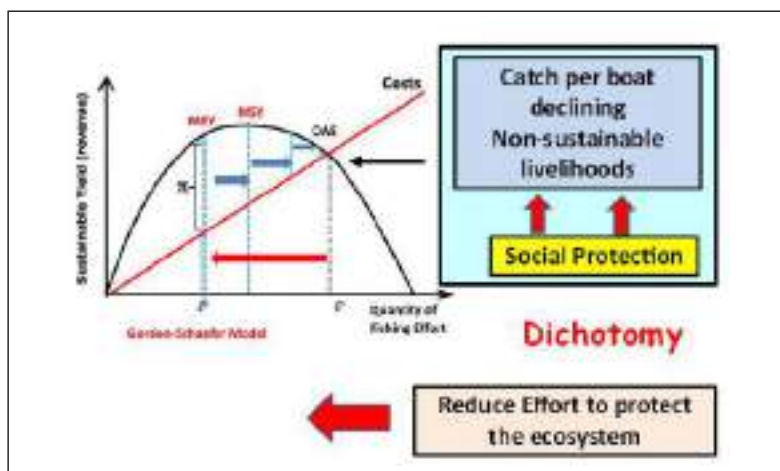


Figure 3.8: Addressing dichotomy in fisheries management

states, “Divert marine fishing efforts from over-exploited areas to unexploited or under-exploited areas” , and “prevent overcapacity of the fishing fleet”. Given the high unemployment rate and lack of alternative livelihoods, it would be wise to prevent further entry into fisheries. In this respect, the government could provide vocational educational facilities to children of fishing families, including the youth already engaged in fishing. It would be worth noting section 6.4 of SSF Guidelines, which states “States should provide and enable access to schools and education facilities that meet the needs of the small-scale fishing communities and that facilitate gainful and decent employment of youth, respecting their career choices and providing equal opportunities for all boys and girls and young men and women”. One of the key strategies in this regard could be to provide the youth in fishing villages with physical and economic access to vocational education to enable them to take up employment in blue economic sectors other than fisheries or employment in completely different sectors, local or abroad. It has been proven that employability of diploma and certificate holders of blue skills is quite high. Ocean-related vocational education is offered by institutions such as the Ocean University, which has 8 regional centers spread-out in the country and offering about 16 vocational educational courses, from certificate to diploma and to degree.

Blue Economy and Blue Justice

Apart from the Blue Revolution or the technological revolution in fisheries that commenced towards the end of 1950's, the whole world started talking about Blue Growth / Blue Economy / Ocean Economy, etc.. during the last two decades. This new interest in utilising ocean resources for employment creation, strengthening national economies, improved wellbeing of people commenced probably after the United Nations Conference on Sustainable Development (UNCSD) held in Rio-de-Janeiro in June 2012 (“Rio +20”). At the conference, many coastal countries requested to extend the focus on the green economy to encompass the blue sector. There are many definitions of the blue economy, without any agreement on a standard definition, Boonstra et al. (2018) and Dalton et al. (2019) state that blue growth is the creation of multiple economic activities from ocean resources, while holistically managing socio-ecological systems related to the oceans (Caswell et al., 2020). Blue growth brought with it hopes for a bright future: smart shipping, inclusive growth- improving the lives of all, harness renewable

energy, protects marine life, sustainable fisheries, reduce poverty, end hunger, protects communities, tackle pollution, etc. Unfortunately, there is also a dark side of the blue economy which is slowly surfacing now. This dark side of the blue economy playing field had rarely emerged in discussions concerning blue growth. As Benette et al (2020) aptly noted, these include, 1. Dispossession, displacement and ocean grabbing; 2. Environmental justice concerns from pollution and waste; 3. Environmental degradation and reduction of availability of ecosystem services; 4. Undermining livelihoods of small-scale fishers; 5. Undermining access to marine resources needed for food security and well-being; 6. Inequitable distribution of economic benefits; 7. Social and cultural impacts of ocean development; 8. Marginalization of women; 9. Human and Indigenous rights abuses; and 10. Exclusion from decision-making and governance (p. 3). These issues are in fact, issues of Blue Justice, which acknowledges, the historical rights of small-scale fishing communities to marine and inland resources and coastal space; in some cases, communities have used these resources for thousands of years". Blythe et al. (2023) describe blue justice as the "recognition, meaningful involvement and fair treatment of all coastal people with respect to how ocean and coastal resources are accessed, used, managed and enjoyed" (P. 3). Blue Justice refers to fairness, or social justice principle, which recognizes the rights of small-scale fishers to access, participate and benefit from the blue economy¹.

Ample evidence is available in Sri Lanka to show that small scale fishers have been subject to a number of injustices related to land tenure, coastal land grabbing, mega city development causing coastal erosion, etc. The small-scale fisheries have been inequitably exposed to coastal and marine harms, and are culturally and politically excluded from marine decision-making" (Blythe et al., 2023). Sri Lanka's Port City development project provide evidence of coastal erosion due to sand mining in near shore waters, resulting in loss of coastal area for beach seining, craft landing and anchorage. People along the southern coastal belt (ex. Fishers in Talpe in the Matara District) have lost their customary rights to the beach due to land grabbing by tourism stakeholders. Evidently, small scale fisheries have not participated in blue economy game.

¹ <https://www.plaas.org.za/blue-justice-for-small-scale-fisheries>

Some attribute this to the powerlessness of the small-scale fishers, who find themselves lost when there is high competition between fishers and other players (ex. Tourism, mining, industry, etc.) for coastal resources (Jentoft, 2014; Piyasiri & Amarasinghe, 2018).

Rules, regulations, etc. tell us what justice is and what justice is not. Thus governance has to ensure that it does justice to all. As mentioned by Jentoft and Chuenpagdee (2022) there are three major governance orders; the top or meta order dealing with principles, Rights, etc. (which need to go into policy), the second or middle order where decisions will be made on the establishment of right institutions (which set the rules of the game) and the 1st order (which decides the pattern of interactions among diverse stakeholders (left column in figure 3.9). The above authors emphasize the need to probe into the different governance orders and ask the question, whether governance has done the right thing to ensure justice to all in promoting the blue economy. Ideally governance decisions in all three orders need to be made through the participation of all relevant stakeholders, which is the essence of 'interactive governance'. In this form of governance, multiple actors deliberate, coordinate and cooperate at all orders of governance (Chuenpagdee and Jentoft 2009).

Figure 3.9 gives a hypothetical model of inclusive and interactive governance, which among other things, attempts at addressing blue

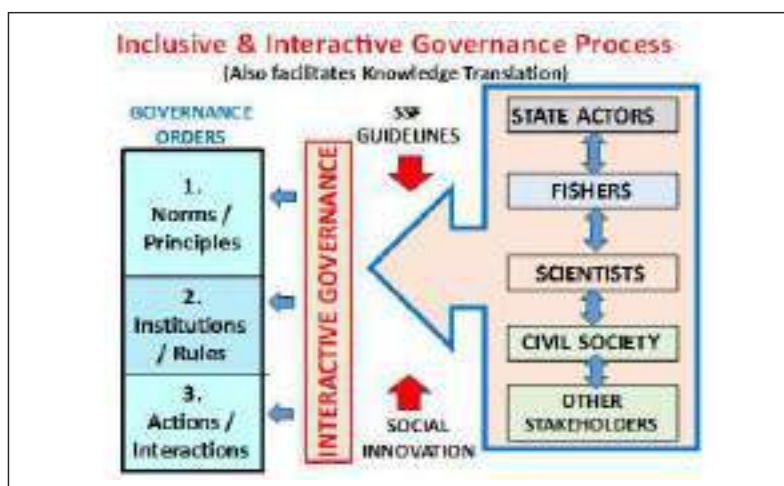


Figure 3.9: A model of Inclusive and interactive governance

justice issues mentioned above. At each governance order, decisions will be made with the participation of all stakeholders in the blue economy game; fishers, state actors, scientists, civil society actors, etc. who will deliberate upon their knowledge, experience, aspirations etc. and come to agreements acceptable to all. Into such platforms one could bring in the relevant SSF Guidelines along with social innovations (various concepts, paradigms worked out by the people). DCZCC mentioned above could adopt this model because the structure of the DCZCC is quite conducive for interactive governance at the district level to resolve issues at that level.

Another very noteworthy outcome of such a governance process is its positive impact on 'knowledge translation', because the scientists could also put their research outcomes on the table which will be made use of in making the most appropriate decisions.

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Chapter 4

Marketing of Coastal Fish Landings







Preamble

The process of marketing encompasses all the business activities involved in the flow of produce from producers to consumers. Being a perishable, fish has to be sent to the consumer as early as possible and, it is known that the highest demand is for fresh fish. The longer the time taken for this process, the lower will be the quality of fish and the price, which could finally lead to spoilage and loss. In coastal fisheries, fish is landed on the beach and are sold immediately unless there are massive surpluses. On the contrary, fish from large scale fisheries (boats with inboard engines, which are anchored in harbours: IMUL and IDAY), are landed in harbours. Landings are generally distributed via freezer trucks and the best quality fish are exported. While the process looks simple, several intermediaries are involved in this processes to ensure that the producer gets a fair price, while the consumer will have access to good quality fish at an affordable price.

Marketing of coastal fish landings

Fish is an extremely perishable commodity. Since the harvest consists of fish that are already dead at the time of landing, they must either reach consumers quickly or be preserved—through icing, freezing, salting, drying, or curing—before spoilage begins. Prior to the expansion of modern transport and preservation facilities, a portion of the catch was marketed in nearby villages, while a substantial share was dried. With improvements in transportation networks and storage technology, however, a large proportion of the present-day catch is iced and transported to major urban consumption centers located far from landing sites.

Although icing cannot be regarded as a long-term preservation method, it generally delays decomposition for about two to three days. Given the relatively small geographical size of Sri Lanka (65,000 km²), fish harvested from coastal areas can reach inland markets within approximately 5-6 hours. Consequently, the widespread use of ice is generally adequate to maintain acceptable quality until the fish reaches the final consumer. Nevertheless, it must be recognized that the value of fish declines during this holding period. Since consumers are willing to pay premium prices for very fresh fish, fishers naturally seek marketing systems capable of delivering their catch to markets in the shortest possible time.

Middlemen in fish marketing (Market Intermediaries)

In the fish marketing process, intermediaries—commonly referred to locally as *mudalali*—carry out the various activities required to move fish from producers to consumers along the value chain. The term *mudalali* is believed to originate from the Tamil word *mutalali*, described in the Tamil Lexicon (1982) as capitalist, proprietor, landlord, or chief. In common usage, it denotes a person with capital or a businessman. Within fish marketing, *mudalali* perform a broad spectrum of intermediary roles, ranging from assembling fish at landing sites to functioning as wholesaler-retailers.

Modes of Fish Selling

The following discussion draws on the first author's earlier work (Amarasinghe et al., 2005) and subsequent field investigations (Dharmasiri & Amarasinghe, 2018).

Auctions

In coastal fisheries, more than half of the total catch is sold through auctions, while the remainder is disposed of either through direct negotiation (haggling) or by direct sale to merchants.

Virtually all beach seine catches are auctioned. As the cod end (*maduwa*) is brought ashore, *mudalali* assemble nearby to place their bids. Typically, a member of the beach seine crew conducts the auction. After settling payments in kind, the remaining catch is displayed for bidding, and the highest bidder secures the lot. When catches are small, bidding is conducted for the entire lot; when large, it is done on a unit-weight basis.

Different auction formats have been observed. In villages such as Dondra in southern Sri Lanka, a minimum acceptable starting price is announced, and bids proceed upward. In contrast, in places like Mirissa, a maximum starting price may be declared and progressively reduced until a buyer accepts.

When small mechanized boats (OFRP/MTRB) or non-mechanized traditional crafts (NTRB) land their catches, *mudalali* waiting on the beach first inspect the catches to assess quantity and species composition. They make quick judgments about supply and demand conditions before entering into negotiations. In such cases, no formal auctioneer is involved. Where auction halls exist, catches are transported there, enabling closer interaction between sellers and buyers and fostering stronger competition among purchasers.

In some instances, *mudalali* purchase fish on behalf of cycle or scooter traders, who pay a service fee. Alternatively, these traders may retail fish on behalf of the *mudalali* at a predetermined total resale price. Any surplus above this price becomes the trader's income, while any shortfall results in loss—although losses are sometimes shared in practice. Close working relationships typically exist between *mudalali* and scooter traders, who often assist with beach operations such as sorting, icing, packing, and transporting fish.



Figure 4.1: Motorcycle (Scooter) Traders at Negombo Fish Market

Haggling

Haggling is common among operators of OFRP and NTRB crafts, particularly those using gill nets. Here, the fisher and buyer negotiate directly while fish are being disentangled from nets. Producers usually quote a price slightly above their expectation, prompting merchants to counteroffer until agreement is reached or negotiations fail.

Unlike beach seine auctions, which require public price announcements due to the large workforce involved, small craft operations typically have only two or three crew members, making public declarations unnecessary and reducing disputes over income distribution. The extended time required to remove fish from gill nets—sometimes three to four hours when catches are abundant—allows merchants to move between crafts and negotiate sequentially.

Small fish are often sold individually, with prices quoted per piece. This facilitates partial or sequential sales, enabling buyers with limited capital to participate. Weaker *mudalali* who might hesitate to compete openly in auctions can therefore purchase small quantities. This arrangement enhances competition among buyers and may improve prices received by producers.

In contrast to the marketing of large offshore species—often handled at harbors by merchants equipped with freezer trucks—coastal fish trade is dominated by numerous small-scale traders, particularly motorcycle and bicycle traders and sometimes van traders. Since capital requirements are modest, entry barriers are low and competition remains strong. Many traders are residents of the same or neighboring villages, well known to fishers, and disputes are relatively rare. Coastal landing centers are also visited by a few larger merchants who possess fish vans. They either assemble fish from several villages or visit when there are huge supplies. They generally take their fish to large urban centers or to the Peliyagoda (A suburb in Colombo, Western Sri Lanka) wholesale fish market.

It is always not easy for an outsider (those who are non-residents of fishing villages under concern) to enter into small fish trade because they are likely to confront physical barriers to entry in the form of threats and abuse exercised by the existing local *mudalali*. What is

interesting to note is that, due to strict competition among *mudalali* in the small fish trade, oligopsonistic powers in buying fish does not exist in coastal fisheries.

Selling Export Varieties of fish

In coastal fisheries, major export species include crustaceans such as shrimp, crabs, and lobster. These are typically marketed through established links with export firms rather than through auctions or haggling. Fishers may sell directly to exporting companies or to *mudalali* acting as agents for such firms.

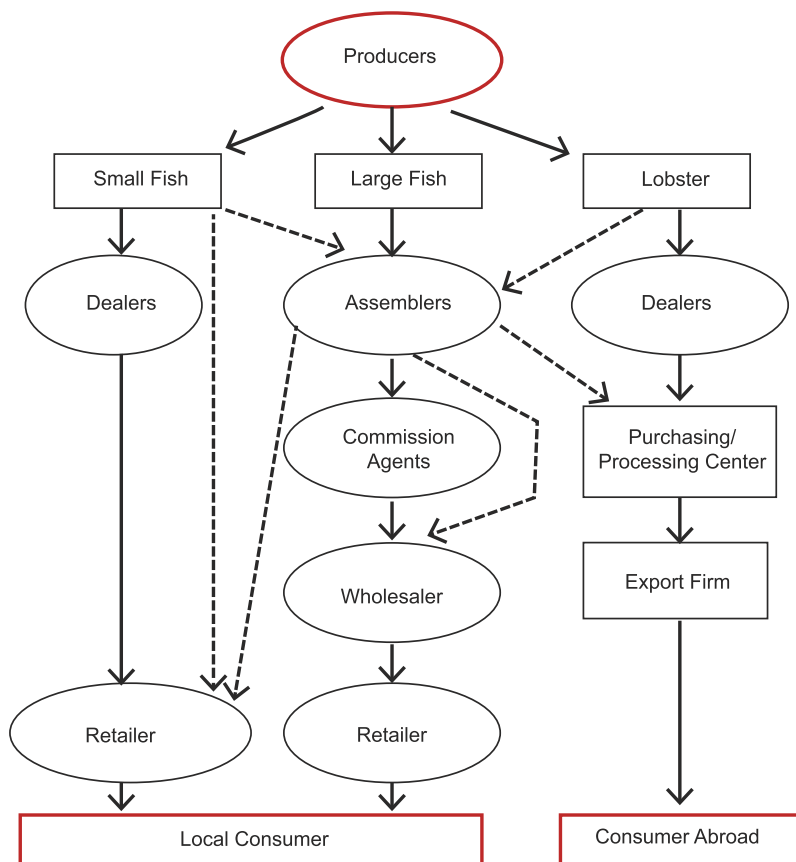


Figure 4.2: Market Channels of Coastal Fish Landings

Source: Amarasinghe et al., 2005

In migratory fishing villages along the southern coast—such as Kirinda, Amaduwa, Patanangalle, and Pothuvil—lobster fishing is common from October to February. Since export firms are generally not present in these temporary settlements, catches are sold to *mudalali* who function as intermediaries for exporters.

Prices for lobster, shrimp, and crabs are largely determined by international market conditions and tend to remain stable in the short run. Lobster prices vary by size, with medium-sized individuals fetching higher prices than extremely small (<50g) or very large (>400g) specimens. The prices offered by *mudalali* directly reflect those quoted by exporting firms.

Market Functions

A marketing function refers to a specialized activity performed within the marketing process. Among the various functions involved in fish marketing, five key roles carried out by *mudalali* may be identified: preservation, transportation, facilitation, financing, and risk-bearing. These functions create form, time, and place utilities for fish products.

Preservation is critical due to the highly perishable nature of fish. When fish are to be sold fresh—icing of the catch is done until they reach consumers. Deep freezing alters the product form and does not substitute for fresh marketing. In many landing centers, ice is not readily available and must be transported from distant ice plants.

Transportation adds time and place utility. Fish must typically arrive at urban wholesale markets in the early morning hours, often between 2:00 and 3:00 a.m. *Mudalali* must therefore ensure timely delivery, requiring insulated vehicles, adequate labor, and sufficient ice supplies. Proper packing and loading are essential during long-distance transport, particularly when supplies are abundant, to minimize quality deterioration.

The facilitating function involves coordination of labor, logistical planning, allocation of vehicles, and estimation of ice requirements—activities that ensure smooth operation of the marketing system.

The financing function is reflected in the widespread practice of advance payments among agents in the marketing chain. While in some

cases commission agents advance funds to assemblers who then finance fishers, coastal fisheries often exhibit simpler linkages, where small-scale *mudalali* directly provide advances to producers.

Finally, *mudalali* bear both market risks and physical risks. Market risks stem from uncertainties in prices and daily supply conditions in wholesale or retail markets. Physical risks arise from potential spoilage during the holding and transport period. Although improved communication technologies such as mobile phones have reduced uncertainties, quality preservation still entails costs.

Overall, the involvement of diverse intermediaries in coastal fish marketing plays a vital role in minimizing value loss, ensuring fair returns to producers, and supplying consumers with fresh fish at the required time and location.

Lender-Merchant's Marketing Strategy

As noted earlier, in addition to auction sales and haggling, some fishers hand over their entire catch directly to a particular *mudalali*. Typically, this *mudalali* is one from whom the fisher has previously obtained loans for various purposes. In most cases, borrowing is undertaken with an implicit or explicit agreement that all future catches will be sold to the lender-merchant.

When fish are delivered in this manner, the *mudalali* deducts what is commonly referred to as a “marketing commission,” usually around 10 percent. Although this commission is not openly declared, the effective price paid to the fisher tends to be approximately 10–12 percent lower than the prevailing auction price on that day. In essence, this commission represents the difference between the auction price (P_1) and the producer price (P_2) paid by the lender-merchant to the indebted fisher. Thus, the margin may be expressed as $(P_1 - P_2)$.

If the merchant handles a quantity Q of fish on a given day, his gross return equals $(P_1 - P_2)Q$. Let $C(Q)$ denote the total cost of handling this quantity, including fixed costs (vehicles, containers, permanent labor) and variable costs (ice, fuel, temporary labor, etc.). The merchant's profit (Π) may therefore be written as:

$$\Pi = (P_1 - P_2)Q - C(Q)$$

Here, total cost C is a function of Q . Due to economies of scale arising from indivisibilities in transport capacity, storage facilities, and labor organization, average and marginal costs decline over the relevant output range. Consequently, expanding the volume handled may lower average costs.

Since individual *mudalali* generally cannot influence P_1 under competitive conditions, they may attempt to increase profits through several strategies:

1. Raising the commission rate (r);
2. Lowering the producer price (P_2);
3. Expanding the volume of fish handled (Q) to benefit from scale economies;
4. Reducing operating costs.

Increasing the commission rate is constrained by customary practice, particularly in southern Sri Lanka, where a 10 percent commission is widely regarded as fair. Reducing P_2 may occur when excess supply compels the merchant to transport fish to distant urban centers or wholesale markets in Colombo. In such cases, additional marketing services and risks—especially those related to spoilage and price uncertainty—may justify a lower price paid to indebted fishers.

Cost reduction can be achieved through improvements in labor productivity, better coordination, and technological upgrading. Importantly, when the merchant doubles the quantity of fish handled, total costs do not necessarily double. Fixed costs are spread over a larger volume, lowering average total cost. This creates a strong incentive for the profit-maximizing *mudalali* to secure a stable and substantial supply of fish. Contractual arrangements with boat owners, reinforced by credit provision, serve precisely this purpose. Such arrangements are commonly known as “boat-tying,” discussed below.

Market Interlinkages

When a fisher borrows from a *mudalali* and agrees to sell all future catches exclusively to him, the arrangement is popularly termed “boat-tying.” The fisher is then described as being “tied” (*mudalalita bandila*) to the lender.



Figure 4.3: Fish seller at the fish market in Jaffna Lagoon

Photo: Oscar Amarasinghe

A frequent complaint among tied fishers is that the price received from their *mudalali* falls much below the prevailing auction price. However, because the product market is interlinked with the credit market, marketing margins alone do not provide a complete picture. In interlinked markets, the price of an input or output cannot be evaluated in isolation; it must be assessed alongside the related credit arrangements. The observed price differential may, in fact, compensate the *mudalali* for various services rendered, including credit provision, risk-bearing, and coordination.

Mudalali are keen to secure reliable and sizable fish supplies. This objective often leads to intense competition for market share, sometimes achieved through forward purchasing of catches. Poor fishers typically lack collateral acceptable in formal credit institutions and therefore face limited access to institutional loans. Informal moneylenders may charge extremely high interest rates. In contrast, fish merchants offer relatively accessible credit in exchange for future catch commitments. Such credit not only finances fishing operations

and household expenditures but also helps fishers cope with uncertainty and risk.

Insurance Function performed by the *Mudalali*

The boat-tying system reveals an important insurance function performed by the *mudalali* within interlinked credit and product markets. The characteristics of the marketing commission ($P1 - P2$) have several noteworthy implications:

- a) Loans extended by fish merchants do not carry an explicit interest rate. *Mudalali* generally do not seek profit primarily from lending; rather, credit is provided to secure continuous fish supply. Nonetheless, the marketing margin may contain an implicit interest component.
- b) The total margin ($P1 - P2$)Q has been described as a form of “natural interest,” because it varies with productivity. If catches are poor or nonexistent, the lender earns nothing. In this sense, merchant credit insures fishers against the risk of low or zero catches and the burden of fixed loan repayments.
- c) Empirical evidence indicates that the commission rate ($P1 - P2$) varies across tied fishers. This so-called “Indicative Cost of Market Interlinkage” (ICMI) tends to increase with the fisher's indebtedness, the number of zero-fishing days, and the extent of patronage services received from the merchant. Conversely, it declines with the fisher's experience and the duration of the tie (Dharmasiri & Amarasinghe, 2018).
- d) Since the margin ($P1 - P2$) is not proportionately adjusted according to the total loan amount, craft owners may effectively reduce the percentage cost of borrowing by increasing the size of their loan.
- e) *Mudalali* also support the continuity of fishing operations by extending additional loans in cases of gear damage or craft loss. Disruptions in fishing reduce not only the fisher's income but also the merchant's commissions and may increase his average marketing costs due to reduced throughput.
- f) Because the margin does not decrease with partial loan repayment, fishers have little incentive to repay incrementally.

Loans are often settled in lump sums when fishers seek to terminate the tie.

- g) *Mudalali* may have an incentive to maintain a degree of indebtedness among craft owners, as outstanding loans ensure a steady supply of fish. While repayment is not usually pressed aggressively, merchants may demand settlement if the fishing unit becomes inefficient or unreliable.

Dharmasiri & Amarasinghe (2018) and Amarasinghe et al (2005) noted a number of features of 'boat tying arrangements between craft owners and fish merchants, which made them appear as particular type of patron-client relationships. They were dyadic ties between un-equals: agents belonging to different social strata. The goods and services that were exchanged were diffused and the ties were continued over an indeterminate period of time.

The multiple functions of merchant-credit

By borrowing from a fish merchant against the promise to hand over future catches the borrower fisher ensures that he has easy access to both production and consumption credit while insuring himself against the risk of damage and loss of crafts and gear. The merchants lend the tied craft owners for all purposes; consumption loans, loans to meet medical expenses and social obligations, and even assistance to get things done from a government office, etc. In the absence of organized markets for fisheries insurance, the lender-merchant provides loans to the borrower craft owner in meeting engine repair, gear repair or gear replacement, etc., which are lent over the counter without delay. Thus, credit provided by merchants perform both credit and insurance functions.

Traditions, values, beliefs etc. also influence fishers' marketing practices, which also show regional variations. For example, fishers in Godawaya (Hambantota District) or Mirissa (Matara District) generally auction their catches rather than getting tied to a merchant, whereas those in Kudawella and Dondra many prefer direct selling to *mudalali*, showing the differences in social norms and values embedded in different communities that shape the behaviour of individuals. What is considered 'not right' in one community may be 'right' in another, in

respect of certain practices (see Coleman, 1987). However, in many fishing villages, the tying arrangements are slowly eroding. Amarasinghe *et al.*, 2005 (op.cit) identified a number of reasons for the gradual disappearance of boat-tying arrangements, among which two are important in the present context: i. Extension of institutional credit to small-scale fisheries and ii. Increased reliance on self-insurance.

Today, the two state-owned banks have loan schemes to enable fishermen to acquire fishing crafts and gear with less stringent collateral requirements and concessionary rates of interest. Obviously, the increased availability of institutional credit undermined the fishermen's need for loans provided by fish merchants. Second, people started relying heavily on self-insurance, such as savings in the form of cash deposits in banks or cooperatives or investments in durable consumption assets including jewelry, which can be liquidated at times of distress.

In their study in Gandara and Kottegoda, two fishing villages in Southern Sri Lanka, Dharmasiri & Amarasinghe (2018) studied among other things, the insurance advantage of boat tying arrangements (or market interlinkages). *Table 4.1* gives the diverse sources of insurance for fishers in Gandara, while *Table 4.2* gives such sources for Kottegoda fishers. The tool used for the analysis was 'preference scoring'.

The most interesting finding is the variation in the diverse sources of insurance for the fishers in the two villages. For fishers in Gandara, fish merchant was the major sources of insurance (loans from the lender merchant performing the function of insurance), while for those in Kottegoda, self-insurance has been the major strategy for coping with risks; savings in cash and mortgaging jewelry. The importance of cooperatives in providing insurance in both villages is also to be noted. This could be attributed to cooperative lending through a diversity of loan schemes, which also include 'instant loans' which are provided over the counter at higher rates of interest, to cope with sudden shocks (loss or damage to craft & gear / urgent health needs, etc.)

Among other things, fishers' reliance on diverse sources of insurance appears to depend, to a great extent, on village norms (customary practices), which differ from area to area. Dharmasiri & Amarasinghe (op.cit.) noted that, people in Kottegoda despised borrowing from

Table 4.1: Sources of insurance for fishers in Gandara

Type of Insurance	Type of Insurance	Total Marks	Average Marks	Rank
Formal Insurance sources	Samurdhi-(Government poverty alleviation program)	38	1.52	10
	Banks	39	1.56	9
	Insurance Schemes for crafts	15	0.6	13
	Insurance Schemes for gears	0	0	14
	Insurance Schemes for life	24	0.96	12
	Cooperatives –(Fisheries cooperatives)	92	3.68	4
	Civil Society Organizations (CSO) – (Southern Fisheries Organisation)	93	3.72	3
Informal Insurance Systems	Informal Money lenders	88	3.52	6
	Fish merchant (Credit and product market interlinkages / Boat tying arrangements)	96	3.84	1
	From friends/ relatives	45	1.8	8
	Savings (Self-insurance System)	91	3.64	5
	Mortgaging (Gold, Land, House etc.) (Self-insurance System)	94	3.76	2
	Reduce consumption (Self-insurance System)	79	3.16	7
	Migration (Self-insurance System)	32	1.28	11

Source: Dharmasiri & Amarasinghe, 2018

merchants and getting 'tied' to them. Thus, boat-tying is not a necessity in a context of market imperfections, but it is more a 'habit', as the above results have shown.

Role of Lender Merchant during Migration

Migration has been an age-old practice in fishing. From time immemorial fishermen used to migrate to other areas, especially when fishing in their own villages remained at a very low ebb (off-season). For example, the fishermen in the south used to migrate towards eastern

Table 4.2: Sources of insurance for fishers in Kottegoda

Type of Insurance	Type of Insurance	Total Marks	Average Marks	Rank
Formal Insurance Sources	Samurdhi-(Government poverty alleviation program)	63	2.52	10
	Banks	19	0.76	12
	Insurance Schemes for crafts	9	0.36	13
	Insurance Schemes for gears	0	0	14
	Insurance Schemes for life	34	1.36	11
	Cooperatives -Fisheries cooperatives	86	3.44	4
	Cooperatives - Rural Fisheries Organizations (RFOs)	87	3.48	3
Informal Insurance Sources	Informal Money lenders	64	2.56	9
	Fish merchant (Credit and product market interlinkages / Boat tying arrangements)	65	2.6	8
	From friends/ relatives	76	3.04	6
	Savings (Self-insurance System)	93	3.72	1
	Mortgaging (Gold, Land, House etc.) (Self-insurance System)	89	3.56	2
	Reduce consumption (Self-insurance System)	80	3.2	5
	Migration (Self-insurance System)	66	2.64	7

Source: Dharmasiri & Amarasinghe, 2018

and south-eastern coastal areas (sometimes to western coastal areas as well) during *haraya* (off-season), when fishing is poor in their residential villages. The fishers in the western coastal areas (such as Negombo) migrate to areas in the Mannar district in the North, when fishing is poor in their areas. Many of the migratory villages in Mannar and the southeastern areas are isolated enclaves, with poorly developed infrastructural facilities. In some of these villages, even motorable roads are not present. Migration usually takes place with *mudalali* who provide all the required services in migratory fishing villages in return for the fish catches. The merchants undertake to transport crafts, provide operational capital expenditure, food, shelter and security and, finally, to market the landings of fishers. Quite often, the *mudalali* advances

money to craft owners to be given to the dear ones at home to take care of the family subsistence needs until their return. What is interesting in these arrangements is that, when fishermen are back in their resident villages, they have no obligations to *mudalali*: loans taken during the migratory season are settled during migration and any remaining debts will be settled only during the migratory season the following year. Generally, *mudaali* may want to perpetuate the indebtedness of craft owners because he could then guarantee himself of a good number of migrating fishers and a good fish supply in the following year.

Wholesaling and Fish Distribution

Sri Lanka never had more than one national wholesale market for fresh fish in the past. Initiated by the British in 1894, the St. John's Fish market in Pettah was the primary hub for fresh seafood. Located amidst the busiest areas in the city of Pettah (Colombo 11), the market was incredibly popular, with trucks full of fresh fish rolling in from 2 am. The inflow of fish from landing sites all over the country created a lot of traffic in this highly congested area in Colombo. For some time, the UDA (Urban Development Authority) was making plans to relocate the market to a less congested area. The result was the establishment of a new wholesale fish complex at Peliyagoda, quite close to the Colombo-Katunayake Expressway.

This new central fish market complex was built on a 3.16-hectare land at the cost of Rs 1,900 million. Half of the cost was borne by the Sri Lanka Government, and the rest was secured through a loan from the Asian Development Bank. The fish market complex houses 148 wholesale stalls, 128 retail stalls and a 25 MT ice factory. In addition, the complex offers facilities such as fisheries equipment stalls, banks, post offices and a parking area.

Fish from all over the country are brought into this wholesale center for subsequent distribution. Although fish are also sent directly to other urban markets from landing sites all over the country, fish handling and distribution facilities are absent in such markets (lack of wholesale distribution centers). Since the Peliyagoda Wholesale Market is hardly sufficient to ensure proper distribution of fish in the country, the Department of Fisheries and Aquatic Resources has proposed to establish 5 more wholesale markets of moderate capacity in urban areas

Table 4.3. Population of the Districts and the distance from major fish landing sites to the location of proposed wholesale centers.

Proposed wholesale center	Population in the district (numbers)	Distance from Major Landing Centers (km)				
		Negombo	Trincomalee	Tangalle	Jaffna	Kalutara / Beruwala
Anuradhapura	937,000	170	106	373	195	249
Kandy	1,476,000	106	157	275	271	320
Kurunegala	1,719,000	74	164	253	303	137
Ratnapura	1,171,000	136	229	133	422	108
Bandarawela	880,000	212	206	159	445	206

such as, Kandy, Anuradhapura, Kurunegala, Ratnapura and Bandarawela. It is proposed to make them fully fledged wholesale markets with cold room facilities, fish stalls, etc. The cost per wholesale center is estimated to be around Rs. 300 m with a total cost of Rs. 1,500¹ m.

Table 4.3 gives information on the population and the distance from major landing centers to the locations proposed for the wholesale centers.

In respect of distance to landing centers and the population, Kandy could be a priority. Although the population is quite high, Kurunegala is quite close to Negombo and transportation of fish from Negombo to Kurunegala could be done within a short time because of the short distance. The other proposed wholesales centers are well spread out in the country, but in respect of the population to be served and distance from landing centers, Ratnapura, Anuradhapura and Bandarawela could follow Kandy in respect of importance.

State intervention in fish marketing: Ceylon Fisheries Corporation (CFC)

As it was noted earlier, CFC was established in 1964, vested with responsibilities in fish marketing. Yet, even after 30 yrs (1996,) the CFC handled only 1.2% of the total quantity of fish produced in the country (Amarasinghe *et al.*, 2005). It has further decreased today to less than 1% of the total landings. Although CFC was established to guarantee a fair price to both producer and consumer, its role in this regard has been

1 Skype meeting with Officials of the Department of Fisheries and Aquatic Resources on 11/05/2020

minimal. Its major role today is to operate about 100 retail market outlets throughout the country. At present it has no cold storage facilities and those they earlier possessed have ceased to function. It has now rented in 3 cold storage facilities (3 large containers, each with a capacity of 75 MT. Today, the whole fish trade is in the hands of the private sector).

During the last few decades, CFC's role in fish marketing was only evident in the large scale or multiday fishing and its intervention in coastal fisheries was negligible. It was expected that CFC could contribute to stabilizing prices and maintaining fair prices that would benefit both the producer and the consumer. However, it is questionable whether CFC has ever played this role.

If the CFC is to play a significant role in fish marketing, the following should receive the attention of authorities.

- a. *Expanding fish-buying activities*
- b. *Buying supplies at landing centers (bidding alongside private merchants)*
- c. *Paying spot cash in fish buying*
- d. *Greater cold storage facilities*
- e. *Processing factories (decentralized)*
- f. *More retail outlets*
- g. *More transport vehicles*
- h. *Trained staff*
- i. *Work with community organisations**

Notice should be made of issues that arise when there are surpluses, which will push down prices. This also happens when merchants resort to buying and transporting fish from surplus areas and dump them in deficit areas. One way of preventing this is for the CFC to involve in buying such excess supplies, preventing large drops in prices. The CFC can join hands with fisheries cooperatives, who could inform the CFC of such excess supplies and provide cash allowances to producers until payments are settled with the CFC. Although, not being practiced, the CFC could also announce / display fair buying prices, which would ensure that producer prices would not fall below the CFC prices.

Post-Harvest Losses

It has been estimated that Sri Lanka's post-harvest losses have been colossal; exceeding 40 percent², which amounts to a value loss of Rs. 22.5 billion³ of the total landings. In general, post-harvest losses in coastal fisheries (small scale fisheries) is low. This is due to a number of reasons as enumerated below.

1. The fishing trips are shorter and the 'freshness' of the catches and quality are preserved to a greater extent when catches are landed.
2. Fish is generally landed on the beach but the distance between the beach and the auction hall is very short because auction halls are located on the beach itself.
3. Coastal fish is landed in nearly 1044 landing centres, each centre handling a smaller quantity of fish, which are sold immediately through the innumerable number of small-scale traders present.
4. The problem of icing the catch also does not arise often, because the fish are removed immediately by the scooter traders who sell in nearby consuming areas on the same day.

Yet, instances of post-harvest losses could be sizeable under certain special circumstances.

- a) The lobster fishers use the bottom set gill net to catch the lobster. In fact, bottom-set gill net is a banned gear because they are laid on rocks and corals and, they damage the bottom when they are hauled.

Moreover, bottom set gill nets also catch all bottom dwelling fish as well. This net sometimes stays in water for 12-20 hours before it is hauled, and by the time the net is hauled, the fish is of bad quality for remaining in water for such a long time. The quality of the dead fish is quite bad, and, they cannot even be sent for dry fish making. Lobster does not die during this period and, by keeping the net for a longer time in water, there is a higher probability of catching more lobster.

² <https://icsf.net/newss/sri-lanka-post-harvest-losses-processing-and-gender-issues-in-fisheries/>

³ <https://www.themorning.lk/articles/zUhh818pObZXgsdPOO2L>

The Department of Fisheries and Aquatic Resources does not take any action against the users of this gear, because an alternative technology to catch lobster is yet to be invented!

b) Another source of harvest losses is 'over supply', which could lead to several issues:

i. *Removing fish from the nets*

When there are 'bumper catches' (heavy catches), removal of fish from the nets becomes a time consuming and cumbersome activity. Thus, fishers work at a faster pace to see that fish is removed quickly and sold before decompositions sets in. By doing so, a good portion of the catch is damaged, which is usually sent for dry fish making. The problem becomes acute during the rainy days, when the damaged fish is not bought by the dry fish makers who are unable to dry the fish in rainy weather. Then a sizeable quantity of fish is thrown to the sea.

ii. *Disposal of surpluses*

The higher the supply the lower would be the price. A considerable time is spent on bargaining and the surpluses may also have to be carried to larger urban centers in fish boxes packed with ice. This requires easy access to ice in sufficient quantities. Some landing centers do not have such facilities. One example is Batticaloa, where ice has been an issue in the past whenever fish landings were huge.

iii. *Icing and storage*

When there are surpluses, fishers may want to keep their fish a couple of days to sell later when the price is high. Such facilities are never found in landing sites of coastal fisheries. Some fishers have used fibre glass fish boxes, in which fish can be packed with ice and kept for about 3-4 days in the landing centre itself. The issue is that, the boxes are costly and individual fishers may not be able to bear the cost. Another issue is that, some landing centres do not have facilities to keep the boxes in storage. Auction halls present in some landing sites provide for a storage room, water, toilets etc. which could provide space for keeping ice boxes.

c) *Trash fish*

A recent study by Jones et al (2018) provides evidence of unsustainable and destructive nature of small-scale fisheries in the Puttalam Lagoon of

the north-western province. During the survey period, the study found that 2,757 trash fish were indiscriminately discarded from 63 fishing trips to only one site alone. "Similarly, all terapon and puffer individuals, over 350 and 200, respectively, were discarded. Of the 68 taxa recorded in catches, only nine species were always retained. Thirty-five species were always discarded" (ibid). Other than non- target species, about 550 juvenile of the target fish *javus* individuals were discarded for their smaller size and none had been put back into the lagoon. Among different groups of fishers, the shrimp fishers have landed the highest by-catch made up of multiple species of finfish. This study has been criticized for its various deficiencies⁴. The major arguments were that landings were recorded for only one field site and that seasonality has not been taken into account. The shrimp catches had been quite low during the survey period. Thus, the study does not provide any conclusive evidence of huge post-harvest losses in lagoon fisheries.

Concluding Remarks

- Marketing of coastal fish is handled by an innumerable number of small-scale fish traders (*Mudalali*) who maintain kinship, friendship and community ties with fishing communities. No complains of unfair trade have been heard. There is good competition among buyers and auctions are quite common. One could safely assume that marketing of coastal fish landings takes place in a competitive environment ensuring fair trade.

For an outsider, fishermen appear to be 'exploited' by *mudalali* through Boat tying arrangements, where fishers receive prices below the auction price. However, this price differential was noted to be the price that the borrower fishers have to pay their lender merchants not only for marketing their catches (market commission) but for lending credit facilities to meet both consumption and production needs and, also for an array of patronage services extended by them. Besides, credit extended by merchants perform both, a credit function and an insurance function, in a context of imperfectly developed credit and insurance markets. Thus, the fish merchant (*mudalali*) can be considered an important intermediary in coastal fisheries,

⁴ Discussions carried out by the SLFSSF in 2019 at various meetings of its Executive Committee

performing a variety of functions ensuring a smooth flow of fish from the producer to the consumer.

- The Ceylon Fisheries Corporation has not played a significant role in the marketing of coastal fish catches. Whatever fish they have purchased were from the large-scale (or commercial-scale) multiday fisheries, which have been quite marginal in the past. However, they have played a minor role as 'price stabilizer' especially in large scale fisheries by maintaining price 'floors' that had certain impact on prices offered by fish merchants in this commercial-sector. What is more appropriate for the CFC is to intervene in fish distribution and retail selling. CFC possesses about 100 retail stalls and fish trucks for distribution purposes and it can contribute significantly towards fish distribution and retail selling; serving the rural low-income households as well as the urban consumer.
- While post-harvest losses in coastal fisheries are low, the loss of value could be high during times of gluts. Due to the absence of cold room facilities, the surpluses are sold at very low prices and are disposed immediately. From the fishers' point of view, the best practice at times of massive landings, would be to preserve the fish in ice and sell after a couple of days when the prices are high. Yet, such cooling facilities are not available at landing sites. Thus, provision of fibre glass boxes to ice the fish for a few days would help fishers to receive a good price and prevent the value loss of the landings. Since these boxes are quite costly, the best would be to help the community-based organisations (cooperatives) to acquire a few fish boxes and rent them out to fishers. A related issue is the lack of auction halls in many landing sites. Auction halls allow the sellers and buyers to be brought into one place, which approximates the conditions of a 'perfectly competitive market'. Moreover, along with auction halls, a number other facilities will also be built because of the complementarities in these facilities: water, equipment storage, latrines, etc. all of which facilitate in maintaining a favourable market environment. Promotion of establishing smaller ice plants close to larger landing sites is also recommended to meet the ice requirements. Some cooperatives too run ice plants (ex. Godawaya).

- Given the absence of wholesale centres in distant areas with cold room facilities, fish marketing suffers when large surpluses are to be handled. Moreover, having such centres will definitely ensure that remote areas are continuously served with fish. Thus, it is recommended to establish a few wholesale markets as proposed by the government.

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Chapter 5

Fisheries Community Organisations







Preamble

It is now recognized that fishing is not simply 'catching fish and earning an income', but a particular way of life which meets the wellbeing aspirations of fishers - a much broader composite goal, which is especially true with small-scale fisheries. All activities in fishing are firmly embedded in culture, values, customs and traditions of fishing communities, and thus the decisions concerning fishing are generally sociocultural constructs rather than those based on profit-maximizing rational choices. The oft-noted complaint of fishers is that their diverse wellbeing aspirations are not properly understood by the state actors, who often manage fisheries from the top, with little contact with those at the bottom. In such a context, the fisheries community organisations can be considered as institutions of utmost importance, catering to the varying needs of the fishers – from the provision of technical and financial services to meeting their diverse wellbeing aspirations.

Until 2010, 'fisher voice' was heard through one community organisation, the Fisheries Cooperative, which played a commendable role, from early 1960's onwards, in the process of modernization of fisheries (or the Blue Revolution). The new technology, such as motorised boats (OFRP and IDAY), were quite expensive for individual fishermen to finance out of savings and the government decided to channel the new technological innovations to the fishing community through fisheries cooperatives, by providing subsidies, subsidized credit, etc. In fact, the ordinary fishers had access to the new technology mainly through fisheries cooperatives. This function of cooperatives continued into 1990's and they became so close to the lives of fishers,

who used to call them, the 'society' (*samithiya*), dropping the term 'cooperative', because there was only one society which took care of their diverse needs, and through which they could raise their voice.

It is known that fishing, especially marine fishing, is an occupation quite different from others not only because it takes place in a very hazardous environment known only to the fishers but also due to the fact that fishing communities are geographically and socially separated from others. These coastal people have their own values, traditions, beliefs, which makes up a particular way of life, not well understood by authorities at the 'centre'. Such understanding comes from working with fishers and their organisations. While this fact was well recognized in the past, especially in the 1980's and 1990's, the fisher community organisations are not well represented in many forums at present and the state-community relations have become weak. It should be emphasized that the wellbeing aspirations of fisher people are known well only to their own community organisations such as cooperatives, and the best way to understand fishing communities and to bring them to the decision-making table is by working with fisheries community organisations such as cooperatives. Many tend to forget the fact that 'fisheries' is not only about fisheries resources, stock enhancement, fisheries biology and fishing technology, etc., but it is also about people who use the resources. While there is a dual goal to meet: ecosystem health and human wellbeing, a disconnect between the two is evident. One way of making this connection is through fisher community organisations.

Recently published data from the Ministry of Fisheries reveal that there exists a large number of community organisations in each coastal district (*Table 5.1*). They belong to two types of organisations, Fisheries Cooperative Societies and Rural Fisheries Organizations (RFOs). This chapter discusses only these two community organisations.

Table 5.1: Fisher Community Organisations in the coastal fisheries districts of Sri Lanka (marine sector)

Coastal District	Number of Community Organisations	Number of Members
Colombo	23	1744
Gampaha	91	6029
Kalutara	54	4780
Galle	53	3451
Matara	96	7328
Hambantota	104	3881
Jaffna	95	11451
Mannar	85	8197
Mullaitive	52	3901
Kilinochchi	33	2163
Batticaloa	177	15279
Ampara	105	10426
Trincomalee	106	5872
Puttalam	227	10445
Total	1301	94947

Source: Annual Fisheries Statistical Bulletin, 2024; Ministry of Fisheries and Aquatic Resources Development, Sri Lanka, 2024

Today (2024) there are 1,301 fisheries community organisations in coastal fisheries of Sri Lanka with a total membership of 94,947. This accounts for 30% of 320,470 active fishers in the country (225,480 in the marine sector and 94,990 in the inland and aquaculture sector) (Ministry of Fisheries, 2024). The largest number of community organisations are found in the Puttalam and Batticaloa districts, followed by Hambantota, Jaffna and Matara.

Fisheries Cooperatives of Sri Lanka

History

Development and expansion of Fisheries co-operatives in Sri Lanka have a post-war origin. They have been initiated by the government and are organized with the intervention of two government

departments, the Department of Co-operative Development and the Department of Fisheries, which make them a particular type of 'formal organizations'. This is often perceived as a crucial weakness, and contradict the essence of the co-operative movement. The Overseas Co-operative Development Council thus concludes flatly that: "government-controlled parastatals are not true co-operatives" (Amarasinghe, 2018). Yet, these organizations performed a number of important functions during the Blue Revolution era (1950-1970), when the new fishing technology was channelled to the asset-poor fishers through the fisheries co-operatives along with financial assistance in the form of subsidies and subsidized credit. What is important to note is the fact that membership in co-operatives is, in principle, voluntary, and that individual co-operatives enjoy a great freedom in planning, organizing and implementing activities aimed at meeting the diverse needs of the community. As it will be shown in this chapter, Sri Lanka's fisheries co-operatives have a history of being 'true' community organizations, performing an array of functions towards meeting the wellbeing aspirations of their membership: the fishers and their families.

History of co-operatives in Sri Lanka can be traced back to 1912, when Rural Credit Societies were established. Then the Department of Co-operatives, which was established in 1930, took a new interest in converting credit societies into co-operatives. The first fisheries co-operative was established in 1942, with the objective of providing credit facilities to fishers to acquire craft and gear, and to facilitate fish marketing. From 30 registered societies in 1945, the number grew to 292 by 1972 (op.cit). A complete re-organization of co-operatives was done in that year, when village-level co-operatives were amalgamated to form primary co-operative societies serving a larger area. It is to be noted that, cooperatives were also used by the politicians to do favours to their political clientele, by way of channelling public goods to them. There have been instances, where some existing cooperatives, whose key individuals belonged to a political party different from the party newly elected to power, were dissolved and new office bearers (supporting the political party in power) were elected. This also meant that cooperatives with a 'colour' different from that of the party in power did not receive any government assistance. Such unfair treatment was becoming more pervasive, and many cooperatives

collapsed due to lack of faith and trust of the membership. The present cooperatives evolved through this process. Today, many of them are self-sustaining.

The activities of fisheries co-operatives are guided by the Co-operative Societies Act No. 5 of 1972, and the Fisheries Co-operative Constitution. Many of the fisheries co-operatives in Sri Lanka can be characterized as multi-purpose, combining functions such as the provision of credit, technology and insurance; and occasionally, organization of marketing. Their importance was strongly felt in early 1960s when the government introduced the new capital-intensive 'Blue Revolution technology': mechanized boats, nylon nets and outboard motors. The two government owned banks (Bank of Ceylon and Peoples Bank) provided loans to cooperatives with easy repayment schemes, and group guarantees offered by members resolved the collateral problems. These borrower-members formed a crew group under a caretaker owner and this system facilitated access to large mechanized crafts with easy repayment schemes.

The fisheries co-operatives in Sri Lanka were subject to several threats in the past. The first threat was the withdrawal of state assistance and patronage to fisheries co-operatives in 1994 because of the prioritization of defence expenditure over others, which was huge during the civil war in the country (1983-2009). This move made some co-operatives defunct or dormant. The second type of threat emerged when the Ministry of Fisheries and Aquatic Resources (MFAR) introduced a new type of community organization called the 'Landing Site Management Committees' (LSMCs) in 2004, with the aim of incorporating management functions into community-based organizations at the landing site level. About 1,000 such committees were established in the country, and some of the co-operatives were disassembled to form LSMCs, which were pledged with an initial capital of LKR 1 Mn (USD 6214 in 2004) (Amarasinghe, 2018). The LSMCs never functioned, and no funds were allocated to them. The third threat came in 2010, when the Ministry of Fisheries established a multi-layered system of Rural Fisheries Organizations (RFOs), and announced that state assistance to fisheries would only be channelled through RFOs. However, a number of cooperatives continued to function despite this

move, even without government assistance (Amarasinghe and Bavinck 2011). Success of these cooperatives could be attributed to the strong interpersonal relationships among members of cooperatives (bonding social capital) which ensured continuity of operations with satisfactory levels of savings, and their ability to horizontally link up with similar societies (bridging social capital) and with supra-local agencies such as the government, NGOs, and development agencies (linking social capital).

Present status

A cooperative is defined as, “An autonomous association of persons united voluntarily to meet their common economic, social, and cultural needs and aspirations through a jointly-owned and democratically controlled enterprise” (*The International Cooperative Alliance (ICA) definition of a “cooperative”*). In 2017, about 943 fisheries cooperatives were registered in Sri Lanka (both marine and inland), of which only 579 were found to be active (Amarasinghe and Bavinck, 2017), while most of the recently formed RFOs are active with government assistance and sponsorship. Some of the reasons for this state of affairs of cooperatives are poor management, lack of interest among office bearers, inadequate training of personnel in business management, lack of awareness among members of principles of cooperation, poor loan recovery rates and lack of government assistance. Some of the best functioning fisheries cooperatives, with high rates of savings and lending have even been elevated to the status of Fisheries Cooperative Banks (*Idiwara banku*). There had been about 120 such banks in operation in 2007 (Amarasinghe and Bavinck, 2011; Amarasinghe and Bavinck, 2017). Generally, members in a fisheries cooperatives are small scale and artisanal fishers while those engaged in offshore fishing, especially multiday fishing, have their own boat owner associations, with the well noticed absence of any fishermen's associations that take care of the crew members. Membership in cooperatives is in principle voluntary, and the individual cooperatives enjoy a great freedom in planning, organizing, and implementing activities aimed at meeting the diverse needs of the community. In Northern Sri Lanka, cooperative membership is considered a 'must', and their membership numbers are quite high.

The restructured primary fisheries cooperatives that were born after 1972 had assumed a large array of functions to improve the welfare facilities for the fishing populations. They are totally welfare-centric, with hardly any intervention in resource management. Cooperatives had won the faith of the fishers, and their membership had grown to include even women fisherfolk, which could be commonly noted in the south of the country (see figure 5.1). By investing in bridging (horizontal links with similar organisations) and linking social capital (vertical links with diverse organisations), co-operatives have formed strong social networks, to do favours for their membership: training, capacity building, procuring funds for infrastructural development, community welfare, etc. Field studies conducted by Amarasinghe and Bavink (2011), in Southern Sri Lanka have revealed that a significant percentage of fishers had obtained their craft and gear from the cooperatives, under various loan schemes (*Table 5.2*). Fishers have obtained financial assistance from cooperatives to cope with shortfalls in incomes, illness or death in the family, natural disasters, to purchase crafts and gear, and to meet operational capital expenditure.



Figure 5.1: Members participating in a monthly meeting of the Bata Atha Fisheries Cooperative Society (Note the exceptionally high number of women fisher folk present)

Table 5.3 provides information on credit obtained by fishers in two fishing villages in the Hambantota district, to secure their diverse needs. The same study has also revealed that, a large array of training programs, had been organized by fisheries co-operatives in Sri Lanka with assistance from donor organizations, to develop the skills of members in diverse self-employment activities. Quite often, well-functioning cooperatives organize village cultural and religious events, provide tents, chairs and buffet sets for weddings and for funerals, operate pre-schools and children's parks, organize private tuition classes for school children, etc., thus facilitating the achievement of diverse wellbeing aspirations of their membership (see figure 5.2).

**Table 5.2: Fishers' access to craft and gear through cooperatives
(in two fishing villages in the Hambantota District, Southern Sri Lanka)**

Access to Crafts and Gear	Fishers reporting procurement of Physical Capital through assistance provided by cooperative (%)			
	Bata Atha		Rekawa	
	NTRB	OFRP	NTRB	OFRP
Crafts	60	65	-	-
Gear	75	70	28	-
Engines	-	-	-	65
Three Wheel Vehicles	25	15	-	-
Motor Cycles	-	-	2	-

Source: Amarasinghe & Bavinck, 2011

NTRB = Nan-motorized traditional Boat

OFRP = Fibre glass boat with outboard engine

[Note: Bata Atha is a well functioning cooperative compared to Rekawa which is relatively a dormant one]

Table 5.3: Credit facilities obtained by the fishers from cooperatives (in two fishing villages in the Hambantota District, Southern Sri Lanka)

Type of credit	Fishers obtaining loans from co-ops (%)			
	Bata Atha		Rekawa	
	NTRB	OFRP	NTRB	OFRP
Long- and medium-term credit - CRAFTS	50	45	48	39
Long- and medium-term credit - GEAR	85	55	64	58
Instant loans (to meet immediate cash needs)	48	39	79	42
Long- and medium-term credit (for self-employment activities)	80	65	43	46

Source: Amarasinghe & Bavinck, 2011



Figure 5.2: The name-board of the Rekawa (South) Fisheries Cooperative in the Hambantota, Southern Sri Lanka, providing the details of the diverse services rendered to the members; providing credit facilities and accepting savings, facilities for coconut oil extraction, provision of welfare facilities, provision of public meeting hall facilities, etc.

A study (Piyasiri & Amarasinghe, 2018) carried out in the Hambantota district of Southern Sri Lanka, had attempted at making an assessment of members' satisfaction on the diverse functions performed by community-based organisations, and the results of this assessment are shown in the *Figure 5.3*. The services rendered to their membership by three organisations serving the Rekawa coastal area were compared; the Fisheries Cooperative, Lagoon Fisheries Management Authority and the Rural Development Society. Evidently, the fisheries cooperative had recorded the-highest score (extent of satisfaction of the respondents on services performed, given as a percentage), in respect of all the attributes, except the attributes of resource management, resource conservation and conflict resolution. Its strength as a community organization is reflected by the higher values assigned for the attribute of membership and attendance of the members in meetings. It is also worthy of note, that even though the “Fisheries Cooperative” is expected to serve the fishing populations, its membership is open to all the resource users/stakeholders, who are being served and treated equally, regardless of the sector. The cooperative's role in providing livelihood support, financial support and welfare services to its members is well evident from the remarkably high scores accorded to these services by the respondents. As Amarasinghe & Bavinck (2011) (op.cit) have shown, all types of livelihood capitals are provided by fisheries cooperatives to cope with diverse vulnerabilities and to 'bounce back'. The same study has also revealed that the main reason for people (even non-fishers) to obtain membership in the fisheries cooperative is to have access to technical and financial services and other welfare facilities provided by the cooperative. It is known that the poor has little access to the formal credit market for their inability to offer collateral acceptable to them. But members in a cooperative are able to obtain loans by offering 'group guarantees' as collateral, which is the major reason why non-fishers also tend to obtain membership in fisheries cooperatives.

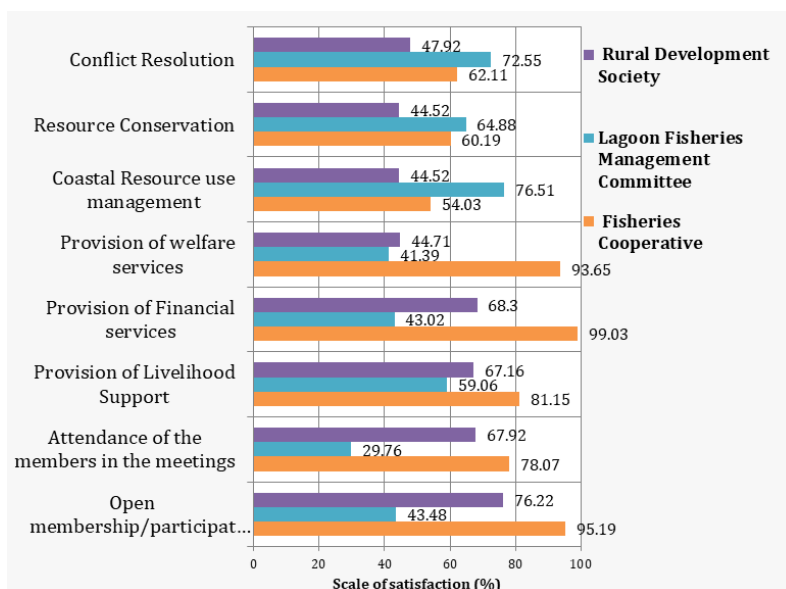


Figure 5.3: Level of satisfaction of people on functions of community organisations

Source: Piyasiri & Amarasinghe, 2018

However, Fisheries cooperatives have failed dramatically in taking any steps towards resources management and conservation. This, in fact indicates the weakness of fisheries cooperatives in performing certain important management functions. It seems that fisheries cooperatives hardly get involved in resource management and conservation, and in conflict resolution (Figure 5.3). As Amarasinghe and Bavinck (2017) (op.cit) pointed out, the need for resource management had been felt quite late, after the signs of increasing fishing pressure, use of destructive techniques, and declining resource health began to appear by the early 1990s. The new market opportunities had prompted people to extract more and more returns from common property resources causing their degradation. This situation had finally led to the formulation of the Fisheries and Aquatic Resources Act No. 2 of 1996.

It is known that as a civil organization, a fisheries cooperative cannot control or support the access to resources. As described by Amarasinghe (2006), rules, values, behavioural norms of fishing communities are based on the principals of the 'peasantry' which includes, among other things, the principle of equality and the right to subsistence. All who are born in the village have a right to live and, should enjoy equal rights of access to resources, which are, in fact, human rights. As true community organizations, fisheries cooperatives are expected to abide by these principles. This could be the reason preventing fisheries cooperatives from controlling entry into fisheries. Even in a context of high fishing pressure, they are forced to assist all those who want to fish. Moreover, following from the fact that boundaries of a marine fishery are not demarcated and clear, it would be difficult for a cooperative to control and manage activities in the sea. In fact, by providing people with important livelihood capitals; natural, financial, physical, human and social, cooperatives have facilitated entry into fisheries (Amarasinghe & Bavinck, 2011; Amarasinghe, 2009). In fact, fishers have entered the fishery quite freely and have exploited the resources heavily. This in fact, indicates the weaker concern and attention paid by cooperatives, towards management and long-term sustainability of resources. Even though resource management and conservation are not cardinal and fundamental objectives of a fisheries cooperative, it could be argued that the success of the fisheries cooperatives in the long run would depend on its' will and ability to give more attention and effective participation in resource management and conservation. Furthermore, an increased concern and effective participation in resource management would also help to broaden its capacities and contribution towards conflict resolution related to resource use.

People's expectation of services from cooperatives

According to a study carried out in the Hambantota District of Southern Sri Lanka (Piyasiri & Amarasinghe, 2018), the coastal resource users had ranked 'livelihood support' as the most fundamental service they expect and value from a community organisation, followed by resource use management and financial facilities (credit), etc. It is noteworthy, that the resource users have given a high rank to the attribute "resource

use management” showing their deep concern in the sustainable use of resources. For the fishers, resource conservation is something that will impose regulations on fishing, the reason why this attribute had been assigned a low score. The faith that fishers have in cooperatives for conflict resolution, is another important finding of this study. This shows the importance of having a platform to resolve conflicts among resource users. Of course, livelihood support is closely related to wellbeing assistance, the reason why wellbeing support has been given a lower score while livelihood support has been ranked first.

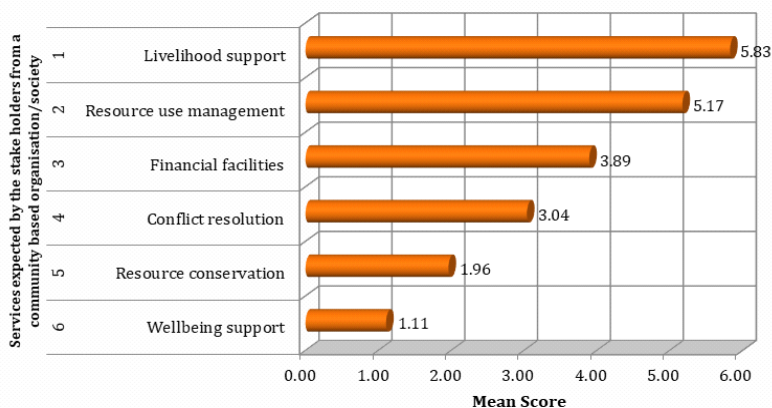


Figure 5.4: Services expected from a community based organisation by coastal resource user, (ranked according to the mean score) (Hambantota, South of Sri Lanka)

Source: Piyasiri & Amarasinghe, 2018

On another front, it has to be noted that fishers are only one stakeholder group in the coastal zone among many others; farmers, tourism stakeholders, industries and others who form a group of multi-stakeholders exploiting the same bundle of coastal resources. Therefore, decisions regarding coastal resources management need cross-sectoral collaboration to avoid conflicts among stakeholders having different interests and different legal orders. As the fisheries co-operatives command a high degree of confidence and faith among the membership and also form the dominant organization in the coastal

zone, they could take the leadership in establishing a co-management platforms to attain the dual objective of sustainable use of coastal zone resources and improving the wellbeing of coastal populations.

Fisheries cooperatives in Sri Lanka have rarely got involved in marketing of the landings of their members. Generally, fish marketing is in the hands of fish merchants who are specialized marketing middlemen wielding both economic and political power. The marketing networks in fisheries include local fish assemblers, transport agents, wholesalers, and retailers. This is a closely knit network controlled by private market intermediaries. Some of them have even integrated all the above activities production, buying, transportation, etc., so as to benefit from scale economies while controlling a higher market share. Although some cooperatives have tried to engage in wholesale fish marketing by forming cooperative unions (or federations), they have failed due to various forms of power exerted by merchants, limiting their entry into fish marketing (Amarasinghe and Bavinck, 2017). Nevertheless, given the highly competitive nature of fish marketing in coastal fisheries and the involvement of an innumerable number of small-scale traders well known to the people (often from the community), intervention in fish marketing by the cooperatives does not appear to be a necessity.

Rural Fisheries Organisations (RFOs)

RFOs were introduced by the Ministry of Fisheries and Aquatic Resources in 2010. RFOs have been established at village level and the organization at the district level is the District Rural Fisheries Federation. At national level, there is a National Fisheries Federation and this has been registered under the companies Act of Sri Lanka. Organization and registration of RFOs are falling under the purview of the Director General of the Department of Fisheries. By 2017, there had been 1,127 such RFOs (both marine and inland) with a membership of 98,748 (Amarasinghe, 2018).

The RFOs functioned only under the Ministry of Fisheries and Aquatic Resources (MFAR), without any involvement of the Department of Cooperative Development. The MFAR thought that such a format would make things easier in channelling public goods to the 'needy' fishers, and also as a means of controlling community organizations to meet the short-term political ends of the ruling party.

Policy objectives of establishing RFOs:

- (i) Manage, develop and promote fishing industry, while protecting the traditional fishing industry
- (ii) To promote management of infrastructure facilities necessary for freshwater and marine fisheries
- (iii) To initiate and construct housing projects for fishing villages
- (iv) To provide health care facilities for fishing villages
- (v) To introduce an attractive new pension scheme
- (vi) To introduce a new insurance scheme
- (vii) To implement and operate special loan schemes for the benefit of fishing community
- (viii) To create alternate sources of income by providing, knowledge and equipment with a view to promote the standards of living of fisher women
- (ix) To provide vocational education for school leavers to seek employment in local and foreign employment market
- (x) To assist in the complete elimination of the use of illegal fishing gear
- (xi) To establish a financial institution to support fishing communities.

Although it has now taken about 15 years since their establishment, the RFOs, especially those in the marine sector, still remain quite dormant in many areas. They have no clear vision and mission and, so far, have not performed any of the important functions that fisheries co-operatives used to perform. Yet, they are the agents of the state, which grant approval for various requests made by the membership, and the recipients of any public goods channelled to fisheries. It is interesting to note that, in a number of areas of the country, the existing co-operatives have assumed the name RFO, with the same membership and same office bearers. Thus, while co-operatives and RFOs are different by name, the membership remains the same in such areas: two organisations but same membership. However, since RFOs were the first community organisation established in a number of inland fishing areas, they appear to do well in some of these areas.

Nevertheless, in the minds of many fishers, fisheries cooperatives still remain the most dominant type of community organization in coastal areas. Many continue to function in an environment of zero state assistance, but as strong social networks based on trust and reciprocity among people. Quite interestingly, the cooperatives, as against RFOs, have a strong involvement of women fisher folk. Some of the cooperatives in the south are completely run by women, leaving the men to concentrate on fishing. By providing group guarantees, they have obtained loans to establish plant nurseries, boutiques, organic farming, etc., earning supplementary incomes. In short, fisheries cooperatives still function as the dominant form of fisheries community organization that represent the interests of fishers and their families and work towards meeting their wellbeing aspirations.

Fisheries and the SSF Guidelines

Through a global consultation process during 2010 - 2014, the FAO developed a set of guidelines for small-scale fisheries: Voluntary Guidelines for Securing Sustainable Small Scale Fisheries in the context of food security and poverty eradication (*hereinafter referred to as **SSF guidelines***) ensuring that, a. the contribution of small-scale fisheries to sustainable development is fully-realized; b. small-scale fishers and fish workers are not marginalized and, c. importance of small-scale fisheries to national economies and food security is recognized, valued and enhanced. This vision also recognizes that those dependent on the small-scale fisheries sector should be empowered to participate in decision-making with dignity and respect through integrated management of the social, economic and ecological systems underpinning the sector. Moreover, they are not blanket recommendations, but guidelines, that are to be adopted or incorporated into national plans of action depending on specific contexts of countries. Governments are expected to play an important role in controlling essential legal, financial, technical resources in adopting the most appropriate guidelines.

In implementing the relevant guidelines, one should not repeat the age-old tradition of adopting top-down approaches. Today the tendency is to move “from government to governance” (Bevir 2010), and the spheres of fisheries and coastal management are inseparable (Kooiman

et al., 2005, Bavinck *et al.*, 2013). This refers to a more open, inclusive and interactive form of managing fisheries and coastal resources where stakeholders have a more proactive role to play (Hill and Hupe 2009) in accordance with 'good governance' principles such as democracy, equity, transparency and accountability. Therefore, it is quite clear that, even though the states are the main contributor in implementing the process of SSF guidelines, the community organisations have to play an important and, in fact, a vital role in the process.

SSF guidelines are based on 13 guiding principles (*Section 3 of the Part 1*); *Human rights and dignity, Respect of culture, Non-discrimination, Gender equity and equality, Equity and equality, Consultation and participation, Rule of law, Transparency, Accountability, Economic, social and environmental sustainability, Holistic and Integrated approaches, Social responsibility, and Feasibility and social and economic viability*. A research carried out recently in Southern Sri Lanka (Piyasiri & Amarasinghe, op.cit.), has made an effort to find out whether any of the existing community institutions possess the capacity and, the respect and faith of the community, in playing a lead role to initiate a process of implementation of the relevant SSF guidelines. *Table 5.4* shows the level of confidence people placed on diverse community organisations in terms of their ability to respect and adopt the aforementioned principles of SSF guidelines.

It is obvious that the fisheries cooperative has won a very high degree of confidence of people with respect to its ability to abide by all the principles of SSF guidelines under concern. Since the fisheries cooperative has scored remarkably high for each and every attribute, it is quite evident that the aims and strategies of fisheries cooperatives are quite conducive and supportive of adopting the major guiding principles of SSF guidelines. However, as suggested by Amarasinghe and Bavinck (2017), in order to perform the above functions, fisheries cooperatives should work with other stakeholders, where they would identify and respect the rights of all to the coastal zone. The ideal way of doing this is to form a co-management body with the participation of all state and non-state stakeholders in the coastal zone, including women and vulnerable groups. The structure of such a co-management platform was proposed in Chapter 3.

Table 5.4: Level of satisfaction of people on the ability of community organisations to respect and adopt the principles of SSF guidelines (Hambantota, Southern Sri Lanka)

Assessment Criteria	Level of Confidence/Satisfaction (%) with the Management Platform		
	Fisheries Cooperative	Lagoon Fisheries Management Committee	Rural Development Society
Human Rights and Dignity	70.76	65.81	67.16
Inclusiveness	98.46	43.48	75.84
Gender Equality	95.96	44.41	72.83
Consultation	82.88	44.88	67.16
Participation	98.07	51.62	73.58
Transparency	96.92	51.39	72.45
Accountability	98.07	48.37	54.33
Holistic approach	84.42	46.51	61.13
Integration	84.61	55.11	46.79
Social responsibility	81.34	59.30	68.30

Source: Piyasiri & Amarasinghe, 2018

Role of Fisheries Cooperatives in Implementing SSF Guidelines

SSF Guidelines argue for responsible governance of tenure, sustainable resource management, social development, fish value chain and gender equality, etc., and the aim of this section is to see to what extent fisheries cooperatives are able to adopt these guidelines

Recognition of Customary Rights

SSF guidelines state that, all parties should recognise, respect and protect all forms of legitimate tenure rights, while taking into account the customary rights to aquatic resources enjoyed by small scale fishing communities (*Article 5.4*). It is to be noticed that, Sri Lankan government and the constitution recognize only one legal system in fisheries: that of the state. Customary law is only acknowledged, where it has been incorporated into state law. Wickramasinghe (2010) aptly describes the existence of an array of customary norms and regulations

applied to fisheries along the southern coast, which include norms and regulations pertaining to jurisdiction over marine and coastal territory, which conflict with state rules at certain instances. Conflicts among community and government actors often arise from the failure of the state governors to understand the existence of other legal systems, especially that of the community, which strongly advocates the rights of the fishers to coastal fish resources and adjoining land. Being people's organisations, fisheries cooperatives respect and enforce community laws, traditions, customs, beliefs, etc. The cooperatives have traditionally been engaged in protecting the rights of the fishers belonging to a certain coastal area (fishing village) by prohibiting outsiders to anchor their crafts in that village. Moreover, they also protected the rights of fishers to beach seining sites (*padu*) and state actors did not intervene in this sphere.

Sustainable Management of Resources

SSF Guidelines argue for measures that realize long-term conservation and sustainable use of fish resources (*Article 5.13*). Customary fisher law in Sri Lanka generally aims to regulate the distribution of access and income from marine fisheries among different categories of users, while taking future use into consideration. Contrarily the government has been most interested in the development potential of fisheries, and it is now cognizant of the need for sustainable resource management.

As discussed in the previous section, sustainable management of fisheries is not an area, that fisheries cooperatives have explicitly addressed. This can be traced back to the origins of the fisheries cooperative movement in early 1940's, when they were expected to provide the membership with credit facilities to purchase craft and gear, which is a function tantamount to 'facilitating entry'. There is hardly any evidence of cooperatives adopting effective measures against resource degradation, even though use of environmentally unfriendly gear by members has been discussed and users warned at monthly meetings. In fact, as community institutions, cooperatives are embedded in social networks. It has been shown that such institutions rest on the foundations of principles of the peasantry; equality, harmony, reciprocity, etc. which might prevent the cooperatives from taking action against rule breakers (Amarasinghe, 2009). Moreover, it has also

been revealed that the fisheries cooperatives often promoted the idea of co-management, welcoming the government actors to join hands in resource management (Amarasinghe and Bavinck, 2017).

Participatory management

SSF Guidelines call upon states to facilitate, train, and support small-scale fishing communities to participate in and take responsibility for the management of resources (*Article 5.15*). As mentioned earlier, the Ministry of Fisheries and Aquatic Resources, has established Fisheries Co-Management Committees, especially in lagoons with the participation of fishers and a wide range of other stakeholders (including women). Even though it is premature to make any assessment of the effectiveness of these committees, it can be considered as an important step towards establishing effective interactive platforms. However, as Bavinck *et al* (2013) point out, the success of such processes depends on proper interaction among the community, state, and civil society actors where the participating actors recognize each other's rights and responsibilities, as well as their legal systems.

Holistic and Integrated Approaches to SSF Development

The SSF Guidelines emphasize the need to adopt integrated and holistic approaches to small scale fisheries management and development (*Article 6.1*). Marine, inland, and lagoon ecosystems generate a number of values (*see Chapter 8 on Integrated Sustainable Tourism, IST*) and those of coastal wetlands include various social and economic values both at present and in the future¹, forming the Total Economic Value of these resources. These values could definitely be exploited by resource users for their wellbeing improvements (Silva *et al* 2012). Non-fisheries values (e.g: nature tourism including visits to mangrove forests, bird watching, boat tours) and associated cultural and religious values (dancing, rituals, processions) are often exploited by stakeholders such as hoteliers, tour operators, and wealthy individuals. Generally, those who invest in tourism are urban-based investors who have funds to invest and the trained staff to cater to diverse demands of the tourists. This means that incomes produced by village resources are captured by outsiders

¹ Any good or service which people use at present or in the future has a value because people are 'willing to pay' for it.

and the village economy and the living standards people of the land will not improve. Here is an area where the community organizations could intervene in deciding about village resource use. The Special Area Management (SAM)² initiative, established and implemented by the Coast Conservation Department (CCD), was an integrated approach to coastal zone management. The most important characteristic of SAM was that it was community-based and collaborative. In the process, both marine and lagoon fisheries joined hands with all other stakeholders to form Special Area Management Coordinating Committees. Rekawa Lagoon and Negombo Lagoon have often been cited as good examples of successful implementation of SAM. Here, the community organisations such as fisheries cooperatives played an important role as an active participant in this interactive platform, in guiding resource management decisions in an environmentally, socially and economically optimal direction.

Improving and Strengthening Fish Value Chain and Trade

The SSF Guidelines lay a strong emphasis on the fish value chain and trade, especially towards the development of appropriate infrastructure, organizational structures and capacity development, including vulnerable and marginalized groups. In fact, fisheries cooperatives have played an important role in the market, and also engaged in the provision of diverse livelihood capitals and training and capacity building for their members.

The small-scale fisheries value chain run from production - value addition - marketing - export of fish and fish products – local and foreign consumers. Engagement in production, handling, processing by fishers and their families requires livelihood capitals: physical, financial, social, natural and human. Amarasinghe & Bavinck (2011) have shown that well-functioning fisheries cooperatives have provided their membership with access to important livelihood assets. Training is another area where cooperatives have a potential for strong intervention. Well-functioning cooperatives have accumulated linking social capital (links with outside institutions) and have provided training to their members by inviting the the National Institute for Fisheries and Nautical Engineering (NIFNE), the unuversities, NARA

² See chapter 3 on "Governance and Management of Sri Lanka's Fisheries" for more information on SAMP

and other training organisations to provide training to their membership (*ibid.*). Some cooperatives in the south of Sri Lanka have been engaged in providing training for women members on post-harvest handling of fish, net mending, and dried fish production.

One of the serious problems associated with fish marketing is the oligopsonistic powers enjoyed by fish merchants and the low prices offered to fisher-producers (Amarasinghe 1989; Amarasinghe and Wanasinghe 1993; Platteau and Abraham 1987). However, this has been a phenomenon more common with the large scale fisheries than in small-scale coastal fisheries where a large number of merchants are involved in fish buying. Due to the absence of oligopsonies, there is no collusion among merchants to decide on prices. However, problems arise when there are excess supplies. This will push down the prices (at the landing site) and merchants willingly transport excess supplies to deficient areas and earn good profits. In such a context, fisheries cooperatives in a designated area could join hands to form alliances (bridging social capital) and to undertake marketing of produce themselves by link up with wholesale markets. One of the advantages of the government's proposals to establish a few wholesale centers in different parts of the country is that, they would open up opportunities for cooperatives to send their surpluses. One effective way of facilitating this is to ensure that the CFC has its own stalls at these wholesale centers so that the cooperatives could easily send their supplies to the CFC. The prices displayed by the CFC will help to stabilize both wholesale and retail prices at these centers. Yet, oligopsonies exist in certain small-scale fisheries, such as lagoon fisheries, where there are a large number of landing sites, preventing the presence of a large number of buyers and sellers at a particular fish landing point (deviating from the conditions of a 'perfect market'). One way of increasing the bargaining power of fishers is to strengthen the lagoon co-management committees so that they could intervene in marketing, at least to offer competition to private market intermediaries.

The cooperatives could also organise their women fisher folk to undertake fish processing and other forms of value addition. The former subject will be dealt extensively in Chapter 7, and, in respect of

the latter a number of initiatives could be launched. For example, there is a potential for utilizing the growing demand for value added 'ready-to-cook' products by the busy urban consumer. With little investment, the cooperatives could organise women to clean fish, cut and packet them as ready-to-cook fish, especially with fish species that require longer cleaning time. By establishing links with chain stores, popular super markets, etc. the women fisher folk could earn good supplementary incomes.

Inclusion of Women and Marginalised Groups

SSF guidelines highlight the importance of the inclusion and equitable participation of women, vulnerable and marginalised groups in the fish value chain (*Articles 5.15, 7.1, 7.2, 8.2*).

Household responsibilities of women are growing along with the development of the fisheries sector, in which the fishing trips are longer. Women have not only to feed, educate and protect children and to manage the household, but they are also supposed to confront and resolve all health and other household issues and, to meet social obligations. Women have often resorted to collective action much more than men in fishing communities, as they have taken an active role in participating in public affairs in the village, eg: religious places, school, etc. During a recent study carried out in Southern Sri Lanka, women in fishing families have revealed that they even represent their household in community organisations in the area (Piyasiri *et al*, 2018). According to them, this phenomenon has been quite evident in affairs of the fisheries cooperative, where women show much active participation than men, with the latter willingly allowing the women to run the cooperatives. Referring to his studies conducted in Godawaya of Southern Sri Lanka, Amarasinghe (2003) stated that attendance of women in monthly meetings of the fisheries cooperative was higher than that of men. This can be attributed to two reasons. First, women members too benefit directly from the cooperative (training, capacity building, and loans for self employment) and thus have an interest in managing them well. Second, by their engagement in the affairs of the cooperative, they leave more space for men to concentrate on fishing.

Since cooperatives are community institutions that respect principles and laws of the community, all community members have equal rights

of joining them, irrespective of caste, class, religion, and creed (Government Gazette 1974). By joining cooperatives, which are considered as strong forms of social capital, those vulnerable and marginalized groups are able to, at least in principle, to cope with stressors by securing diverse livelihood capitals provided by cooperatives (Amarasinghe and Bavinck 2011). They also provide avenues for poor and vulnerable groups to 'voice' their issues and grievances, collectively rather than working as 'individuals.'

Safety issues and fisheries insurance

Safety at sea and designing proper insurance schemes are another concern highlighted in the SSF Guidelines (*Article 9.3*). Fisheries is an area where there is less chance for the emergence of formal insurance companies providing insurance cover for the loss or damage to fishing equipment due to well-known moral hazard and adverse selection problems, which arise from informational asymmetries between insurance agents and those who seek insurance (Amarasinghe *et al.*, 2005) (*see chapter 9 of this book on social security*). One of the possible and most efficient ways of overcoming the information problem is launching insurance schemes jointly with fisheries cooperatives. Information about craft operations (fishing times, fishing locations, fishing techniques) are known to all (in a fishing community) because fishing is carried out during particular time periods by groups of fishers operating similar craft-gear combinations. Therefore, if a fisher is confronted with a certain shock, such as an accident (ex. damage to craft and/or gear, loss of nets, etc.), this is known to others. Thus, any insurance scheme operated jointly with cooperatives is unlikely to be severely constrained by informational asymmetries. Such joint operations would lower the cost of information collection and minimize defaults in paying insurance premiums, while expediting indemnity payments.

Cooperatives also offer 'instant loans' (loans lent 'over the counter'), immediately on request. This mechanism, devised by cooperatives, is intended to assist fishers to cope with short term risks of catch fluctuations and idiosyncratic shocks such as craft and gear damage (Amarasinghe and Bavinck 2011). However, the members have to pay a higher rate of interest on instant loans. This increase in interest could be

considered a kind of premium fishers pay for hedging against the risk of zero fishing days following a craft and/or gear damage.

Fisheries Cooperatives and Co-Management

Section 31 of the Fisheries and Aquatic Resource (Amendment) Act Sri Lanka, No.35 of 2013 calls for the establishment of “Fisheries Coordinating Committees”, with the prime objective of developing management plans for fisheries and coastal resource use. The act proclaims that the membership of these “Coordinating committees” should be composed of representatives of all state authorities related to coastal resource management. Moreover, the act emphasizes the participation of the representatives of the community-based fisher organisations, fisher women's groups, non-governmental organizations involved in resources management and fisher welfare, in these proposed coordinating committees, which also point to provisions made for fisheries cooperatives to participate in co-management platforms.

As mentioned earlier, fisheries cooperatives in Sri Lanka are organised by the collaborative intervention of the Department of Cooperative Development and the Department of Fisheries and Aquatic Resources, which already make them state-community type of co-management platforms. Many of the fishing cooperatives in Sri Lanka can be characterized as multi-purpose, combining functions such as the provision of credit, technology and insurance. Yet, whether fisheries cooperatives could function as co-management platforms, design appropriate resource management measures, are questionable on the grounds of power imbalances. State dominance is quite evident in the functioning of these platforms, with less space for the 'voice' of the people at the bottom. Another important issue is the need to deal with broader ecosystem issues rather than fisheries resources alone, which requires an integrated and holistic approach to management. Cooperatives in Sri Lanka have already been engaged by the government in processes such as SAM and Lagoon Co-Management Committees. A broader approach will have to take into account, both fisheries and non-fisheries values of the ecosystem, as well as the interests of all stakeholders in the coastal area. While representing fisher interests, cooperatives can jointly make decisions along with other stakeholders in managing the ecosystem in which they are a part.

Membership of Fisheries cooperatives includes non-fisher members, showing the important non-fishery functions performed by them, especially in providing financial capital. As we have earlier noted, non-fisheries stakeholders in the coastal zone believe that fisheries cooperatives could take the leadership in making decisions concerning the management of resources in the coastal zone. Moreover, through their vast experience in performing a diversity of functions to the membership, the co-operative leaders have become very strong and powerful individuals in making decisions concerning coastal resource use. Yet, the latter necessitates that fisheries cooperatives function as true interactive management platforms, with the participation of all relevant stakeholders. Such a change requires the incorporation of concerns of resource management into the constitution of fisheries co-operatives, first assuming a management role in its own sector before embarking into broader areas of co-management.

It is worthy of note that, in performing the above functions, the fisheries cooperatives suffer from two issues at present. One is their weak role in resource management and, the other is the presence of a parallel community organization, the Rural Fisheries Organisations (RFOs). In fact, the Ministry of Fisheries has started establishing co-management platforms for export-oriented fisheries (target species based co-management committees), with the participation of all stakeholders in designated fisheries management areas in a number of districts. But these committees became quite dormant after some time for a number of reasons: withdrawal of foreign assistance; absence of a leader organization to work towards achieving the goals of co-management; and the apathy of the state authorities to continue with the process. In this whole process, the fisheries co-operatives have been relegated to the background because of the government's lack of interest in empowering them. On the other hand, the RFOs remained outside the mainstream of activities because they commanded no faith or trust among diverse stakeholders in the coastal zone.

It is quite interesting to note that, as revealed by the national consultations carried out in 12 out of 15 coastal districts in Sri Lanka under the implementation of SSF Guidelines project (FAO/SLFSSF/ICSF, 2019), the fisheries stakeholders have indicated that they had more faith in fisheries cooperatives than in RFOs (*Table 5.5*). People from three

provinces; Southern, Eastern and Northern, have emphasized the fact that there should be only one organization to represent fishers. It was also revealed that the only strength with RFOs was the state sponsorship granted to them and channelling of public goods (if any) through them. However, in an array of respects, such as transparency in financial matters, auditing of accounts, open membership for all including women, provision of livelihood capitals, equal treatment to all, organization of collective activities and high social cohesion, protecting the rights of fishing communities, etc. fisheries cooperatives appear to have won the faith of fishing populations. Therefore, fisheries cooperatives should be re-organised and empowered, to represent fisher interests at Integrated Coastal Zone Management (ICZM) platforms and, also to take the leading role in ICZM as the representative of the dominant stakeholder group.

However, in order to exploit the potentially important role that fisheries cooperatives could play in fisheries management as well as ICZM, the will of the government to organise fishing populations under the umbrella of fisheries cooperatives is required. A change of this nature will not only put under way a strong process of ICZM, but also introduce

Table 5.5: Strengths and weaknesses of the two key community organisations: responses of community stakeholders

Rural Fisheries Organisations (RFOs)		
Province	Strengths	Weaknesses
Southern Province	· High State Sponsorship · Channeling of state assistance	· Lack of auditing of accounts; · High political interference; · Not catering satisfactorily to fishers' needs
Eastern Province	· High State Sponsorship · Channeling of state help	· Lack of auditing of accounts; · Absence of security and accountability for membership fees; · Difficulties in organizing meeting sessions; · Poor participation of members at meetings
Northern Province	· Channeling of public good	· Lack of audit: · Absence of credit facilities

Province	Strengths	Weaknesses
North - Western Province	· Information not available	· Information not available
Fisheries Cooperatives		
Southern Province	· Provides a platform to present and discuss the matters of fishers which cannot be resolved individually; · Provides livelihood capitals; · Understanding fishers' needs and representing them, and had been the 'voice' of fishers; · Strong leadership · Presence of a constitution; · Involved in securing fishers' rights	· Insufficient state sponsorship and concessions; · Weaknesses in leadership and management; · Poor maintenance of records and documentation by the village level officers and mishandling of money
Eastern Province	· Provision of financial facilities to members; · Involved in securing land and tenure rights of fishers; · Membership open to all social groups; · Promotion of social solidarity and harmony through conducting group activities; · High women participation	· Lack of state sponsorship · No public assistance
Northern Province	· Proper audit is done. · All the members are treated equally (When providing for insurance and compensations); · Provision of credit facilities; · Membership fee can be paid monthly. · Those leaving can withdraw membership with interest.	· In some societies, government assets are misused. · Political influence in some particular FCS.
North-Western Province	· Information not available	· Information not available

Source: Final Report, FAO/SLFSSF/ICSF, 2019

a mechanism to resolve conflicts among coastal resource users. It is interesting to note some of the recommendations made by fisher stakeholders during national consultations under the SSF Guidelines implementation process.

- Recognize and Empower Fisheries cooperatives as the true representative of fishing communities.
- Provide for training of officials of fisheries cooperatives in resource conservation and management, financial management and principles of cooperation.
- Channel all public assistance to fishing communities through fisheries cooperatives.
- Fisheries cooperatives are to be consulted in the design, planning and implementation of fisheries and other development projects in the coastal zone.

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Chapter 6

Tenure Rights of Small-Scale Fishing Communities







Preamble

Simply, the term “tenure” refers to how rights to natural resources such as land, rivers, coasts and forests are assigned within societies. As described by USAID (2017), “Tenure refers to the relationship whether defined under formal *de jure* law, customary law, or traditional practice that individuals and groups hold with respect to resources on land and at sea”. Marine tenure involves establishing a set of rights and responsibilities with regard to the use of, which resources, in what way, for how long, and under what conditions, etc.

The term “rights” includes rights that are held by individuals as well as by collectives or other stakeholder groups (FAO, 2020). The FAO (2012) has defined tenure as “the relationship among people with respect to land and other natural resources”. In fact, Small-scale fishing communities need secure and stable access to fishing grounds. They also need access to other resources like the coast, so they can bring their catches ashore, have a place to sell fish, dry fish and anchor their craft, and most of all, a place to live. Hence, it could be argued that secured tenure rights form the basis for their social and cultural well-being. Without recognized rights, there is the risk that competing economic interests from other users of the fisheries resources and coast, such as tourism, power production, agriculture, commercial fishing or other interests would push small-scale fishing communities aside, violating their right to a decent standard of living, which is also a human right (article 25 of UDHR).

Fisheries tenure is closely related to the idea 'the right to use' of fisheries and coastal resources, as recognised or assigned by the relevant management system, whether formal or informal. In the Voluntary Guidelines for Responsible Tenure developed by the FAO (2012) section 3.1.1. states the importance of the governance of tenure in land, fisheries and forests; "States should strive to ensure responsible governance of tenure because land, fisheries and forests are central for the realization of human rights, food security, poverty eradication, sustainable livelihoods, social stability, housing security, rural development, and social and economic growth". Moreover, the FAO Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries (SSF Guidelines, 2015) state in section 5.3 that states should ensure "small-scale fishers, fish workers and their communities have secure, equitable, and socially and culturally appropriate tenure rights to fishery resources (marine and inland) and small-scale fishing areas and adjacent land, with special attention paid to women with respect to tenure rights". As Charles (2013) aptly describes, tenure rights of small-scale fishers address two key objectives: from a sustainability point of view, tenure rights limit the use of fisheries resources, avoiding the issues of *open access*. On the other hand, the secured tenure rights enjoyed by the fishing communities could be considered as a key means to ensure sustainability. In fact, the geographical bond between the small-scale fishing communities and their local fishing grounds and coast, combined with the security that comes from clear and fair rights over access to those resources, are the ingredients for proper fisheries governance.

As aptly described by Pomeroy (2018), Tenure systems are now confronting increasing pressure from the forces of market expansion, growing consumption, Malthusian influences, environmental degradation and climate change which have reduced the availability of land, fisheries and forests. Under such pressures, "insecure tenure rights can often result in extreme poverty and hunger".

Access to Resources and Access Rights of Fishers

"Access rights, whether recognised through formal licenses or by customary means, are crucial in small-scale fisheries. Secured and well managed access rights within a tenure system would reflect a desired balance of social, cultural, economic and environmental goals, and enhanced food security and livelihoods for small-scale fishers and fishing communities" (Charles, 2013). Referring to the article 6.18 of the Code of Conduct for Responsible Fisheries (FAO, 1995), SSF

guidelines emphasise that the states should appropriately grant preferential access to small scale fishers to fish in waters under national jurisdiction (*Article 5.7*). This statement encompasses two specific kinds of rights processed by the small scale-fishers- the right “to a secure and just livelihood” and the right to access resources. It is also important to note that the SSF guidelines call upon states to secure both legitimate and customary tenure rights of small-scale fishers: “States and all other parties should recognise, respect and protect all forms of legitimate tenure rights, taking into account, where appropriate, customary rights to aquatic resources and land enjoyed by small scale fishing communities” (*Article 5.4*).

“States should appropriately protect the rights of fishers and fish-workers, particularly those engaged in subsistence, small-scale and artisanal fisheries, to a secure and just livelihood, as well as to preferential access, where appropriate, to traditional fishing grounds and resources in the waters under their national jurisdiction”

Article 6.18

FAO Code of Conduct for Responsible Fisheries (1995)

Customary Rights

State intervention in fisheries is a post-war phenomenon aimed at fisheries development and sustainable use of resources. In the immediate post-war era, fisheries was a community activity. Coastal communities form a particular category of people who are geographically and socially separated from others. Their values, beliefs, traditions, principles, working rules, etc. are all strongly linked to their vocation: fishing, which is a very uncertain and hazardous occupation (probably one the most hazardous occupations in the world). The customary laws of the people had implications for their customary access to fish resources, the coast and the adjoining land. Land along the coast in the earlier days had very peculiar type of ownership granted to rural elite, ministers and other persons holding important positions of the kings, characterized by pseudo *de jure* titles without clear legal validity. These owners were not known to people because they never visited such areas: barren, non-cultivable, dry, sandy and thinly populated. Since cash was not as important as today, accumulation of land and the number acres one owned made a person powerful than what he earned out of such land. Thus, isolated patches of such coastal land had no economic value for those who possessed them. Those who settled along the beaches were the fishers. The sea, beach and the homestead became their arena of operation and there were hardly any contacts with agricultural communities in the interior areas. The harsh salty environment, the scorching beaches along with their values, beliefs forming their culture, etc. made SSF a way of life. These communities had developed working rules for fishing, rules controlling people's behavior ensuring social harmony, equality, wellbeing etc. They also had rules for the land where outsiders were not allowed to anchor their crafts. As it is well known, all techniques of fishing did least damage to the environment. Thus, it is quite clear that the early settlers possessed customary rights to the fish resources, the beach and the adjoining land, which not only provided them with a livelihood, but a particular way of life.

While a strong community legal system (unwritten community law) was responsible for ensuring the wellbeing of people and sustainable use of fisheries and other coastal resources, the state appears to ignore the presence of such a legal system. Wickramasinghe (2010) and chapter 3 of this volume describe well the existence of an array of customary norms and regulations applied to fisheries along the southern coast which include norms and regulations pertaining to jurisdiction over marine and coastal territory. Conflicts among community and government actors often emerge from the failure of the

state governors to understand the existence of other legal systems, especially that of the community, which strongly advocates the rights of the fishers to coastal fish resources and adjoining land.

The major characteristic of common or open access resources, such as fisheries, is the absence of property rights, which are bundles of entitlements that confer both privileges and responsibilities. Under the conditions of limited resources and gradually increasing fishing pressure, certain traditional institutions have contributed significantly in preventing the build-up of excessive fishing effort and guaranteeing equal access to the resources and income. The principle of equality is firmly embedded in the institution of beach seining 'net sequence'. Through this traditional practice, fisheries resources are managed in a way preventing any increase in effective effort. The closely-knit structure of the community of seine fishermen and the low degree of anonymity among participants facilitated successful enforcement of the terms and conditions of the 'net sequence strategy' (see Chapter 3). Another special feature of a typical traditional fishing village is its 'village identity'. The social distance maintained between villages has been able to serve the important function of controlling the entry into open access fisheries as described earlier (see Chapter 3 under Barriers of access to resources).

In the context of market expansion, entry of outsiders to coastal zone in search of profits, growing population pressure, etc, one of the means of securing access rights of fishers for coastal resources, is to empower community organisations at the level of landing sites. Under a community access arrangement, the trusteeship of the resource and the overall stewardship of the marine environment on which it depends, rest with the community. In this way, Sri Lankans would have a high level of assurance that the resource will serve the public interest, not only for current generations, but far into the future. Fisheries cooperatives have sometimes proved that they respect customary law by protecting the rights of access to resources and controlling the entry of outsiders (see Chapter 5 on Fisheries Community Organisations). In fact, being people's organisations, cooperatives respect and abide by community laws, traditions, customs, beliefs, etc. and, whenever conflicts arise and when rights are violated, fishers' voices are only heard through cooperatives. Moreover, cooperatives also preserve the rights to beach seine sites and state actors generally do not intervene in seine operation processes (Amarasinghe and Bavinck, 2017).

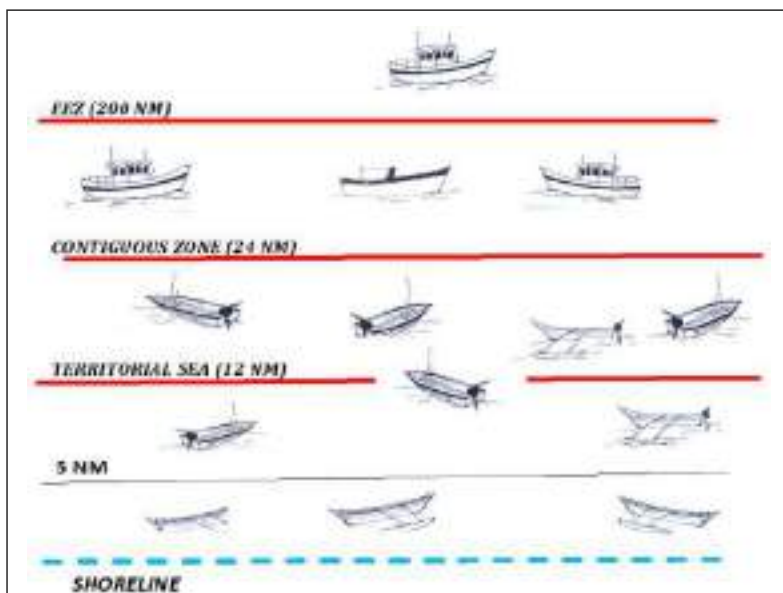
State laws; Sea Tenure

As mentioned earlier, being an open access resource, marine fisheries have been exploited by large numbers of fishers using a diversity of craft-gear combinations. The mechanization drive launched by the Sri Lankan government in the 1950's also saw increased exploitation of coastal waters by mechanized crafts. The process of globalization driven by increased demand for fish by consumers in developed countries, enhanced fishing pressure on the resources, stimulating the harvesters to resort to efficient methods of harvesting fish, some of which were found to be destructive. The coastal resources in particular, became heavily exploited and catches of some of the fish species were declining, threatening resource health.

Blue revolution and territorial fishing rights (sea tenure)

The technological revolution of Sri Lanka's fisheries took place around 1958, with the introduction of the planked 3.5 Ton boat with inboard engine (the IDAY boat, as called today). This was the first offshore-motorised craft introduced to fisheries. It operated beyond the continental shelf but within the EEZ. A small mechanised boat (17-23 ft) with outboard motor was introduced around 1962. Along with these crafts, the nylon net, and techniques such as gill netting, long lining, etc. were also introduced. Some of the owners of traditional crafts, motorised their crafts by fixing outboard motors, which are now known as MTRB (Mechanised Traditional Boat). The multiday boat was introduced at the end of 1980's and it operates in the offshore area and even beyond EEZ to high seas. What is interesting in the process of blue revolution is that the mechanisation drive did not cause any conflicts among technological categories due to spatial separation of diverse technological categories (fleet categories) (Figure 6.1).

The spatial separation of technological categories meant that conflicts among fishers engaged in different craft categories did not arise. Therefore, marine tenure was not an issue in SSF in the past although random incidences of mechanised crafts operating in nearshore waters have been heard. It is this particular direction of technological progress that led to this favourable situation in marine tenure. There was hardly any need for the government to intervene in correcting any disputes among fishers engaged in different craft-gear combinations. A new regulation prohibiting the operation of purse seines within 7 km from the shoreline was brought in, leading finally to the demarcation of an arbitrary 'artisanal fishing zone': from shore line up to about 5 km (distance to which artisanal crafts operate). However, one could hardly



KEY

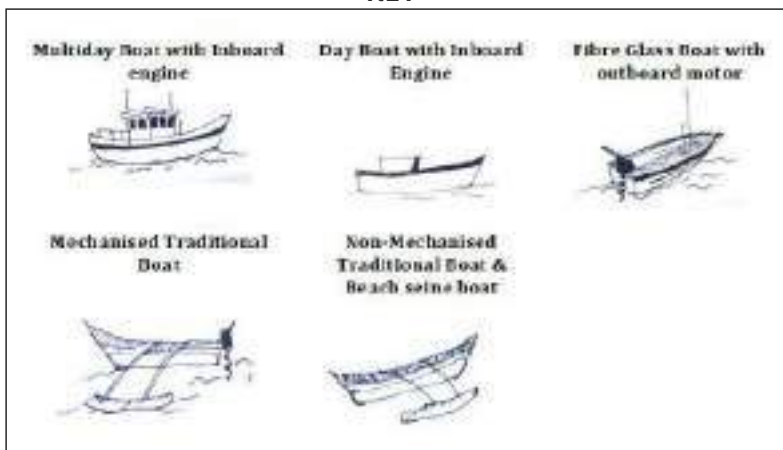


Figure 6.1: Spatial separation of technological categories (fishing fleet) under "Blue Revolution"

say that conflicts are completely absent. There have been instances of employing purse seining in more near-shore waters as complained by those using artisanal gear. However, such incidences are not pervasive in the country.

Nevertheless, during the recent years, trawling has caused a serious marine tenure issue because the technique has been employed in coastal waters used by small scale fishers. As it is known, trawling scrapes the sea bottom catching all life at the bottom causing destruction of the resources and the ecosystems. Such techniques when employed in coastal waters used by small scale fishers, the livelihoods of the latter are threatened; causing illbeing to both present and future people. Trawling is causing serious conflicts in the North (Mannar and Jaffna), where about 400 trawlers (3.5 ton boats converted to engage in trawling) fish in near shore waters, and in Kalpitiya, where about 27 trawlers exploit coastal fish resources. However, the government research institution (NARA¹) has carried out some studies on the impact of trawling on the ecosystem and on SSF communities, and had suggested zoning of trawling operations. However, these results are not very conclusive.

State laws governing access to fisheries resources

The Fisheries and Aquatic Resources Act, No. 2 of 1996 (FARA) and its subsequent amendments provide the legal foundation for fisheries resource management of Sri Lanka. The provisions made in the Fisheries and Aquatic Resources Act, and the National Fisheries policy, regarding the access to fisheries resources are listed in the *Table 6.1*

¹ National Aquatic Resources Research and Development Authority (NARA)

Table 6.1: Provisions made in the FARA and National Fisheries Policy, in respect of access to resources

National Fisheries Policy 2018

4.5.22: Respect the tenure rights of the traditional, migrant, subsistence and artisanal fishing communities to land, waters and fish resources.

4.5.23: Make right holders responsible for sustainable use of the resources.

**Fisheries and Aquatic Resources Act No. 2 of 1996 (FARA)
and subsequent amendments**

Licensing of fishing operations.

- 6. (1)** No person shall engage in, or cause any other person to engage in, any prescribed fishing operation in Sri Lanka Waters except under the authority of, and in accordance with the terms and conditions, of a license issued by the Director.
- (2)** The Director may in writing delegate the power of issuing licenses to a Licensing Officer appointed under this section and for this purpose there may be appointed one or more Licensing Officers for each Administrative District.
- (3)** No officer below the rank of Fisheries Inspector shall be appointed to be a Licensing Officer.

Registration of local fishing boats.

- 15. (1)** The Director shall cause to be maintained a register of local fishing boats.
- (2)** Every owner of a local fishing boat used for the purpose of taking fish in Sri Lanka Waters shall apply to the Director for the registration of such boat and of the name of such owner.
- (3)** Every application for registration under subsection (2) shall be made in the prescribed form and shall be accompanied by the prescribed fee.
- (4)** On receipt of an application under subsection (2) the Director may call upon the applicant to furnish such other documents of information as he may specify to prove that the applicant is the owner of the fishing boat in respect of which the application is made.
- (5)** The Director shall, having considered such application and the documents and information if any, furnished under subsection (4), register the local fishing boat in respect of which the application is made and the name of such owner, or for reasons to be recorded by him, refuse to register the local fishing boat and the name of the owner thereof.
- (6)** The person whose name appears in the register of local fishing boats shall, for the purpose of this Act, be deemed to be the owner of such boat.

- (7) The Director shall pay to the Provincial Fund of each Province at the end of each year such percentage as may be prescribed of the fees received during that year for the registration of prescribed types of the local fishing boats owned by persons residing in that Province.

Change of possession of a boat to be reported to the Director.

16. (1) Every change of ownership of a registered local fishing boat shall be reported by the new owner or possessor of such boat within thirty days of such change, to the Director who shall, on payment of the prescribed fee, register the name of the new owner of such boat in the register of local fishing boats.
- (2) The breaking up or loss of a registered local fishing boat shall be reported to the Director by the owner or possessor of such boat within sixty days of such breaking up or loss.
- (3) Where any change of ownership of a local fishing boat is not reported within thirty days as required under the preceding provisions of this section, the new owner or possessor as the case may be, shall be guilty of an offence under this Act.

Minister to declare closed or open season for fishing.

34. (1) The Minister may, by notice published in the Gazette declare a closed season or an open season-
- (a) for fishing in such areas and times as may be specified in the notice; and
- (b) for taking, in such areas of such species of fish, as may be specified in the notice.
- (2) Every notice referred to in subsection (1) shall be published in Sinhala, Tamil and English in three or more national newspapers and shall be displayed in a conspicuous place or places in the area or areas in respect of which the closed or open season for fishing or the taking of specified species of fish has been declared.
- (3) No person shall, during a closed season declared under subsection (1)
- (a) fish in the area or areas specified in the notice; or
- (b) take, in such area or areas, any species of fish specified in the notice.

Developing tenure rules and responsibilities over marine waters creates a common property arrangement governed by a local tenure institution (USAID, 2017: op.cit). Towards achieving these goals, the government has resorted to the following, as it was evident from the above.

- Registration of fishing crafts. After the boat census carried out in 2006, registration of crafts and their yearly renewal have been made compulsory, to put a craft out at sea.

- Issuing of fishing licenses for fishing operations.
- Closed seasons for fishing. The Department of Fisheries may declare certain seasons as 'closed' for prescribed period of time, which is a measure associated often with the breeding season for fish (one example is the lobster ban in February and September)
- A number of amendments and gazette notifications have banned the use of certain gears to protect resources from degradation
- Rules for transfer of fishing rights are clear and the transfer of rights are also notified to the fisheries authorities. Evidence of any disputes in respect of transfers, are not often heard.

It is worthy of note at this juncture, the role of community organisations in managing marine tenure. In fact, community organisations such as fisheries cooperatives have always helped 'entry': assisting their membership to acquire fishing equipment and engage in fishing. There is hardly any control of access to the sea. But this is not the case with lagoon fishing and reservoir fishing, where the rights to manage is vested with communities who live in villages around the particular water body. The community decides who, how many and how (what technique) fishing is done in that water body. What is quite evident is the fact that community control in providing access to resources is principally decided by the type of resource. In open access fisheries, community control of access has been minimal, while it has been strong in common property resources where boundaries are clear, such as in lagoons and tanks.

State laws governing access to the coast (Importance of Secure Land Settlement Rights)

Coastal resources, some of which are common property resources, generate diverse values and, are being used by a multitude of stakeholders; fishers, farmers, tourism stakeholders, etc. Since, all these resource user groups have different interests, they are likely to impose negative externalities on each other giving rise to frictions among them. Although, addressing the issues related to secure access rights to land-based resources, and secure settlement rights of fishers, are equally important, they have not been given sufficient attention in the past. Fishing livelihoods depend on both aquatic and land-based activities. In addition to living space requirements, small-scale fishing communities need access roads to the beach, space to land their crafts, dry their nets, process fish, keep their fishing equipment, etc. Moreover,

beach-seining requires secure rights to *padu*², where nets are laid and hauled. The escalating process of sea erosion, unregulated development and construction activities, expansion of the tourist industry, increasing demand for land (especially coastal land), etc. have all had their ill effects on fishermen's access to land. Moreover, the civil war too has caused many people in the eastern region to move to the south and settle in crown land along the coast. Although the rights of fishing communities to fisheries resources, the beach and land adjoining the beach are 'generally recognized' (craft anchorage, beach seining *padu*, fish drying, drying of nets) these rights are gradually being eroded with the entry of 'intruders'; tourism, industrial and other stakeholders. Although the FAO Voluntary Guidelines for Responsible Governance of Tenure (2012) and those Securing Sustainable Small-Scale Fisheries (2015) have strongly emphasized the need to ensure tenure rights of fishers to fish resources, the beach and adjoining land, the latter had received very little attention. Nevertheless, the Department of Coast Conservation and Coastal Resources Management was involved in the past, to provide access roads to the beach, which was a welcome move in providing fishers with access to their arena of fishing operations.

Undoubtedly, sustaining livelihoods in artisanal and small-scale fisheries therefore requires protected and priority access to fishing areas on the one hand, and secure land settlement rights along the coastal strip on the other. However, the land settlement rights of fishing communities in areas adjacent to the coast are generally not well-recognised. Insecure settlement in coastal land makes their livelihoods highly precarious and vulnerable, particularly when faced with increasing competition for space and resources in the coastal zone.

The Coast Conservation Act No. 57 of 1981 (CCA) and its 1988 and 2011 amendments provide the legal foundation for activities in the Coastal Zone of Sri Lanka. It has vested the administration, control and custody of the Coastal zone and its resources, and have also conferred the legal responsibility to prepare a National Coastal Zone Management Plan (CZMP) to the Coastal Conservation department (CCD) (now known as the Department of Coast Conservation and Coastal Resources Management). Coast Conservation Act No. 57 of 1981 (CCA) defines "Coastal Zone" as 'that area lying within a limit of three hundred meters landwards of the Mean High Water Line and a limit of two kilometers seawards of the Mean Low Water Line and in the case of

² Beach-seines can only be laid in inshore waters with an even bottom, free of stones and other obstacles and such areas are usually called "*padu*" (see Chapter 3 on Governance and Management of Sri Lanka's Fisheries for more details)

rivers, streams, lagoons, or any other body of water connected to the sea either permanently or periodically, the landward boundary shall extend to a limit of two kilometers measured perpendicular to the straight base line drawn between the natural entrance points thereof and shall include the waters of such rivers, streams and lagoons or any other body of water so connected to the sea³ (see Figure 6.2)⁴. Subsequently, 100 meter wide zone to either side of a watercourse landwards was added to protect river (lakes, etc.) banks from illegal uses.

As noted earlier, the actions of coastal stakeholders having different interests give rise to negative externalities causing conflicts among them (Amarasinghe 2010). From this arises the need for a process of integrated coastal management, whereby decisions concerning coastal resource use and resource management are made with the participation of all stakeholders. While some of the efforts made by the Department of Coast Conservation and Coastal Resource Management (DCCCRM) have shown good results, such as the Special Area Management (SAM) process of the Coast Conservation Department (CCD 1997), these efforts have been quite localized and devoid of strong legal framework.

While state institutions with responsibilities for fisheries, agriculture, wildlife, forests, tourism, etc. are present along the coastal belt, there hardly exists any effective coordination and integration among the diverse institutions, revealing the absence of any integrated management of coastal resources in Sri Lanka. Today, efforts are made by the MOF to introduce co-management as a means of making fisheries decisions more inclusive and participatory. Yet, studies have revealed (Amarasinghe & Bavinck 2011; Silva et al 2013) that such co-management platforms so formed have not been quite successful as integrated coastal management bodies because the focus has been on the participation rather than on establishing appropriate mechanisms for coastal management.

The first generation “Coastal Zone Management Plan” was formulated and implemented in 1990. Subsequently it was revised and updated in 1997, 2004 and 2018 respectively. The more recent “Coastal Zone and Coastal Resources Management Plan -2018” has been formulated in conformity with the legal provisions of the CCA, No. 57 of 1981, and its amendments. The rules set out by the CCA and regulations made under it are complemented and the Coastal Zone Management Plan (CZMP) of 2018, has been built upon them. This is the main instrument at

³ Coast Conservation Act 1981

⁴ Coast Conservation Department (1997) *The Revised Coastal Zone Management Plan, Sri Lanka*

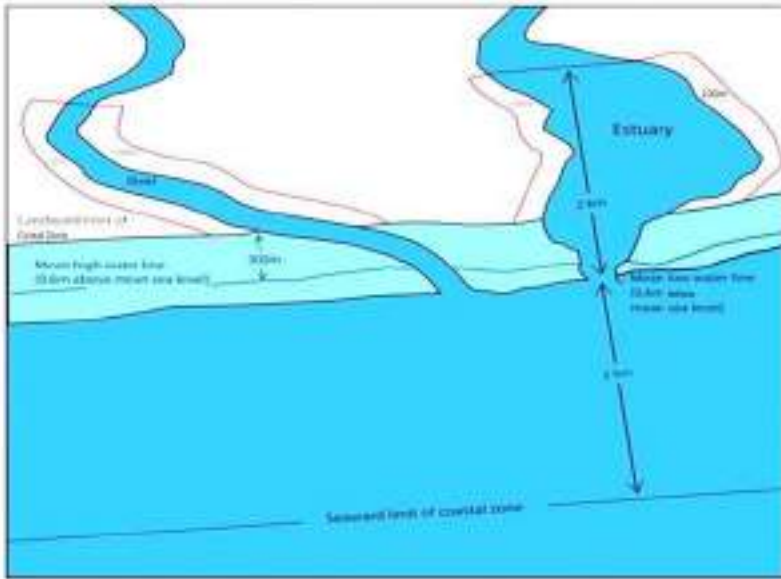


Figure 6.2: Coastal Zone as defined in the Coast Conservation and Coastal Resource Management Act No 57 of 1981 as amended by Act No. 49 of 2011

Source: http://www.coastal.gov.lk/index.php?option=com_content&view=article&id=68&Itemid=238&language=en

present that influences the identification of issues and articulation of management policy and implementing strategies in the Coastal Zone. According to the CCA, the Minister (in charge of the subject of coast conservation) may on the recommendation of the Coast Conservation Advisory Council (CCAC) make regulations to give effect to any provisions of the CZMP, including those, which regulate the use of the foreshore⁵ by the general public. Nevertheless, given the sector-based administrative system in Sri Lanka, many other statutes outside the purview of the CCD regulate a range of activities within the coastal zone. These include land use planning and land allocation; housing and other infrastructure development; management of industrial activities etc. Law enforcement for the sustainable management of coastal resources has thus far not been fully effective primarily due to limitations in the management tools afforded by the legal framework and the significant challenge of coordinating and harmonizing the priorities and operations of a diverse group of state and other actors.

⁵ Defined in the CCA as "that area of the shore of the sea between the Mean High Water and the Mean Low Water [mark]"

The provisions made in the Coast Conservation Act No. 57 of 1981 and subsequent amendments, regarding the access to coastal resources are listed in the *Table 6.2*.

Table 6.2: Provisions made in the Coast Conservation Act No. 57 of 1981 and subsequent amendments, in respect of access to resources

Coast Conservation Act No. 57 of 1981 and subsequent amendments

Part III

14.1: Notwithstanding the provisions of any other law, no person shall engage in any development activity other than a prescribed development activity within the Coastal Zone except under the authority of a permit issued in that behalf by the Director⁶ (**fisheries do not come under 'development activities'**)

16.4: In deciding whether to issue a permit under section 14 authorizing a person to engage in a development activity within the coastal zone, the Director shall have regard to any comments made under subsection (3) on the environmental impact assessment, if any, relating to such activity and any development projects commenced by the Urban Development Authority and any area declared to be an urban development area under the provisions of the Urban Development Authority Law, No. 41 of 1978.

Part III c

22B: (1) The Minister may, by Order published in the *Gazette* declare any area:

- (a) within the Coastal Zone or adjacent to the Coastal Zone or falling within both such areas; or
- (b) within any water body or part of any water body; or
- (c) within any lagoon or part of any lagoon or any peripheral area of a lagoon, as an “affected area”.

(2) Any development activity which could be carried on in terms of a permit obtained under section 14, would if it is carried out in an area declared to be an affected area under paragraph (a) of subsection (1), be considered a prohibited activity.

22E: (1) The Minister may, in respect of any area of land within the Coastal Zone or adjacent to the Coastal Zone or comprising both areas from the Coastal Zone and the adjacent area of land, declare such area by Order published in the *Gazette*, to be a “Special Management Area” if it appears to him that it is necessary to do so due to the need to adopt a collaborative approach to planning resource management within the defined geographic area.

⁶ The appointed Director of the Coast Conservation Department as mentioned in the CCA No.57 of 1981, 3(a) of Part I

Part III d

22F: (1) The Director-General shall cause to be carried out, as soon as possible after the coming into operation of this Act, a survey which would identify all the routes, paths and corridors which provide access to the public to the beaches, and routes, paths and corridors which provide access to the Coastal Zone

Part IV

31.1: No person shall, with effect from the appointed date, erect or construct any unauthorised structure, house, hut shed or other building on any part of the Coastal Zone

31D: (1) No person shall, by reason of possession or use of any specific portion of the beach claim to have acquired title to such portion of the beach as against the state.

Issues related to Tenure Rights in Small Scale Fisheries

Consulations under the study, FAO/SLFSSF/ICSF (2019) made an effort to identify the issues related to the tenure rights of small-scale fishers. Since the revealed issues concerning tenure rights were found to be quite common to all districts, the results are presented for the aggregate sample (all provinces) (Table 6.3).

Table 6.3: Tenure Rights of fishers (rights they possess/not possess) and issues concerning those rights (fisher perceptions)

Rights enjoyed by Fishers	Issues concerning these rights
Access to the sea (up to 200 Nautical Miles: EEZ)	a. Acquisition of beach areas by tourism stakeholders, resulting in loss of anchorage sites, beach seining sites. b. Loss of space available for craft and gear repair and fish processing. c. Lack of recognition and laws to protect rights of fishers. d. Acquisition of beach access roads by private land owners and hoteliers. e. lack of better technology to reach distant fishing grounds and catch large quantities of fish.
To use the coast and the beach for craft landing and anchorage	
Access to lagoons and mangrove areas	
Access to the beach (which is 'public') (beach access roads)	
To use the beach for construction of temporary huts (fishing gear storage, etc.)	
To use the beach for repair of craft and gear and other beach-based activities (such as fish drying)	

Source: FAO/SLFSSF/ICSF (2019)

The power asymmetry between the fishers and tourism stakeholders (especially, hoteliers) can be clearly seen in respect of tenure rights. The lament of many coastal fishers is that they are gradually losing their traditional access routes to the beach, space on the beach to anchor their crafts, access to beach seining sites, due to the continued process of constructions of hotels and resorts along the coastal region bordering the beach, which even fall within the no-build zones of the coast (as laid down in the Coast Conservation Act of 1982). It is well known that a considerable extent of land bordering beaches around the country is now accumulated in the hands of hoteliers; both local and foreign. Some beach areas which had remained barren and neglected for generations, become attractive locations with high recreational value; a value that remained hidden and unexploited (e.g.: *Rekawa beach of Hambantota District, Southern Sri Lanka*). Based on her field studies carried out at Rekawa, in 2018, Piyasiri (2018) has pointed out that, both true and pseudo-owners (and even those who forcefully use sections of public beaches) have started constructions and fenced their blocks causing severe hardships to the fishers who have been denied of their customary access to the beach. This is a clear example of fishers losing their customary land and tenure rights to more powerful stakeholders.

In fact, the dominant position enjoyed by the tourism stakeholders reveals the role of power, in negotiating with fishers' tenure rights to land and fisheries resources. Being a fast-growing sector, tourism has been one of the major income earners of the country during the past few decades, and has become a lucrative avenue of investment to the business class who usually maintain close relationships with the political actors. "Interlinked with wider processes of economic and social transformation along the coasts (e.g. declaration of marine protected areas, increasing aquaculture), the growth of coastal tourism and its interactions with forms of land tenure, reflect processes of contested frontier-making that are likely to intensify the 'spatial squeeze' facing many small-scale fishers" (Fabinyi, 2020). The tourism stakeholders being the most powerful, use their accumulated social, political and financial capital, to govern a particular situation (Scholtens, 2016), as it is evident from beach encroachment, illegal constructions on the beach, mangrove felling etc. carried out by them. Ross (2001) argues, that rational political elite will take the opportunity to seize the rents created by resource booms or gain control over the right to allocate them. He calls this "rent-seizing". The latter is closely linked with 'corruption' a phenomenon quite pervasive in poor countries. It takes

on special significance in respect of the natural resource sector, because of the overwhelming importance of these resources as sources of wealth and growth. This brings us to another issue, 'structural scarcity' (Maphosa, 2012), which denotes, unequal distribution and access to natural resources in which less powerful groups in the society, relative to other groups, are marginalised from equal access to particular resources.

Coastal tourism has not only been supported by foreign tourist markets, but also by local middle-class tourist markets. Given the importance of tourism as a strong foreign exchange earner, even the government promotes tourism as an important avenue for economic growth. It could even provide youth from fishing families the opportunities of employment as tour guides, as workers in restaurants, and even in the transport sector. The youth from fishing communities may support tourism over fisheries, given the hazardous nature and the low earnings from the latter. The future of land tenure issues depends on how policymakers and households in coastal areas negotiate the challenges and opportunities associated with growing tourism and declining capture fisheries (see Fabinyi 2020: op.cit).

With reference to the field studies carried out at Rekawa of Southern Sri Lanka, Piyasiri & Amarasinghe (2018) found the power asymmetry that exists among resource user groups, and the poor recognition and respect paid to the rights of the other resource user groups, as the two foremost issues (ranked 1 & 2) that had contributed towards the emergence of conflicts among coastal stakeholders (see *Figure 6.3*). In fact, the latter could also be considered as an indirect effect of power asymmetry where it is obvious that the customary rights of certain resource user groups, are being violated by the comparatively powerful groups. Moreover, the study emphasises the importance of "recognition, respect and protection of rights of all resource users" towards conflict resolution. As Bavink, Jentoft & Pascual-Fernandez (2015) pointed out, management of the coastal zone can only be successful and effective if it recognises the rights of its resource users, both legitimate and customary.

The same study highlights the importance of state intervention towards securing fisheries tenure rights, by showing that the resource users expect strong intervention by the authorised institutes in resource use management- specially, to protect their customary rights and access to resources (*Figure 6.4*).

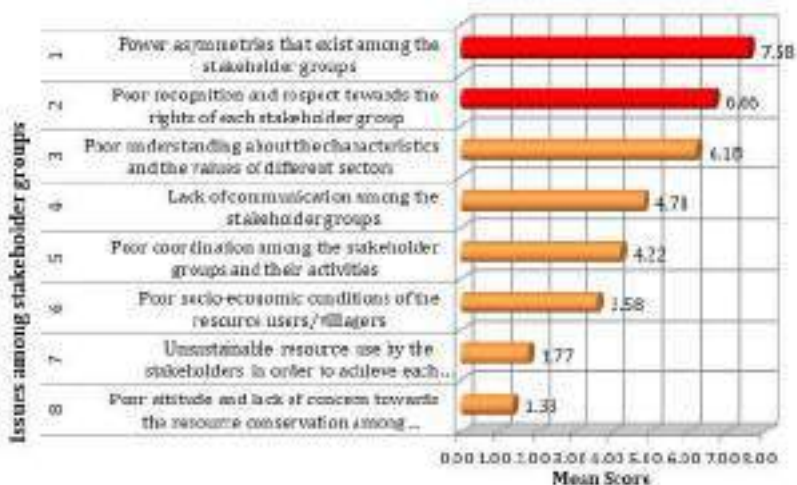


Figure 6.3: Issues among resource user groups which have contributed towards the emergence of conflicts. (see figure 3.5 for similar analytical procedure)

Source: Piyasiri & Amarasinghe, 2018

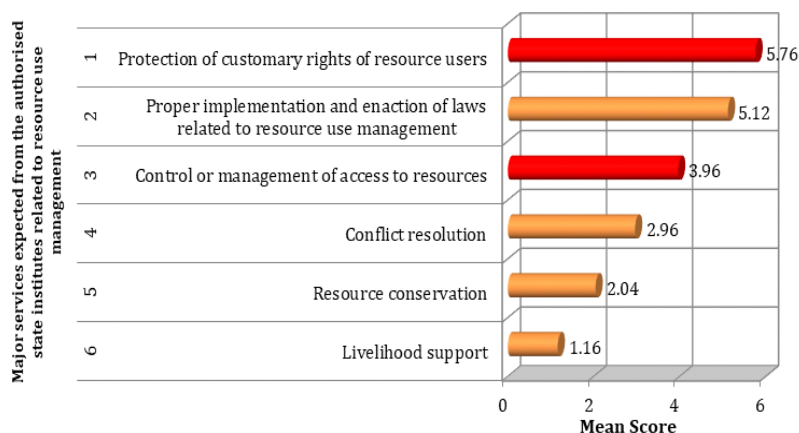


Figure 6.4: Services expected by resource users from authorised institutions related to the coastal resource management (ranked according to the mean score) (see figure 3.5 for similar analytical procedure)

Source: Piyasiri & Amarasinghe, 2018

The FAO/SLFSSF/ICSF (2019) proposed the following policy implications towards addressing the issues related to the tenure rights of small scale fishing communities.

- Identify, record and respect traditional and customary rights of fishers to the fish resources, the beach and adjoining lands
- Identify and demarcate the coastal zone for fisheries activities and for tourism development, and ensure that tourism interests do not contradict with fisheries interests
- Develop technology to provide small-scale fishers with affordable access to distant fisheries resources.
- Provide space and facilities for craft anchorage, fish drying and fishing equipment storage on the beach and in the adjoining lands

As revealed by the results of the sample study, “Zoning” of sea and land (coast) had been suggested by both fishing communities and state officers as a solution for allocating fishing grounds and craft anchorage sites for small and large-scale fishers and, for allocating beach area for fisheries related activities and tourism. In fact, fishers demand intervention by the government in this sphere, to ensure that their customary rights to the beach and adjoining land are not end sentence. They have also highlighted the importance of community based organisations towards securing their tenure rights. Even though several mal-management issues of the state institutions functioning in the coastal zone were pointed out (e.g: poor collaboration among institutes to coordinate the diverse activities of the coastal zone), fishers have unanimously supported the adoption of an integrated approach in collaboration with state institutions in dealing with issues related to tenure rights. Evidently, their expectation of both state and community involvement in securing tenure rights indicates the need for a “Co-Management Platform”. As aptly described by Pomeroy (2018: op.cit), along with the increasing external threats, there is an urgent need to legally recognize existing customary, indigenous and informal tenure rights of fishing populations, before they are permanently lost. “Mapping the geographic extent of existing marine tenure regimes is needed to support legal recognition, and may also help to increase awareness of these regimes, and support compliance with local rules to restrict use and exclude outsiders as well as reduce infringement on rights” (ibid. P.29). Some good practices of forming state-community partnerships are found in Cambodia and Philippines. In Cambodia, co-management of community fisheries is a partnership between fishers and the government, which effectively deal with fisheries tenure issues.

In Philippines, management of municipal waters has been transferred from national to local governments, which have formed Fisheries and Aquatic Resources Management Councils (FARMCs) to deal with tenure issues, among other things (Pomeroy, 2018).

Sri Lanka too provides fine examples of integrated coastal resources management through the Special Area Management (SAM) initiatives and lagoon based Fisheries Committees (FC), established more recently. SAM and FC have been developed as a “bottom up” and collaborative management approach to deal with the issues of coastal resource use, including the issues of tenure rights. However, there were no proper legal provisions for formulating and implementation of the SAM process until 2011. Absence of proper legal provisions under the Coast Conservation Act or any other statute has had negative impacts on the sustainability of the SMA process. The required provisions have been introduced later through the Coast Conservation (Amendment) Act, No. 49 of 2011 [Section 22E (1)]. In conformity with those legal provisions, the Coastal Zone and Coastal Resource Management Plan - 2018 has been prepared with a major focus on continuation of Special Management Area planning and implementation as a sustainable and effective supplementary planning tool for coastal resources management (*Chapter 5 of the Coastal Zone and Coastal Resource Management Plan -2018*). Apart from about 11 SAM sites managed at present, 40 more SAM sites have been identified and would be declared as SAM sites soon. Each SAM site would be managed by a SAM Coordinating Committee consisting of all stakeholder groups and necessary state institutions. Theoretically, such a platform should be able to address land tenure issues in the coastal zone effectively. Moreover, Section 6 (1) of the Coastal Conservation (Amendment) Act No.49 of 2011 calls for the establishment of a Coast Conservation and Coastal Resource Management Advisory Council consisting of representatives of government institutes whose work is related to the coastal zone, universities/academics, voluntary organizations and the fishing industry. Advising the Minister on development activities proposed to be commenced in the coastal zone, and reviewing the coastal zone management plans prepared under Part II of the Act, are among its key functions. However, it is not clear as to how the council is linked with the SAM process.

Recently, with strong state involvement, the Fisheries Committees and District Level Coordinating Committees (lagoon-based) have started to function. However, it is still pre-mature to make any comprehensive assessment of their contribution towards securing the legal and/or customary tenure rights of fishers.

Climate Change Impacts

Generally, climate Change impacts are strongly felt in coastal areas. The major impact that has caused threats to tenure issues and subsequently on livelihoods of fishers, had been the massive erosion of the coastal areas, many of which have been narrowed down to thin strips of beaches. Fishers complain that they have lost their craft landing sites, beach-seine *padu*, fish drying sites, etc. In coping with heavy coastal erosion, the DCCCRM had erected revetments to protect the coastal structures, roads, houses, schools, etc. and they are commonly found in the southern, western and north-western coastal belt. Such protective strictures have adverse consequences on beach-craft operations and seine operations, and many “*padu*” have disappeared. For example, beach erosion in Mannar (of North-Western Province) has caused a drastic reduction in beach-seines from about 100 seines operative a few decades ago, to a mere 20 seines today (see Amarasinghe & Piyasiri, 2024).

Concluding Remarks

Marine and land tenure issues in SSF are emerging as serious threats to the livelihood of fishers. The problem of tenure did not surface until the commencement of this millennium to a significant extent. Forces of national integration, market expansion, tourism development and industrial expansion, have pushed up the value of real estate related to coastal area, making it a lucrative avenue of investment. Moreover, tourism has shifted from sun and sea tourism in large cities (Hikkaduwa for example), to remote coastal villages, combining sun and sea tourism with nature, culture, agriculture, art & crafts and other tourism products. Thus, those rural coastal areas, which offered the means of living to small-scale fishing communities and molded them into a particular way of life, have now become locations that produce colossal recreational values. For investors, this could form one important avenue of investment guaranteeing high rates of return to investment.

Although the Coast Conservation Department has been involved in providing the public with beach access roads, there are complaints from fishers that their access to the beach has been barred in certain areas due to tourism-related constructions and fencing by hoteliers. Although, the FAO Voluntary Guidelines for securing sustainable fisheries strongly emphasize the need to recognize, respect and record the legitimate tenure rights of SSF communities, including their customary rights, actions towards achieving this goal have not been taken so far.

While issues of technological change did not cause serious problems due to the spatial distribution of technological (fleet) categories, violation of certain tenure rights related to areas of operation have been noted. In certain cases, such as trawling, the government shows some apathy in taking strong action against trawling, especially those trawlers operating in areas exploited by SSF. It is also surprising as to why the Trawl Ban Act of 2017 has not been enforced. From information obtained from field studies it is evident that, NARA has an important role to play in finding out the impacts of trawling on the ecosystem and the SSF communities and demarcate areas where trawling is permitted (zoning).

Evidently, land tenure of SSF is emerging gradually as a serious livelihood issue. Beach anchorage of SSF crafts has been a right enjoyed by fishers for generations, which is now been threatened by fencing of land adjoining beaches by those who now claim ownership to these age-old neglected land. No solution to this issue has been granted yet. This problem has become more serious with beach erosion, reducing beach area available for craft anchorage. While fishers used to leave their fishing equipment in temporary huts on the beach when they leave for home after fishing operations, this is no longer possible due to the presence of diverse stakeholders who have no close links with SSF communities. The other major issue is the beach seine '*padu*' where seine nets are laid. These are smooth bottomed areas good for bathing as well. Some hoteliers are maintaining the '*padu*' as their own beach area, threatening seine operations. The retention of homesteads and forest areas which provided livelihood assistance is also highly uncertain and rights to these lands are likely to be lost for lack of clear titles. No remedy has been found for the processes of frontier-making and "spatial squeeze" due to the strong economic and political power wielded by the hoteliers and other tourism stakeholders.

The Ministry of Fisheries and Aquatic Resources (MFAR) has no mandate to manage the coastal zone, which is now vested with the Department of Coast Conservation and Coastal Resources Management. The Coast Conservation Plan of 2018, has provisions to make strong institutional arrangements (SAM) to address coastal issues and to resolve conflicts among users of coastal resources. Thus, SAM could be used as the best platform to address marine tenure issues, especially the land issues. Evidently, tenure issues in lagoon areas are dealt by Fisheries Committees (FC) quite effectively.

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Chapter 7

Fish Processing and Gender







Preamble

Fish processing, especially the process of drying fish, has been an important component of the fish value chain, dominating all fish processing activities undertaken by the people of Sri Lanka. Dried fish making (both dried fish and *maldive*¹ fish) has been traditionally undertaken by women, providing fishing families with an important source of supplementary income. Its contribution towards food security, nutrition, sustainable livelihoods and poverty alleviation has been considerable. Moreover, fish processing has also provided women fisher folk with avenues of employment and empowerment.

As mentioned above, the major fish processing activities carried out in Sri Lanka, are making *maldive* fish (*umbalakada* as called locally) and dried fish. A major portion of the fresh fish used for processing comes from low quality and damaged fish landed by crafts. Although the target is to catch fish for export, Sri Lanka's multiday boats land a fair quantity of poor quality fish; those which are found at the bottom of the stack of trays in the fish hold of the boats (fish caught earlier in the fishing trip). Part of such low quality fish may not even be sold locally as fresh fish and, they find their way to dried fish processing. The rest of the supplies comes from the coastal fishery, when huge surpluses are found (when landings are heavy). Even though the industry has advanced significantly, the processors (often women in fishing families), still use the age-old, conventional processing techniques, which have not changed throughout the history of fish processing in the country. The

¹ *Maldive fish is a certain type of dried fish, which follows a path of processing different from that of dry fish. During the very early days, this product was imported from Maldives, which explains why this fish product is called maldive fish.*

exact technique employed depends on the type of product being processed. The traditional drying style involves a meticulous routine of cleaning, gutting, boiling, salting, and laying out the fish to dry. For the Maldivian style (for Maldivian Fish), the fish are also boiled and smoked.

Forms of post-harvest processing of fish.

Cleaning, skinning, and cutting for retailing

This is generally done for fish that needs a great degree of cleaning and skinning, such as *Pothubari*, *Thilapia*, Flat fish, etc. This is undertaken by some women and these cleaned products are sold in retail outlets. Although, fish filleting might have good potential for busy urban consumer demanding value added fish products, this alternative has not been studied in detail.

Fish Drying

The supply of fresh fish for the dry fish industry often comes from offshore fisheries. It is well known that fish stored in the ice compartment or fish hold of the multi-day crafts, especially those at the bottom trays of the cold room, are of poor quality. This quality deterioration of the fish at the bottom trays is higher, the higher the duration of the fishing trip. Often the first-caught fish are dried on the deck of the craft during the voyage and such dried fish are called “Boat-dried fish” (*boattu karawala*). There is belief that *boattu karawala* are clean, contain less moisture and are of better quality and, thus command a higher consumer preference than other dry fish types. They fetch higher prices compared to fish dried on land. Yet, the volumes available are limited.

Observations revealed that, once the catches are landed by the multiday crafts, the fish stored in top trays of the fish hold go for export while those at the bottom are sold for fish drying. Fish stored in the middle go to the local market. It is generally known that, fish that go for dry fish production are inferior in quality, although not decomposed. It should also be noted that this quality deterioration is quite low in Longliners compared to that of gill-netters and ring-netters.

The major dry fish processing clusters are located mainly in West coast (Negombo, Chilaw, Puttalam, Kalpitiya), North coast (Jaffna, Kilinochchi, Muthur, Punkuduthivu, etc), East coast (Trincomalee,

Bataloa, Kinnya, Potuvil), and South coast (Beruwala, Dondra, Kudawella).

Dry Fish making

Poor quality fish landed by multiday crafts and used for dry fish making often consist of large pelagic species such as Tuna or *Kelawalla* (*Thunnus albacares*), skipjack or *Balaya* (*Kastuwouns pelagis*), *Kattawa* (*Chrinemus sp.*), *Wannawa* (*Caryphaens hippurus*), *Para*, (*Caranx sp.*) etc. Generally, purchasing of fish is done by males in the family. The drying process involves, cleaning, washing, cutting, salting, which are done by the women fisher folk. Traditionally this existed for centuries as a household activity. Women say that this activity is profitable because only lower quality (and thus cheap) fish is used for fish drying.

Smaller pelagic fish species such as sprats, *salaya* (*Sardinella melanura*), *linna* (*Decapterus sp.*), *kumbala* (*Rastrelliger kanagurta*), *hurulla* (*Amybligaster sp.*), etc. are also used for dried fish making, for which supplies come often from small boats (OFRP and MTRB). No selective buying is practiced and prices are quoted for whole mounds.

Prices of dried fish depend to a great extent, on the inputs that go into the process. Sun drying is the most common method, where cleaned and salted fish are sun-dried on coir mats lying on beaches or on specially prepared drying racks kept above the ground.

Maldiv fish making

In general, large pelagic fish species are used as raw material for maldiv fish, which is prepared through a steamed and dried process. This process is quite popular among small-scale fish processors, mainly females, settled along the coastal belt of Matara and Hambantota. However, the type of processing technique used by them is said to be quite inefficient leading to high wastage and poor quality product

Both dry fish and maldiv fish processors confront difficulties of waste disposal. The usual method of throwing into the sea or burning have already reached alarming levels and public protests have threatened the industry's existence. There are of course good practices (which are being practiced in certain areas to a lesser extent) such as producing fish meal, poultry feed (as ingredient), slurry for pigs and bio-fertilizer. By-product users are facing difficulties in drying the raw material and storing the semi-finished products at the village level.

Other processed products

A number of processed products have been made at the household level in a smaller scale. These include mainly ready-to-eat fish based products using traditional culinary methods. Few examples are, *ambulthiyal*, *bedum*, *achcharu* (pickles) or fried fish and fish snacks, etc.

Scale of operation

While processing of fish into dried forms was traditionally in the hand of women fisher folk, it is gradually becoming a small and medium term business enterprise. Kinniya in the Trincomalee district and Kalpitiya in the Puttalam district are locations where such dry fish processing industries are found. These medium to large scale operators get their own fish supplies directly from multiday crafts and employ hired labour for processing activities.

Marketing

About 75 percent of the dried fish products are sold to wholesalers and the rest to retailers. In case of household production of dry fish, the merchants visit the producing households to buy them. This is generally true with southern communities where the majority of dry fish production rests with women fisherfolk. The large scale producers have their own wholesale buyers with whom they have diverse arrangements. Marketing does not take the form of auctions. This is the case in areas such as Negombo, Kalpitiya, Kniniya, etc. Due to the poor quality of products and the absence of competition among merchants, the bargaining power of small scale producers vis-à-vis merchants is rather weak, and they often complain that they do not receive a fair price. Merchants, who enjoy oligopsonistic buying powers, are able to collude and decide on buying prices more favourable to them.

At present, some of the large scale producers have introduced better practices and clean technology, so that they could attract the high-end niche markets and get a favourable price for the product.

Local Production and imports

In 2024, the total supply of dried fish in Sri Lanka was 60,041 Mt, out of which 24,850 Mt. were produced locally, while 35,191 Mt were

imported (59%), especially from Pakistan and Maldives(Figure 7.1). More detailed data of the Ministry of Fisheries (2024) shows a sharp decline in dry fish supply since 2020, which is more pronounced in case of local production. The total supply has dropped from 102,505 Mt in 2020 to 60,041 Mt in 2024; a reduction of 40,000 Mt.

Local production has increased at a fast pace since 2005, and has taken over the imported quantity after 2010. It is generally believed that the imported dried fish and maldive fish are of better quality than the local products. It is quite clear that Sri Lanka has to pay attention to improving the quantity and quality of dried fish produced in the country, which will not only improve the living conditions of those who are involved in the profession, but also in terms of saving valuable foreign exchange spent on consumption goods, which could be easily substituted locally.

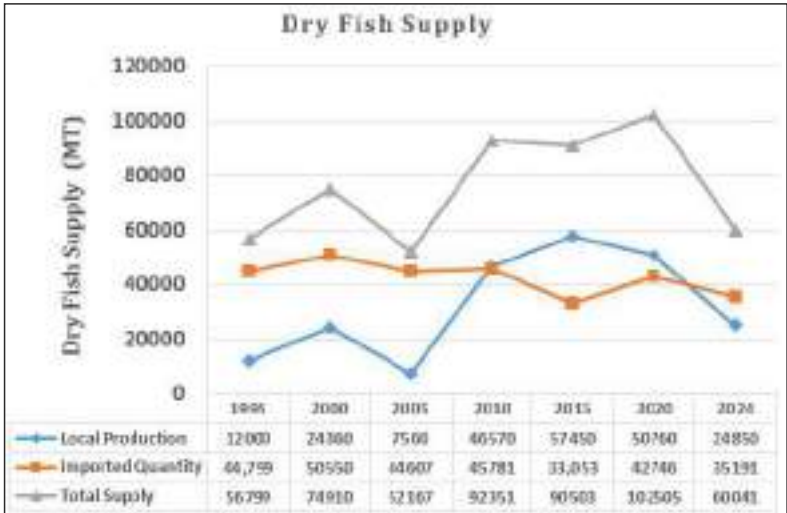


Figure 7.1: Dried fish Supply in Sri Lanka (MT)
 Source: Fisheries statistics 2018, Ministry of Fisheries and Aquatic Resources Development (2024)

Imports of fish and fish products consisted of dried fish and canned fish until about year 2000 (Figure 7.2). These fish products were commonly consumed by the low income groups. However, a new demand for imported fish products has been developing since the onset of the new millennium, catering to the high income consumer. It is quite evident that increasing local fish production has caused an increase in local dry fish production, which in turn has led to a drop in imports of dry fish and maldivian fish. However, it appears that dry fish production and imports have all declined during the Covid 19 pandemic in 2020 and have not recovered from this shock yet.



Figure 7.2. Imports of fish and fish products to Sri Lanka and local production of dried fish 1995-2017 (Quantity in Mt)

Source: This study (based on MFAR 2024)

The canned fish which is quite popular among lower-middle income groups and middle-income groups is still imported. There are 6 canned fish factories which generally uses locally produced coastal fish *linna* as inputs. But these 6 factories produce only 3,000 Mt of canned fish

annually, and the production has been on the decline from 2015 after the levy on canned fish imports was reduced to make canned fish available at low prices for the poor consumer.

Dry fish consumption

According to the Department of Census and statistics, Sri Lanka's annual per capita consumption of dried fish has increased from 3.4 kg in 1995/1996 to 3.6 kg in 2012/2013 (*Figure 7.3*), while the contribution of dried fish to the household food basket remained around 4.2 percent in 2012/13. It is also reported that dried fish accounted for the third largest share of fish consumed, showing the importance of dried fish as a cheap animal protein source, in meeting the nutritional needs of the populace. In fact, dried fish is considered as the poor man's protein because; it is the main source of animal protein of the households among low-income groups, especially the people living in areas other than the coastal belt. Moreover, it should be emphasized that, for the low-income Sri Lankan fish eater, whose diet often consists of rice and a curry, dried fish is a *rice-puller* (which

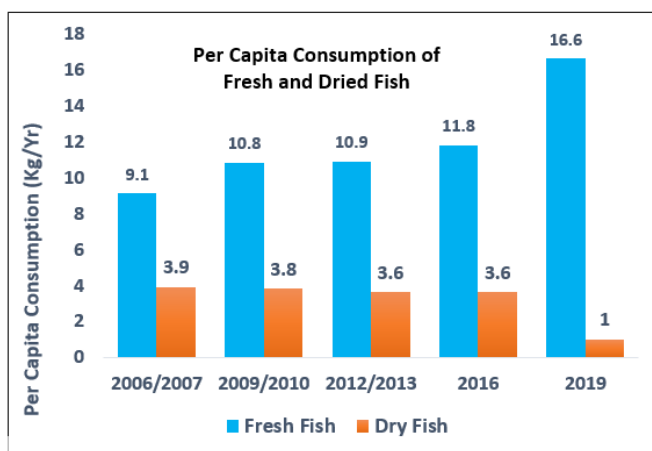


Figure 7.3: Per Capita Consumption of Fresh Fish and Dried fish (Kg/year)

Source: Fisheries statistics 2019, Ministry of Fisheries, Sri Lanka

increases the palatability of the diet of rice and vegetables), more than a source of proteins, because it is eaten in very small quantities.

Nevertheless, there has been a sharp decline in the consumption of dried fish since 2016. This has not been the case in per capita fresh fish consumption, which has gradually increased to a level of 16.6 kg of fish per year in 2019, about 4 kg short of world average. The decline in dry fish production could also be due to lack of demand. It is very well known that dry fish is not a fish product popular among today's youth. The strong rancid smell coming from compounds like trimethylamine, which is produced by the decomposition of proteins and oils and the strong salty taste have made dry fish a least-palatable product for the present generation.

A number of steps are being taken by the Ministry of Fisheries and Aquatic Resources Management (MFARD) along with the National Aquatic Resources Research and Development Agency (NARA) to uplift the fish processing sector; such as providing technical training and equipment for fish processing. NARA has experimented novel methodologies (e.g. cold air fish drying, low salt drying, heavy salt drying) and fish species to use in fish processing. A process of value addition has taken place during the last few decades, where maldivian fish is sold as differently sized pieces in packets, dry fish in vacuum packed bags in cleaned and ready-to-cook forms, etc. Needless to say that urban consumers, especially those earning high incomes, are willing to pay higher prices for value added products. The demand for such products has also increased due to increased women employment. The beneficiaries of the process of value addition have been the private enterprises which collect maldivian and dry fish from women fish processors through their assembling agents and then adding value themselves and selling to large urban markets. Huge profit margins are earned by the middlemen in this process.

Canned Fish

Canned fish industry in Sri Lanka commenced during 2010-2012 and grew to about 10 enterprises within a few years. Raw material (fish) for the industry came mainly from small scale fisheries and the fish generally used was *linna* (*Decapterus sp.*). However, when local supply

fell short of the demand, the canning factories were allowed to import (especially mackerel) for which a very small import levy was charged (Rs. 6 per kg). Some factories also exported their produce, while others were also engaged in producing other type of processed fish products: *ambul thiyal* (type of cooked fish) (MOF 2016, 2020).

There were 16 canned fish factories in operation in Sri Lanka in 2024, producing about 12,000 - 13,000 MT annually. It is evident that, no new investments have been made on canned fish for the last few years, and the significant rise in total production was due to an increase in the average production per factory, which remains today (2024) at 769 MT (see table 7.1).

Sri Lanka spends Rs. 3,318 m on canned fish imports, although the possibility of local production still exists. It is said that the value addition component of canned fish is 100% because all inputs: fish, cans, labels, etc. come from local sources². However, the employment impact is not significant (about 450 persons in total).

Table 7.1: Local production of canned fish in Sri Lanka

Description	Unit	2012	2014	2016	2018	2020	2022	2024
Domestically produced volume	Mt	328	1,486	1,941	2,725	4,029	5,828	12,305
Domestically produced volume	Millions of cans (425 g)	0.8	3.5	4.6	6.4	10	13.9	31.1
Number of fish canning factories (SLS approved)	Numbers	2	4	5	6	14	16	16
Average production per factory	Mt	154	372	388	454	288	364	769

Source: Ministry of Fisheries Sri Lanka, 2016, 2020, 2024

² <http://www.observefrjobs.lk>. 16 June 2019 (downloaded on 21 April 2020)

The following can be cited as the major reasons for the current state of affairs.

- a) Initially an import levy of Rs. 102 per kg of imported canned fish was charged in order to protect the local producer. However, as a means of providing canned fish at a low price to the consumer, this levy for imported canned fish was reduced to Rs. 50/kg in January 2015. This decision was taken by the cabinet sub-committee on cost of living to bring down the cost of living. This action caused a large inflow of cheap canned fish into the country, threatening the local producer. From importation of 19,591 MT canned fish in 2014, about 49,016 MT were imported subsequently in 2015 (see *Figure 7.2*).
- b) Another important reason for the increased imports was the importation of canned fish from china, which were cheap but was considered as inferior to previous imported canned fish. Moreover, China also has given a 15% rebate to their exporters of canned fish which led to further decreases in the price and increase in imports.
- c) Importation of mackerel in bulk (when local supply of *linna* fish was low) due to the very low import levy on such imports (only Rs. 6 / kg) led to bulk imports which too would have led to an increase in supply, causing further pressure on this industry.

It is questionable as to why even the government institutions: hospitals, the 3 armed forces, the police, did not secure their canned fish needs from the local producers!³

On 29th of March 2025, a canned fish industry, namely, the Madurankuliya Ocean Food factory in Sri Lanka, exported a canned fish consignment to United Arab Emirates, which marks the first incidence of canned fish exports from Sri Lanka.

³ <http://www.observefrjobs.lk>. 16 June 2019 (downloaded on 21 April 2020)

Role of women in fish processing

“All parties should recognize the role women often play in the post-harvest subsector and support improvements to facilitate women's participation in such work. States should ensure that amenities and services appropriate for women are available as required in order to enable women to retain and enhance their livelihoods in the post-harvest subsector”

Article 7.2: Voluntary Guidelines for Securing Sustainable Small Scale Fisheries in the context of food security and poverty eradication, FAO of the United Nations, 2005

Fisheries sector has long been considered a male domain, signifying a sense of adventure and risk valued by men, but from which women are often excluded. In Sri Lanka, the major problem in respect of women undertaking fishing related activities is the cultural barrier-that fishing is an activity for man, which is particularly debarring the engagement of women in fishing activities. Especially, in the predominantly Buddhist communities in the south of the country, the presence of women on the beach is socially despised. This is somewhat different in the catholic (Western province) and Hindu communities (North and the East) where women are involved in fish marketing and other ancillary activities. Direct fishing by women is very rare in Sri Lanka. However, fishing related roles played by women are not well recognised and appreciated in the country, and they are supposed to take care of the children and shoulder household responsibilities.

One of the traditional household activities of women fisher folk in Sri Lanka has been the processing of fish into dried fish, maldiv fish and salted fish, of which the two former are practiced more commonly. Dried fish processing and small-scale trading, form the major employment activity in coastal villages for women fisher folk and other marginalized groups (Figure 7.4). In fact, for many fishing villages, where dried fish processing is widely practised, it has become a way of life for the women, indicating its high social value within the fishing communities (Amarasinghe, 2003).

Women's engagement in fish processing activities, especially dried fish and maldivian fish making, can be considered as a type of strategy towards coping with an array of risks and uncertainties inherent in fishing. The possibility of confronting zero fishing days (thus, zero income) is quite high in small scale fisheries, with which emerges the need to cope with it. As an important risk coping strategy fisher women have traditionally been engaged in fish processing to earn supplementary incomes as a means of smoothing inter-temporal fluctuations of daily fishing incomes (income smoothing). Studies (Piyasiri *et al*, 2018) carried out in Gandara, a fishing village in Southern Sri Lanka, revealed that women employment in fishing communities is not a common phenomenon. Nevertheless, it was also revealed that most of the women in the population were engaged in fish processing activities at the household level as a domestic activity, (not considered as a particular type of 'employment'), as it minimizes the possibility of any negligence of household responsibilities, while improving the resilience capacity of the household.

However, the exact gendered costs and benefits of participating in the dried fish industry are not known. The fact that the industry is not commercialized to a great extent ensures that relations among various actors in the industry remain affective with a high degree of personal trust. Such relationships have ensured that the industry remains socially-friendly compared to commercialized enterprises where labour is often commoditized, with poor work conditions. However, small-medium scale dried fish and maldivian fish industries have emerged during the recent past. Such commercial enterprises are seen as a threat to engagement of women in this industry and might thus threaten the function performed by the dry fish processing at household level in improving the resilience capacity of fishing households.

Fish processing and Women empowerment

Giving more weight to women's employment as a source of supplementary incomes, there is a tendency to forget the important role the women in fishing societies play as mothers, care givers, maintaining social relationships etc. It is to be emphasized that household responsibilities of women are growing along with the development of the fisheries sector, in which the fishing trips are longer

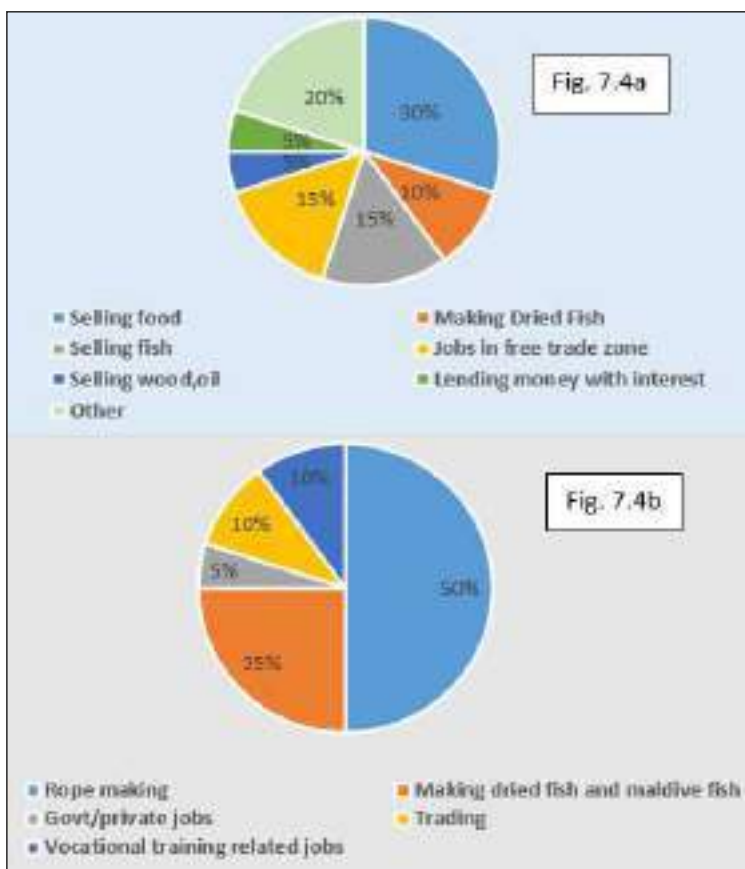


Figure 7.4: Women's engagement in income generating activities
 (Figure 7.4a: Munnakkara, a fishing village in Western Sri Lanka;
 Figure 7.4b: in Kudawella, a fishing village in Southern Sri Lanka)

Source: Amarasinghe, 2003

(with motorisation of crafts and moving into deeper waters). Women have not only to feed, educate and protect children and to manage the household, but they are also supposed to confront and resolve all health and other household problems and, to meet social obligations. Table 7.2 gives the daily routine charts of men and women in southern fishing communities (Piyasiri et al, 2018).

Table 7.2 provides proof that women bear almost all responsibilities in meeting basic needs of the family. It is also to be noted that there is a possibility of getting engaged in part-time dry fish making while taking care of household responsibilities. Unfortunately, many of them are systematically denied the resources, information and freedom of action they need to fulfil this responsibility. In fact, the role of women has often been undermined in fisheries, which is a male dominant industry. Their access to credit, information and training opportunities is weak, and very little efforts have been made to improve women's access to such financial, physical and human capital. Moreover, engagement in fish drying may not have been the choice of employment by women, but they are forced to do it because it is an activity that their men would approve of (because they are able to take care of household chores while earning supplementary incomes).

Table 7.2: Daily Routine Chart of Men and men in Southern fishing communities

Time/ Time period	Adult men	Time/ Time period	Adult women
7.30 am	Returning home from fishing	5.00 am	Waking up
7.30 – 8.00 am	Taking a bath, cleaning	5.00 – 5.15 am	Taking the morning wash
8.00 – 8.30 am	Having breakfast	5.15 - 5.30 am	Having tea
8.30 -11.30 am	Sleep	5.30 - 6.00 am	Cleaning the house/sweeping the courtyard
12.00 – 1.00 pm	Having lunch	6.00 – 6.45 am	Cooking breakfast
1.00 – 1.30 pm	Arranging fishing gear	6.45 – 7.15 am	Preparing children for schooling
1.30 – 4.30 pm	Repairing fishing nets	7.15 – 7.45 am	Taking children to the school
4.30 – 5.00 pm	Fueling fishing crafts	7.45 – 8.00 am	Returning home and having breakfast
5.00 – 5.15 pm	Examining the crafts	8.00 – 9.00 am	Laundry
5.15 – 6.00 pm	Arranging food and equipment for fishing	9.00 -10.00 am	Engaging in dried fish making activities

Time/ Time period	Adult men	Time/ Time period	Adult women
6.00 pm	Leaving for fishing	10.00 -11.30 am	Going to the market/retail shop
6.00 am (next day)	Returning from the sea	12.00 -1.00 pm	Cooking lunch
6.00 – 7.30 am	Anchoring the crafts, sorting nets, cleaning the harvest and selling	1.30 -2.00 pm	Bring children from school
		2.30 – 3.00 pm	Having lunch
		3.00 – 4.00 pm	Sleep
		4.00 – 4.30 pm	Helping husbands for. mending nets
		4.30 – 5.30 pm	Preparing food for men's (evening trip)
		5.30 – 6.00 pm	Religious activities
		6.00 -7.00 pm	Helping children with their homework
		7.00 – 8.30 pm	Cooking Dinner
		8.30 pm	Having Dinner
		8.30 – 9.30 pm	Watching television
		10.00 pm	Going to sleep

Source: Piyasiri et al, 2018

Sri Lankan women are quite educated with a literacy rate above 92%, and function as effective agents in coping with vulnerability in fisheries. What is required is to empower women, so that they will enjoy decision making power on their own, have access to information and resources for taking proper decisions, have a range of options from which to make choices, have positive thinking on the ability to make changes involved in the growth process, etc. As those who manage the household, take care of children and aging parents, meeting social obligations, earning supplementary incomes to smooth consumption, women play multiple roles.

"If you educate and train a man you uplift a person, but if you educate and train a woman you uplift a family." (An African proverb).

Empowerment helps women to gain control over their own lives. It fosters power in them, for use in meeting their wellbeing aspirations, that of their community and society. By nature, the value systems of

It is obvious that the women's opportunities of engaging in an occupation are constrained by the burden of bearing household responsibilities and raising children and care giving. Even though one could argue that this provides proof of a situation where the independence and equality of women are violated, it was observed that women have undertaken household and children's responsibilities quite willingly. Moreover, it was revealed through the responses of both parties that employment by woman to earn supplementary incomes would have affected the self-dignity of the man; the head of the household. As men put it "people will say that I cannot feed my family and thus send my wife away to earn our bread". However, our results provide evidence that the independence and the self-esteem of the women in the fishing community had been undermined, which possibly reflect the social values that held men superior to women. The women argued against these prejudiced attitudes of men and thought that awareness building programmes for fishing communities, especially for men, should be undertaken. Nevertheless, more recent developments in child education have provided women with opportunities for employment because the young children (non-school going) can now be kept in pre-schools or day-care centers which are found now in many coastal areas, especially when they are populated. Some fisheries cooperatives are also running such pre-schools (ex. Bata Atha Fisheries Cooperatie).

Women's involvement in alternative livelihood activities, not only adds to monthly household incomes, but also performs the function of smoothing inter-temporal fluctuations of daily fishing incomes. In this sense the role of women in fisheries, cannot be undermined. Their role in coping with vulnerability by keeping the family fed, ensuring continued education of children, meeting various social obligations, is commendable.

One of the major approaches that has been taken to empower fisher women in Sri Lanka, is organising them into groups based on economic activity or other; especially, processing groups such as dried fish making. Establishment of fish processing centers by the government and/ or by private investors to provide employment to women has also been proposed.

The need to provide the women with access to social capital, has strongly been emphasized. Women groups or organisations/societies (cooperatives or other) that are established through the dried fish making industry are able to deliver all the three types of social capital. The Social Capital Approach to Coping with Vulnerability (SCACO) (Amarasinghe & Bavinck, 2011), identifies that the social capital constitutes a vital input for households in dealing with vulnerable situations. When such strong forms of social capital exists, which binds members together with trust and reciprocity, it also has a positive impact on relationships among individuals in the community. In fact, social capital increases the bargaining power of women, which is explained as their ability to exert influence in negotiating, which is very true with respect to their bargaining power vis-à-vis dry fish merchants. The increment of bargaining power of women through social networks is assumed to have positive effects on women's autonomy both within the household and outside world.

In Sri Lankan fishing communities, like many other skilled activities, dried fish making is seen as more than just a livelihood, but as a 'way of life' for the women who are engaged in it. Similar to the argument that the fishermen have high levels of job satisfaction (even though fishing is considered a risky and dangerous occupation), women of fishing families might also have strong identities as fish processors and traders. In fact, identities, networks (social capital) and economic status, and access to and membership in social networks in many ways would determine one's reputation, developing the sense of being part of the family as well as the community. Hence, it can be inferred that the fisher women had chosen dried fish processing despite there are other alternative livelihood options, in order to achieve their wellbeing aspirations.

Field studies carried out under the implementation of SSF Guidelines (2018-2019) all around the country revealed a number of barriers for women employment and women's suggestions for removing them (see *Table 7.3*).

Evidence from country wide consultations as given in *Table 7.3*, points to the following measures that need to be adopted if issues related women employment are to be effectively addressed and to empower women to ensure that wellbeing aspirations of fishing families are met.

women are quite conducive to build a good family, good society and ultimately, a good nation. This why women empowerment is becoming an important component of building strong communities. Women empowerment is also one of the Millenium Development Goals of the UN, and is also included in Sustainable Development Goals, under gender equality.

BOX 1

“Women's empowerment has five components: women's sense of self-worth; their right to have and to determine choices; their right to have access to opportunities and resources; their right to have power to control their own lives, both within and outside the home; and their ability to influence the direction of social change to create a more just social and economic order, nationally and internationally.

In this context, education, training, awareness raising, building self-confidence, expansion of choices, increased access to and control over resources, and actions to transform the structures and institutions that reinforce and perpetuate gender discrimination and inequality are important tools for empowering women and girls to claim their rights”.

-- UN Commission on the Status of Women (2002). Agreed Conclusions on eradicating poverty, including through the empowerment of women throughout their life cycle, in a globalising world

Box 1 shows the diverse components of women empowerment. It is quite evident that, among others, education and training, increase women's access to and control over resources, and help them to fight discrimination, so that they will be able to make decisions about their lives, aiming at meeting the wellbeing aspirations of their families and the community are of significant importance. In a recent study carried out in a Buddhist fishing community of Southern Sri Lanka (Piyasiri *et al*, 2018), it was strongly proposed (by the fisher folk themselves) that attitudes of the fishing society should be changed towards a more gender equitable manner, providing more opportunities for women to engage in fishing related activities and to hold positions in community organisations such as fisheries cooperatives.

During studies carried out in the South of Sri Lanka by Piyasiri *et al*, (2018) both spouses of selected fishing families were asked (in separate interviews) to provide the reason for wives not taking up

employment. The major reasons behind women not doing a job were women's self-inflicted barriers where the woman had to give priority to household responsibilities and child care, while stating that there were also restrictions imposed by the husband against 'doing a job' (Figure 7.5a and 7.5b).



Figure: 7.5a

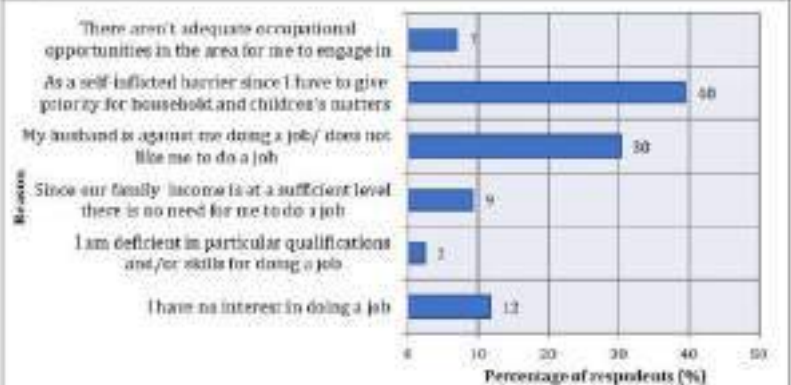


Figure: 7.5b

Figure 7.5a: Reasons given by the male respondents for the question “why your wife doesn’t engage in an occupation?”

Figure 7.5b: Reasons given by the female respondents for the question “why you don’t engage in an occupation?”

Source: Piyasiri et al, 2018

Table 7.3: Barriers to Women's Participation in Fisheries Employment and Potential Measures to Promote Gender Equality (FAO/SLFSSF/ICSF (2019))

Areas in which women face unequal employment opportunities	Underlying factors contributing to these constraints	Recommended measures to address these constraints and advance gender equality
Participation in shore-based and post-harvest fisheries activities (e.g., fish processing, drying, and related enterprises)	• Limited access to appropriate technology and technical knowledge in fish processing and preservation • Difficulties in accessing markets for fish products • Gender-based social perceptions restricting women's involvement in fisheries activities • Limited access to beach-based workspaces due to prevailing community norms	• Establish accessible low-interest credit facilities. • Provide training on improved processing technologies and value addition • Develop market information systems and strengthen market linkages • Introduce alternative livelihood opportunities where appropriate • Conduct gender-sensitization programmes to address restrictive social attitudes • Strengthen women's fisheries groups and facilitate experience-sharing through successful fisheries cooperatives • Organise women into groups / associations
Representation and leadership roles in fisheries cooperatives	• Gender-based perceptions regarding women's leadership capacity. • Cultural barriers limiting women's participation in decision-making institutions community norms	• Promote women's representation in fisheries cooperative leadership • Conduct gender-sensitization programmes among cooperative members • Develop leadership and organizational skills among women fishers

Areas in which women face unequal employment opportunities	Underlying factors contributing to these constraints	Recommended measures to address these constraints and advance gender equality
Ownership and acquisition of fishing boats through fisheries cooperatives	• Social perceptions that women are unsuitable for boat ownership or operation • Limited access to financial resources for acquiring fishing assets	• Create opportunities for women to access boat ownership schemes • Facilitate gender-responsive financial support through fisheries cooperatives and institution • Provide relevant technical and operational training
Active participation in fishing activities, particularly beach-based activities	• Social norms discouraging women's presence in fishing spaces • Community perceptions regarding appropriate gender roles in fisheries	• Promote inclusive fishing spaces through community dialogue • Recognize and support women's contributions to fishing activities • Implement gender-awareness programmes among fishing communities
Equal remuneration for fisheries-related work	• Gender-based wage disparities • Limited recognition of women's contributions to fisheries labour	• Promote awareness of equal remuneration principles • Encourage fair wage practices within fisheries value chains
Self-employment in fisheries-related enterprises (e.g., post-harvest activities, fish seed/fingerling production)	• Insufficient access to start-up capital • Loss of competitiveness due to outdated production and processing techniques • Difficulties accessing formal credit due to collateral requirements and lending conditions	• Introduce accessible credit schemes through government financial institutions and fisheries cooperatives • Provide training on modern technologies and improved production practices • Encourage group-based lending mechanisms and acceptance of collective guarantees as collateral

Source FAO/SLFSSF/ICSF (2019)

Major Issues in Fish processing⁴

1. Quality Issue

Good quality fresh fish are not available at reasonable prices for fish processing, to carry out this activity profitably. If fresh fish of good quality is purchased at current prices, fish drying may not become profitable. Yet, at present the quality of dry fish produced in the country, especially at household level is quite poor.

2. Marketing issue.

The major marketing issue is the existence of middlemen oligopsonies which push down buying prices. This is true with household level dry fish production where the dried fish producers are at the mercy of the merchants, who visit households individually and thus face no competition. Some resort to forward buying weakening the bargaining power of producers..

3. Drying areas

Lack of space for drying fish within household premises. This issue is getting worse with coastal erosion that reduces beach area and the acquisition of beach by other stakeholders (such as tourism).

4. Waste Disposal

Disposal of fish waste is also becoming a serious issue. A considerable amount of fish parts are left after the fish is cleaned and cut for dry fish making. Dry fish producers used to throw them into the sea or burn them. There is little room for this practice now as protests have been made by others against coastal pollution.

5. Storage

Storage of dry fish is also a problem because dry fish tend to develop fungi on the surface and also deteriorate in quality at storage. This is particularly true with products having a higher moisture content.

⁴ This discussion is based on an Interactive Platform organized to discuss issues in Post-Harvest Losses, Fish Processing and Gender, with the participation of fish processors (women), fishers, state actors (Department of Fisheries and NARA), academics, etc.. The platform was organized by the Sri Lanka Forum for Small Scale Fisheries (SLFSSF) and National Fisheries Solidarity (NAFSO). The event was held in Negombo on 31st January 2020.

6. Wage discrimination

With the gradual development of dry fish making as small to medium scale business enterprises, male labour is now being used in dried fish making along with female labour. However, for the same work load, male labour is paid more than female labour .

7. Obsolete technology

In dried fish making, only the traditional technology is wide-spread and cost effective and user-friendly technology is not available. Although various kinds of intensive drying technology and processing technology have been previously tried out, none have been able to take roots in rural communities.

8. Lack of knowledge of the determinants of fish quality have also been cited by women as an issue in dry fish making. Although quality standards have been established in key regulations that include Food Act, No. 26 of 1980, HACCP standards, SLSI standards, and Food (Hygiene) Regulations of 2011, the rural producers are unaware of such quality standards

Recommendations

1. Charging an import levy on imported dry fish and canned fish could protect the local fish processor and would lead to a rise in local production.
2. Investment in research to develop new fish drying and other processing technology and popularize those which have already been developed, would be required.
3. Product development in the field of fish processing is also an important aspect of value addition. While a number of fish-based products have been developed, initiatives taken to commercialize such products by finding interested entrepreneurs and to provide assistance to small scale producer appear to be inadequate. Surprisingly, attempts at developing products such as smoked fish, which could attract the high income groups are non-existent, although NARA has developed a prototype smoking apparatus.
4. Awareness building and capacity building of fish processors, especially women, is required to build their knowledge in

maintaining fish quality, adopting new technology, running small businesses, etc. They could also be taught about the various quality standards maintained in the country.

5. While the woman fish producer gets a low price for her dried fish, the product is sold at a price several fold higher in large super markets, even though the value addition process only involves cutting and putting them in plastic bags. One way of helping the rural households to earn a higher price for their produce and improve the quality of their product is to link them up with organized markets and assist them in preparing a value added product that could be directly sold to the super market chains. However, the success of this strategy will depend on successful organization of women into producer groups (ex. producer cooperatives).
6. Assist small scale fish processors by providing them with credit to acquire new processing technology. This would be easy, if they are organized into a cooperative as noted in (5) above. Such a cooperative can be initially provided with start-up capital from which the needy members can obtain loans by offering group guarantees as collateral.
7. It is worth probing into the possibility of expanding canned fish production by increasing the levy charged on imported canned fish. A strong local canned fish industry could also provide a good source of demand for coastal fish and a source of employment for youth. Since the canned fish factories depend only on a particular local fish species (*linna*), it would be worth probing into the possibility of using other fish varieties for canned fish, which can come in differently sized cans and in various types of sauces, oils, etc. Importation of fish to supplement locally secured catches may make the locally canned fish too costly.

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Chapter 8

Fisheries as a Component of Integrated Sustainable Tourism (IST)







Preamble

People adopt various strategies to cope with vulnerability and to achieve their wellbeing goals. In doing so, they exert pressure on natural resources, on which their livelihoods depend. Governors have tried to shape people's behaviour so that they will refrain from doing things that will damage their natural environment. But, many governance systems have failed to achieve their objectives. Rule breaking is common and environmental services have declined. Poverty is pervasive, and pressure on natural resources is on the rise.

It was noted in Chapter 2 that increasing fishing pressure has led to declining catch per unit of effort and declining fishing incomes. Along with population growth, fishing pressure is likely to grow, unless the youth of fishing communities are provided with avenues to take up employment. Understanding the bleak future of coastal fisheries, parents in fishing communities take strong efforts to educate their children and push them to seek employment outside the fisheries sector. This move is being assisted by the availability of good educational facilities even at the secondary level in many rural areas. Evidence of children from fishing families reaching very high levels of education are not rare and, today many have found employment outside the fisheries sector and have even risen up the economic and social ladder to hold important positions in the country. Yet, this is not the case in all fishing communities in the country and, due to a variety of economic and social issues, some children suffer from their inability to continue education and they drop out of school without even reaching the basic educational levels required to take up employment in either state or private sector. These are the children who might fall back on common resources, further building-up fishing pressure. Reducing the

pressure on resources will be a challenge in the future for the governors and managers if sustainable resource use is to be ensured.

Another issue one has to deal with is the low income and poverty among fishing populations, which is becoming the most serious illbeing factor of coastal fishers. In a context of low educational achievements of fishers and high rates of unemployment, the opportunity cost of fishing labour will be low and, therefore, they will continue to fish but in dire straits. Therefore, poverty alleviation is also becoming another objective of governance and management of coastal fisheries. One way of reducing poverty is providing the fishing families with opportunities to earn supplementary incomes. It is common to see fishing families engaged in an array of alternative livelihoods such as rope making, weaving mats, fish processing, food preparation, etc. earning supplementary incomes to cope with low and fluctuating incomes.

In dealing with the above situations, one could make fisheries, a component of a strategy of Integrated Sustainable Tourism.

The trends in Tourism of Sri Lanka

From time immemorial, Sri Lanka remained a popular tourist destination. Fa-Hien, the famous Chinese traveler visited Sri Lanka twice and, Marco Polo (the Italian explorer) said Sri Lanka was the “best island of its size in the world” (Wikipedia, 2025).

The government intervention in developing tourism commenced with the establishment of Ceylon Tourist Bureau in 1937, which later became the Ceylon Tourist Board. It acquired its legal status from Act No. 10 of 1966. It became the government agency responsible for the development and promotion of tourism in the country. Later, in 2007, Ceylon Tourist Board was replaced by the Sri Lanka Tourism Development Authority (SLTDA). Today, the SLTDA comes under the Ministry of Tourism Development, Wildlife & Christian Religious Affairs, which was established on 28th December 2018 through an Extraordinary Gazette Notification No 2103/33.

Endowed with a nature embraced with beautiful beaches all around the country, winding lagoons bordered by mangroves, rich biodiversity and wildlife, cold and breezy mountains with green tea plantations and, hot sandy desert atmosphere in the north, etc, along with smiling hospitable people, have made Sri Lanka a world-famous tourist destination.

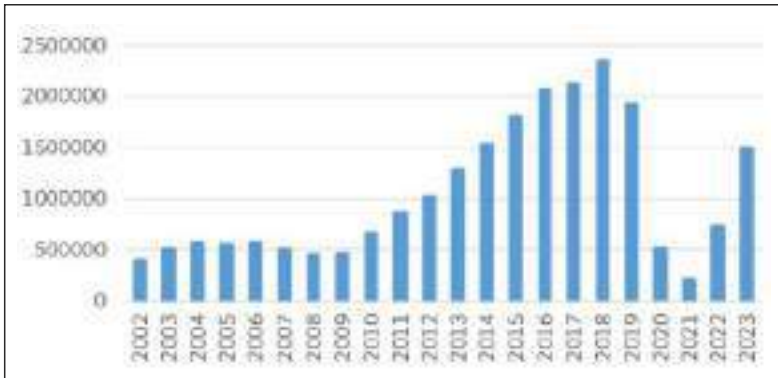


Figure 8.1: Tourist Arrivals in Sri Lanka from 2002-2023

Source: Wikipedia, 2025; Sri Lanka Tourism Development Authority, 2023

From 303,170 visitors in 2002, the number of visitors to the country rose to 2,333,796 by 2018, a 600% increase indeed (Wikipedia, op.cit.). Of course, the recent takeoff of the tourist industry took place after the cessation of the civil war in 2009. However, the industry was badly hit by the Covid19 pandemic during 2020-2022, with tourist arrivals falling to a mere half a million. It is now catching up at a fairly good pace. During the period from 2002 to 2018, foreign exchange earnings from tourism increased by about 1,150% and the level of direct and indirect employment (total employment) increased by nearly 200%. Tourism is gradually picking up and the total tourist arrivals reached 2.05 m mark in 2024. With such an impressive performance, Tourism has become the 3rd highest foreign exchange earner of the country. In its tourism strategic plan 2017-2020, SLTDA states that Sri Lanka is yet to tap its true tourism potential endowed with a great diversity in natural environment and culture.

What is Integrated Sustainable Tourism (IST)?

It is a tourism initiative that coordinates activities of different sectors to offer varied tourism products or services to form one integrated tourism model. This will help the visitor to enjoy a bundle of tourism services and products during the visit, providing a diversity of amusement for which the visitor is likely place a high value than a visit that offer a single product or a service. Yet, such an initiative will be sustainable only if the products are attractive, that there is a cost advantage in enjoying multiple activities from a single visit, that the

nature is not disturbed and if the gains from tourism help to strengthen the rural economy and improve the wellbeing of the people. This is the major focus of IST.

The components of Integrated Tourism

Eco-tourism

'Ecotourism' (also known as ecological tourism) is responsible travel to fragile, pristine, and usually protected areas that strives to be low impact and (often) small-scale. It purports to educate the traveller; provide funds for conservation; directly benefit the economic development and political empowerment of local communities; and foster respect for different cultures and for human rights (Wikipedia, 2025). According to the definition and principles of ecotourism established by The International Ecotourism Society (TIES) in 1990, ecotourism is "Responsible travel to natural areas that conserves the environment and improves the well-being of local people." (TIES, 1990). Martha Honey (2008), expands on the TIES definition by describing seven characteristics of ecotourism, as given below.

- Involves travel to natural destinations.
- Minimizes impact.
- Builds environmental awareness.
- Provides direct financial benefits for conservation.
- Provides financial benefits and empowerment for local people.
- Respects local culture.
- Supports human rights and demographic movements (Honey, 2008).

Ideally, ecotourism is expected to conserve biological diversity and cultural diversity, promote sustainable use of biodiversity by providing jobs to local populations, share socio-economic benefits with local communities through participatory management of ecotourism enterprises. Recently, a number of terms have emerged, which are almost tantamount to 'eco-tourism', such as adventure travel, sustainable tourism, responsible tourism, nature-based tourism, low-impact-tourism, green tourism, ecologically responsible tourism, environmentalism, etc., although they are not synonymous with eco-tourism. One should also make note that, there is a trend for 'green washing'- commercialization of tourism schemes disguised as

sustainable, nature-based, and environmentally friendly tourism. Many of these schemes are often environmentally destructive, economically exploitative, and culturally insensitive. “A walk through the rainforest is not eco-tourism unless that particular walk somehow benefits that environment and the people who live there. A rafting trip is only eco-tourism if it raises awareness and funds to help protect the watershed (The Untamed Paths Pte. Ltd., 2025).

Agro-tourism as a component of Integrated Tourism

Agro Tourism emerges when a native person or local of the area offers tours to their Agriculture Farm to allow a person to view them growing, harvesting, and processing locally grown foods, such as coconuts, pineapple, sugar cane, corn, or any produce the person would not encounter in their home country. Often the farmers would provide a home-stay opportunity and education. The essential benefit is for the local people, not for tour operators or hotels. Agro-tourism and eco-tourism are alternatives to bad practices, not just a tour; it will contribute to stop things like dynamite fishing, slash and burn, wearing out the soil, etc.

Some define Agro-tourism as a mild form of sustainable tourist development and multi-activity in rural areas through which the visitor has the opportunity to get acquainted with agricultural areas, agricultural occupations, local products, traditional cuisine and the daily life of the people, as well as the cultural elements and the authentic features of the area, while showing respect for the environment and tradition. It mobilises the productive, cultural and developmental forces of an area, contributing in this way to the sustainable environmental, economic and social development of the rural area (Greek National Tourism Organisation, 2023).

The European Centre for Ecological Agriculture and Tourism (ECEAT) (1994), promotes the use of ecological tourism to organic farms as a tool to help small farmers make a somewhat difficult transition from conventional agriculture to ecological agriculture. However, a number of constraining factors have also been identified. They include a. farmers' lack of knowledge of ecological agriculture coupled with current use of ecologically unsound practices; b. psychological and language barriers of the farmers to bringing in tourists; c. farmers' preconceptions of what standard of facilities are necessary for tourism; d. generating a sufficient flow of tourists to the farms; e. lack of a

sufficient market for the ecological products produced by farmers; f. lack of governmental support for ecological agriculture in general.

Cultural Tourism

Cultural Tourism is essentially a form of tourism that focuses on the culture, and cultural environments including landscapes of the destination, the values and lifestyles, heritage, visual and performing arts, industries, traditions and leisure pursuits of the local population and host community. It should not be regarded as a definable niche within the broad range of tourism activities, but encompasses all experiences absorbed by the visitor to a place that is beyond their own living environment. (International Cultural Tourism Charter, 2002).

Responsible ecotourism includes programs that minimize the adverse effects of traditional tourism on the natural environment, and enhance the cultural integrity of local people. True ecotourism protects local cultures and empowers indigenous peoples while providing visitors with unique opportunities to learn about the native community they visit as they contribute to its success.

Integration of eco-tourism, agro-tourism, coastal tourism and cultural tourism to develop a sustainable tourism strategy

Sustainable tourism defined

Clearly, sustainable tourism implies an approach to development aimed at balancing social and economic objectives with environmentally sound management. While tourism is welcomed almost universally for the benefits and opportunities it creates, there is growing recognition of the need to see tourism in its environmental context, to acknowledge that tourism and the environment are interdependent, and to work to reinforce the positive relationship between tourism and the environment. Maurice Strong stated in the 1993 Report of the World Tourism and Travel Council (1994) that, environmental protection is both a moral obligation and a business imperative. Thus, the leaders of the tourism industry need to persuade its members to adopt ecologically friendly business practices. If this is done, tourism industry can truly become an environmentally sustainable business. In meeting these goals, the government and other societal agents must strive to find the correct balance between different, and often conflicting needs and value systems. This requires these actors to work within a broader framework than they have done in the past: looking at

long term solutions; sectoral integration (multi-sectoral approach); holistic approach (looking at the system as a whole), full cycle (to consider the full context of resource use from initial extraction to end use), etc. In fact, the core of the regulatory framework should aim at empowering the community and to develop their capacity to reach their wellbeing aspirations while conserving and protecting the ecosystem. In a nutshell, Integrated Sustainable Tourism initiative could be considered as,

“a tourism initiative developed with the participation of the people in the area, providing the tourist with the opportunity to learn from and enjoy the natural, cultural and social resources, and providing opportunities for the people in the area to improve their wellbeing by offering diverse tourism services, while maintaining the sustainability of the ecosystem and protecting people’s cultural and social traditions”¹.

It emphasizes on ‘responsible and sustainable tourism’- where tourists are expected to behave in a responsible manner, ensuring the sustainability of the ecosystem and without generating any negative externalities on people’s cultural and social traditions. Thus, the proposed tourism initiative should contribute positively towards preserving the natural environment and improving the wellbeing of the people; a win-win situation indeed.

Coastal Tourism including Fisheries

Coastal tourism is a strong component of Sri Lanka’s tourism which has attracted thousands of visitors to the country. The coastline around the country is studded with a diversity of coastal features such as bays, lagoons, sandbanks, and rocky headlands enriched with marine recreational activities; sea bathing and swimming, surfing, boating, snorkeling, deep-sea fishing, underwater photography, scuba diving, etc.

Sri Lanka is endowed with beautiful clean beaches and 82 lagoons which provide an amazing ecosystem that can generate an array of recreational values. Farming, native medicine, diverse cultural activities too can add to these coastal ecosystem values, which if properly exploited, could benefit all coastal multi-stakeholders; farmers, fishers, cultural troops, native medical practitioners, etc.. Needless to say, that

¹ Our definition

the presence of opportunities does not generate benefits either to visitors or to service providers or to the people, unless those opportunities are properly utilized for the benefits of the society. Fisheries, both marine, lagoon and inland, offer an array of opportunities for tourism development, providing greater tourism attractions and improving the wellbeing of fishing populations.

Marine Fisheries and tourism

Waters around Sri Lanka are quite known for their rich sub-aquatic life. In near shore waters one finds fish species such as Grouper, Snapper, Emperor and Bonefish, and moving further into the sea there are Indian and Spanish Mackerel, Seer fish, King fish, Barracuda, Baramundi, Trevally and Tuna. In the deeper waters are found Shark, Swordfish, Marlin, etc. Dolphins and whales are also abundant in many areas. Tourism opportunities in marine fisheries, include, boat trips to the sea, fishing trips including net laying, fishing with spear guns, coral watching (where corals covers are available, like Hikkaduwa, Weligama, etc.), snorkeling, swimming, dolphin and whale watching (Weligama), surfing (Arugambe, Midigama), relaxing on the beach, turtle watching (Hambantota coast), living in beach cabanas, home stay in fishig communities, etc. These opportunities are generally being exploited by hoteliers, tour agencies who work with fisher groups, especially young fishers, to organise the said activities. It is possible to fish with the fishers and even hire a boat for your own fishing. The opportunities for marine tourism are immense and new products and services are being developed at a fast pace in fishing areas (see figures 8.2 and 8.3).



Figure 8.2: Canoe with sails that takes Tourists (Negombo)

Photos: Oscar Amarasinghe



Figure 8.3 Rekawa Beach Hambantota) with high recreational values

Trincomalee of Eastern Sri Lanka, Weligama of Southern Sri Lanka, Kalpitiya of North Western Sri Lanka, Negombo of Western Sri Lanka, which are famous fisheries districts have now become important coastal tourism destinations. In Weligama, for example, fishers have converted their boats with inboard engines to carry tourists for dolphin and whale watching. Not only this has provided livelihood opportunities for youth in fishing villages, but would also have absorbed some of the existing fishers to the activity, reducing the pressure on resources. In Trincomalee, young fishers are using their FRP boats with outboard engines to carry tourists to the Pigeon Island, another quite popular tourist destination. In Arugambe of the Eastern Province and Midigama of southern province, youth of fishing villages are training tourists on 'surfing'. In Negombo, fishers use their traditional crafts with sail for fishing trips to the sea, which is also becoming a popular marine tourism activity.

Lagoons, mangroves and IST opportunities

Sri Lanka is endowed with 82 lagoons, which are mainly distributed in the North, Northeast and Northwest areas of the country (see Table 8.1). The largest lagoon area is found in the North of the country, followed by Northwest and Northeast, which account for nearly 90% of the total lagoon area of the country.

Table 8.1: Length of coastline, lagoon area, perimeter and number of lagoons on each coastal sector

Coast	Coastline (km)	Lagoon area (km²)	Lagoon Perimeter (km)	No. of Lagoons
North	403	804	1,221	17
Northeast	294	182	411	4
East	89	44	174	14
Southeast	105	29	149	16
South	117	23	109	10
West	98	46	151	3
Northwest	131	372	410	9
Total	1338	1520	2791	82

Source: Silva et al, 2013²

² The principal author of the current volume is a co-author of this study.

Lagoons of Sri Lanka are being managed by the Department of Fisheries. The local level officer assigned to regulate lagoon activities is the Fisheries Inspector. In the past, highest fish catches have been recorded for Jaffna, Puttalam, Batticaloa, Periya Kalapuwa, Venkalai Kalapuwa, Punkudutivu, Thandiyadi Kalapuwa, etc. while highest shrimp landings have been recorded for Puttalam Lagoon (2,710,300 kg), followed by the Jaffna Lagoon (2,629,400 kg), Chundukkulam Lagoon (600,000 kg), Batticaloa Lagoon (553,800 kg), and, Negombo Lagoon (200,000 kg) (Silva et al, 2013). Higher production per square kilometer and higher catch per boat have been reported in lagoons in the north and the east, showing the potential that exists in these lagoons to further develop fisheries (ibid).

Biodiversity

Lagoons are quite rich in biodiversity, especially due to the presence of mangroves. Mangroves are salt-tolerant, woody, seed bearing plants ranging from small shrubs to tall trees, occurring along sheltered intertidal coastlines, and in association with estuaries and lagoons (CCD : 1997). The major mangroves in Sri Lanka are located around Jaffna, Wadamarchchi, Thondaimanar lagoons (northern coast) Kokkilai, Nayaru lagoons, (Trincomalee), Kathiraveli, Valaichcenai, Batticaloa, Pothuvil (eastern coast), Weligama, Gintota (southern coast) Bentota, Negombo, Chillaw, Puttalam and Mannar lagoons (western and north-western coasts). The mangrove ecosystem provides a very important environment for larval and juvenile stages of fish and crustaceans, which find food and shelter among the complex root system. Land mammals, reptiles and birds use the landward periphery of a mangrove swamp for food and shelter, while crabs, prawns, and even fish migrate into the mangrove swamp for the same purpose. Mangrove forests provide roosting and nesting facilities to a large number of local and migratory species of birds, which depend on mangroves for breeding and rearing of the young. A number of mammalian species and reptiles are also found in this environment. For example, Rekawa Lagoon of Southern Sri Lanka has recorded, 37 fish species, 9 types of crustaceans (including 4 shrimp species), 6 sp. of mammals, 6 sp. of reptiles, 54 migratory bird sp., 29 non-migratory bird sp., 5 marine turtle sp., and, 39 species of reef fish, showing the rich biodiversity of this lagoon environment (Amarasinghe, 2010).

Historically, mangroves have been used by the local population for many purposes; as a source of fuel wood for cooking (and lime kilns), as

rafters and other uses in house construction, as stakes in the cultivation of vegetables like snake gourd and medicinal plants, etc. Other than these extractive uses, mangrove forests also contribute towards science, education and tourism.

Non-extractive Values of Lagoons

Lagoons fall into a type of natural capital which can generate a number 'use' and 'non-use' values. Apart from the well known extractive values such as fish, shrimp, fuelwood, timber, stakes, wild game, etc. there are a number of non-extractive use values which can be quite large, even exceeding extractive values. *Figure 8.4* shows the different types of values generated by lagoons, which form the Total Economic Value. Notice should be made of the important environmental services performed by lagoons, which are categorised under indirect use values in *Figure 8.4*. Future values of lagoons consist of their future use and non-use values, and the existence value, which forms the value that we place on the resource for its continued existence, such as biodiversity, habitats, wildlife, etc. Value of lagoons, contribute significantly towards improving human well-being.

In their studies of Sri Lankan lagoons, Silva *et al* (op.cit) identified a number of non-extractive values of lagoons, which were categorised into 4: Ecotourism, Recreation, Research and Aquaculture. In Table 8.2,

Table 8.2: Potential of lagoons for contributing to ecotourism, recreation, research and aquaculture

<i>Coastal District</i>	Potential that exists in lagoons, for the development of				
	<i>Ecotourism (Rank)</i>	<i>Recreation (Rank)</i>	<i>Research (Rank)</i>	<i>Aquaculture (Rank)</i>	<i>Average Rank</i>
Mannar	4	4	4.5	4	4.1
Colombo	4	5	2	4	3.8
Hambantota	3.6	4.3	3.7	3.1	3.7
Mullativu	3.3	3.8	3.5	-	3.5
Batticaloa	1.7	2	4	4	2.9
Gampaha	3	3	3	2	2.8
Galle	3.3	3.3	2	2.3	2.7
Ampara	2.4	3	2.1	1.5	2.7
Chilaw	1.5	3.5	2	3.5	2.6
Jaffna	1.5	2	2	2	1.9

Source: Silva *et al*, 2013 (Ranking: from 1 - 5, lowest to highest)

Total social and economic values of lagoons

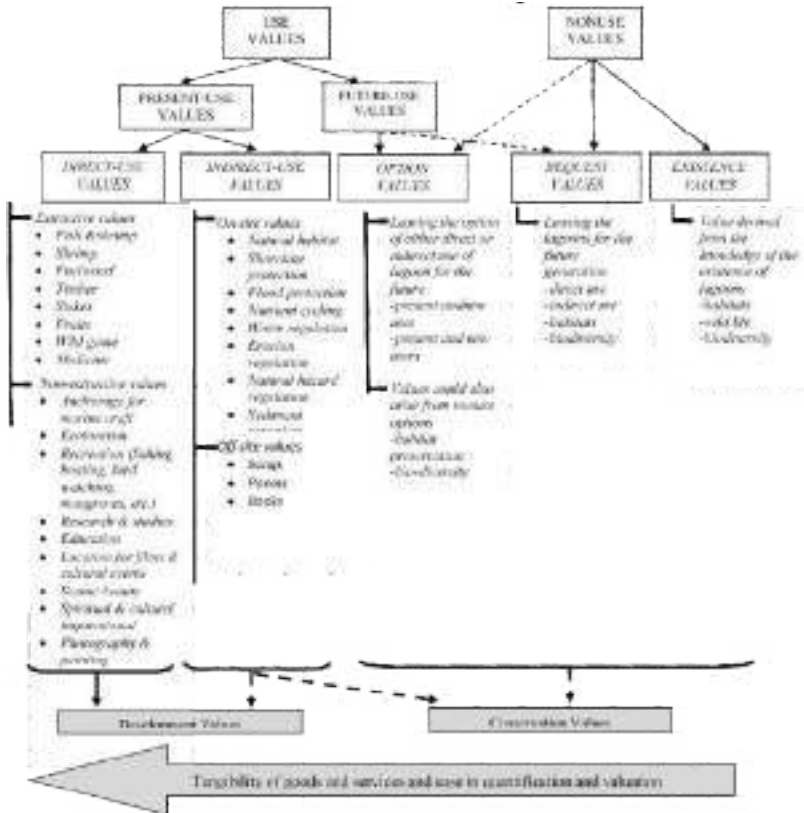


Figure 8.4: Total Economic Value of Lagoons

Source: Silva et al, 2013

the presence of these values in lagoons of the most important coastal districts are presented, where the different values were assigned a rank from 1-5.

However, it should be noted that, while some lagoons have not recorded high recreational and ecotourism values, certain sectors of these lagoons may have high non-extractive use values. For example, in some larger lagoons like Jaffna and Batticaloa, which have recorded low

recreational values, very high potential for generating such values were noted in certain areas of the causeway between Jaffna and Punkudutivu Island and, the area around the Light House in the Batticaloa Lagoon, including the establishment of an environmental learning center (ibid).

Under a recent project aimed at livelihood development, the Department of Fisheries and Aquatic Resources, has planned to promote fish value addition, post-harvest production and tourism related industry. Lagoons in Puttalam, Nayaru, Arugam bay, Panama and Rekewa have been prioritized initially though potential has been identified in 18 lagoons. A budget allocation of 1,000 million rupees in 2018 and another 1,100 million rupees for 2019 and 2020 have already been made.

Exploiting diverse values

It has been found that fishing in a large number of lagoons does not generate sufficient incomes to fishers to meet their family subsistence needs. Silva et al (op.cit) estimated the average monthly income of a fisher to vary from Rs 10,000 to Rs 34,000, with a mean income of Rs 14,411, which is lower than the 'income receivers' mean monthly income' in Sri Lanka, which was 20,427 (Department of Census and Statistics, 2010). People who are vulnerable need to cope with it, and what is required is to develop resilience. Due to age old tradition of occupational shifts depending on the season and circumstances, lagoon fishers are known to be more 'mobile' than marine fishers, and the potential to improve the wellbeing of lagoon fishers by providing them with opportunities to engage in alternative sources of livelihoods exists. The question is whether such opportunities exist in all rural areas. Apart from Malthusian effects, the pace of development of rural areas remains quite slow, limiting the availability of job opportunities in these areas.

The above analysis point to the following.

1. Lagoon fishers belong to a low-income group, and poverty is pervasive among lagoon fishers.
2. Lagoon fishers have traditionally been engaged in a diversity of supplementary income generating activities to smoothen their low and fluctuating incomes.
3. Lagoons generate a number of ecotourism and recreational values

4. There are multi-stakeholders in the lagoon environment, many of whom generate negative externalities on the other, which could give rise to conflicts among them
5. There is a need to assist fishers in enjoying a decent standard of living by enhancing the production of lagoon fish and shrimp resource in the lagoons and providing them with alternative employment.

It has been noticed that today's tourism is quite different from traditional 'sun and sea' tourism and visitors are more interested in living with local communities, understanding their culture, and enjoying the nature. Incidences of tourists staying with farmers and fishers and engaging in their productive activities have been noticed in the South of Sri Lanka (Amarasinghe 2010). It is also true that, lagoon environments have attracted tourists due to their natural beauty (which is especially true with 'winding' lagoons than with open lagoons). Lagoon fishermen converting their artisanal crafts to take tourists around such picturesque lagoons were also noticed (Figure 8.5 and 8.6).

As it was earlier mentioned, attention of the authorities on lagoons was based on the 'fisheries productivity' of the lagoons, or 'extractive values'. When fish and shrimp catches were low, they were neglected, and authorities failed to identify some more important non-extractive use values they generate. It is also to be mentioned, that lagoons found in the North and the East of the country came under the heavy impact of the civil war for nearly 30 years starting from 1983. The war had a strong depressing effect on new entrants to fisheries (e.g., Mullativu District), while it destroyed craft and gear of the fishers during crossfires. Fishers refrained from fishing during the civil war. The post-war recovery was slow because people did not have affordable access to craft and gear, and being enmeshed in a vicious cycle of vulnerability and poverty, they hardly had easy access to livelihood capitals. Moreover, whatever fish they landed were marketed through middlemen oligopsonies which prevented them from receiving a fair price for the fish.

Although the fisheries authorities have neglected the 'less-productive' lagoons (having low extractive values), the fishers have understood that their 'work place' produced other values, which could provide them with livelihood assistance. *Figure 8.6* provides evidence of a fisher



Figure 8.5: The serene and salubrious atmosphere of the Rekawa Lagoon, Hambantota District
Photo: Oscar Amarasinghe



Figure 8.6: High recreational values in the irregularly shaped Pottuvil lagoon of the Ampara District of Eastern Sri Lanka
Photos: Oscar Amarasinghe



Figure 8.7: Stunning Rock Formations near the Pottuvil Lagoon

Photos: Oscar Amarasinghe

tying two small lagoon crafts together to form a platform that helps to take tourists around the lagoon, probably to observe mangroves, birds or fishing with a cast net.

Silva et al (op.cit) found beautiful rock formations in the vicinity of the Pottuvil lagoon and, it was revealed that the area was becoming known for its natural beauty to tourists and that tourism was picking up (see Figure 8.7). IST is not confined to any particular group of activities, but all activities that are found in the region that provide livelihood to the people in the area and products and services to visitors. Another example is the Kokilai Lagoon in the Mulativu District (figure 8.8). This lagoon is endowed with thick mangrove forests and is a sanctuary for birds. With its astonishing beauty, Kokilai lagoon has a high potential for making a significant contribution towards developing Integrated Sustainable Tourism in the area.



Figure 8.8: Potential for nature tourism in Kokilai Lagoon in the Mulativu District in Eastern Sri Lanka (thick mangrove forest in the background)

Photos: Oscar Amarasinghe

Potential for IST: Evidence from Southern Sri Lanka

Stakeholder consultations were carried out by Amarasinghe (2010) in the Netolpitiya area of southern Sri Lanka with the participation of groups of coastal marine fishers, lagoon fishers, farmers, hoteliers and the TCP (Turtle Conservation Project) to find out how they could contribute to an IST initiative. First, all stakeholders were made aware of the advantages of the IST in improving their wellbeing and quality of life and were then asked as to how they could contribute to an IST initiative. Their responses are summarized in *Table 8.3*. It was quite interesting to note the bundle of ideas the various stakeholders had in offering tourism-related services. The group discussions also helped people to listen to others, learn from others and organizing one's own perceptions accordingly, so that a product-service bundle could be crafted out of the ideas expressed at the discussions.

Table 8.3: Activities proposed by diverse stakeholders in contributing to an IST model

Stakeholder Group	Potential Tourism Products / Services
Marine Fishers	1. Fishing in the sea using diverse gear 2. Observe coral and ornamental fish 3. Swimming in demarcated secure area 4. Living in “fisher cabanas” (to be constructed) 5. Providing typical “fisher meals” in a traditional setting 6. Selling seashells and ornamental fish
Lagoon Fishers	1. Boat trips in the lagoon 2. Throwing caste nets in the lagoon 3. Lodging in boat houses in the lagoon (only the potential is known) 4. Identifying different mangrove species 5. Bird watching
Turtle Conservationists	Watching nesting by turtles
Farmers	1. Accommodation in farm houses 2. Use of traditional agricultural implements in the field. 3. Understanding traditional knowledge in farming 4. Organic farming & picking organically raised fruits and vegetables 5. Opportunities to prepare & consume “Sri Lankan village meals”
Hoteliers	1. Accommodation in a serene, salubrious “greener” environment 2. Visit to diverse eco-tourism sites, 3. Combining eco-tourism, agro-tourism and cultural Tourism, 4. Introducing traditional (ayurveda) health treatments 5. Organising cultural and religious festivals during tourist season

Source: Amarasinghe, 2010

The question as to why single activities would not succeed was also raised. The most important fact is, that visitors come for an enjoyable stay and the recreational benefits comes from a variety of things: living in an organic farm, tilling the soil with a plough, throwing a cast net in the lagoon, snorkeling in coastal waters, fishing with artisanal gear, etc'. At the same time, the longer the duration of a single visit, the higher would be the benefits reaped by the local people, while the visitor too will be able to economize on travel costs. In an IST initiative, the visitor is taken from one attraction to another all along the product chain by the diverse stakeholders, which is a form of integration of different activities. This attracts tourists because they enjoy diverse attractions during a single stay without having to spend on 'search' costs, while all service providers benefit from integration of activities, because the visitor engaging in one activity will generate positive externalities on the other.

In another study carried out more recently (2018) in a fishing village in Rekawa (Hambantota District of Southern Sri Lanka) (Salpage et al, 2019) which aimed at finding out the potential for ecotourism in the area, both marine and lagoon fishers identified several tourism related activities showing the potential that exist for IST in coastal areas (Figure 8.9). These included turtle watching, coral watching, snorkeling, offering different fish preparations, home stay, transport by bull-driven carts (*bakki*), bird watching in mangrove areas, living in organic farms, as activities that had high potential for IST. The three-wheel scooter drivers who were present, were even willing to give up their vehicles to acquire *bakki* (bullock drawn passenger carts), if opportunities and facilities were offered.



Figure 8.9: Focus Group Discussion with Fishers and women in fishing communities at Rekawa on Tourism (6/6/2018)



Figure 8.10: Potential for “war-tourism” in Lanka Patuna Lagoon of the Eastern Province

Photo: Oscar Amarasinghe

The potential for IST appears immense. One may add into an IST model anything that will catch the eye of the visitor. One such example is the damaged bridge at Lanka Patuna Lagoon in the East (see figure 8.10). The bridge was built by the northern militants to bring weapons from abroad, during the civil war of the country (1983-2009), which was subsequently bombed by the security forces. The broken bridge stands like a huge ghost breaking the serenity of the environment. During field studies in 2011 (Silva et al, op.cit.), one fisher passed the remark “this could be used for war-tourism”. This truly has implications for developing an appropriate IST model for the area!

All activities mentioned above will provide the principal source of income or supplementary incomes to farmers, fishers, cultural dance troops, rural craftsmen, native health care people, youth (as tourist guides, chefs, cooks and waiters) and women (home stay, handicrafts). What is necessary is to identify diverse stakeholders in the system, form networks, build capacities, provide them with financial capital on easy terms, and develop diverse IST models (Amarasinghe, 2010). In the long run, IST has the potential of improving the wellbeing of coastal populations, while earnings from IST will remain in the village strengthening the local economy.

Concluding Remarks

Integrated Sustainable Tourism is not new. People living in coastal areas have been engaged in diverse activities and in constant touch with tourists, due to the popularity of 'sun and sea' tourism in the country, and the vast number of hotels, restaurants and accommodation facilities available along the coast. Thus, youth from fishing families were engaged in tourism, as tour guides, trainers of surfing, diving and snorkeling, sellers of various kind of marine based products: sea shells, corals, etc. Even women folk were engaged in selling their mats weaved with local sedges, other ornamentals and wall hangings. Homestay has become a very important earner of supplementary incomes. A couple of clean rooms, a washroom with basic amenities and a clean kitchen would form a good 'homestay' for tourists, which could be an attractive source of income. This is a common practice today in many fishing communities. Moreover, tourists' attitudes and aspirations are changing too. Today there is high demand for nature, camping, homestay, culture, local medicine, etc. which are not found in large hotels in urban areas.



Figure 8.11: A picturesque image of a hypothetical IST model

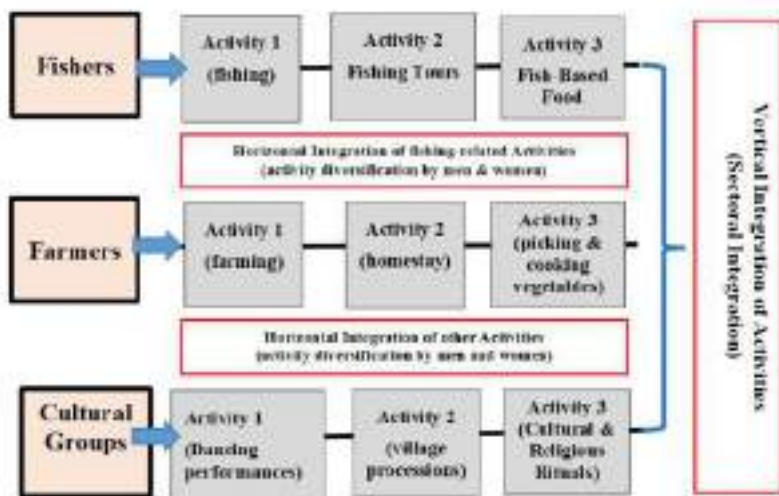


Figure: 8.12: A hypothetical IST Model

IST offers a wonderful opportunity to bring all stakeholders in a particular locality together to form an attractive IST model. Through an IST initiative the participants gain both from livelihood diversification and activity integration and coordination. IST induces the formation of networks or social capital. As aptly described by Hanifan (1916), social capital- accumulated through a person's link with his neighbour, and them with other neighbours will immediately satisfy the person's social needs and will potentially lead to substantial improvement of living conditions in the community (see also Infed.Org, 2025). IST will benefit the people in two ways: diversify livelihoods and join hands with others forming networks. However, for IST to be effective, people may need capacity development to strengthen the existing livelihood activity and diversifying livelihoods. Examples of the latter are lagoon fishers taking up ecotourism activities, organic farmers providing 'home stay' in their farm, marine fishers providing fishing trips and typical fish-based food to tourists in beach cabanas, etc. Therefore, IST involves both horizontal and vertical integration of activities. (see figure 8.12). The interdependency among participants in an IST initiative will also ensure conflicts among diverse stakeholders are kept to a minimum.

The major advantages of IST could be enumerated as follows:

- a. IST differs from commonly known tourism because IST is operated by people belonging to a certain area. There is a feeling among people that the resources of the area 'belong to them' and therefore, they have an interest in protecting them. Thus, IST ensures Sustainable Tourism.
- b. People of the land will ensure that the environment is not damaged by tourism and that the resources are kept for their offspring (concern on the trade-off between present and future welfare).
- c. People of a community are strongly glued by trust and reciprocity. The principles of the peasantry, such as equality and social harmony, will ensure that conflicts among diverse stakeholders are kept to a minimum. Such a network will form 'strong social capital', which in cooperation, will be a strength that can bring in immense benefits than individuals working in isolation.
- d. An array of activities will offer a comprehensive tourism package to the visitors who will stay longer. They will economize on travel costs and will have an enjoyable stay with diverse attractions. Moreover, the tourists will have a strong taste of the culture because they will also be among the people of the area. Local population will benefit from higher incomes earned from livelihood diversification and activity integration, with the latter being reaped from longer duration of visitor stay and benefits from offering tourism packages.

The following could be cited as the most important interventions to be made, in promoting IST in selected coastal areas.

1. Organise different stakeholders into a society or an association, vested with responsibilities in organising IST activities, coordination of activities, pricing, resolving issues, etc. They should also be made members of the district coastal zone co-management committees (ICZM committee) as outlined in Chapter 3.
2. Give legal status to the association.
3. Help improve facilities such as provision of credit at concessionary rates to the following:



Figure 8.13: Garbage dumping near the northern end of the Chilaw Lagoon – Note dense mangrove stands in the back ground (Silva et al, 2013)

(Photo: Oscar Amarasinghe)

- a. Helping fishers to improve and build their crafts to carry tourists. This could be done through Lagoon Fisheries Committees and Fisheries Cooperatives.
- b. Provide credit at concessionary rates (with priority to women) to households willing to build 'home stay' facilities, to cultural troops to acquire equipment required to perform cultural events, to native doctors to acquire basic facilities for native medicinal treatments, etc.
- c. Help marine fishers to construct cabanas to offer traditional fish-based food.
- d. Help to rganize youth into clubs and assist them to acquire equipment for snorkeling, diving, fishing etc.
- e. Help 1. Above, to fix name boards and signs giving directions to tourists.
- f. Help scooter drivers or willing individuals, to acquire bullock carts to take visitors around lagoons (soft loans)

4. Train youth in languages, catering, guiding, bird watching, camping, etc.

It needs to be mentioned that, no IST will succeed if coasts are not kept clean. There is ample evidence that coastal pollution, especially garbage and micro-plastic pollution in Sri Lanka is increasing at a fast pace (see Figure 8.13). There is a strong need to support the Marine Environmental Protection Agency (MEPA), in its efforts to curb coastal pollution.

In a nutshell, this chapter attempted at showing the importance of adopting IST as a self-insurance strategy for fishers, which will improve their resilience capacity against diverse shocks inherent in the hazardous environment in which they operate and declining incomes and other vulnerabilities threatening their livelihoods. Moreover, IST has the potential to strengthen the local economy and reduce poverty among rural populations.

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Chapter 9

Fisheries Livelihoods and Wellbeing







Preamble

For many people, fishing means the act of catching fish, selling them and earning an income. This narrow definition describes an occupation or a job, one's role in society, often a regular activity performed for payment (Wikipedia, 2020) . The term livelihood is much broader, and in social sciences, livelihood means, "the command an individual, family, or other social group has over an income and/or bundles of resources that can be used or exchanged to satisfy its needs. This may involve information, cultural knowledge, social networks and legal rights as well as tools, land and other physical resources" (Blaikie et al, 2004). After the termination of the 2nd world war, countries were trying to rise from acute poverty, hunger, high rates of growth in population, poor agricultural and industrial production. Everybody wanted to get engaged in a good occupation so that they could earn a satisfactory income. In Sri Lanka, for example, one could observe the adoption of growth-oriented policies in the 1950's and 1960's where the aim was to increase production and incomes. A 'high income' was thought the prime objective of the humans.

Growth-oriented policies however did not produce the expected results because the benefits of growth were not distributed well among the people of the country. The gap between the rich and the poor was widening and unequal distribution of income was become a serious issue. This led to a change in focus, from 'growth' to 'development', with emphasis on better distribution of income. During the 1970's, a number of policies were adopted to ensure that income was well distributed among the people of the country with a reduction in poverty. Land Reform was one such huge leap towards achieving more equitable

development. The focus was then diverted to the ILO initiative of basic needs, which resulted in increased government spending on education, health, housing, etc. These policies were quite attractive to the low-income groups, and the government received lot of support from the poor. During the 1970' and 1980's most of the international aid were channelled to the different components of the basic needs. 1980's saw the emergence of two other important considerations; gender equality and sustainable development, following the 1980 World Conference of the United Nations- 'Decade for Women' held in Copenhagen, and later the Beijing Convention (platform for action) in 1990 and, the 1979 world summit and the adoption of Sustainable Development as the as the future goal. Along with these changes was the shift of focus from the basic needs approach to human development approach (meeting the three basic needs for human development; education, health and decent standard of living). More recent work in this sphere suggest that the basic human development goal is “wellbeing”.

'Wellbeing' constitutes a broad-based outcome, including material goals, as well as non-material aspects, while providing a comprehensive framework for understanding what is important to people, communities and society (Weerathunge *et al*, 2014). The WeD approach (Research Group on Wellbeing in Developing Countries) identifies three key dimensions of wellbeing (*Figure 9.1*): the material, the relational, and the subjective (White, 2010). The 'material' wellbeing is related to standards of living, such as, income, wealth, assets, environmental quality, physical health and livelihood concerns among others. In short, it is about '*what you have*'. The 'relational' aspects include relations of love and care, networks of support and obligation, social, political and cultural identities, including relations with state institutions and other formal structures, etc. In fact, it is about '*what people do with what they have*'. The 'subjective dimension of wellbeing is about people's perceptions of their (material, social, and human) positions, individual and shared aspirations, levels of satisfaction or dissatisfaction, ideologies, and beliefs (White, 2010), in other words, it is about '*how people feel about what they have and do*'.

The content of this chapter is mainly based on the results of a wellbeing study and field work carried out by the author and his colleagues, in Southern Sri Lanka, in 2015; which, hereinafter will be referred as Amarasinghe *et al*, (2015).

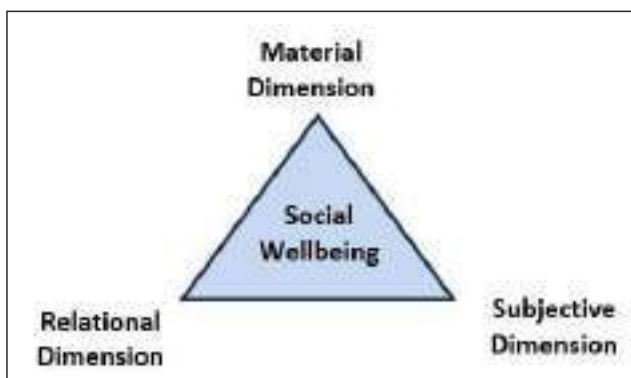


Figure 9.1: Conceptual view of social wellbeing

Source: Armitage et al., 2012

Wellbeing Aspirations of Fishers (Men and Women)

Studies on wellbeing in Sri Lankan fishing communities have revealed that, the top-ranking wellbeing aspirations of the people are mostly of 'relational' dimension. *Table 9.1* shows wellbeing aspirations of fisher folk (both men and women) in two fishing villages of Southern and Northern Sri Lanka. The importance of social relationships is very pronounced in both communities. In other words, social capital or social networks, where people are bound closely by friendship, trust and affective relations appear to play an important role in making people 'live well' in both communities. Having a good wife, good children, good family life, good relationships with others have been highly valued by people, which contributed most to peoples' wellbeing. This in fact, shows that the "relationships" are at the center of wellbeing, which means that what people do with what they have (relational wellbeing) and how they feel about what they have and do (subjective wellbeing) are all influenced by peoples' relationship with others. For men, such relationships were dominated by strong marital relationships (good wife), having children who are well-behaved, studious and affectionate, and to be an honest, rightful and good fisher, while for women, the most prominent relationships were the unity within the family and among people, social harmony (absence of conflicts) and to be a rightful and honest person.

Table 9.1: Wellbeing aspirations of fisher folk (both men and women)

Wellbeing Aspirations of fisher folk in Gandara: a fishing Village in Southern Sri Lanka		
Rank	Men	Women
1	Good wife	Unity
2	Good children	Be a good neighbour
3	A rightful, honest and good fisher	A rightful, honest and religious person /
4	A good Harbour (anchorage facility)	Good mannerisms
5	Helping others when in distress	Advisor providing correct guidance to people
6	Ownership of Craft & Gear	Courageous, Good Living Environment, Values, Occupation
7	Good friends	Good family and good family background
8	Religious living	Education
9	House	Basic needs,
10	Cash	Savings
11	Social harmony	Money management
Wellbeing Aspirations o fish folk in Vankalai: a Fishing Village in Northern Sri Lanka		
Rank	Men	Women
1	Good Income	Good Income
2	Family relationships	Personal security
3	Children's education	Children's education
4	Food availability	Good House
5	Good physical health	Social Harmony
6	Social relationships	Social relationships
7	New boat and nets	Mental Health

Source: Amarasinghe et al., 2015 and Peramunagama, 2019

Importance of Relationships for Wellbeing

Traditionally, the notion of rational individual maximizing returns, has always laid emphasis on the material dimension of wellbeing, which underlines economic prosperity. As White (2010) has pointed out, both

'Doing well-feeling good' and 'Doing good-feeling well' captures all three dimensions of wellbeing (see Figure 9.2).

Wellbeing is closely interwoven with relationships. People always do not make choices Choices with individual gains in mind. Quite often, choices are also made towards fulfilment of social obligations, cultural conventions and the enactment of routines. Interests of people also



Figure 9.2. The nexus among the different dimensions of wellbeing

Source: adopted from White, 2010

arise due to positions they hold in social organizations (Jentoft *et al*, 1998). As Coulthard *et al* (2012) have pointed out, it is quite hard to understand the human being without reference to where they live their lives: groups, communities, societies, etc. They do not always strive towards reaching only economic objectives, but also social objectives; welfare of children and family, living in harmony with neighbours, to live a religious life, etc. Several authors have pointed out that 'relationships' play a centre role in wellbeing (White, 2010; Paleari *et al*, 2011; Amarasinghe *et al*, 2015). The centrality of relationships means, that what people do with what they have (relational wellbeing) and how they feel about what they have and do (subjective wellbeing) are both influenced by peoples' relationship with others. Relationships are interwoven with, and mediated through culture, religion, history, social values, norms, traditions, etc., the reason why good relationships are necessary for living 'well'. The concept of centrality of relationships reveals that, decisions of people are socially constructed, meaning that 'what people do and how they feel about what they do' are all influenced by society, culture, religion, etc. These feelings and perceptions are

determined by people's experiences as well as by the norms and values that are culturally and socially determined or constructed (Deneulin and McGregor, 2010).

Referring to the findings of the field studies conducted in the Southern Sri Lanka, Amarasinghe *et al.*, (2015) have ranked; relatives (family), friends, Cooperative Society, fish Merchant and fishing Community as the five most important relationships of a fisher (See Figure 9.3 and Table 9.2).

In fact, fishing communities are closely knit communities where social relations among fellow community members remain quite strong (Amarasinghe *et al.*, 2015). Relationships with kin, friends and

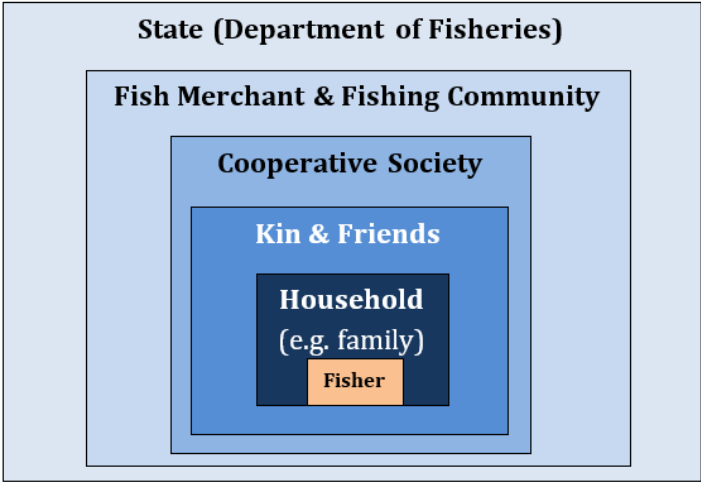


Figure 9.3: Relational landscape showing the most important relationships of a fisher

Source: adapted from Amarasinghe, 2015; Coulthard *et al.*, 2013

neighbours are the strongest among all, because they form a source of assistance in fishing operations (beach seining, pulling crafts ashore), cash and labour at distress, moral support, source of consumption credit, insurance, etc. The strong relationship with the cooperative should also be noted. The cooperative comprises one's fellow fishers and friends and who, together, form a strong social network which can

function as a source of livelihood capitals, to which the members have access through group guarantees (see Amarasinghe & Bavinck 2011).

Table 9.2: The most important relationships of a fisher: in Gandara; a fishing village in Southern Sri Lanka

Type of Relationship	Number of respondents	Percentage	Positive / Negative
Relatives	20	91	Positive
Friends	21	95	Positive
Cooperative	17	77	Positive
Fish Merchant	14	64	Positive/Neutral
Community	13	59	Positive
Dept. of Fisheries	13	59	Negative
Money Lender	3	14	Positive / Neutral
Shop Keeper	1	5	Positive
NGO / Organisations	3	14	Positive

Source: Amarasinghe *et al.*, 2015 (n=22)

Resilience and wellbeing

As an occupational category, fishers, especially the small-scale fishers, are one of the most vulnerable groups (Béné, 2009; Mills *et al.*, 2011; Amarasinghe *et al.*, 2015) in Sri Lanka as well as in many other developing countries. Apart from others, fishers are exposed to numerous shocks emerging from the hazardous nature of the marine environment in which crafts and gear are put into operation and the strong impact of climate change on the coastal environment. These shocks and stressors make fisheries a sector that is subject to a host of risks and uncertainties, causing highly variable (sometimes even zero) catches and incomes, threatening the livelihoods of fishers. Thus, fishers are considered one of the most vulnerable groups of coastal people. When people are confronted with divers shocks, they need to cope with them, or in other words, to be 'resilient' against them. Vulnerability and resilience are two sides of the same coin. Simply, resilience can be defined as “*the ability to bounce back or return to equilibrium following disturbance*”, where adaptability and

transformability are key ingredients (Walker *et al.* 2004; Folke *et al.*, 2010; Amarasinghe and Bavink, 2011). The ability of a livelihood to cope with and recover from stresses and shock is central to the theme of livelihood resilience.

As Amarasinghe *et al* (2015b) describes, fishermen are likely to confront two types of shocks: idiosyncratic (individual) shocks and aggregate (Collective) shocks. Idiosyncratic shocks are shortfalls in income confronted by individuals in a fishing community at random, meaning that all individuals do not confront these shocks at one and the same time. Fishing is also affected by changes in weather, fish migratory habits, fluctuations of input and output prices, policy changes, etc. affecting all fishermen in a particular geographical area. These are collective shocks.

Another quite noteworthy fact is that fishing is affected by multiple shocks/stressors unlike farming. Before a fisher recovers from a shock, he could be hit by another shock. Bene *et al* (2016) have referred to this as “cumulative and continuous effect” of shocks and stressors (*Figure 9.4*), whereby the impacts and disturbance of sequential stressors combine to create non-stop continuous stress.

In *Figure 9.4*, A-A shows the asset position of the fisher at the time he is hit by a shock (say a storm). X-X (black dotted line) is the general process of asset build up in the absence of a shock. When the fisher is hit by a shock (S_1) at the beginning of t_1 period, then his asset position will drop from A to B. The fisher's recovery process is shown by the area above the red line a-a and below the black dotted line. It is likely that the fisher is hit by another shock (S_2) at time t_2 before he recovers from S_1 , which too leads to a drop in his asset position to C-C. The process of recovery is then shown by area above red line b-b and below the black dotted line. Moreover, fishing is so unpredictable that fishers sometimes get 'bumper catches'- which are commonly called 'lucky catches'. Such catches will completely change the situation of the relevant individual, who will be immediately elevated to a higher asset position. But who knows when one would confront a 'bumper-catch'. Two important findings emerge from the above. First, there is a high demand for insurance among fishers. Second, fishers need strong social security

protection. The phenomenon of multiple shocks and cumulative and continuous recovery process shows the urgent need to build the resilience capacity of small-scale fishers against shocks and stresses.

Multiple shocks can arise from a combination of idiosyncratic shocks, collective shocks, and long-term continuous trends. Some are predictable while others are totally unexpected. All affect households simultaneously and on an almost continuous basis. Hence, it is difficult for a fisher to say that he has recovered from one shock and has now started to recover from the shock that followed. In recovering from the first shock, he may adopt strategies, which may not be the same as he might adopt against the second shock. This means that at a certain

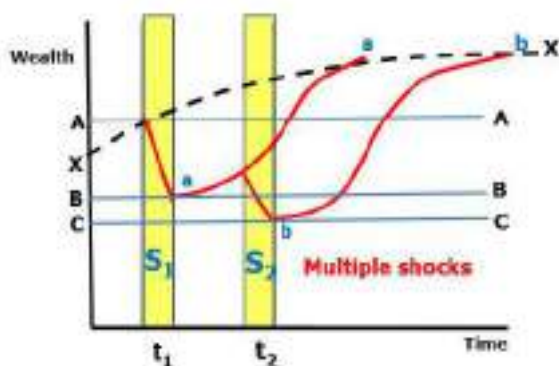


Figure 9.4: Multi-shock environment and a trajectory of continual and incomplete recovery

Source: adopted from Bene *et al.*, 2016

point in time a fisher might have been affected by multiple shocks against which he would have adopted multiple strategies. Hence, the small-scale fisher households will not have the chance or the time to fully recover from one particular event before being affected by the next. Instead, they are used to a strategy which could be characterized as “a constant state of incomplete recovering” from new shocks and stressors (Bene *et al.*, 2016, p.162).

According to the studies conducted by Amarsinghe *et al* (2015) the most common fishing related shocks and stresses confronted by the fishing populations are, hurricanes/tropical storm, rapid increase in input prices, constraining regulations imposed by the Department of Fisheries (DOF), decline in fish catch, and changes in Fishing techniques (Figure 9.5).

Shocks and stressors cause loss of assets and income of fishing families. As Amarasinghe *et al*, (2015) have pointed out, that these losses could be either direct (ex. craft and gear) or indirect (liquidation of household assets). Asset losses cause disruptions in fishing, which in turn cause income losses, and income shortfalls which compel fishers to reduce

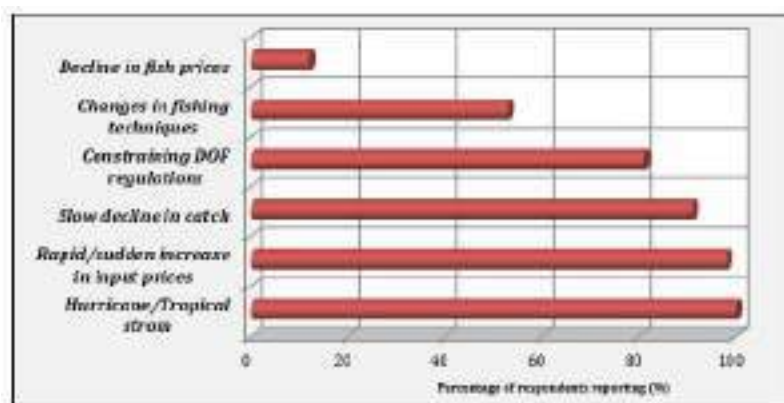


Figure 9.5: Major shocks/stresses confronted by the fisher folk in Southern Sri Lanka, during 2009-2014.

Source: Amarasinghe *et al*, 2015¹

expenses. However, the same authors stated that any disruptions in family life following a shock had not been explicitly revealed or reported by their study populations, which they attributed to the perception and attitude of fishing families, who tend to accept such 'adverse circumstances' as part of the reality of being members of fishing families.

¹ *Ibid.*

Table 9.3: Strategies adopted by the fisher folk at Gandara (a fishing village in Southern Sri Lanka) against major fishing related shocks

Strategy	No. of incidences of using the strategy (n = 120)	Type of Strategy
Borrowing Money	114	Coping
Obtain Assistance	98	Coping
Reduce expenditure	86	Coping
Reducing food consumption	74	Coping
Change in Fishing Inputs	43	Adaptation / transformation
Change in Fishing Methods	63	Adaptation / Transformation
New Collaboration	26	Adaptation
Activity Diversification	90	Adaptation / Transformation
Migration	21	Transformation
Selling Assets	25	Coping

Source: Amarasinghe et al., 2015

According to the findings of the above study, fishers respond to shocks and stresses in a wide variety of ways, including reducing food consumption, cutting down household expenses, borrowing food and cash, selling assets, changing fishing strategy, engaging in alternative livelihood activities, temporary migration, etc. In table 9.3, all these actions are classified under three strategies of Resilience: Coping (cope with a shock with assistance from others and bounce back on the same landscape), Adaptation (cope with a shock by adopting new strategies but bounce back on the same landscape) and Transformation (cope with a shock by complete change of activity and step on to a different landscape). In some cases, fishers have adopted multiple strategies in responding to a shock or a stress. Borrowing money, obtaining assistance from the community, and engaging in alternative livelihood activities have been the most important coping strategies adopted by fishing people (*Table 9.3*), showing the

Table 9.4: Sources of help at in coping with fishing related shocks (risk of damage and loss of crafts and gear) - Godawaya of Southern Sri Lanka (The percentage of respondents reporting)

Source of funds	Godawaya	%
Savings	2	3.7
Fish Merchant	8	14.81
Friends/Relatives	40	74.07
Fish. Cooperative	41	75.93
Money Lender	22	40.74
Bank	10	18.52
Sell Assets	46	85.19
Bought something cheaper	10	18.52
Not secured anything yet	2	3.7
Teams	1	1.85
N = 60		

Source: Amarasinghe et al., 2015

importance of relationships and social capital in the process of coping with shocks.

Borrowing cash (either directly or through pawning) and food to meet basic needs and fishing needs (ex. fuel), appear to be the major strategies adopted to maintain material wellbeing. However, some of the assistance may come with certain ties, to which the borrower will have to consent, even unwillingly (*i.e: becoming a 'tied craft owner' to a lender merchant*). In respect of borrowing, an array of credit sources has been used by the fishing communities, the major credit sources had been friends and relatives, banks, local money lender, fisheries cooperative, local merchants and women groups. This in fact, demonstrates the importance of the social networks and the community; community organisations, friends, relations, and fellow fishers in providing people with distress help. Fisheries-Cooperative, is one of the most dominant sources, providing diverse forms of livelihood capital for fishers in Sri Lanka to cope with vulnerabilities (*see Chapter 5 on Fisheries Community Organisations*) (Table 9.4).

Reducing consumption and expenditure have become the other common coping strategies adopted by fishing families (*Table 9.3*). As Amarsinghe *et al* (2015) describe, reduction in food consumption is an ex-post strategy (*A strategy adopted after a shock takes place*) adopted when incomes are insufficient to meet family consumption needs. The three major items on which expenditure *had been* reduced included: leisure related expenses, food and general household expenses such as expenditure on clothes, or cosmetics. People tend to establish partnerships (collaborations) with different agents, which are considered as adaptive strategies. Activity diversification has come next in importance, as an adaptive/ transformative strategy. For example, a fisher operating an artisanal craft might work as a crew labourer in a motorised craft, when stormy weather does not permit fishing with non-motorised crafts. When this shift is temporary it is an adaptive strategy, while it is considered a transformative strategy when such a shift is permanent.

Studies carried out in Godawaya, a fishing village in the south of Sri Lanka (which has a well-functioning fisheries cooperative), it was revealed that friends, relatives and the fisheries cooperative have been the most dominant sources of credit for fisher folk. This has also reduced the number of fishers borrowing from banks. Assuming that, borrowing from social capital type of sources entail low interest and easy collateral (personal trust and group guarantees), one could safely conclude that people opt to borrow from fisheries cooperatives, whenever such well-functioning social-networks exist.

One may also wonder as to whether the higher contribution of relatives and friends in Godawaya is associated with the presence of the cooperative (strong social capital), which bind people together (bonding social capital), through trust and reciprocity. There is quite close interaction among people; sharing ideas, issues, reciprocal exchange relations, etc., which pave way for more affective relations. As Hanifan (1920) (an early writer of social capital) has aptly described, “social capital - accumulated through a person's links with his neighbour, and them with other neighbours, will immediately satisfy the person's social needs and will potentially lead to substantial

improvement of living conditions in the community, of which he is part" (p.130). These benefits are achieved through trust, and norms (such as reciprocity and values), which shape the behaviour of individuals in a community and bring about beneficial outcomes. Some scholars call this type of social capital 'bonding capital' (which binds people)². Moreover, Amarasinghe and Bavink (2011) have shown that social capital is a resource that people can use to cope with vulnerability, mainly because it can provide access to other types of livelihood capitals.

The link between resilience and wellbeing

One could find a plethora of contemporary literature which discuss the relationship between the two concepts; resilience and wellbeing (Gough and McGregor, 2007; Coulthard, 2012; McGregor, 2008; White, 2009; Britton and Coulthard, 2013). Sometimes resilience and well-being are considered to be the same thing, recognizing the benefits that people within a system may receive by being less vulnerable to shocks and having greater coping capacity to live with the change (Marschke and Berkes, 2006). However, greater resilience, does not straightforwardly, or automatically, equates greater well-being of people operating within it. Davis (1996) has argued that, the increased resilience, adaptive capacity to cope with stresses and shocks, and reduced vulnerability may lead to different well-being outcomes, which are not complementary always. Adaptation choices can include compromises and trade-offs between the well-being aspirations on the one hand and, the need to adapt strategies that reduce risks and vulnerabilities, on the other.

As note earlier, wellbeing is "a state of being with others, which arises where human needs are met, where one can act meaningfully to pursue one's goals, and where one can enjoy a satisfactory quality of life" (Gough & McGregor, 2007). In this respect, individual decision making is influenced to a great extent by relationships the person has with various individuals and groups within and outside the community. As McGregor (2006) points out, it is hard to understand human beings

² Woolcock (2001) distinguishes three types of social capital, depending on the nature of the social network created. Bonding capital ties people in similar situations (such as family, friends, or neighbours), and bridging capital connects people of equal status at larger physical or social distance. Linking capital finally joins people of dissimilar situations or status

Table 9.5: Strategies adopted by people to maintain wellbeing when they are hit by shocks

	Individual	Collective
Ex-Ante	Education / training	Forming occupational and other groups and associations (social capital)
	Employment for women	Establishing strong fisheries cooperatives
	Women undertaking Financial management & employment	Cultivating unity among people
	Maintaining good relations with boutique keeper	Timely repayment of loans from cooperatives
	Accumulation of Assets	
	Building a large portfolio of gear and knowledge in the use of them	
	Investing in Agriculture and animal husbandry	
	Building good relations with fish merchants, neighbors	
	Behave a rightful and good person	
Ex-post	Sell Assets	Reciprocal Credit ³
	Technological Adaptation (Shifting among employment categories)	Loans from fisheries cooperative
	Temporary hiring fishing equipment	Obtain assistance from NGOs and other donors
	Labour in kind / moral support to those in distress	Collective Action (awareness building among authorities, Organisations)
	Temporary migration	Collective Action – <i>Shramadana</i> ⁴
	Engagement in agriculture and animal husbandry	Loans from fisheries cooperative (Instant, medium term, long term loans)
	Show affection towards dear ones (wife/children/kin/friends)	

³ Small loans exchanged among fishers which is made possible by the fact that fishers do not confront co-variant catches. (The lucky ones will lend to unlucky ones knowing that no one is always lucky and unlucky)

⁴ Labour in cooperation (ex. helping to repair damaged houses, etc. or even to build capital)

	Individual	Collective
Ex-post	Be courageous	
	Draw from savings	
	Pawn jewelry, boat registration book	
	Obtain Credit (friends, Relations, Merchant, Money lender, community org.)	
	Boat Tying (Market interlinkages)	

Source: Amarasinghe *et al.*, 2015

without reference to the collectivities, organisations, groups, communities and societies in which they are located and live.

At the face of a shock, the strategies that a person adopts are not only a response to circumvent that shock, but an outcome of his assessment of the influence of such strategies on diverse relational and subjective dimensions of his wellbeing. In fact, wellbeing aspirations and satisfactions affect peoples' abilities and willingness to engage in various types of adaptive behaviour (Amarasinghe *et al.*, 2015). In other words, people's different dimensions of resilience (resistance, adaptability, transformability) and their 'investment' in these different strategies is influenced by the different components of their wellbeing (assets, aspirations, goals, integration into social networks, or perception of identity, etc.).

Strategies adapted by fishers to maintain wellbeing when they are hit by a stressor/shock provide an interesting picture. Shocks generally cause a loss of wellbeing (loss of income, assets, etc.) and the impact of a shock might cause multiple effects on several wellbeing aspirations at one and the same time. Hence, it may require multiple strategies to deal with them. And once again, these strategies could affect different wellbeing dimensions differentially. Field studies conducted by the principal author in the southern province revealed an array of different strategies fisherfolk would adapt to maintain their wellbeing (in the material, relational and subjective domains) when they are affected by

covariant shocks (or collective shocks) (*see Table 9.5*). A number of ex-ante strategies such as, investment in education, in agriculture and animal husbandry, accumulation of assets, savings, building up capacity to engage in diverse activities (training, skill development), etc. are adopted by people preparing for coping with future shocks (precautionary strategies). Changing role of women in coping with risky situations is also evident, where they are gradually taking up financial management functions at home and taking up employment. In fact, such strategies aim at building up the 'adaptive capacity' of the people. Some of the ex-ante strategies are also collective, such as forming associations, groups and cooperatives, living in harmony with others (behaving a good neighbour), rightful living, etc., all of which are tantamount to building up social capital.

In fact, ex-ante approaches are strategies adapted by people to ensure that their wellbeing will not be threatened by future shocks. Therefore, it is reasonable to assume that the ability of people to cope with shocks (once they strike) depends, to a good extent, by how effective the ex-ante strategies that they have adopted are in coping with a shock. Therefore, resilience of people against shocks depends not only on what strategies they adopt to maintain wellbeing (assuming that shocks lead to a decline in wellbeing) but also on what strategies they have adopted in the past in anticipation of shocks. In the same note, it is quite evident that, in building resilience capacity of vulnerable populations, it is indeed necessary to invest in education, establishing community organisations (empowering people), micro finance organisations, designing savings schemes, capacity building and training of men and women in income generating activities, etc. However, Amarasinghe *et al* (2015) emphasise that, there still exists the question of promoting social cohesiveness and harmony among people, which are highly valued by them as important wellbeing aspirations. One way of doing this is to promote the establishment of strong community organisations (social capital), which will provide the people with the arena of interaction to reach their important wellbeing aspirations.

Quite interestingly, ex-post strategies adopted by fishers have shown that, such strategies not only aim at individual or household resilience,



Figure 9.6: Women from a Fisheries Cooperative society in Hambantota-Southern Sri Lanka, participating in a cleaning programme, organised through a *Shramadana* (labour in corporation)

Photo credit: Oscar Amarasinghe

but also at community resilience; which include giving moral support to others (individual), share cash and provide labour in kind (collective), collective action (picketing, protests, etc.). Collective action, by way of 'collective labour in kind' (*shramadana* in local jargon) is another way of assisting the affected. In this process, new relationships are built up and old relationships strengthened.

Subjective dimension of wellbeing is also evident from other responses of people, such as, to be more affectionate towards dear ones to ease their suffering and mental stress and strengthen relationships. It is also interesting to note how the ability to be 'courageous' could help in difficult situations. Courage can be simply defined as “mental or moral strength to venture, persevere, and withstand danger, fear, or difficulty”⁵. Hence, courage appears to be an important quality of mind which has helped people to face shocks and bounce back, at least psychologically.

It is quite obvious that actions taken by fishers against shocks not only reflect adaptations against such shocks, but also those that will help them to continue 'to do well' in life. It appears that there are trade-offs

⁵ <https://www.merriam-webster.com/dictionary/courage>

among different wellbeing dimensions (material, relational and subjective), scales (individual, family, community) and time (present and future). Yet, the exact trade-offs would depend on the nature of the shock and how such a shock might affect wellbeing. At the face of an income shortfall, a fisher might reduce his personal expenses on leisure (cigarettes, liquor, etc.) in order to meet family expenses. In this instance, he sacrifices his individual wellbeing to improve his family's wellbeing. In other circumstances, fishers would even share with others whatever food that is available (pooling of available resources), when a distress situation affecting the whole community is confronted, suggesting a form of trade-off between individual and community wellbeing. This phenomenon, where people tend to pool their own wellbeing to ensure maintenance of the wellbeing of the community, could be called “pooling of wellbeing” (Amarasinghe et al, 2015).

Another important noteworthy finding is the strong concern of fishers to maintain and strengthen relationships. This could be attributed to the fact that, under conditions of imperfectly formed insurance and credit markets, one's own community (friends, relatives, etc.) form a source of insurance and credit. This is similar to a trade-off of individual wellbeing to community wellbeing which also has roots in the culture and traditions of the rural people. 'live and let live' or, as Scott (1976) puts it, the 'right to subsistence' and the 'norm of reciprocity' being two of the moral principles of the peasantry which guide their behaviour (p.167). The famous practice of 'shaving off beard' (*raula kapanawa*), where poor families (ex. women headed or disabled) are allowed to remove a few fish from crafts when they land fish, all point towards this fact that, “your wellbeing is also dependent on the wellbeing of others”. (the norm of helping others when in distress [*Refer Chapter 3 on Governance and Management of Sri Lankan Fisheries*]).

Sometimes a certain situation may cause a wellbeing loss in one front and a gain in another front. For example, in stormy weather people may not be able to go fishing and there will be income losses, which will have negative impacts on individual and family wellbeing. But a storm is a collective shock and people often tend to share whatever food they have with others, which will help the community to cope with this

shock collectively, revealing a situation of trade-off between material and relational wellbeing. It may mean that the wellbeing losses experienced due to stormy weather, is compensated by wellbeing gains enjoyed on another front (being of assistance to others).

Concluding Remarks:

- Studies of wellbeing in fishing communities revealed that, top-ranking wellbeing aspirations of the people were mostly of 'relational' dimension. Having a good wife, good children, helping others in distress, unity among people, were all highly valued by people, which contributed most to people's wellbeing. These results put 'relationships' at the centre of both resilience responses and wellbeing., which have very important implications for both resilience and wellbeing theory. The centrality of relationships means that what people do with what they have (relational wellbeing) and how they feel about what they have and do (subjective wellbeing) are influenced by people's relationship with others. Even resilience goes beyond what things people do to be resilient- to include what prompted people do such things and how they felt about them. Relationships are mediated through culture, religion, history, social values, norms, traditions, etc., the reason why good relationships are necessary for living 'well'. In turn, these feelings and perceptions are determined by people's experiences as well as by the norms and values that are culturally and socially determined or constructed (see Deneulin and McGregor, 2010).
- It is to be understood that wellbeing aspirations differ among individuals; young and old; men and women, rich and poor; educated and less-educated, etc. Thus, wellbeing appears to be a concept of less operational value. For example, the government may not be able to cater to the needs of the fisher people when such significant variations occur among individual wellbeing aspirations.
- One has to accept the fact that, the needs of the fisher people are known best to their own community, represented by their own

organisations; ex. the fisheries cooperative. It is quite interesting to note that in Sri Lanka's village communities, all forms of festivals, sports events, processions, religious ceremonies, pilgrimages, are often organised by community organisations, such as fisheries cooperatives. Even, gender equity and equality issues, which have received close attention recently, are being well addressed by fisheries cooperatives, as it is quite evident from credit schemes and training programmes organised by some cooperatives, *such as the Batatha South Fisheries Cooperative of Kalametiya, Hambantota District* (see *Figure 9.7*).

- The only relationship that is quite important, but negative in respect of fisher wellbeing is their relationship with the Department of Fisheries. While fishers understand the potentially important role played by the Department of Fisheries, they thought that policy decisions made by the Department often clash with their wellbeing goals. There certainly appears to be a clash between ecosystem health goals and human development goals. A good example is the banning of shark net to protect shark resources, which led to loss of livelihood for those using the shark net. Fishers think that this clash emerges from lack of understanding of village reality by the state officers. This is a very important issue that should receive the attention of authorities. What is required, is a close interaction of the state and non-state



Figure 9.7: A three-wheel vehicle purchased by a female member (left) and a training camp for members, especially women (right) organised by the Batatha South Fisheries Cooperative society

actors, and to make policy through a participatory and more 'interactive' process.

- The fact that many small-scale fishers tend to remain fishers, rather than moving into other sectors for a better life, does not mean that they are 'doing well and feeling good" (the material dimension of wellbeing). Several reasons why fishers 'get by' rather than 'getting out' could be outlined (see Table 9.6).
- It is quite clear from table 9.6, that the centrality of relationships to 'wellbeing', their role in coping with stressors, coupled with "uncertainty + hope" and frequent handling of money make their vocation exciting and joyous, which tend to push fishers to 'get by' (rather than 'get out') even at the face of threats/shocks.

Table. 9.6: Reasons as to why SSF fishers 'get by' rather than 'getting out' at the face of vulnerability

	Reason for 'getting by'	Rank
1	Independent nature of the vocation (freedom!) (INDEPENDENCE). We do what we want (I am my own boss)	1
2	We handle cash more frequently: Big money pass through our hands more frequently".	2
3	Strong link with the coastal environment . Fishers spend most of the time on the beach. They cannot leave it! "We have to wet our feet in brine water" "Apita karijja pegenna thienna ona" (Sinhala)	3
4	The " <u>thrilling and exciting</u> " nature of the vocation. It is the confidence ('hope') we have that, "If not today, we will have tomorrow". "Ada nathath heta thiyenawa" (Sinhala)	4
5	Unity among people (closely knit nature of the society). Strong social relations! Unity among people: Ekamuthukama (Sinhala)	5

Source: Amarasinghe et al., 2015

- Evidently, the best strategy to improve the wellbeing of fishing populations is to strengthen their organisations such as fisheries cooperatives. Since wellbeing is a multi-dimensional concept which vary with age, sex, status, income, etc., the cooperatives are in a more advantageous position to cater to the needs of fishing communities because they have the best knowledge of, what make people in their locality feel 'well in life'. Therefore, what is required is to empower them and build their capacities so that they would be able to effectively turn themselves into true 'people's organisations' which would take care of the wellbeing aspirations of their membership.

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Chapter 10

Social Welfare and Social Security in Fisheries







Preamble

Social Security is obtained when deprivation is removed or reduced, which then makes lives and livelihoods more secure (Amarasinghe, 2005, p.8). Fishing is a particularly hazardous occupation, with a relatively high rate of injury and death. Fishermen and their dependents therefore need some form of protection in the event of injury, illness and death. The ILO identifies several reasons as to why many fishers are not having social security protection, which may be attributed to several reasons (ILO, 2007). First, most of the fishers resemble majority of the world's working population: they lack social security protection. Second, fishermen are often considered as self-employed workers and they are likely to be excluded from certain social protection schemes. Third, fishermen fail to effectively contribute to social security schemes because contributions to the schemes are to be made regularly, whereas fishing incomes are quite irregular. Finally, those working on foreign vessels and some migrant fishermen may have special problems because their incomes are earned outside their own country.

Apart from insecurities associated with their occupation, large numbers of artisanal and small-scale fishermen confront both sea and land tenure problems. Access to resources is constrained by lack of capital to purchase the required equipment. Poor access to credit has prevented them from adopting more efficient technology. Even in the sphere of modern fisheries, such as deepsea fishing with multi-day crafts, there are issues concerning labour conditions. Loss of craft landing sites, beach seining sites, due to the expansion of industries and tourism are

also evident. Many fishermen have lost their traditional fishing grounds and homes. Remoteness of the villages and the prevalence of poverty have prevented many fisher children from receiving basic primary and secondary education. Poor education and powerlessness have excluded youth from the mainstream of development.

The tsunami of 26 December 2004 struck a good part of Sri Lanka's coastal area, stretching over 1,000 kilometers, or two thirds of Sri Lanka's coastline. The damage stretched from Jaffna in the north down the entire eastern and southern coast and covered the west coast as far as north of Colombo and Chilaw. About 86,946 fisheries dependent people were affected, while 5,006 fishers died. The number of fishing households affected has been estimated as 71,544 households. The fishers lost 16,101 crafts while 7,105 were damaged. The Ministry of Fisheries and Aquatic Resources (MFAR) failed to properly coordinate activities of the NGOs. In fact, the MFAR did not take any initiative to coordinate the activities of the NGOs during the first few months following the Tsunami. Lack of funds, poorly equipped staff incapable of handling a crisis and dealing with foreign delegations and relief workers, slow pace at which the staff used to work, all resulted in losing their grip on the activities of the NGOs. Apart from fishing equipment, a total of 13,329 fisher houses were damaged and 16,434 completely destroyed (ADB, 2005). Damages to fisheries infrastructure and to the natural coastal environment have also been colossal. Large numbers of fisher families were displaced and lost their means of livelihood. Development Partners ranging from private individuals both inside and outside Sri Lanka, to governments, NGOs and development agencies, have pledged \$2.8 billion for recovery and reconstruction. As of November 2005, \$ 2.1 billion have been committed. Although a colossal amount of funds were made available for rebuilding the fisheries sector, the country failed to utilize these valuable funds to "build-back better". In the absence of proper government plans for rebuilding the fisheries sector and fast and proper assessment of damages, the NGOs themselves prepared lists of beneficiaries and distributed crafts, gear and household goods in a very unmethodical, inconsistent, and disorganised manner, finally leading to inappropriate use of funds, wastages, and even overcrowding of small-scale fisheries (over supply of fishing crafts and gear). This maldistribution of Tsunami assistance is

one of the reasons for unprecedented increase in fishing effort following Tsunami, resulting in declining catch per unit of effort (catch per boat, to put it simply) and declining incomes. There was no social protection scheme that could provide protection to fishers against such massive collective shocks.

Impact of Covid-19 crippled all economies of the world and, Sri Lanka is no exception. Despite its massive debt burden, the Sri Lankan government organised multiple relief schemes for various affected parties starting in April 2020. They included, i. monthly cash payments of Rs. 5,000 for all Samurdhi beneficiaries (the poorest groups receiving government assistance); ii. requesting all financial institutions not to deduct loan interests and installments for 6 months; iii. providing free food rations to low-income groups; iv. provision of loans at concessionary rates to Small and Medium Enterprises (SMEs), etc. While these temporary measures helped people who suffered severely from loss of livelihoods and all sources of income, most of the funds received from international donors appear to have been heavily spent on 'disaster relief' type of programmes rather than aiming at 'building back better'. As we have noted above, the Tsunami of December 2004 was another such 'missed opportunity'.

Sri Lanka is a country which has spent huge amounts of funds to ensure that its populations enjoys a decent standard of living. Pipe borne water, electricity, housing, cash payment to low income groups, disability payments, old age payments, Employee Provident Funds (EPF), pensions, etc. formed some of the prioritized social welfare and social security measures adopted by the Sri Lankan governments.

The importance of social security protection for small-scale fishers is well evident from the following articles of the FAO Voluntary Guidelines.

Article 6.3: States should promote social security protection for workers in small-scale fisheries. They should take into account the characteristics of small-scale fisheries and apply security schemes to the entire value chain.

Article 6.12: States should address occupational health issues and unfair working conditions of all small-scale fishers and fish workers by ensuring that the necessary legislation is in place and is implemented in accordance with national legislation and international human rights

standards and international instruments to which a State is a contracting party, such as the International Covenant on Economic, Social and Cultural Rights (ICESCR) and relevant conventions of the International Labour Organization (ILO). All parties should strive to ensure that occupational health and safety is an integral part of fisheries management and development initiatives.

Article 6.16: All parties should recognize the complexity that surrounds safety-at-sea issues (in inland and marine fisheries) and the multiple causes behind deficient safety. This applies to all fishing activities. States should ensure the development, enactment and implementation of appropriate national laws and regulations that are consistent with international guidelines of FAO, the ILO and the International Maritime Organization (IMO) for work in fishing and sea safety in small-scale fisheries.

Government involvement in Social Welfare and Social security

The provision of social welfare facilities for the fishing population in Sri Lanka has been a government responsibility since independence in 1948. The government has spent huge amounts of public funds on a number of social security measures, which included housing, rural infrastructure (water, electricity) and subsidies to acquire fishing equipment. Amarasinghe (2005) noted fluctuations in the allocation of funds during different political regimes, and regional disparities in the allocation of funds. This differential treatment would have definitely fueled the escalating ethnic problems in the country in early 1980's. Although, such disparities have not been noted recently, political power had played a role in deciding which areas were to be given priority in developing infrastructural facilities.

In the present analysis only the social security issues that are relevant to the fisheries sector shall be discussed.

Pensions for fisher folk

One of the most important social security protection scheme ever designed for fisheries is the fishermen's pension scheme. The fisheries pension and social security benefit scheme act No.23 of 1990 was implemented with effect from 21 April 1991. The aims of the programme were the following:

- Provide Social Security to the fishermen during any disability or at the time of their old age
- Providing redress to the dependents of the fishermen at the time of his death.
- Encouraging the fishermen to engage in fishing continuously.
- Promote youth from fishing communities to engage in Fishing.
- Improving savings and thrift habits among fisheries community.

The Agriculture and Agrarian Insurance Board, is conducting the pensions schemes for farmers and fishers. In this act, *a fisherman is defined as, a person who makes his living by fishing or fish farming in the sea, lagoon or an inland body of water.* To join the scheme such a fisher should be between 18 and 59 years of age and required to meet following conditions.

- i. the enrollee cannot own more than three mechanized boats whose combined weight does not exceed six tons,
- ii. he cannot own more than five acres of fish farms,
- iii. he cannot be entitled to benefit from any other pension or provident fund,
- iv. he cannot be a person liable to pay income tax or receive a pension or receive a pension upon the death of his spouse

A fisherman contributing to the scheme is entitled to receive a periodical pension upon retirement, a lump sum gratuity or a pension in case of a permanent disability (partial or total) and a death gratuity. Three criteria decided the basis on which pensions or gratuities were paid.

- period of contribution,
- the age of the contributor and,
- the total contributions made.

Initially the scheme was quite popular and *Table 10.1* shows the growth in membership for the 10-year period 2002-2012.

Table 10.1: Details about the Fishermen's Pension Scheme (2002-2012)

Year	No. of Members	New Enrollment	No. of Pensioners
2002	48,375	-	420
2007	60,968	1,316	1,031
2010	66,990	3,106	1,705
2012	68,054	501	2,185

Source: ILO, 2016

It is quite evident from table 10.1 that the growth of the pension scheme has taken place at a slow pace.

The contributions to the scheme are made quarterly and even one-time yearly payment was allowed. Rs. 65 was the quarterly payment for a person aged 18, while it was Rs. 345 for a person of >55 years (in mid 2000's). The monthly pension was received disability gratuity and death gratuity. The contributors were eligible to receive a monthly pension, upon reaching the age of 60 years. The pension varied from Rs. 1,000 and Rs. 4,166, depending on the age of the contributor, the time of enrolment and the total contributions. In case of permanent disablement, the member could claim a gratuity payment between Rs. 6,000 and Rs. 50,000 depending on the age of the individual and the degree of disability. If he chooses not to take the gratuity, he could remain in the scheme without making further contributions and be eligible to still receive a pension at the age of 60. The death gratuity ranged from Rs. 6,000 to Rs. 25,000 according to the age of the contributor. In 2012, the fishermen's pension scheme reported a negative fund balance amounting to Rs. 1.5 billion. Contributions by fishermen have declined in value while pension payments have continued to rise. The treasury provided funds to the fishermen's scheme in 2011 and 2012 to meet operational and administration expenses. Benefit expenditure has nearly tripled to Rs. 32 million in 2012 from Rs. 12 million in 2005 (ILO, 2016: p. 47).

Table 10.2: Summary of Fisheries pension and Social Security Scheme (2015-2019)

Year	Number of New recruitments	Instalments From Membership (SLR)	Payments (SLR)		
			Payment of gratuity for deaths and disabled	Payment of Pensions	Total
2015	91	929,350	546,000	48,662,206	49,208,206
2016	86	881,793	467,000	53,849,614	54,316,614
2017	109	827,991	495,800	61,676,360	62,172,160
2018	3	265,112	516,000	61,693,943	62,209,943
2019	0	181,209	328,000	66,056,200	66,384,200
Total		3,085,455	2,352,800	291,938,323	294,291,123

Source: Ministry of Fisheries and Aquatic Resources Development, 2020¹

Table 10.2 provides some recent information about the pension scheme. It is quite evident that the membership in the pension scheme is only marginal with no further enrolment in the scheme. By 2019, the total installment income has been Rs. 3 M while the scheme has paid pensions and disability and death payments amounting to 294 m, making it a huge liability to the society. The scheme became defunct since then.

Some of the financial issues confronted by the scheme were as follows (ILO, 2016: p.62).

1. Inadequacy of staff
2. very little promotional activities and membership drives. The scheme was made known often through the word of mouth.
3. Very little commitment from officers of the scheme in carrying out the duties
4. Very high default rate experienced by the scheme (50% in 2013) which could be attributed to a number of reasons: people's presumption that the scheme is a welfare programme (and not a contributory one); lack of a 'saving habit' among the fishermen; daily fishing operations that allow only short-term planning, etc.

¹ Department of Fisheries, personal communication, 2020.

5. Given the high default rate, the government had to pump in funds to meet the pension and other payments, which became a big financial burden to the government.
6. Non-recognition of the fact that the continued dependence on the government funds would make the scheme non-viable.
7. Increasing the minimum pension entitlement (which was done on a number of occasions) without an increase in contribution rates (led to a financial collapse of the scheme).
8. Presence of the problem of non-indexation of benefits to account for inflationary effects. *(If benefits are not inflation-adjusted there will be a substantial erosion of the real value of the pension benefit)*
9. Pension paid to a fisher falling below the poverty line, making the scheme less attractive to fishers.

General Social Protection Schemes

A number of social protection schemes were designed by the government in the past to provide various kinds of protection to low-income groups in the country, which also benefitted the fishing populations.

Janasaviya Programme

President Ranasinghe Premadasa introduced in 1989, a poverty alleviation program called the Janasaviya program to shift from welfare to self-sufficiency. The beneficiaries received a monthly package which provided for both consumption and savings. The program expected people to contribute labor for productive and community work.

The objective of the program was to alleviate poverty by a shift from consumption-based welfare grants towards obtaining active participation of the beneficiaries in the development process through employment creation and social mobilization. The beneficiaries of the program were those families receiving an income below a certain threshold, as identified by their communities. The consumption and savings components of the program were incorporated into a monthly package of Rs. 2,500 as follows.

Consumption Component:

- Rs. 1,458 was provided for purchasing local goods through authorized outlets, with Rs. 1,000 being direct consumption support and Rs. 458 deposited into a savings account.

Savings component:

- The remaining Rs. 1,042 was automatically deposited into the beneficiary's savings account at the National Savings Bank.

In return for the services they received, one member from each beneficiary family had to provide 20 days of labour per month for income-generating activities and four days for community work.

Collateral free credit was granted to beneficiaries to invest in income generating activities.

However, the Janasavaiya program was replaced by the Samurdhi Program in 1995 under the newly elected president, Chandrika Kumaratunga.

The Samurdhi Programme

The *Samurdhi* programme was introduced in 1995, which formed the main poverty alleviation programme of the People's Alliance Government. The programme consisted of a welfare grant to low-income groups, which underwent several changes over time, in respect of category of beneficiaries and the amount and the nature of benefits. In the year 2012, the earlier granted food and cash stamps were replaced by a cash transfer to beneficiary accounts maintained at Samurdhi Banks. In the same year (2012 / 2013), 16.4% percent of the of the country's households were receiving Samurdhi benefits (Center for Public Impact, 2017).

The key components of the *Samurdhi* programme included:

- The provision of food stamps to eligible households, accounting for approximately 80 percent of the total *Samurdhi* budget;
- A savings and credit programme operating through the "*Samurdhi* banks", with loans destined for entrepreneurial and business development;

- The rehabilitation and development of community infrastructure through a number of workfare and social (or human) development programmes – productivity development training, training in accounting functions, training of executive committees, and material resource development (ibid.).

The World Bank had provided non-lending technical assistance to the *Samurdhi* programme since 2003, which had gone through several changes over time. The changes produced two main programmes; a relief programme and an empowerment programme. The relief programme consisted of a cash transfer, security fund and a nutrition programme, while the empowerment programme consisted of 5 sub-programmes: rural infrastructure development, livelihood improvement, social development, housing programmes, and a microfinance programme.

The Center for Poverty Analysis (CEPA, 2007) stated, that the *Samurdhi* food stamp programme which consumed 80% of the budget, missed about 40% of the households in the poorest quintile while nearly 44% of the budget went to top three quintiles. Some households even had multiple beneficiaries. It had also been stated that 14.4 per cent *Samurdhi* recipient households were non-poor. In respect of the number of households below the poverty line receiving such benefits (which was Rs. 5,021 in the year 2020) only 38 percent had received *Samurdhi* benefits (ibid.).

Director General of the *Samurdhi* Development Department, stated in 2018, that there was a requirement for a programme to remove people who were no longer eligible to receive the *Samurdhi* benefits. Based on the results of a recent survey, he further stated that over 150,000 people in the *Samurdhi* programme were no longer eligible to receive its benefits. Yet, no one was eventually removed².

The Aswesuma Programme

An act to provide the necessary legal framework for the payment of all welfare relief benefits, called the Welfare Benefits Act. No. 24 of 2002, was introduced to set out transparent selection process of

² TV News: *News First*. <https://www.newsfirst.lk/2018/06/18/has-the-samurdhi-fund-achieved-its-purpose/>

beneficiaries, termination of such benefits and matters connected with them. Under section 3.1 of this Act, a body called the Welfare Benefits Board (WBB), was established. WBB was quite active since then in monitoring diverse social protection and welfare benefits programmes in the country.

The 2019 Easter bombings, followed by a 3.5 percent contraction of the economy, the COVID-19 pandemic starting in April 2020, huge external debt and colossal balance of payments issues, downgrading of Sri Lanka's credit rating and loss of international financial markets have all led to a massive economic crisis in the country during 2020-2022 years, which forced Sri Lanka to seek assistance of International Monetary Fund (IMF) and the World Bank, in recovering from this crisis.

Covid-19 Pandemic

In order to confront the diverse livelihood threats posed by the Covid-19 pandemic, the government made an allocation of Rs. 20 billion to make payments to about 2 million Samurdhi beneficiary families. An interest-free advance of Rs. 10,000 in two phases was granted, where each family received Rs. 5000 at one time and the families were given 18 months to repay the amount. Yet, many families claimed that they were not entitled to receive the advance since they were not registered. In recognizing the importance of maintaining the viability of the Small and Medium Enterprises (SMEs), which formed the backbone of Sri Lanka's economy, the government issued a circular (No.4 of 2020) requesting the financial institutions to implement a debt moratorium on capital and interest. It was requested to offer a six-month debt moratorium for affected industries in the SME sector. Many financial institutions complied by offering 3 – 6 month debt moratorium on even loans obtained by people to purchase durable consumption goods on installments.

It is not exactly known how many fishing households were among Samurdhi beneficiaries.

A new Social Protection Project (SPP) financed by the World Bank was launched with the aim of mitigating the impact of the country's economic crisis on the poor and most vulnerable groups. It was planned

to achieve this through the provision of income support and livelihoods opportunities. Another aim was to strengthen the robustness and adaptability of the country's Social Protection (SP) system. The project had 3 components.

- i. Cash Transfers
- ii. Pilot to enhance opportunities for poor and vulnerable households (financing a small-scale economic inclusion program for a selected number of poor and vulnerable groups)
- iii. Project Management and Strengthening of Social Protection (SP) Systems³

In order help the poorer groups in recovering from country's financial crisis the WBB introduced a new welfare benefit scheme called the "Aswesuma". This programme provides welfare benefits to four groups – transitional, vulnerable, poor, and severely poor and also provide cash transfers to about 35% of the population, while providing allowances for differently-abled and elderly persons and kidney patients⁴. Aswesuma employs six criteria measured by 22 indicators to determine if a household is non-poor or poor and deserving assistance.

The various amounts paid to different groups are as follows:

- (i) Transitional: Rs. 2,500 for 6 months,
- (ii) Vulnerable: Rs. 5,000 for 9 months,
- (iii) Poor: Rs. 8,500 for 3 years,
- (iv) Severely poor: Rs. 15,000 for 3 years.

It is not known how many fishing families are benefitted from the program.

Since Aswesuma was launched in 2023, it is too early to comment on the success of the programme.

Safety at Sea – Veiled Concerns

It is known that among many hazardous occupations, fishing is the most dangerous. It is said that people affected by the accidents at sea are often among the poorest in the society⁵. "The overall annual rate of

³ https://wbb.gov.lk/backend/assets/publications/English_spp_28.03.2024.pdf

⁴ <https://www.themorning.lk/articles/1Ut9hgxCuPkogQUBx9ab>

⁵ <http://www.fao.org/3/al960e/al960e.pdf>: [accessed on 10th June 2020.]

occupational fatal or non-fatal accidents is estimated at 270 million. Some 160 million workers suffer from work-related diseases and about two-thirds of those suffer from illnesses causing a loss of four working days or more” (ILO, 2003: p. 8). Given that data from developing countries are often lacking the actual number of fatalities could be much higher.

In coastal fisheries of Sri Lanka, the crafts operate within the territorial sea and the contiguous zone (up to a maximum distance of about 24 nautical miles, but often up to about 20 km from the shore line), and people's concern about sea safety remains quite low. While this is true for small fibre-glass boat with outboard motor (carrying 2-3 fishers), the artisanal crafts (canoe, outrigger, *teppam*, *vallam*, *kattamaram*, etc.) often operate within a distance of about 3-5 km from the shore. Nevertheless, what is quite surprising is that, while in many spheres of work such as the building construction sector, significant changes in safety measures are evident (where the workers wear helmets, gloves, boots and protective clothing), hardly anything has changed in small scale fisheries in respect of safety measures.

Some of the common sea safety issues identified in the National Plan for safety in fisheries included, fishers falling overboard, vessels capsizing at sea, engine failure, colliding with other crafts, inability to handle crafts in stormy weather, going out of fuel, personal accidents, water leakage from hulls, etc. (Dept. of Fisheries & Aquatic Resources, 2013).

In respect of safety at sea, the FAO Voluntary Guidelines (FAO, 2015) for securing small scale fisheries, have the following to say.

Article 6.16: All parties should recognize the complexity that surrounds safety-at-sea issues (in inland and marine fisheries) and the multiple causes behind deficient safety. This applies to all fishing activities. States should ensure the development, enactment and implementation of appropriate national laws and regulations that are consistent with international guidelines of FAO, the ILO and the International Maritime Organization (IMO) for work in fishing and sea safety in small-scale fisheries.

Article 6.17: States should recognize that improved sea safety, which includes occupational health and safety, in small-scale fisheries (inland and marine) will best be achieved through the development and implementation of coherent and integrated national strategies, with

the active participation of the fishers themselves and with elements of regional coordination, as appropriate. In addition, safety at sea of small-scale fishers should also be integrated into the general management of fisheries. States should provide support to, among other things, maintenance of national accident reporting, provision of sea safety awareness programmes and introduction of appropriate legislation for sea safety in small-scale fisheries. The role of existing institutions and community-based structures for increasing compliance, data collection, training and awareness, and search and rescue operations should be recognized in this process. States should promote access to information and to emergency location systems for rescue at sea for small-scale vessels.

Nonetheless, fishers take least care in sea safety in their fishing operations and safety equipment. In the year 2008, life jackets for motorized crafts were made compulsory; one jacket per crew member. However, not all OFRP boats (small-mechanized crafts with outboard motor) carry life jackets, because they don't have them (often complaining that they are too expensive; around Rs. 3,000 each). Fishers have even sold the jackets they received from the government to outsiders (especially to those engaged in marine tourism). In the year 2020, only 50% of the OFRP boats in Jaffna possessed life jackets, Negombo about 60% and in Batticaloa about 70%⁶. Fishers who carry life jackets hardly wear them saying that fishing operations cannot be carried out when life jackets are worn. It is accepted among the fishers that, life jackets are to be worn only when a danger is at sight.

With technical assistance provided by the FAO, the Ministry of Fisheries prepared a National Plan of Action for safety at sea of fishers and fishing vessels as a part of the overall strategy of the Ministry and the Department of Fisheries and Aquatic Resources to reduce/mitigate vulnerabilities of fishers (Dept. of Fisheries & Aquatic Resources, 2013). The aims of the plan were,

1. To ensure safety and wellbeing of fishers and fishing vessels at sea;
2. To improve infrastructure facilities required to promote safety and security of fishing vessels at sea;

⁶ *Personal communication with Assistant Directors of Fisheries, Department of Fisheries, on 12th June 2020.*

3. To obtain the active participation of community-based organizations to improve safety at sea;
4. To enhance the capacity of fishers to cope with distress situations and the capacity of boat builders and equipment suppliers to improve and maintain quality standards of their supplies;
5. To establish effective policy, legal and institutional mechanisms in support of the safety of fishers and fishing vessels at sea;
6. To set out an implementation plan, identifying the actions needed, the party or parties responsible for their implementation, and the coordination arrangements with appropriate timelines for such actions.

In addressing disaster situations, the plan adopted certain practical steps: i. Vulnerability Analysis; ii. Prediction and Warning; iii. Prevention and Mitigation; iv. Preparedness; v. Response; vi. Recovery/Rehabilitation. The funds requested for various facilities were around Rs. 340 million.

The issue of safety was taken for deliberations during the community consultation process of the implementation of the SSF Guidelines during 2018-2019 (FAO/SLFSSF/ICSF 2019), and the views expressed by the participants are given in table 10.3.

Evidently, the most important safety issues could be enumerated as follows.

- a) Fishers complain of high cost of safety equipment, such as life jackets, boots, etc. While subsidies are also given by the government it was complained that subsidies are channeled through the political clientele system.
- b) lack of good landing sites for inland and marine fisheries, was a serious issue. Another complain was the absence of community halls (meeting place) and equipment stores in many fishing villages.
- c) Use of illegal fishing gear and techniques appears to be quite pervasive, which makes all forms of social protection offered to fishing communities unproductive.

Table 10.3: Sea safety issues in small scale fisheries as stated by fishing community members during island-wide consultation process – information from 4 provinces.

Item	Province			
	Southern	Eastern	Northern	North-Western
Inferior quality of crafts & gear	X			
High cost of safety equipment	X		X	
Lack of good landing sites	X	X		
Lack of awareness / Negligence of the importance of safety issues		X	X	
Lack of protection for gear at night	X			
Use of destructive fishing techniques	X	X		
Subsidies channeled through political clientele system			X	
Lack of community halls, equipment stores	X			X
Lack of infrastructure facilities at landing sites	X			X
Lack of recognition of the needs of the SSF sector	X	X		
Damage to property and lives during storms			X	
Lack of Light Houses to facilitate Navigation			X	
High cost & lack of material to repair crafts and gear				X
High cost of crafts and gear				X
Lack of safety- boots				X

Source: Final Country Report, SSF Guidelines Implementation Project [FAO/SLFSSF/ICSF,2019]

- d) Besides the above issues, it was also mentioned that two of the issues related to safety was lack of awareness of fishing communities on the importance of adopting safety measures and, negligence in adopting such measures.
- e) In addition to all safety concerns, lack of recognition of the importance of the SSF sector was also mentioned as a serious concern.

The most important policy implications that emerge from the above analysis in respect of sea safety are the following:

- Build awareness among fishers on the importance of adopting sea safety measures.
- Provide fishers with affordable access to good safety equipment.
- Provide land-based equipment and facilities for easy navigation of fishing crafts.
- Invest in the construction / development of proper anchorages and landing sites with basic infrastructure facilities for marine and inland fishing villages.

Social Development

It is now understood that no development efforts will succeed unless the communities are provided with basic social services, such as education, health, housing, etc. at the same time. It will be difficult to convince a poor fisher, who is at the verge of starvation, about sustainable use of fisheries resources or pollution control, not to use environmentally unfriendly fishing gear, etc. Thus, increased attention needs to be paid to the provision of basic social services to fishing communities if their active participation is to be obtained for sustainable management of fisheries resources, while at the same time providing them a decent standard of living.

Table 10.4 gives the results of focus group discussions held under the SSF Guidelines Implementation Project (op.cit.) to find out the diverse issues of social development in small-scale fishing communities.

Among the number of social development issues highlighted by the participants in the above study (FAO/SLFSSF/ICSF 2019) the following were prevalent in 3 or all 4 of the provinces studied

Table 10.4: Social Development Issues in fishing communities

Item	Province			
	Southern	Eastern	Northern	North-Western
Land and resource ownership issues	X	X	X	X
Pollution & destruction of natural resources			X	X
Lack of infrastructural facilities in villages (water/electricity/roads)	X	X	X	X
Lack of affordable access to education, health, housing	X	X	X	X
Lack of social security / Pension			X	
Low income and lack of alternative livelihoods	X	X	X	X
Corruption by officials / administrative issues	X	X	X	X
Drug addiction	X		X	X
Absence of boat repair workshops	X			
Indebtedness	X			
Lack of facilities at landing sites	X			
Lack of recognition of SSF sector		X		
Low incomes			X	
Market access issues and unfair prices			X	X
Intruders into lagoons / Tourism intruders				X

Source: Final Country Report, SSF Guidelines Implementation Project

FAO/SLFSSF/ICSF, 2019

- a. Land and resource ownership issues (tenure issues)
- b. Lack of infrastructural facilities / basic amenities (water, electricity, etc.)
- c. Lack of affordable access to education, health, housing (basic needs)
- d. Low income and lack of alternative livelihoods
- e. Corruption by officials / administrative issues
- f. Drug addiction

Points (e) and (f) (Corruption by officials and Drug addiction) are much broader issues which prevail in all sectors, but others are more specific to fisheries. Small-scale fishers generally enjoy customary rights to the coastal fish resources, the beach and adjoining land, which are now being violated by other more powerful stakeholders occupying the coast. Due to the remoteness of many fishing villages, infrastructural facilities remain quite poor. Following from low incomes and lack of alternative livelihoods, many fishers are deprived of access to basic education, health and housing.

Asked as to what they would like to propose in correcting the above deficiencies, the participants of the above exercise had suggested the following:

- Establish an effective pension scheme for fishers.
- Children of fishing families should be accorded priority in recruiting employees to fishing related institutions (provided they meet the basic requirements).
- Monitor the release of waste into lagoons and coastal area.
- Demarcate boundaries for lagoons.
- Consult and involve fishing communities in development projects and activities in the coastal zone.
- Build necessary infrastructural facilities at landing sites.
- Provide facilities for fish handling and storage at landing sites.
- Conduct MCS activities in the coastal zone and the sea jointly with Sri Lanka Navy.
- Provide financial assistance to needy children from fishing families during off season.

- Recognize the central role of communities in the management of coastal zone resources.
- Strictly enforce laws against bribery and corruption.
- Promote the development of credit and micro-credit schemes to encourage investment in fisheries and also to enable the poor and vulnerable groups to access credit.
- Ensure effective representation and participation of the disadvantaged and the poorer sections of the community, particularly the youth, women and disabled persons, in the planning processes at all levels.

Fisheries Insurance

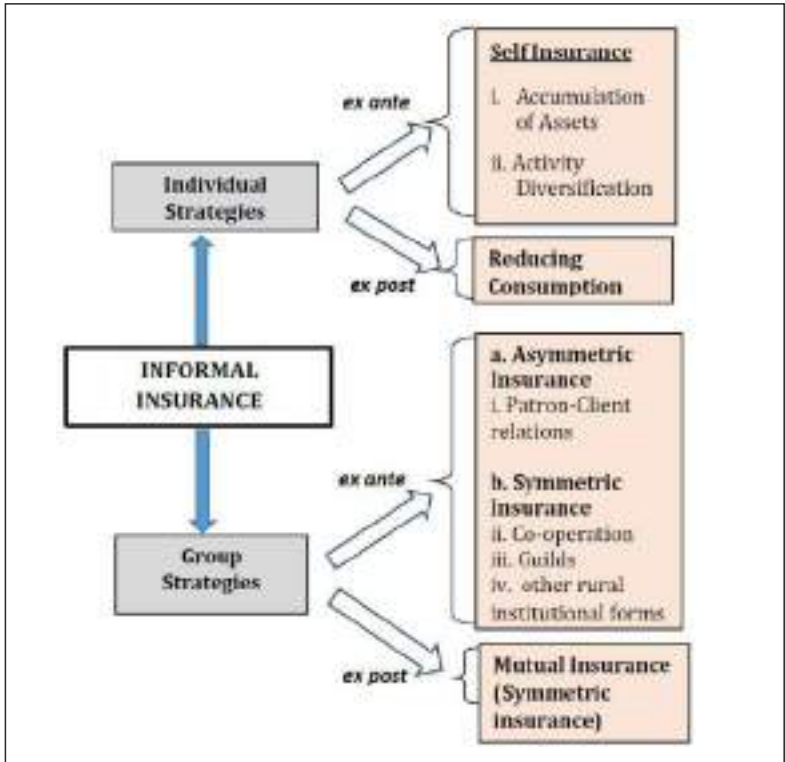
Due to the highly fluctuating and unpredictable nature of fish catches and the hazardous nature of the marine environment in which crafts and gear are put into operation, fishermen are likely to confront two types of shocks: idiosyncratic shocks and aggregate shocks, both affecting food entitlements of fishing households (see also Chapter 9). Idiosyncratic shocks are shortfalls in income confronted by individuals in a fishing community at random, meaning that all individuals in a group or community do not confront these shocks at one and the same time. These shocks can originate from many sources. Catch variability due to the unpredictable nature of fish behaviour may result in income shortfalls which are resource-related. Then there are operational hazards such as those arising from sudden loss or damage to craft and gear, or health hazards, which again will affect food entitlements of households. The most distinguishing feature of idiosyncratic shocks is the absence of any positive correlation in outcomes among individual fishermen (see Amarasinghe et al, 2005).

In contrast, short term changes in weather, fish migratory habits, changes in seawater temperature, etc. may result in poor fish catches, affecting all fishermen in a particular geographical area in a similar fashion. These are aggregate shocks. They can also originate from long-term catch fluctuations, such as those arising out of the seasonal nature of fishing operations. At such instances, outcomes of all fishermen rise and fall together (Amarasinghe et al (ibid.).

Fishers cope with the risks and uncertainties inherent in their environment by resorting to both informal and formal insurance, of which the former is the most dominant form of insurance. The following is a description of diverse insurance strategies adopted by small scale fishers as aptly described by Amarasinghe *et al* (op.cit.).

Informal insurance includes all forms of insurance strategies adopted by fishermen as individuals or groups, without the participation of specialised insurance agents. Distinction can be made of two basic forms of informal insurance: i. individual strategies, and ii. group strategies (see figure 10.1).

Figure 10.1: Informal insurance mechanisms commonly found in fishing communities



Source: adapted from Amarasinghe *et al.*, 2005

Individual strategies are means of coping with shortfalls in income adopted by individual fishermen (or individual households) arising from idiosyncratic or aggregate shocks. First, there are strategies adopted by individuals *ex ante* (before they experience any shortfall in income) to protect themselves from falling into distress. These include accumulation of assets; cash, gold, bank deposits, grain, livestock, etc., which can be liquidated at times of distress. Activity diversification is another strategy adopted by individual households, in which income shortfall from one activity would be offset by earnings from other activity/activities, provided that the outcomes of diverse activities are not positively correlated. Both these individual strategies fall under – “self-insurance”. There are also strategies adopted by individuals *ex post*; after they are hit by income shortfalls. Reducing consumption (tightening of belt) and migration are two such strategies (ibid.).

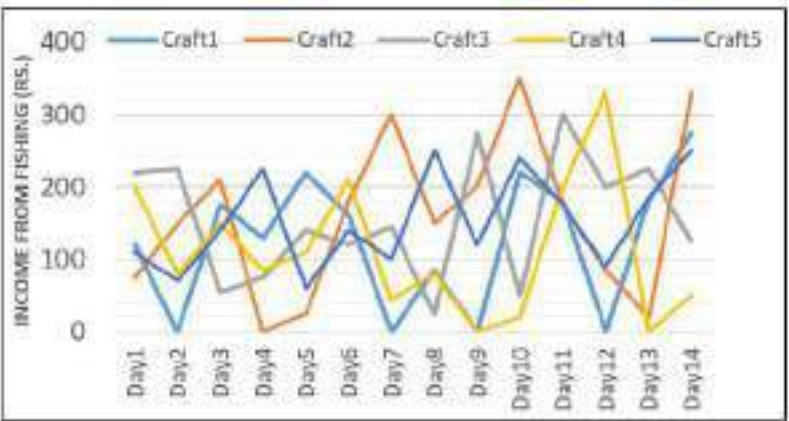
Instances of individuals sharing, shifting or pooling risks in order to smooth consumption could also be noted. Institutional forms, such as, patron-client relations, fisheries co-operatives, fishing guilds, mutual insurance groups, etc. fall under this group, which are characterized by well-established norms and practices with the aim of hedging the members of the group (*ex ante*), from the risks shortfalls in income. Among many such institutional forms, patron-client relations assume a greater significance because of the insurance function performed by such relations in a context of imperfectly developed insurance and credit markets. The patron and the client belong to two different social strata and they differ in their ability to withstand shocks (income shortfalls), the former being the more resourceful partner. These are unwritten contracts, and the goods and services exchanged between the two parties are quite diffused. Then client (the weaker party) receives credit and other goods and services from the patron to smooth consumption at times of distress, while the crew-clientele forms a guaranteed supply of dependable labour to the patron (for further reading, see Wolf (1966); Lemarchand & Legg (1972); Scott (1972a, 1972b, 1976); Migdal (1974); Platteau 1995). Fishermen sometimes form cooperatives or guilds to cope with income shortfalls originating from production or market risks and the rules of the game are explicitly stated in the constitutions of such institutions. Many fisheries cooperatives in Sri Lanka provide instant loans (over the counter) to help member-fishers to repair/replace their damaged crafts or gear,

revealing the important credit and insurance functions performed by such instant loans (Amarasinghe et al, 2005).

'Mutual Insurance' is a very common group strategy used by small scale fishers to smooth consumption at the face of income shortfalls (in coping with idiosyncratic shocks). This is a method of income transfer from those 'who have' to those "who have not", which is an *ex post* strategy (after being hit by an income shortfall). This is a common strategy found in fishing communities, which is founded on fact that catches of fishers on a particular day are not correlated. Thus, a 'lucky' fisher is able to lend part of his earnings to an 'unlucky' one, and such income transfers are quite pervasive in small-scale fishing communities, because all fishers know that, a fisher is not lucky or unlucky every day. This phenomenon is well evident from information provided in *Figure 10.2*, where daily fishing income of five owners of traditional crafts are given for a two week period. Note also the fact that fishermen often confront zero incomes (ibid.).

Some authors called such income transfers as 'subsistence or reciprocal credit', [see for example, Abraham (1985); Platteau & Abraham (1987); Amarasinghe (1988)].

Figure 10.2: Daily fishing income of Five owners of traditional crafts over a two week period



Source: Amarasinghe et al., 2005

Coping with the risk of damage and loss of crafts and gear

Stemming from the fact that fishing is carried out in a hazardous environment, damage and loss of crafts and gear are confronted by fishers quite frequently. This risk is greater in mechanised fishing than in traditional fishing because the former technology is quite costly. This risk has two cost components: the cost of repairs and replacement of craft and gear and, the cost in terms of loss of fishing time. In mechanized fishing this cost includes, highly-specialised technical services and spare parts. Moreover, spare parts for engines have to come from outside (outside the fishing village or outside the country), from which emerges the uncertainty of securing the necessary spare parts at the time they are needed. Moreover, the damage or the need for replacing a particular part (of engine, communication devices, fish finding devices, etc.) may demand a very high financial commitment on the part of the craft owner. It is thus evident that fishers engaged in mechanised fishing are confronted with a host of new risks, which were only very weakly present in traditional fisheries (see Amarasinghe, et al, 2005). Similarly, fishers employing the gillnetting technique, especially by those operating motorized boats, are also confronted with the risk of damage and/or loss of fishing nets. Gill nets are quite long, often several hundred feet in length, and they are laid in a 'fence' like manner (along with accessories, such as buoys, weights, etc.). They can be cut away by ships that pass across their way or, by large fishes trying to free themselves from the net. Replacing several pieces of lost nets would be a very costly affair. Equipment owners would always strive to meet repairs and gear replacement with a minimum of delay due to two major reasons; a. they are incurring costs in terms depreciation of other fixed assets until they are made seaworthy again; b. inability to secure the necessary spare parts or nets in time means that the fishers will have to forego a considerable income, which is especially true if this happens in the middle of a fishing season.

Formal insurance exists in modern societies, where specialized agents emerge to cater to those demanding insurance. These are pure market transactions, based on the demand for and supply of insurance. Such insurance exists generally for idiosyncratic (individual) shocks, because if all fishermen are hit by shocks and claim indemnities at one and the

same time (due to aggregate shocks), an insurance scheme cannot function.

Formal insurance companies providing insurance cover for the loss or damage to fishing equipment are unlikely to emerge in fisheries due to two reasons. First, any formal insurance agency providing insurance against this risk of damage and/or loss of craft and gear is confronted with two kind of incentive problems: *moral hazard* and *adverse selection*, which arise from informational asymmetries between insurer and insured. “*Moral hazard* problems arise due to incentives provided to the insured to take less care of contingencies that give rise to claims. For example, a boat captain who has insured his craft has an incentive not to use his full labour efforts and skills in manoeuvring the craft and, craft damage may result due to bad management, for which he will make a claim for indemnities. *Adverse selection* problems arise when the insurer is unable to distinguish between honest and dishonest agents demanding insurance and, therefore, is forced to offer all agents the same insurance” (Amarasinghe et al, 2005, 157). Of course, the insurance agent could collect information to minimize informational asymmetries. Yet, such information collection could be too costly for the insurer, which will push up insurance premia, making the insurance scheme less attractive to the insured. This is especially true in fisheries, because accidents take place at sea and information collection is quite difficult and costly.

In resolving the issues related to formal insurance, the State designed subsidised fisheries insurance schemes in order to help fishermen manage the risks associated with modern technology. Yet, even the state insurance agencies could not provide effective insurance for fishing related risks because they too confronted the same incentive problems as mentioned above. When the registration of fishing crafts was made compulsory after the Boat Census carried out in 2006, insurance of crafts was made a requirement in order to be eligible to register and renew the registration every year. Today, almost all mechanised crafts are insured by the craft owners. Yet, the basic issues inherent in fisheries insurance, as mentioned above, remain unresolved.

Ineffectiveness of fisheries insurance: Inputs from SSF Guidelines Implementation Process 2018-2019 (FAO/SLFSSF/ICSF (2019)).

There appears to be a great degree of uniformity among all provinces, in respect of issues associated with fisheries insurance (FAO/SLFSSF/ICSF, 2019). In the order of severity, the most common issues could be enumerated as,

- a. *lack of complete insurance cover for craft, fisher and family;*
- b. *insurance not covering partial damages;*
- c. *lack of transparency in the process;*
- d. *delays in documentation and paying indemnities;*
- e. *lack of insurance for accidents on land (house damage due to storms);*
- f. *ignorance of insurance officials of the fisheries sector;*
- g. *lack of insurance for illness, for hired workers and for post-harvest sector;*
- h. *lack of insurance for inland fishers*
- i. *complicated documentation process;*
- j. *lack of coordination between insurance agents and community organisations;*
- k. *absence of any scheme for older crafts;*
- l. *need to submit death certificate to pay insurance claims (it is assumed that in case of complete craft damage at sea, the lives of fishers are also lost)*
- m. *fishers' ignorance of diverse insurance schemes (ibid).*

In the above exercise, the community stakeholders had proposed a number of strategies to correct the inefficiencies that existed in current insurance schemes, as given in *Table 10.5*

Table 10.5 : Suggestions for improvement of fisheries insurance

Southern Province	<i>Insurance should cover part-damages as well; Pay for the losses incurred during periods of drought (inland fisheries); Indemnities to be paid speedily; Involve community organizations to collect premiums and provide information on damages; Bring in necessary laws to ensure that hired workers are also paid their share of indemnities; Give a copy of signed insurance agreement to the fisher.</i>
Eastern Province	<i>Need for insurance that cover the fisher, fishing crafts/gear and the families; Insurance also needs to cover both land and sea losses (storms damaging all types of assets, including houses); Cover partial damages and sicknesses as well; Establish an insurance scheme through Community organizations to minimize information problems; Provision of part-payment at times of illness and partial damages until claims are paid; Use simple language in insurance contracts that could be easily understood by fishers; Give a copy of signed agreement to the fisher; Minimize delays in payment; Speedy provision of death certificates for those whose lives were lost or disappeared at sea;</i>
Northern Province	<i>Establish an insurance scheme which insures fishers, fishing crafts and their families; Provision of life insurances that cover both land and sea losses; Establish an insurance scheme through Community organizations for acquisition of reliable information on damages and losses at sea; Use simple jargon in documentation; Give the copy of signed agreement to the fisher; pay indemnities without delay; Build awareness among fishers of the diverse insurance schemes</i>
North-Western Province	<i>Withdraw the law that has made insurance compulsory for craft registration; Establish an insurance scheme jointly with community organizations; Build awareness among fishers of diverse insurance schemes; Insurance needs to cover the fishers, fishing crafts and their families; Expedite indemnity payments; Employ officers knowledgeable of the fisheries sector. Give a copy of signed agreement to the fisher.</i>

Source: FAO/SLFSSF/ICSF, 2019 (Final Country Report, SSF Guidelines Implementation Project)

The policy implications emerging from the above can be summarized as follows.

- Establish Fisheries Insurance Schemes jointly with Fisheries Community Organisations to minimize informational asymmetries. The cooperative society can collect premiums from the membership and help the insurance agent in collecting information.
- Fisheries insurance need to cover full and partial damages to fishing crafts and gear at sea, houses and fishing equipment damaged / lost due to storms and, illness and death of the insured.
- The insurance documents (including agreement) need to be prepared in a language clearly understood by fishers (the insured).
- Build awareness among fishers on Fisheries Insurance

Insurance Scheme for Fishing Community (Dheewara Rekuma)

The Department of Fisheries and Aquatic Resources has launched a new fisheries insurance scheme in 2019, called the “Dheewara Rekuma Insurance Scheme”. About 15,502 have enrolled in this scheme and the benefits are laid down as follows (Table 10.6).

Table 10.6: Benefits of the “Dheewara Rekuma” insurance scheme

Damage / Incidence	Payment (Rupees)
Death	1,200,000 – 2,000,000
Permanent disability	1,200,000 – 2,000,000
Partial disability	600,000 – 1,000,000
Funeral expenses	25,000
Disappearance	1,200,000 – 2,000,000
Hospitalization	500 / day for 4 days
Air fare related to a death occurring abroad	40,000
Expenses to cover educational expenses for 2 children, in case of a sudden death	1,000 / month / child for one year
Premium	1,815 – 3,000

Source: Personal Communication, Department of Fisheries: 12/05/2025

The Department of Fisheries targeted to serve 38,937 fishers in 2024 under this insurance scheme. However, it is not known whether this target has been reached.

Disaster Risk and Climate Change

Field studies carried out after the Tsunami of 2004 struck the country, people often complained of an increase in the intensity and frequency of storms (Amarasinghe et al, 2015). The most affected areas have been the coastal belt of the country, where the majority of the small-scale fishers live. Monsoonal changes and shift of seasonal rainfall pattern have not only had strong adverse impacts on the fisheries sector, but also on agriculture and other productive sectors as well. These issues are very pronounced today, and governments are quite keen in understanding the diverse aspects of the issue and means of dealing with them. Island-wide consultations of fishing communities in 2018-2019 (FAO/SLFSSF/ICSF, 2019) revealed that the changes in the weather pattern and other climate changes are causing severe hardships to fishers, although these issues are not addressed adequately. *Table 10.7* summarises climate change as well as human-induced changes that are now causing threats to the already vulnerable livelihoods of fishers.

According to the above study, man-made disasters are less frequent, which are often related to coastal pollution (lagoons and the coastal waters) and coastal development activities. Natural disasters occur mainly due to storms (winds blowing at high speeds) causing loss and damage of craft and gear and loss of lives. Coastal erosion due to strong wave action is another disaster that damages natural coastal structures protecting landing sites and beach area. It appears that harsh weather, strong winds, storms and cyclones (even tornados) are quite frequent due to continuous change in the climate.

In respect of policy implications, the above study suggested the following.

- Establish early warning systems for small scale fishers based on coastal district
- Provide fishers with access to weather data through mobile phone-based weather information system
- Register fishers, crafts and fishing equipment with regular update of information

Table 10.7: Impacts of natural and human-induced disasters and climate change on livelihood activities- all provinces

Southern Province	Loss of life and property damages due to heavy winds and storms
	Income reduction due to zero-fishing under rough seas and heavy winds
	Pollution of the beach /sea/lagoon, due to dumping of garbage/industrial waste
	Fish kills and destruction of eggs due to sea water pollution Fishing gear and craft damages due to increased wave action
	Destruction of fish habitats and seabed due to irregular coastal development projects
Eastern Province	Property (fishing crafts and gear) damages due to heavy winds and storms
	Loss of life at sea due to stormy weather and rough seas
	Reduced income due bad weather, preventing fishing
	Deterioration of health conditions owing to spread of waterborne diseases as a result of heavy rains and floods
Northern Province	Non-fishing days (zero incomes) due to cyclones / storms.
	Damage and loss of crafts and gear at sea.
	Natural bunds destroyed due to coastal erosion; changing wave patterns and causing difficulties in maneuvering crafts (increase in zero-fishing days).
	Very strong natural monsoonal winds
North-western Province	Inability to maneuver sail boats (<i>Ruwal Oru</i>) due to high wind speed.
	Risk of damage and loss of crafts / gear / life when the wind speed is higher than 40 km/h (which occurs frequently)
	Depletion of coastal fish resources due to inflow of flood water to the sea during heavy rains
	Frequent damages to fishing equipment due to storms.
	Strong winds preventing fishing with sail boats (<i>Ruwal Oru</i>)

Source: FAO/SLFSSF/ICSF, 2019

- The disaster management process is to be carried out with the involvement of community organisations
- Establish insurance schemes through community organisations and cover both fishing related and climate related risks to fishing equipment and other coastal assets and the people.

Concluding Remarks

One of the serious drawbacks in government involvement in social security and social welfare in Sri Lanka's fisheries sector has been its inability to offer an effective pension scheme to fishers, which is the most recognized, stable and continuing 'safety net' that aimed at providing protection to SSF. Apart from the structural inefficiencies like lack of staff and organizational issues, the basic problem was the non-viability of the scheme, which could be attributed to a number of reasons. First, the amount of pension payment has been adjusted (raised) to keep in line with rising cost of living without making any adjustments to the membership contributions. Second there was no proper method of monitoring the membership contributions and the default percentage has risen to nearly 50%. Third, promotional activities of the scheme remained very weak. Fourth, year after year, the government had to pump into the scheme huge amounts of funds, with the fund balances rising to significantly high negative levels. Fifth, new enrolments were quite few and the membership was dropping out. Today, the scheme does not function well at all, other than continuing to pay pensions to the early members. As the only social protection scheme aimed at providing a safety net for the fishing population, the scheme definitely needs re-organisation and strengthening. This requires a revisit to the scheme and understand fully the reasons for its failure. The most important thing is to ensure that it will be 'self-sustaining' in the future, without depending further on government funds and function as a welfare scheme. The scheme was conducted by the Agricultural Insurance Board and such an institution has no incentive to promote the pension scheme among fishing populations, because the focus was mainly on agrarian populations. This scheme has to ensure that member contributions of the scheme are adequate enough to pay pensions and other social security benefits, such as disability and death benefits, without depending on government funds

every year. As pointed out by the ILO, pension payments will also have to be inflation-adjusted, which is one of the reasons why the amount of pension had to be raised on a number of occasions in the past. One alternative would be to link this scheme with fisheries cooperatives, which have already played a commendable role in providing various kinds of loans to its members and have been quite capable of maintaining loan accounts and imposing diverse sanctions to loan defaulters. If the pension scheme is operated through fisheries cooperatives, one could keep the default rate (of pension instalments) low because defaulting in one scheme will lead to losing the respective member's credibility in other schemes (loan scheme).

In respect of the social protection programmes (*ex. Aswesuma*), the Department of Fisheries is to be blamed for not maintaining a list of fishing households who receive such benefits. This could be easily done through the network of Assistant Directors of coastal districts and their band of Fisheries Inspectors (who closely work with *Grama Niladhari* - the village level state officer). If such a list is in existence one could easily see how many fishers fell into the lowest income categories, but do not receive social protection benefits. It should be emphasized that, the DFAR not only needs to maintain a list of craft owners but also a list of crew labourers. No matter in which craft they work (they sometimes move from one craft to the other), but their occupation as crew labourers could be certified by the Fisheries Inspector (FI).

Safety at sea is a complex issue. The most important of all is the complain by fishers that they cannot engage in fishing operations wearing the life jacket. Now if this is an issue, then the first task would be to see how this has to be resolved; one may have to design a different life jacket that facilitates easy fishing operations or train people to engage in fishing using the life jacket, the present design of which has facilitated fishing in other countries. Awareness building on sea safety is another issue. Although life jackets are made compulsory (one per crew member) for small mechanized crafts (OFRP), only a handful wear them. Others have them in their crafts, to wear them only in case of an emergency. The argument is invalid because many emergencies take place without early warnings (*ex. falling overboard*). Some fishers may need to be helped in acquiring life jackets through easy payment schemes, if every fisher needs to have one by law. However, quite

interestingly, very little concern has been shown by fishers in life jackets as sea safety measures.

Insufficient number of boat and engine repair workshops close to fishing villages, non-availability of material for craft repair, poor quality of craft and gear which increase the risk of fishing operations, landing site issues: rocks, difficulty of access to the sea (difficult passage), poor infrastructure at landing sites, such as the absence of community halls (even auction halls), where fishers mend their nets apart from auctioning catches, equipment stores (for safe storage of engines and gear), etc. are also important safety concerns. In this respect, improvement of landing sites (craft anchorage, auction halls, community halls, equipment stores, water, electricity, beacon lights, fish boxes, etc.) would be of significant importance because these issues have been highlighted by fishers all over the country.

Sometimes, social development concerns take precedence over other issues in fishing communities, mainly due to the number of issues already threatening their livelihoods. Lack of recognition of the SSF sector and their poor representation in decision making platforms have been serious moral and social issues in fishing communities. The need for SSF representation in all decision-making platforms has been strongly emphasized in FAO Voluntary Guidelines in securing sustainable SSF. Thus, fishing communities need to be invited to all decision-making platforms concerning fisheries as well as all coastal development projects. Attention focused on children's education, especially during off season, should be given serious concern in designing welfare schemes for fisheries. A number of tenure issues have been cited by fishers which were addressed in chapter 6.

Fisheries Insurance has always remained a serious issue because of the inherent problems with all insurance schemes; moral hazard and adverse selection, and the informational issues, which are quite colossal in fisheries. Fisheries insurance is now made compulsory. Registration of fishing crafts has to be renewed every year, and insurance is a pre-requisite for such renewal of registration. Moreover, if loans are to be raised against crafts offered as collateral, again insurance of the craft is a pre-requisite. Indemnities against

claims for complete craft damages are paid only when the craft is lost, and payment of indemnities for partial damages is troublesome. This is a serious issue that makes any insurance unattractive. The basic problem lies with lack of 'information'. Thus, if any scheme to be successful in coping with various risks faced by the fishing populations, informational asymmetries between the insurer and the insured should be minimized. One of the effective means of minimizing information asymmetries is to link up insurance schemes with fisheries cooperatives. The argument for this proposition is that, '*what happens in the sea is only known to those who are at sea*'; the community. Cooperatives can work with insurers to collect information on incidents that give rise to claims. The cooperatives will serve as an agent for the insurer, for a commission to cover their costs. This necessitates a close dialogue among Department of Fisheries, Insurance Companies (probably the Sri Lanka Insurance Corporation) and Fisheries Cooperatives. Such a process will facilitate not only paying indemnities for all types of damages; complete or partial, but also for insurance against loss of property and lives.

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Chapter 11

Way Forward







Way Forward

Understanding the sector

The coastal fisheries sector of Sri Lanka comprises men and women directly and indirectly involved in exploiting coastal fish resources, which include both marine and lagoon fishing and may involve not only harvesting fish, but also selling and processing of fish. If this definition is expanded to include fishing and related activities carried out in inland water bodies, then one speaks of the small-scale fisheries sector (SSF). This sector's activities typically involve individual fishers or family groups using artisanal crafts, non-motorized or small motorized crafts, characterized by labour-intensive and low-capital technology, engaged in one day fishing trips in shallow waters, producing fish mainly for home consumption and the surplus for domestic markets. However, this sector is now involved with a number of export-oriented fishing activities such as lobster and sea cucumber. In the SSF sector, men are generally involved in direct fishing while women are involved more in ancillary activities such as marketing and processing. SSF tend to be firmly rooted in local communities, their values, traditions, beliefs, etc. SSF represent cultural heritage, and they offer a way of life, a particular lifestyle that provides both identity and meaning to the lives of those who are engaged in it. This sector deserves special attention not because of issues such as resource depletion, low incomes and poverty, but also because of the opportunities the sector provides in addressing important societal concerns that exist beyond the sector, such as providing safe and nutritious food and employment.

The FAO has recently developed a vision for small-scale fisheries where, a. the contribution of small-scale fisheries to sustainable development is fully-realized; b. small-scale fishers and fish workers are not marginalized and, c. importance of small-scale fisheries to national economies and food security is recognized, valued and enhanced¹. The vision recognizes that SSF communities should be empowered, enabling them to actively participate in decision-making platforms, with dignity and respect through integrated management of the social, economic and ecological systems underpinning the sector (ibid). The recently developed SSF Voluntary Guidelines capture the most gripping issues in the sector, especially, the need to recognize the rights of fishing people and to make the process of fisheries management participatory, inclusive, integrated and holistic with special concern on women and marginalized populations. All efforts made towards sustainable small-scale fisheries, especially the agreement on the Code of Conduct for Responsible Fisheries and SSF Guidelines, would be futile unless they are incorporated into the policy making and planning process. This does not take place automatically. Moreover, they are not blanket recommendations, but guidelines, and what is to be adopted or incorporated into national plans of action depends on specific contexts of countries. Governments have an important role to play in controlling essential legal, financial, technical resources in adopting the most appropriate guidelines, which needs a strong political will to do so. Today many governments in developing countries are moving from “government to governance”, including governance of small scale fisheries, which is steered through diverse governance mechanisms to secure a sustainable SSF sector.

It is questionable whether such a process is taking place in Sri Lanka. For the governors, fisheries is a sector that provides fish for consumption and for export with a fishing population who continue to exploit the fish resources to earn an income. Rules are enforced to see that their behavior does not lead to resource degradation and depletion. Not forgetting the government expenditure on welfare of fishing communities (which is also done for other sectors as well), it needs to be emphasized that, for governors, fishermen are involved in 'catching fish, selling them and earning an income', and their knowledge of fishing

¹ <http://www.fao.org/3/ae534e/ae534e03.htm#bm3>: accessed on 14th June 2020

communities, the issues confronted by them in their day to day life, social development needs, social security protection, levels of poverty and threats posed to them by other coastal resource users, etc. remains very poor. No efforts have been made to invest in studies concerning fishing communities, after the last census of fisheries carried out in 1990's.

Moving from Government to Governance in Fisheries

Fisheries governance has been weak in Sri Lanka. The Ministry of Fisheries (MOF) always had a good structure and qualified staff in the past. They all worked according to an 'activity plan' for which budget allocations were secured. Officers did their job, and the planned activities were carried out. The priorities were decided by the Minister. When ministers changed, priorities changed. While a Fisheries Extension Service existed in the past, this was abolished for some unknown reason and the two way communication process between the decision makers and the people at the bottom (the fishers) came to a halt. Sri Lanka never had a national fisheries policy, although a draft has recently been prepared. The absence of a policy meant that action plans were prepared according to 'minister's policy.

The most important aspect forgotten by the governing authorities was the lack of understanding of the sector. Fisheries systems are diverse, complex and dynamic. Fishing is carried out by different groups of people, belonging to different ethnicities, different cultures, with different values and beliefs, using diverse techniques to catch living and migratory resources, which require carefully crafted governance and management mechanisms. It was revealed earlier that such systems need governance to be interactive where all relevant parties sit together to deliberate upon their knowledge, experience and aspirations to decide about the path of securing sustainable SSF. In Sri Lanka decision making process in fisheries has always been a top-down process with little contact with fishing communities. It is high time that governors focused their attention on 'interactive approaches' which incorporates diversity, complexity and dynamism of the sector into the process, by inviting all relevant parties to the decision-making platform at all levels of governance. The terms Inclusive and participatory governance are often heard but their actual execution remains quite weak.

National Fisheries Policy

Sri Lanka prepared a white paper of National Fisheries Policy in 2018 which was submitted to the cabinet, but not sent for parliamentary hearing. In the meantime, with FAO funding, an island wide consultation was carried out to implement 'FAO Voluntary Guidelines for securing sustainable small scale fisheries in the context of food security and poverty eradication', which was conducted by the Sri Lanka Forum for Small Scale Fisheries (SLFSSF). Through this process which was also carried out with the participation of the Ministry of Fisheries officials, a Small Scale Fisheries Policy was prepared in 2019. The two policies were scrutinized by country's policy experts including those involved in the preparation of the 2018 policy. At the end, a number of important areas that were missing in the 2018 policy were identified, and several suggestions were proposed to improve the 2018 policy. This was taken up by the Ministry of Fisheries to formulate a 'remodeled' National Fisheries Policy in early 2023. This process has taken too long and it has not yet resulted in the formulation of a national fisheries policy.

The System to be governed: *fish, fishers and fisheries*

From literature, conference proceedings, discussions and interactive dialogues, it is evident that there is an urgent need to understand the SSF sector, if the sector is to be guided along a socially, economically and environmentally sustainable path. This requires awareness and capacity building, and training of all relevant stakeholders towards *proper understanding of fish, fishers and fisheries*.

From time immemorial, fisheries meant only a focus on target species or the fish resource only. Scientists spoke about tuna fisheries, sea cucumber fisheries, lobster fisheries, etc. and the aim of fisheries management was to ensure sustainable utilization of these fish stocks. In other words, the concern was on life below water and fishers formed an external technical variable, 'catching fish' (a fish harvesting 'device'). In this process, the focus was mainly on ecosystem health, and fishers fell into a category of outsiders who exploited the resources of the ecosystem.

When a person harvests fish, he becomes a fisher and the fish become his catch; together, fishers, their catches, and the activities that connect them constitute a fishery. Therefore, fisheries are not merely stocks of fish; they are dynamic systems that emerge from the interaction



Figure 11.1. Fish, Fishers and Fisheries

between ecological processes and human activity: between fish and fishers (see figure 11.1). In other words, one cannot speak of the fisheries resource (ecosystem / fish) alone, or of fishers alone in managing fisheries, but of the 'fisheries system', as a whole. This fisheries system comprises three components: the biological component (fish); the environmental component (aquatic environment: water) and the economic and social component (the people, equipment, and infrastructure) These components of the fisheries system are inseparable Therefore, all management initiatives should be concerned with simultaneously managing the human system and the ecosystem or the fisheries system as a whole. In other words, the goal of fisheries management would be to reach the goals of the three systems: Sustainable use of the aquatic resources, maintaining the health of the ecosystem, strengthening the economy and improving the wellbeing of the fishing populations.

In the past, the process of fisheries management was spear-headed by natural scientists, who were at the driving seat. The social scientists were relegated to the background, because their focus was the fishers and their communities, who were not visible as they were operating above water. As Jentoft aptly described in his book on *life above water* "if fish could speak, think, learn and organize as fishers can, the job of the biologist in fisheries management would be quite different from what it

is today” (Jentoft, 2019; p. 5). In fact, in such a context, the social scientists would have taken the wheel. It is very unfortunate that very little work had been done on 'life above water' or fishers. We know very little about the culture, values, beliefs, legal system, working rules, etc. of the fishing people. In short, we have failed to understand that 'fishing is a way of life'. Two of the reasons that could be attributed to this deficiency is, the dearth of fisheries social scientists in the country, and absence of alliances between natural and social scientists to work towards common goals of the fisheries system.

In recent management efforts, attempts have been made to bring fishers into the equation and the assumption of these initiatives has been that there exists a disconnect between fish and the fishers. Even Ecosystem Approach to Fisheries Management (EAFM) assumes that fishers form another component of the ecosystem and tries to bring people into the decision-making process. In fact, the disconnect is not between fish and the fishers, but between the fishers and the governors and managers (between government and public).

Addressing Major Ecosystem Issues

In the preceding chapters, two major ecosystem issues were identified: high fishing pressure (too many crafts and too many fishers) and resource degradation (depleting stocks). A number of measures have been suggested to resolve both these issues, as depicted in *Figure 11.2*.

Reducing Fishing Pressure

The present estimates of fish stocks and rates of exploitation do not reveal at least moderately-accurate information about the level of resource exploitation: whether we are operating at, below or beyond MEY, MSY or OAE. Yet available information suggest that we are probably operating beyond MSY or even at OAE, meaning that we have too many boats and fishers at sea.

If our coastal fisheries is to generate profits (rents), the fishing pressure has to be reduced. Of course, in a situation of high level of unemployment of people below the grade of G.C.E Ordinary Level (which is true with most of the fishermen), reducing fishing pressure is a challenging task. Nevertheless, a number of strategies could be adopted to shift surplus effort to diverse fishing and non-fishing employment opportunities (see figure 11.2).

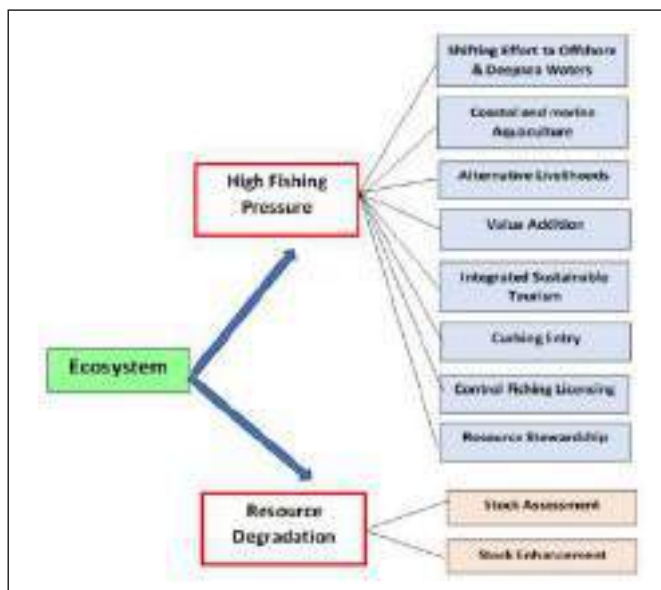


Figure 11.2: Addressing Ecosystem Issues

a) Shifting Effort from Coastal to deeper resources

Over a very long time the matter of shifting fishing effort from over-exploited resources to less exploited and unexploited resources was being discussed at various forums. Since one of the major aspirations of many coastal fishers is to acquire a multi-day boat and become a deep-sea fisher, one would have expected such a shift during the past. Field visits revealed that a good number of coastal fishers have taken up employment as crew workers in multiday crafts (easier for OFRP fishers, who used to work as crew laborers in multiday crafts during off season). However, whether the deep-sea sector is able to continue absorbing surplus labour from coastal fisheries is not exactly known. The tuna quota allocation made by IOTC to Sri Lanka's tuna long-liner fleet has not been exceeded and the possibility of increasing the tuna long-liners to a limited extent still exists. The High Seas fishing unit is also planning to replace the foreign crew attached to Larger vessels (>24 m) with

young Sri Lankan crew (youth from coastal fishing villages, not the elderly ones). This provides another avenue for young people from coastal villages to take up deep sea fishing with training and capacity building.

The fleet development plan that was submitted to the Indian Ocean Tuna Commission (IOTC) in 2016 by Sri Lanka, provides for fleet expansion. The IOTC is making concessions to the developing countries by allowing them to increase their fleet. The IOTC has not said 'no' to the fleet development plan, which proposes the increase of the fleet by adding about 150 more vessels, opening up further possibilities of employment for youth from coastal fisheries. But these employment opportunities are quite limited.

b) Fishing Potential in offshore waters

It is true that the FRP boat operates in too shallow waters. Tuna resources are available in Sri Lanka's deep-sea waters to a good extent, and many FRP boat owners are willing to move further into deeper waters to catch these resources, if the required technology is available; an appropriate craft-gear combination. Information on the status of resource exploitation in offshore waters (from the Continental shelf up to the EEZ) is also not perfect. It is not known whether they are economically or biologically over-exploited or not.

As revealed by *Figure 11.3*, the coastal area of the ocean is around 61,766 km², which is being exploited by 43,522 crafts (about 1.4 km² of sea per craft). The extent of the EEZ is 517,000 km², which leaves a large area of 435,234 km², the resources of which are being harvested only by 3,946 crafts (about 110 km² of sea per craft). Information on why this latter area remains under-exploited, while the coastal area is under heavy fishing pressure is not available. This points to three things: i. Offshore area may be devoid of good fish resources to absorb a large number of offshore crafts; ii. Capital investment in offshore crafts may be too high compared to earnings from this technology, discouraging further investment; iii. There may also be technological difficulties in improving the present coastal craft (OFRP) to allow it to exploit fish resources beyond the contiguous zone of 24 km (into the immediate offshore area) (a new craft- between OFRP and IDAY/IMUL). Yet, hardly any evidence of studies carried out in the above areas were found.

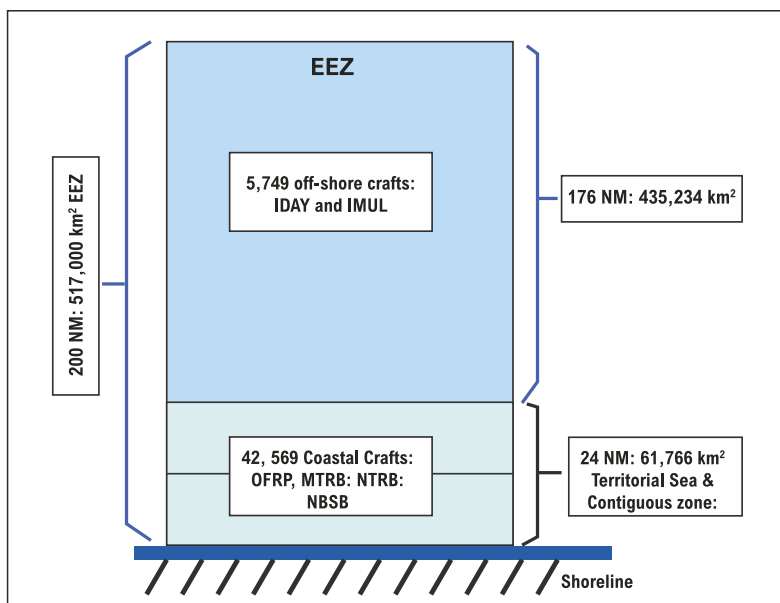


Figure 11.3: Exploitation of the coastal area and the area beyond, up to the EEZ

Source of data: MFAR, 2024; Emerson L., 2020²

This could be an interesting area for further research, which will definitely contribute towards reducing pressure on coastal resources.

c. Preventing Further entry

It was shown in Chapter 3 that one important strategy that could be adopted to reduce fishing pressure in the coastal area is to take steps towards stopping further entry into the sector. Such a strategy requires provision of alternative employment to the youth, which are more attractive than fishing. One of the key requisites here is to provide the coastal youth with basic educational facilities: access to schools. Some fishing villages are located in isolated enclaves and access to good schools is quite limited. Lack of education for youth in coastal areas leads to the buildup of a large group of rural proletariat, for whom fishing offers last resort employment. Another option is to help the rural

² Consultant/ World Bank, personal communication on coast line

youth, including school dropouts to acquire skills through vocational education and seek non-fisheries employment. There are number of vocational educational institutions in the country, including the Ocean University of Sri Lanka, which operates 8 vocational educational centers well spread out in the country, offering a number courses: fisheries, shipping, aquaculture, boat repair, skipper training, etc. Although the fees are quite affordable, youth from low-income families could be helped through a scheme of 'financial assistance' (scholarships). Due to the various risks and uncertainties associated with fishing, many parents too tend to push their children to do their school education well so that they could take up employment outside fisheries.

d) Fish Processing (Value Addition)

Fish processing has been identified in this study as a means of reducing post-harvest losses, value addition, women employment and a source of supplementary incomes for fishing families. Recent efforts by the private sector to enter into fish processing have been witnessed. In the Trincomalee district for example (especially in the area of *Kinniya*), fish drying is completely in the hands of private investors who usually employ hired labour. Probably they produce a better quality that would fetch higher prices in the market. Given that a large number of families depend on fish drying to earn supplementary incomes that help to smoothen inter-temporal fluctuations in fishing incomes, one needs to ensure that their subsistence would not be threatened by the intrusion of private business interests into fish drying.

One of the pre-requisites for such an approach would be awareness building and capacity building for fish processors, especially women, to build their knowledge on maintaining fish quality, new technology, running small businesses, etc. They could also be taught about the various quality standards maintained in the country (SLS / GMP). One way of assisting women to engage in fish processing with the use of new technology would be to organise them into Fish Processing Cooperatives, from which they could obtain loans against group guarantees. They may also need credit on concessionary terms. It may also be necessary to resolve issues related to middlemen oligopsonies, provide market access, etc. The Institute of Post-Harvest Technology of NARA has already proposed to develop its regional centers to provide

training in fish processing and fish preparation methods, especially for women, with factory type facilities for fish preparation, providing them with employment. Moreover, several programmes have been planned for livelihood development by promoting and improving fish processing methods, introducing new processed products and establishing market links, which are to be recommended strongly. However, the extent to which such efforts have been successful in reaping the expected benefits is not known.

e) Coastal Aquaculture

Coastal aquaculture provides a very good avenue for coastal fishing families to earn not only supplementary incomes but also to start full-time farming activities.

National Aquaculture Development Authority (NAQDA) has suggested investment in ornamental fish farming as a good alternative income source for rural populations. The demand for ornamental fish comes from both local and foreign buyers. Sri Lanka has earned Rs. 2,913 million from export of ornamental fish in 2019, which is a considerable contribution towards Sri Lanka's foreign exchange earnings. This activity has also provided a number of coastal fishing families with livelihood opportunities (supplementary/principal source income). With a proper analysis of all benefit and costs, and through a well-planned and monitored program of investment, such an activity could be carried out in an economically, socially and environmentally sustainable manner.

NAQDA is also proposing to increase Seabass, Crab, Seaweed & Sea Cucumber production. Coastal aquaculture activities have been successfully carried out by NAQDA in a number of areas with good results. Moreover, it has the potential of providing coastal fishing families with alternative and principal livelihood activities. However, coastal aquaculture activities should not be undertaken without conducting proper cost-benefit, market and environmental impact analysis, because many of such activities are conducted in very sensitive areas such as mangrove forests. Moreover, coastal aquaculture projects might involve high investment costs, which people might not be able to secure. Therefore, people willing to undertake coastal aquaculture should be provided with subsidies, subsidized credit, facilities for

training and capacity building, while ensuring that the borrowing farms would gradually become self-sustaining enterprises.

f) Integrated Sustainable Tourism (IST) in the coastal zone.

IST in the coastal zone is a tourism initiative developed with the participation of all types of stakeholders in a particular coastal area, providing the tourist with the opportunity to learn from and enjoy diverse activities planned with coastal marine, lagoon, cultural and social resources, and opportunities for the people in the area to improve their wellbeing while maintaining the sustainability of the ecosystem and protecting people's cultural and social traditions. IST initiatives have already been initiated by people themselves, like organising boat trips, mangrove and bird watching, snorkelling and swimming, yoga and cultural dances for tourists, etc. The lagoon environments with mangrove stands provide an ideal atmosphere for IST because of the closeness of both sea, lagoon and mangrove areas and the serenity and salubrity of the environment that is conducive for meditation, yoga and for native herbal treatment. These are very high non-extractive use values which have not been fully captured by both, the communities and authorities. Of course, large scale investors have built hotels around the lagoons and offer an array of services to tourists, but IST initiatives cannot be undertaken without the support of the people and collaborative efforts with a number of parties. In fact, IST is a community-based tourism activity which could provide supplementary incomes to fishing families and employment for youth. FAO Voluntary Guidelines say that "...small-scale fishing communities should equitably benefit from developments such as community-based tourism..." (*Article 6.8 of SSF Guidelines*).

The major intervention to develop IST is the establishment of a strong organisation. Such an organisation could be either DS Division based or based on special areas demarcated, like the SAM areas, which could be called 'Association for Sustainable Tourism Development' (ASTD). This will comprise tourism stakeholders, such as marine fishers (cooperatives or fisheries committees), lagoon fishers (Lagoon Fisheries Management Committee), native doctors, hoteliers (including owners of 'home stay' facility), cultural troops, organic farms, yoga ashrams, local transporters (three wheelers, bullock carts)

etc. ASTD should find means of raising loans for their members such as those providing 'homestay' facilities, fishers to convert their crafts to take tourists, snorkelling and other equipment to youth, etc. It is strongly advised to start a few pilot projects in selected areas possessing high non-extractive use values.

g) Regulating the issuance of Fishing Licenses

Fishers need to obtain licenses for all fishing operations. These licenses are issued by the Department of Fisheries (at District Fisheries Offices) for a fee. The small scale fishers do not have to pay for licenses. One effective way to control entry into over-exploited fisheries is by regulating the number of licenses issued to fishers operating in a certain resource area. However, this option can not be adopted at present because the TAC (Total Allowable Catch) of diverse fish species has not been worked out by NARA, except for extremely limited number of species. Thus, adoption of this strategy depends on the availability of information on the TAC of a majority of fish species. In this respect, NARA needs to pay more attention to expedite their research work related to the estimation of TAC for commercially important fish species.

h) Resource Stewardship

As stated by Anthony Charles (2022)³, “Respect for the rights of fishers to make their livelihoods from fishing, and for human rights, connects with the responsibility to sustain resources and ecosystems over time. What must be emphasized is that for small-scale fishers, this stewardship responsibility is not something new. In many cases, fishing communities and organizations have long histories of conserving and stewarding their fishery resources and ecosystems, supporting the health and livelihoods of their communities”.

So far, community organisations (except for some lagoon fisheries management committees) have not been actively engaged in resource management functions. In fact, they have often promoted entry rather than regulating entry. It is known that, due to increasing fishing pressure and the use of destructive gear the resources are being degraded heavily. MCS activities are not strong enough to regulate

³ Presentation at Fishing For Life Conference, 18-19 September, SLFSSF, Colombo.

environmentally unfriendly practices and the government is hesitant in imposing strict input/output controls in a situation of lack of alternative employment and poverty. Under these circumstances, the best strategy is to allow fishers to take responsibility of managing their resources (resource stewardship). One effective way of doing this is for fisheries cooperatives to undertake resource stewardship functions. This cannot take place overnight but needs awareness building of diverse stakeholders, training, capacity building, etc. In this new paradigm shift, the government will have to transfer some of the resource management rights to cooperatives, which will be a challenging task.

Resolving Resource Degradation Issues

a) Stock Assessment

Needless to say that in the absence of information on the status of stocks and their rate of exploitation, it would be futile to probe into questions like, what is happening to our resources, fish stocks available, rates of resource exploitation and depletion, parameters such as MSY, MEY, OAE and TAC (Total Allowable Catch). People make many predictions of our sustainable yields (often quoting the MSY of 250,000 MT of fish stocks in coastal waters, as estimated by the Norwegian Vessel - Dr. Fridtjof Nansen in 1980, which is ridiculous as both stocks, environmental conditions and growth parameters have changed). After 1980, a stock assessment was carried out in 2018, by the same vessel. Obviously, Sri Lanka's own capacity for proper assessment of its fish stocks is quite low, mainly due to the absence of proper equipment; instrument and a vessel. However, it is worthy of mention that all stock assessment work in Nansen is done by local scientists, revealing their skills in doing this type of work.

In respect of the above, a good strategy would be to fully-equip National Aquatic Resources Research and Development Agency (NARA)'s research vessel; Samudrika, which is capable of conducting stock assessment studies with the skilled staff at NARA.

b) Stock Enhancement

Addressing the Issue of Resource Degradation:

It is now understood that coastal fisheries have come under heavy pressure. Stocks have depleted and catch per unit of effort is on the

decline. Fishers complain of low catch per boat and low incomes. Under conditions of low incomes, poverty and diverse vulnerabilities, fishers have fallen back on natural resources and have started using them more intensively, often using destructive fishing techniques, leading to further degrading the resources. Two issues emerge from this.

- First there is a need to improve our stocks
- Second, there is a need to reduce pressure on coastal resources, which we discussed in the above sections.

Improving the stocks:

Among many strategies that can be adopted in stock enhancement, sea ranching was suggested by NARA⁴ in 2022. In collaboration with the Ocean University of Hainan Province of China, researchers from NARA and the Ministry of Fisheries had carried out studies in several locations in Sri Lankan waters and have recommended sea ranching as a good alternative to enhance coastal fish stocks (as fish aggregation devices). Ranching is to be carried out in selected locations, with broken, dilapidated and abandoned fishing crafts found in harbors and other structures such as discarded passenger buses of the Sri Lanka Transport Board.

The lagoon development program of the Department of Fisheries is another alternative in enhancing stocks in the lagoons. The program consists of demarcation of 18 lagoons, and stocking them with shrimp (*P. monodon*) and *Thilapia* fish.

Sea Ranching to improve stocks is to be strongly recommended. However, such a proposal needs to go through a science-community platform, before it is implemented. Lagoon demarcation has been a long-felt need and stocking them with high quality shrimp and fish could also be recommended strongly. Lagoon development will also add significantly to promote Integrated Sustainable Tourism (IST) because lagoon ecosystem provides an array of non-extractive use values that could be combined to develop effective IST programmes.

⁴ Personal communication with Director General, NARA, 2022.

Strengthening the Fisheries Data Base:

Information is 'power' and Sri Lanka is a country which has a long history of systematically collecting fisheries related data. The data base on fisheries can be considered as 'good'. Fisheries Statistics published by the Ministry of Fisheries every year provide a fair amount of information in facilitating research and appropriate decision making, although there are still issues related data collection. In improving information available at the landing site level, the statistics division of the Ministry of Fisheries has indicated the possibility of collecting the following information and had presented a template for data recording. It is strongly recommended to support this initiative to collect the following information at the landing site level.

- Fish catches, by type of fish, by type of technique employed and by the type of craft
- Number of crafts at sea (by type of crafts, by target species, by gear group)
- Fish prices, by type of fish
- Destination of fish: fresh fish, for dried fish, exports, etc.

In addition to the above, information on the socio-economic status of fishers and their communities need to be collected (see section 3.2 for detailed analysis).

Understanding the Human system

a. Understanding coastal fishing populations

It is well known that sustainability encompasses Environmental, Economic and Social dimensions, but unfortunately social sustainability is something that has not received the attention of fisheries scientists in the past. It is now recognized that small-scale fisheries (SSF) is a particular way of life, characterized by values, beliefs, traditions, behavioral and working rules, legal system, etc. deeply rooted in the culture of fishing communities. The fishers also have their own aspirations in improving their wellbeing and that of their children. They are engaged in daily fishing operations which are affected by seasonality: their incomes are low and fluctuating and poverty appears to be prevalent in SSF communities. Their behaviour is guided by their own legal system, apart from the state legal system and others (ex.

Religious legal system). Unless these facts are well understood, it will be very difficult to influence the behavior of fishers. Thus, the governors will have to understand the existence of multiple legal systems or the existence of legal pluralism in fishing communities. This is why interactive governance need to be promoted, where diverse legal actors (mainly the state and community actors) will interact and deliberate upon their interests, aspirations, values, experiences and come to agreements (ex. partnerships) acceptable to all. Such an interactive platform will avoid 'rule breaking' and conflicts among different actors. Co-management is one such platform that facilitates this interactive dialogue.

Sri Lanka's fisheries research has primarily been focusing on the ecosystem (fish resource) and very little work had been done to understand the human system, or 'life above water'. Unfortunately, very little information is available on the social and economic characteristics of the fishing people, to move forward in addressing the issues in the human system. The last comprehensive census of fisheries was carried out in 1972, which is quite surprising. A smaller scale fisheries census was carried out in 1996 (in 8 fisheries districts), and a fishing boat census was carried out in 2006. At present a fishing boat census is also being carried out. Nevertheless, it is strongly advocated to conduct a comprehensive Census of Fisheries or, failing that, at least an island wide socioeconomic sample survey, to understand the fishing communities: their educational achievements, income levels, seasonality issues, threats and shocks in their environment, tenure issues, children's issues, gender, social security protection, poverty, indebtedness, institutions, etc. Such an understanding will help to address some of the urgent issues, such as vulnerability and poverty in fisheries, and to design strategies to build resilience and improve the wellbeing of small-scale fishing populations.

b. Addressing marketing and post-harvest issues (contribution to fishing incomes and food security)

Fish marketing is solely in the hands of the private sector and the only issue in marketing has been the strong oligopsonies in fish buying, which tend to push down producer fish prices. Yet, this generally happens in the large fish trade, involving commercial fishing vessels. In

coastal fisheries. Marketing of coastal fish is handled by an innumerable number of small-scale fish traders (*Mudalali*) who maintain kinship, friendship and community ties with fishing communities. Not many complaints of unfair trade have been heard in this sphere. There exists good competition among buyers and auctions are quite common. Problems of marketing of coastal fish arise when there are gluts. Of course, cold room facilities cannot be found in landing centers of small-scale fishers. Thus, surpluses are often sent to interior urban centers, and what cannot be marketed through that channel is generally disposed of immediately. This leads to two issues. First, the producer price will fall. Second, fish distribution will not be evenly spread out, because all stocks will have to be sold immediately. Evidently, if some forms of fish preservation facilities are available at landing centers, such surpluses could be stored and released so that both the consumer and the producer benefit. Thus, post-harvest issues in coastal fisheries are often marketing issues that are pronounced during gluts, leading to loss of value and thus low incomes to producers.

Two solutions exist to resolve the above issues: i. to provide the fishers with Fish Boxes to keep surpluses iced for about a couple of days until prices increase. However, fish boxes alone will not be enough to effectively use this facility to obtain fair prices for the catches, but also other landing site facilities, which will be discussed later in this paper; ii. establishment of a few wholesale markets in interior populated areas like, Kandy, Anuradhapura, Ratnapura, Bandarawela, etc. Such facilities will handle surplus catches from both coastal and offshore fisheries.

As a marketing agency, the Ceylon Fisheries Corporation (CFC) has never played a significant role in coastal fisheries at all. Even in respect of commercial fisheries, such as multiday fisheries, it has failed to make any impact on marketing. Yet, the CFC can contribute significantly towards fish distribution and retail selling, serving the rural low-income households as well as the urban consumer. Therefore, it is recommended to improve the current facilities of the CFC to purchase and sell both coastal and offshore fish through CFC's retail outlets, turning it into a specialized agency in retail selling of fish. Even at present, retail outlets of the CFC are quite popular for good quality fish sold at reasonable prices.

c. Social Development and Social Security

A number of issues are related to social development and social security, of which, affordable access to basic health, education, public services, alternative livelihoods, etc. are of significant importance to ensure that fishers and their families enjoy a decent standard of living.

Social welfare facilities such as affordable access to diverse social services and household amenities and improvement of village infrastructure, etc. are not only fisheries issues but wider social issues, which come under the purview of different Ministries, including fisheries. The Ministry of Fisheries and Aquatic Resources (MFAR) has also invested heavily on social welfare activities for a very long time, but the general welfare issues such as dilapidated rural roads, poor access to educational facilities for children, are often the consequences of the remoteness of many fishing villages. Nevertheless, education for children has become a serious issue during the off season when fishing remains at a very low ebb. Although education is free, parents will have to meet diverse costs that are incurred throughout the year (books, stationary, shoes, bus fare, etc.). Moreover, there are complaints that artisanal and small-scale fishers are often left out of social security schemes because they are considered 'asset owners' (owners of fishing crafts and gear). It is ridiculous to consider an owner of a small outrigger canoe (*oruwa*) as an asset owner, regularly earning an income above the national poverty line.

These are matters that should receive the attention of the MFAR and the Fisheries Community organisations, and the Ministries having responsibilities for Social Welfare and Social Security. At present, many people and their organisations are waging protests against erratic selection of beneficiaries for the on-going *Aswesuma* social security programme.

d. Safety issues

Safety at sea issues in Sri Lanka, are mostly lack of awareness issues and negligence, rather than lack of equipment or unaffordability. The argument that small-scale fishers find it difficult to engage in fishing operations wearing a life jacket cannot be accepted because in commercial fishing all fishers wear life jackets. What is required is

building safety-consciousness among fishers and train them to engage in fishing using the life jacket.

Although not adequately highlighted, the issue of safety has other dimensions. Risk of taking crafts into the sea from certain landing sites (due to narrow or rocky passages into the sea) have been cited as major issues in SSF for a very long time. There are heavily populated coastal fishing villages with dangerous passage into the sea and with frequent craft damages during stormy weather. In such landing sites, safety is related to the risk of rowing one's craft through these narrow rocky passages into the sea, rather than a sea safety issue. They need different interventions, especially coastal structures such as, revetments, breakwaters, groins, stone barriers and removing the heavy boulders to facilitate easy passage of crafts. The major issue here is that coastal protection, a subject that was under the purview of the Department of Coast Conservation (CDD) which was a division of the Ministry of Fisheries, and has now become a subject of the Ministry of Environment under the Department of Coast Conservation and Coastal Resource Management (DCCCRM), and there is no direct mechanism to convey the fisheries needs to the DCCCRM. It is recommended strongly to develop this link so that landing site issues in fishing villages shall be easily conveyed to the DCCCRM, which would include such responsibilities in its sphere of activities.

Another issue related to both safety and social development in coastal fisheries is the poor state of some of the landing sites. Construction of community / auction halls, where fishers mend their nets apart from auctioning catches, equipment stores (for safe storage of engines and gear), provision of water electricity, latrines, etc. are issues of significant importance in improving the working environment in SSF landing sites.

e. Fishermen's pension scheme

As the principal social protection scheme aimed at providing a safety net for the fishing population, the pension scheme has to be strengthened. It did not function well in the past as a scheme that depended on the contributions of the membership, but a 'welfare' scheme. No scheme can be self-sustaining if it continues to depend on government funds continuously, which is what happened to the

pension scheme. A good pension scheme has to ensure that member contributions of the scheme are adequate enough to pay pensions and that it is inflation-adjusted. One alternative would be to link this scheme with fisheries cooperatives, which are in a position to ensure that the default rate (of pension instalments) is kept to a minimum by linking it up with other schemes, such as the cooperative loan scheme. One could expect such a scheme to attract more fishers because fisheries cooperatives are multi-purpose community organizations providing a number of services to the fishing community, including major livelihood capitals. It is strongly recommended that the Department of Fisheries and Aquatic Resources hold a dialogue with fisheries cooperative banks: *Idiwara* Banks (initially), the Department of Cooperative Development, selected experienced senior bank officers and social security experts in finding out the possibility of organising the pension scheme jointly with fisheries cooperatives.

f) Fisheries Insurance

The demand for fisheries insurance is quite high because of the hazardous environment in which fishing is carried out, uncertain weather conditions and short-term and seasonal fluctuations in incomes. The need for an effective insurance scheme is strongly felt in the sphere of crafts and gear, which are liable to damage and loss. Repair and replacement costs could be quite significant and fishers need to meet these costs at the earliest possible time to avoid missing good fishing days, especially during the peak season. Yet, indemnity payments for claims made against craft or engine damages are often not paid or delayed (informational asymmetries). Only claims against complete loss of crafts are considered. It is obvious that, a complete loss of a crafts could also mean loss of crew as well. Many fishers are not interested in such schemes where claims are paid to others after their death. Fisheries insurance is only important today for renewing the registration of the crafts every year (a 'passport' for registration).

The only way to make fisheries insurance work is by minimizing informational asymmetries between insurers and insured. It was recognized that one effective way to do this is to operate the insurance schemes through fisheries cooperatives, which have a good knowledge of incidences taking place at sea. In this case, fisheries cooperatives, will

act as agents for insurers. Claims can be inspected by the insurer in collaboration with fisheries cooperatives who are in a much favorable situation to assess the authenticity of claims. Insurance premiums can be collected by the fisheries cooperative on behalf of the Insurer, which could be linked up with other assistance programs (ex. loan schemes) to ensure timely payment of premiums. Such a programme would also be able to pay indemnities for claims against partial damages to crafts. As requested by fishers, due to the higher intensity and frequency of storms, the fishers may also want an insurance scheme that will take care of hazards on land; damage to property, dwellings and life. Thus a dialogue among the insurance companies, fisheries cooperatives and the DOF need to be held to rectify the deficiencies of the past insurance schemes and to seek the feasibility of operating fisheries insurance through fisheries cooperatives.

Although they operate in a hazardous environment, fishers also take pride in their engagement in such a risky occupation: the 'daring' fishermen. Quite surprisingly many don't speak of the need for life insurance schemes. However, it will be quite important to strengthen the newly established Dheewara Rakum Insurance scheme ensuring that it will not be considered by the members as a welfare scheme but a member contributory scheme.

g) Recognizing and respecting the rights of fishers

Evidently, other than legitimate rights, many rights of coastal fishers to fish resources, the beach and adjoining lands are customary. Under the forces of urbanization, industrialization and the development of coastal tourism, fishers are gradually losing their customary rights to land to powerful stakeholders, especially tourism. Thus tenurial issues have recently surfaced as those threatening the livelihoods of coastal fishing populations; violating both access rights and human rights. The new draft fisheries policy of 2023, stresses the need to identify, recognize and respect the rights of small-scale fishers (legitimate and customary) along with the necessary legal protection.

It is thus recommended that the MFAR join hands with the Land Commissioner's Department, the Department of Coast Conservation and Coastal Resource Management (DCCCRM) and the representatives

of fisheries community organisations to jointly embark on this task, which may also involve appropriate zonation of the coastal zone, to ensure that the customary rights of fishing communities are not violated.

Addressing the Clash between Human System and Ecosystem

Integrated and collaborative platforms to address diverse issues in the coastal zone - Co-Management

With inadequate attention paid to understand the Human System, conflicts among diverse stakeholders have emerged including the government (policy actors, resource managers, administrators). Rule breaking has been observed frequently and there are no conflict resolving mechanisms, other than the state law and lawsuits. Although fisheries have been a dominant actor in the coastal zone for centuries, the coastal zone resources are also used by other stakeholders; tourism, industries, agriculture, wild life, forest, etc., some of whom (ex. Tourism) are more powerful than fisheries. Moreover, mandates of different institutions differ and there are huge mismatches among the aims and strategic interventions by different state institutions.

The new Coastal Zone and Coastal Resource Management Plan of 2018, intends to manage the coastal area by identifying and managing certain environmentally sensitive areas; Special Management Areas (SMA) (Formerly, SAM sites) some of which have produced fruitful results in the past (ex. Rekawa). Apart from the existing 15 sites, about 41 more sites are to be managed under this process. These include the most environmentally sensitive areas in the coastal zone. SMA is a typical example of integrated, participatory and holistic management. SMA is conducted by a SMA Coordinating Committee representing all stakeholders in the coastal zone. However, inclusiveness is a subject that has not received much attention. According to FAO voluntary guidelines, inclusiveness should encompass the need to ensure the participation of fisher people, including women and marginalized groups. These latter aspects should receive the attention of SMA planners.

Fisheries Management Areas (FMA) and Fisher representation at the Co-management bodies

As noted earlier, the Fisheries and Aquatic Resources Act of 1996- Article 31 (1) makes provisions to declare Fisheries Management Areas (FMA) and, under Article 31 (2) to establish Fisheries Management Committees. Since the structure of the fisheries administration is such that fishing is administered by the Assistant Directors of the 15 coastal districts and the Fisheries Inspectors of the Landing sites coming under each coastal district, it is proposed to declare FMA as the area from the shore line to the edge of the contiguous zone (24 NM) in each district and to establish district wise fisheries management committees, who will send their representatives to participate in Integrated Coastal Resource Management platforms, such as the DCZCC (see Chapter 3). Since Fisheries Cooperatives are the true representative of fisheries communities, their officers may be elected to the Fisheries Management Committees.

In the above context, three strategies need to be adopted

- a) Demarcation of FMAs
- b) Establishment of Fisheries Committees
- c) Strengthening the Fisheries Cooperatives

Since each district may have a number of fisheries cooperatives (or RFOs), they shall send their elected representatives to the District Fisheries Management Committee. Such committees, along with lagoon co-management committees shall send their representatives to the DCZCC established within that district, while the Assistant Director of Fisheries shall participate as an ex-officio member.

Role of the scientific community and the fishing community

Sri Lanka is endowed with a world-renowned scientific community some of whom are leading scientists in South Asia, and even globally, in a number of disciplines. Many fisheries scientists, have contributed significantly towards securing sustainable marine, inland and lagoon fisheries in Sri Lanka, through their experience in conducting scientific research all around the country, developing policy and establishing good practices in managing the ecosystem and the human system. Unfortunately, recent developments in the sphere of planning, policymaking and administration have caused an influx of administrators without much experience in fisheries into senior

decision-making positions, while scientists serve in a tier below them. What is wrong in the system is that the scientific knowledge is not properly fed into various deliberations held to make sensitive decisions concerning the ecosystem, the human system and their interaction on the economy. The relegation of the scientific community to the background is evident from the 'non-recognition' of the role of the scientific community in guiding the country's development along an environmentally, socially and economically sustainable path. The senior scientists of this country are hardly consulted in development and implementation of development programs and, fisheries sector is no exception. The services of this priceless knowledge consortium are lost to the country. There is an urgent need to use the services of the senior scientists of this country in development decision making. This can be achieved through the incorporation of sources of scientific advice into the process of decision making.

The participation of community actors in the whole decision making process is strongly emphasized in section 3.6 of the FAO Voluntary Guidelines for securing sustainable small scale fisheries. Moreover, Article 5.17 says that, "All endeavours should be made so that small scale fisheries are represented in relevant local and national professional associations and fisheries bodies and actively take part in relevant decision-making and fisheries policymaking processes". In the fisheries sector of Sri Lanka, the decision-making process is completely devoid of this step: neither the scientific community nor the fisher communities are effectively involved in the decision making process. Moreover, institutional buildup does not follow policy guidelines because a National Fisheries Policy does not exist. These are all prerequisites in securing sustainable SSF. Thus, it is strongly recommended that Science-Community Platforms be incorporated into the decision-making process.

The vital role of Fisheries Cooperatives

Although it is strongly advised to use fisheries cooperatives to strengthen the Fishermen's Pension Scheme and Insurance Scheme, this may not be possible until the issue of the existence of two parallel community organisations is resolved. Moreover, in establishing fisheries committees to manage coastal resources and to represent fisher

interests at SMA Coordinating Committee, fishers should be represented by one organisation. Being the most successful community organization in the past, all arguments points to the need to revitalize and empower fisheries cooperatives.

Due to the fact that coastal fishing forms a particular way of life strongly influenced by norms, beliefs, customs, culture, relationships with various individuals, and where wellbeing comes not only from “doing well and feeling good”, but also from “doing good and feeling well”, these coastal communities cannot be easily understood by the planners and policy makers, who do not see fishing as a way of life. Thus, in addressing social development issues, the best strategy is to strengthen fisheries cooperatives to cater to the needs of their membership. What is required is to empower them and build their capacities so that they would be able to effectively turn themselves into true 'people's organisations' which will take care of the wellbeing aspirations of their membership.

If fisheries cooperatives are to perform the functions assigned to them [provision of livelihood capitals, pension, insurance, representing fishers at Fisheries Management Committees, etc.], certain requirements need to be met.

- *Merge the two types of community organisations (Cooperatives and Rural Fisheries Organisations) to form one: which could ideally be the Fisheries Cooperative*
- *Recognize and empower Fisheries Cooperatives as the true representative of fishing communities*
- *FI division level cooperatives shall form district fisheries cooperatives, while the district level fisheries cooperatives shall rise up to provincial and national level federations*
- *In collaboration with the Department of Cooperative Development, provide for training of officials of fisheries cooperatives in resource conservation and management, financial management and principles of cooperation*
- *Channel all public assistance to fishing communities through fisheries cooperatives*

A summary of the all issues related to the ecosystem and the human system discussed above is presented in *Figure 11.4*.

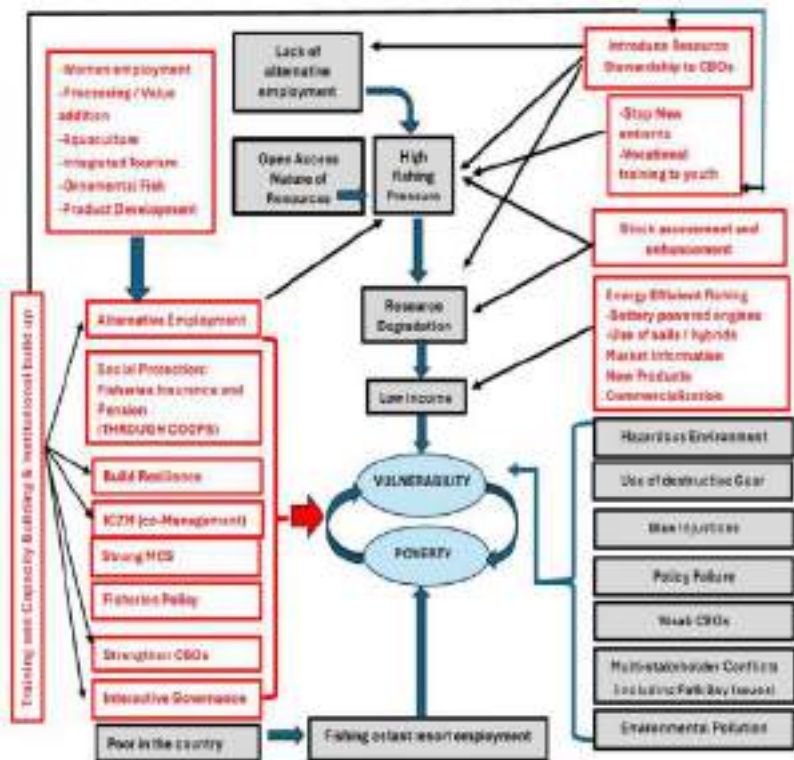


Figure 11.4. Addressing Issues in Small-Scale Fisheries

Issues related to small-scale fisheries, and the means of addressing them, that were explored in Chapters 1-10, are summarized in figure 11.5. The gray shaded boxes give the issues while the red boxes give the strategies proposed to address them. At the center of the figure, the open access nature of marine fisheries, increasing fishing pressure in a context of limited availability of alternative employment opportunities, and the resultant, resource degradation, low incomes and vulnerability and poverty in fishing communities are depicted. Adding to fishing poverty is the entrance of rural poor into fisheries, who become fishers because they are poor (gray boxes at the bottom). On the right (below)

are given the various external forces that further accentuate vulnerability of fishing populations, which include blue injustices, use of destructive gear, hazardous environment, weak community organisations, environmental pollution, multi-stakeholder conflicts in the coastal zone, policy failures etc. The red boxes on the left shows diverse means of assisting fishing communities in coping with vulnerability and poverty. An array of training, capacity building and institutional build up strategies are proposed (alternative employment, social protection, resilience building, ICZM, MCS, strengthening CBOs, fisheries policy, interactive governance, co-management, empowerment and employment opportunities for women, etc.). Red boxes on the right show means of coping with increasing fishing pressure, resource degradation and low incomes. Resource Stewardship by fishing communities, providing vocational education to youth (stopping further entry), stock assessment and enhancement, adopting energy efficient fishing practices, etc. are sited as means of addressing these issues.

It is expected that this analysis will provide valuable inputs to policy makers, planners, managers, researchers and students to understand the small scale fisheries sector (life above water), facilitating the achievement of ecological, economic and social sustainability in small-scale fisheries.

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Acknowledgements

The initial impetus for this book emerged from the first author's engagement with the World Bank in 2020, in planning the recovery of the fisheries sector from adverse impacts of the COVID-19 pandemic. This assignment resulted in a series of reports covering several thematic areas, which collectively laid the foundation for this volume. The authors gratefully acknowledge the World Bank for kindly granting permission to incorporate this material into a book intended to benefit all those committed to securing a sustainable small-scale fisheries sector.

We salute the Bay of Bengal Programme Inter-Governmental Organisation (BOBP-IGO) for agreeing to publish this work. We would particularly like to express our heartfelt gratitude to its Director, Dr. P. Krishnan, for his support, encouragement, and confidence in bringing this publication to fruition. Our deep appreciation is extended to Dr. S. Jayaraj, Publication Officer of BOBP-IGO, and his team. Their professionalism, patience, and meticulous attention to detail significantly enhanced the quality of this book. Above all, the sincerity that underpinned all our interactions made this collaboration especially meaningful. Their guidance and commitment have been truly invaluable.

We extend our sincere gratitude to Emeritus Professor Maarten Bavinck for generously devoting his valuable time to reading the manuscript, writing the Foreword and offering an insightful reflection for the back cover of this book.

We extend our thanks to the officials of the Ministry of Fisheries and the Department of Fisheries in Sri Lanka, as well as to other public and private organisations, for their cooperation and for providing data upon request. We also acknowledge the contributions of the many authors and fisheries researchers whose work has informed and enriched the chapters of this book.

Above all, we remain deeply indebted to small scale fishing communities for so graciously sharing the wealth of their experience with us. In fact, their lives and struggles form the very heart of this book and we earnestly hope that, echoing through every chapter, will be the enduring voices of those who fish not merely for a livelihood, but for life itself.

Oscar Amarasinghe

Kaumi Piyasiri

01.04.2026

It is to the dynamics of marine fisheries in Sri Lanka that this book is devoted. The author, Oscar Amarasinghe, is exactly the right person to have taken up this task, as his professional life has been almost entirely dedicated to understanding the condition of marine fisheries in the country. Being the person he is, he has focused less on the fisheries taking place in larger harbor towns than on the rural sector, which consists largely of what are known as small-scale fisheries.....

Although Dr. Amarasinghe is an economist by training, his intellectual versatility and enthusiasm has taken him into the fields of legal pluralism and governance, where he has engaged with customary law and the multiple dimensions of rulemaking. This has allowed him to move beyond fisheries management as it is understood by scholars and officials to how it is practiced on the beaches....

Dr. Amarasinghe is the founder of the Sri Lanka Forum for Small Scale Fisheries (SLFSSF) and an instigator of the SSF Guidelines in Sri Lanka. The second author, Ms. Kaumi Piyasiri, is a member of the executive committee of SLFSSF, and a fisheries scholar in her own right.

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ISBN: 978-81-998571-8-6



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