SOCIAL PROTECTION FOR FISHWORKERS:
AN ASSESSMENT AND SUGGESTIONS FOR REFORM
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REPORT OF THE WORKING GROUP






JANUARY 2022

Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control

Universal Declaration of Human Rights, Article 25(1), (United Nations 1948)

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Allah telah memberkati kita dengan ikan di laut. Jika kita menjaga sumber daya itu, bantuan atau perlindungan apa lagi yang dibutuhkan?

Shaifuddin, Desa Patek, Provinsi Aceh, Indonesia, (2007)

Allah has blessed us with fish in the sea.

If we take care of that resource what more help or protection is needed?

Shaifuddin, Patek Village, Aceh Province, Indonesia, (2007)

*

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.

Para 6.3 FAO/UN Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication

FISHWORKERS OF KERALA: WHY ARE THEY ENTITLED TO SOCIAL PROTECTION?

Marine fish is perhaps the most economically and culturally important renewable resource which Kerala State possesses. If harvested sustainably and cared for diligently, this is a gift of nature which will be available to the people of the state in perpetuity.

RESOURCE ABUNDANCE: According to experts we are blessed with the possibility of harvesting 5-6 lakh tonnes of fish from our seas – about 150 kilograms of fish per year for every citizen of our state!

RESOURCE UBIQUITY, OCCUPATIONAL INVISIBILITY: The people of Kerala are among the biggest consumers of marine fish in mainland India. Consumption cuts across socio-economic, cultural and religious identities. Fish is integral to the everyday discourse of people in Kerala. Consumers who live along the coastal belt may have an idea of where the fish they eat comes from. The other consumers take the availability of fish on their plates as an accepted and given part of their diet. They give little thought about how it got there. Unlike the scenes of farmers harvesting paddy or vegetables, the manner in which fish is hooked or netted is little known outside the fishing community.

DECENTRALISED SPATIAL SPREAD: The marine fishing community of the state is spread out across the 590 km coastline, residing in 222 villages. That is one every 2.5 kms. The coast is the most densely populated part of Kerala. If all the members of the marine fishing community of Kerala – a population of approximately 804,000 -- stand out on their beach and lock their hands together, they can comfortably form a protective human chain across the whole coast.

RISKIEST LIVELIHOOD: The active fishers who harvest the fish from the sea every day undertake a very risky adventure. According to recent estimates for Kerala, once in 6 days, a fisherman loses his life in pursuit of his livelihood which provides fish to Kerala's consumers! It is by far the riskiest livelihood pursuit in Kerala.

CREATING VIBRANT MARKETS: Once fish is landed, because it is such a highly perishable commodity that consumers prefer to get in its fresh form, a large network of women and men – allied fishworkers – are involved in a variety of quick and efficiently performed activities, which deliver fish to all the corners of the state. Not only does fish reach every nook and corner of the state, it also forms an important export commodity which earns the country a substantial sum in foreign exchange. In 2020, the export value of marine products harvested from Kerala – about Rs 4000 crore -- was as much as the amount contributed by the fisheries and aquaculture sector to the gross state value added (GSVA) that year.

UNSUNG GUARDIANS: Apart from these rather obvious contributions, the marine fishing community also act as protectors and promoters of our coastline. If beach tourism is to remain an important economic activity in the state, it requires not just bright sunlight and sandy beaches. Tourists also want to see the sight of colourful fishing boats and the unique visual experience of a brisk and boisterous auction of fish on the beach. And with the changing climate scenario of the state, it is marine fishers who are the first harbingers, responders and first victims to these increasingly unpredictable events which bring storms and rain. And let us not forget both the horrors of Cyclone Ockhi which the fishers experienced and the totally selfless role they played in the unprecedented rescue operations of marooned citizens during the unprecedented floods of 2018.

The registered marine fishers and the allied workers together account for 230,000 persons. They form a small but important 1.5 percent of the labouring population of the state.

They harvest a safe and nourishing food item from the sea; generate a substantial amount of employment on land by creating a network to efficiently distribute fish; contribute to the country's foreign exchange and potential tourism revenues, and act as beacons of our seas. This makes fishworkers, a valuable human, economic and culturally important segment of our society. Their contribution is too precious to be weakened by inadequate social protection.

[This statement was written on the prompting of the two representatives of the fisheries sector on the Working Group]

WORKING GROUP MEMBERS

MEMBERS

Dr. C Ramachandran, Principal Scientist, SEETT Division, CMFRI, Cochin

Dr. Daisy Kappen, Professor, Director of Extension, KUFOS, Kochi

Mr. V M Shoukath, Kerala Karsahaka Sangham, Malapuram

Dr. A Suresh, Principal Scientist Extension information & Statistics, CIFT, Kochi

Dr. M K Anil, Principal Scientist, CMFRI, Trivandrum

Ms. Smitha R. Nair, Joint Director, Department of Fisheries, Trivandrum

Ms. C R Satyavathi, Retired Additional Director of Fisheries, Kochi

Mr. P P Chitharanjan, MLA and Former Chairman, Matsyafed

Mr Antony Kurishinkal, Member, State Committee, Kerala Swatantra Matsya Thozhilali Federation

Mr. V Vivekanandan, Former CEO, South Indian Federation of Fishermen Societies (SIFFS)

Mr. Joseph Xavier Kalapurackal, General Secretary, All Kerala Fishing Boat Operators' Association

CHAIRPERSON

Dr. John Kurien, Visiting Professor, Azim Premji University, Bengaluru

DRAFTING COMMITTEE

Members

Dr. C Ramachandran, Principal Scientist, SEETT Division, CMFRI, Cochin

Dr. A. Suresh, Principal Scientist Extension information & Statistics, CIFT, Kochi

Ms. Smitha R. Nair, Joint Director, Department of Fisheries, Trivandrum

Coordinator

Dr. John Kurien, Visiting Professor, Azim Premji University, Bengaluru

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1. INTRODUCTION

The United Nations Universal Declaration of Human Rights starts from the idea that all human beings are born free and equal in status and rights.

All of us need to work towards a situation in which everyone knows their rights and can advocate for them and the authorities know their human rights obligations and can implement them.

Social protection is clearly defined in ILO conventions and UN instruments as a basic human right.

Social protection is a broad term which consists of social security, social assistance and welfare programmes. However, for some -- like International Labour Organization -- social security and social protection are synonyms. Without entering into any semantical discourse, it is important to make sure that these programmes – some alleviating poverty and vulnerability, some to help preventing it -- are all available, accessible, to all who need protection, leaving no one behind.

However, only a small proportion of the people on our planet enjoy tangible social security and protection measures. Universalising social protection is a dream which all societies are striving to make a reality, but with varying degrees of success.

All social protection need not be state-led and controlled. It can be state-facilitated. Yet it can give autonomy to communities and groups to take collective action on their own, at their own pace, based on social customs and norms, and learning from their own mistakes and obtaining enthusiasm from their successes.

True empowerment comes only through such lived experiences. Such an approach will ensure that people view themselves as responsible citizens with rights and responsibilities, rather than as passive beneficiaries who expect doles as entitlements.

Moreover, social protection is not just a cost weighing on public budgets. It needs to be viewed as an investment that benefits societies over generations. This is achieved by providing protection against occupational risks, natural hazards and temporary deprivation; by assisting in old age; by helping to increase education levels, improving food security and health; by assisting in measures to enhance people's capabilities; and by enacting policies which address inequality and foster greater inclusion.

Social protection also yields economic benefits for local economies and can become a steppingstone to move towards more equal and resilient societies. Social protection, for those who labour to produce the resources and services of society, is about meeting their convivial aspirations from labour and work.

The global Covid-19 pandemic has amply illustrated why social protection at all levels of society must be integrated into our thinking and actions. The year 2020 saw a global growth in extreme poverty from 119 million to 124 million – the first such increase in over 21 years.[1]

We are confronted with the paradox of billionaires increasing their wealth by 3.9 trillion dollars and labour income loss of 3.3 trillion dollars – both in the same period between March and December 2020[2]. This points to the need for devising ways and means by which wealth generated in society, by the use of natural resources and human labour, can be redistributed in a fairer manner. Enhanced,

[1] World Bank, Global Economic Prospects, June 2021

[2] UN Secretary-General's Policy Brief "*Investing in Jobs and Social Protection for Poverty Eradication and a Sustainable Recovery* "of 28 September 2021

integrated and more inclusive social protection is just one of the mechanisms in the hands of state and society to achieve this goal.

The Essence of Social Protection

When nation states initially set out on their respective development journeys, many pathways were envisioned for achieving the visions of holistic, humane and inclusive development for all their citizens.

However, good intentions alone were not adequate to realise this objective. The possibility of equitable and adequate opportunities of supporting creative livelihoods and providing wholesome employment for the whole working and labouring population was never realised.

In all societies, eventualities in the human condition which led to insecurities like illness, accidents, natural disasters leading to loss of life and property, loss of employment, maladies of old age and so forth increased. The tempo, the nature of economic activity and the economic system in countries was often inadequate to create sufficient economic surplus to finance measures needed to alleviate these circumstances.

The result was that creative ways of tiding over such circumstances had to be devised and woven into the financial structures of the nation state. The surpluses generated from trade in natural resources, contributions by the working population, taxes from the wealthy and from sale of commodities and several other sources of current revenues were generated to cater to the needs of social protection for individuals and communities in order to lead a basic human life with dignity.

We may then surmise that social protection is achieved when deprivation or vulnerability is reduced or removed as a result of using social means, thereby, in the process, making lives and livelihood more secure.

These social means adopted are also termed as 'public action' and include measures taken at the level of the State, the community or the family. As Dreze and Sen (1991:28) point out, public action refers not only to what is *done for* a family, community or the population by the State. It also includes what is *done by* the family or the community for itself.

It is important, at the very outset, to emphasise that achieving social protection is not merely an issue of transfer of resources from the coffers of the State to those who experience various forms of insecurity.

At the heart of it, social protection is also about the ethical commitment and responsibility for collective caring and sharing – a dimension which tends to disappear as we increasingly lay stress on the albeit important financial, organizational and socio-political aspects of the matter.

In the final analysis, a truly socially secure society is not just one in which deprivation and vulnerability cease to exist as a result of properly engineered mechanisms and genuine people's participation to ensure this. A socially secure society is also one in which there exists a context of geniality linked with a commitment to mutual happiness, trust and love among all its members, irrespective of their differing occupational, economic, social, cultural or religious identities.

Social Protection Strategies

Social protection measures can take different meanings depending on the context in which they are implemented. In developed countries, economic insecurity is a phenomenon driven by contingent poverty. This is caused by the temporary interruption or loss of earning power as a result of social causes such as unemployment, life-cycle factors like childbearing or old age, and biological causes such as sickness or disability. Therefore, the social security measures designed, largely by the State, take the form of social insurance schemes, aiming at evening out the earnings during these periods of income disruption.

Moreover, given that in these countries a large proportion of the workforce is involved in regular salaried employment, these schemes can be rather cost effectively implemented through mechanisms like payroll deductions and taxes.

In developing countries, on the other hand, economic insecurity is largely a consequence of massive, widespread and chronic poverty and other forms of vulnerability. Most of the working population is self-employed or work in agriculture and related occupations like fishing, and in informal and unorganized work contexts.

Relieving poverty in these conditions entails both upgrading the levels of income and reducing the variability in incomes. It is also important to note that the involvement of the State in making effective social security programmes that have a wide coverage is very low. This is primarily due to the overall resource constraints, the low level of institutional development for social security provision, and very importantly, the inadequate awareness and demand from the people for such protective measures. Basic development of the economy and increasing awareness on the rights of the citizens for a decent life is critical in emergence of demand for social protection.

In these countries, social security needs to be viewed as “the prevention, by social means, of very low standards of living irrespective of whether these are the result of chronic deprivation or temporary adversity” (Burgess and Stern, 1991). This is a tall order and undoubtedly only a menu of measures for income support and income maintenance can achieve this.

The urgency to undertake social protection measures in developing countries can also be seen as an expression of the failure of conventional strategy of economic development processes in a market economy. The staunch belief in the trickle-down hypothesis, a fundamental assumption of that strategy, was that vulnerability and deprivation would be removed as a consequence of the general development of the economy. Incomes were supposed to rise; a demographic transition would slow population growth; and more of the workforce would move into the organized sector through processes like industrialisation and modernisation. The net result was there would be greater security.

The above approach has been referred to as the strategy for ‘growth-mediated security’ (Dreze and Sen, 1991). However, such outcomes did not materialise. Economic growth often benefited the few.

The non-achievement of these hopes, despite numerous decades of planned economic activity and market functioning, has provided an important motivational element, leading to greater awareness among people about their low standards of living and their fundamental rights for social protection. This has led governments in developing countries to consider more direct social means to secure life and livelihood. These actions have been referred to as the strategy for ‘support-led security’. (Dreze and Sen 1991)

Social protection measures are therefore required in themselves because a growth mediated strategy does not necessarily result in security for all. Persistent deprivation continues to be experienced worldwide.

That economic growth, and the maldistributed opulence resulting from this, cannot adequately address these issues have been proved beyond doubt. This is even the experience of many developed countries as evident from the Covid-19 pandemic.

Given the inevitability of social protection measures in any type of economy, these measures have been broadly differentiated into:

1. **Protective** measures to guarantee relief from deprivation. (e.g. insurance, pension)
2. **Preventive** measures to avert deprivation in various ways. (e.g. food aid, social insurance, medical assistance)
3. **Promotive** measures to enhance capabilities and build/strengthen resilience. (e.g. housing, education, credit)
4. **Transformative** measures to pursue policies to address power imbalances in society as well as to secure access and use of resources (e.g. supporting legislations, resource management)

Social Protection and Fishing Communities

In small-scale, artisanal, fishing communities in developing countries, the task of earning a livelihood can be a risky and tenuous business. However, the perpetual harvest of the plentifully available renewable fishery resources in the near-shore tropical seas hugely compensates for this risk. If this resource is cared for, and if the fishers can get a fair return for the produce of their hard labour, then they can lead a good, decent and dignified life.

An individual fisher's income is usually a share of the total earnings of an enterprise on any given day or fishing trip. What accrues to a fisherman would depend, in large measure, on his contribution to the labour of the specific fishing trip and to his overall share, if at all, in the capital of the enterprise. (See Appendix K for two examples of how shares are calculated)

This method of earning, and the fact that the harvest from the sea is a fluctuating fortune with prices of first sale by no means predictable, results in fluctuating daily incomes. These can be well below daily subsistence requirements or sometimes yield windfalls that are excessively out of comparison with a reasonable minimum. Despite this, mean incomes can be low and the standards of livelihood can leave much to be desired.

It is reasonable to conjecture that the above objective conditions of earning a livelihood have accounted for several neighbourhood and community-created income-spreading, income-transfer, insurance and redistribution mechanisms.

A good example is the 'karanila system' which operated in Alleppy. This helped to spread the income from a fishing trip to a wide array of participants who contributed to its capital and labour requirements. (Kurien and Vijayan 1995) These can be counted to form traditional social security measures. (See Firth, 1966; Platteau and Abraham, 1987; Amarasinghe, 1989).[3]

[3] Existence of community mediated social security measures to mitigate income risks of various types are reported to exist in Indian villages, particularly with respect to collection of resources from common properties (Jodha, 1986; 1987).

Sometimes, these private transfers of income, as when a fisherman with income from a bumper catch lends money to a friend, may be the outcome of self-interested individuals or households in a risky environment using current generosity to ensure future reciprocity.

At other times, these transfers are beyond the realm of narrow self-interest. Consider for example, when fish is distributed to widows and the disabled in the community before any of it is sold (Kurien, 2000). In the 1990s, it was been pointed out that certain community resource rejuvenation measures, such as setting up of artificial reefs in coastal waters, also had a conscious element of community social security provision. These reef structures, being closer to shore made them easily accessible to the older fishermen and formed a "living pension fund" (Kurien, 2000). These examples point to ethically well-instituted processes of community-driven arrangement of reciprocity and caring characteristics of a healthy society.

The modern fisheries development process has led to greater levels of commercialisation of the fish economy. Globally fish has emerged as a commodity to earn money through creation of value, rather than as a mean of livelihood and food security. The new opportunities have paved influx of capital into fishing in the form of advanced craft and gear. The greatest impulse for this has come from the export orientation given to fish and fishery products. The quantum of fish traded outside the community as a proportion of the harvest has risen rapidly. The new income was important to meet the new costs associated with the altered technology and other investments needed to match expanding market opportunities. The new investments have come from the economically well-to-do members of the community as well as from those outside the community. This however also contributed to a decline of the levels of caring and sharing which had once characterised the low-level economic equilibrium of these communities. Many of the traditional, community-conceived safety nets have become casualties of this process of commercialisation. Global competition for fish resources have promoted policies in nation states which were intended to enhance the catch, increase its value and earn foreign exchange.

In most developing countries, no modern social security measures have taken the place of these traditional customary caring practices which existed. Consequently, the new context that confronts many fishing communities in developing countries is the juxtaposition of rich fishery resources, contributing huge amounts of foreign exchange to national coffers, with poor and vulnerable fishworkers that labour to provide it. The structure of the fishing industry today favours disproportionate accumulation of wealth by the merchant capitalists, and a low share for labour in the total value added.

The traditional fishing which existed in the developing tropical water countries consisted of small fishing craft operating out of fishing villages spatial spread-out all along the coastline. These craft used nets which were suited to harvest fish according to the season.

When developing countries adopted 'modern' fisheries development in the early 1950s and into the 1960s, they copied what existed in the developed temperate water fishing nations. The emphasis was on large scale of vessels, using one type of gear (example the trawl net) and fishing around the year from centralised fishing ports.

The policy makers assumed that the 'modern' would slowly replace the 'traditional' and therefore sought to merely ignore the latter. However, in reality, a technological and socio-economic dualism developed in the fishery sector of most developing countries. However, even after many decades, the traditional small-scale sector continued to be the invisible backbone of the marine fishery.

Globally the small-scale sector (now mostly in the developing countries) still accounts for 50 percent of the global fish output and accounts for 90 percent of the employment in the fishery, of which half are women.

In 2014 the FAO/UN, confronted with the above reality, and challenged with the coordinated collective action by small-scale fisher associations worldwide, adopted the Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication (the SSF Guidelines). The SSF Guidelines takes a broader and more integrated approach by situating fisheries in the context of the larger development process of the economy of the respective countries. The SSF Guidelines has three parts and 100 paragraphs of which one-fifth deal with social development, employment and decent work of fishworkers. The SSF Guidelines are an excellent basis for viewing social protection from a human rights perspective and as a charter for setting standards.[4]

Box 1: Social Protection for Fishworkers and Achieving Sustainable Development Goals (SDGs)

There are 6 SDGs that warrant close attention to achieving social protection for fishworkers. These are:

Goal 1: Poverty
1.3 Implement nationally appropriate social protections systems and measures for all including floors and by 2030 achieve substantial coverage of the poor and vulnerable.

Goal 3: Health
3.8 Achieve universal health coverage (UHC), including financial risk protection, access to quality essential health care services, and access to safe, effective, quality, and affordable essential medicines and vaccines for all

Goal 8: Decent Work
8.b By 2020 develop and operationalize a global strategy for youth employment and implement the ILO Global Jobs Pact

Addressing poverty, health and decent work through social protection measures to reduce vulnerability must become central concerns for all states and agencies dealing with social protection.

Other than the above, there are at least two more important SDGs which have a bearing on social protection in the context of fisheries

Goal 13: Climate Change
13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters
13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning

The impact of climate change on fishing communities deserves close and heightened attention as its impacts – in the form of sea level rise, storm surges, cyclones and other extreme events – have consequences, importantly for their regular occupation and their coastal housing.

Goal 14: Life Below Water
14.2 Sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and act for their restoration in order to achieve healthy and productive oceans
14.4 Effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics
14.9 Provide access for small-scale artisanal fishers to marine resources and markets

[4] Mr. V. Dinakaran, Former Chairperson of Matsyafed rightly referred to the SSF Guidelines as the "Magna Carta of small-scale fisheries"

Box 2: Main barriers of access to social protection faced by fisheries-dependent communities

- **Legal barriers:** Lack of formal integration of the fisheries sector in labour and social security legislation.
- **Financial barriers:** Limited contributory capacity due to an irregular and unpredictable income, including the cost of affiliation to and compliance with social security schemes.
- **Institutional and administrative barriers:** Some governments have low administrative capacities and heavy procedures. These constraints are even more severe in the fisheries sector due to a low level of registration and pervasive informality.
- **Geographic barriers:** The geographic accessibility of social services in rural settings may be limited.
- **Cultural barriers:** Lack of trust in social security systems or the perception that benefits are not relevant.
- **Political barriers:** Reluctance to expand social protection schemes due to political decisions and perceptions, especially concerning small-scale fishers.

Source: *Allieu, A.M. & Ocampo, A. 2019. On the path to universal coverage for rural populations: removing barriers of access to social protection*. Rome, FAO.
(also available at http:// www.fao.org/3/ca7246en/ca7246en.pdf).

Social Protection of Fishworkers in Kerala: Brief History

The situation which faced fishing communities in Kerala in the 1980s was akin to what existed in most developing countries.

Despite the progressive politics of Kerala, fishing communities had poor human development achievements. Despite all the fisheries development schemes undertaken by the Department of Fisheries and the Kerala Fishermen Welfare Corporation,[5] as of 1980, the objective situation of the fishing communities – particularly in the south and the northern marine districts – marked them as 'outliers' of the famed Kerala Model of development (Kurien, 1995)

But, pressured beyond a point, their situation spurred strident collective public action from 1983. The state was forced to concede and to rectify the dismal situation of poor social development. Budget priorities were changed, new organisational arrangements for fish marketing were put in place, protective, preventive and promotional social security measures were initiated. (Sinha 2002, Kurien and Achari, 1990)

Post-1984

The Kerala State Cooperative Federation for Fisheries Development Ltd (hereafter Matsyafed) instituted in 1984, and the Kerala Fishermen's Welfare Fund Board (KFWFB) Act (hereafter Matsyaboard) of 1985 were the important initiatives by the state which immediately resulted in enhanced and more diverse forms of economic and social security support to the traditional, small-scale fishing community. Both these measures created important beginnings in altering the outlier status of the fishing communities.

Kerala was the first state government in the country to formulate a well thought out Fisheries Development and Management Policy (GOK-1993). This policy was adopted by the Government of Kerala in 1993.

[5] Between 1964 and 1985 these included: housing, sanitation and health, applied nutrition programs, education and training, especially the fisheries schools, working capital subsidies, transport services for women vendors, equipment insurance and life insurance (Kurien & Paul 2000, pg 51-55)

The Policy had many sections which were directed towards aspects of livelihood and social security of the fishing community. These included:

- Commitment to raise socio-economic status of fishers by focusing on fishery and social infrastructure at the decentralised village-level
- Extending a call for aquarian reform legislation in the territorial waters giving rights of ownership of fishing assets only to those who fish.
- Ensuring proper coordination of all government institutional set-ups related to fisheries
- Emphasis on raising the level of skills and productivity of the fishers by imparting appropriate education, training and transfer of knowledge as well as provision of alterative employment.
- Recognition of the crucial role of credit and the need to enhance its institutional availability.
- Call for the right of first sale to be legally ensured to the fish harvester and the need for a market regulation act to protect the consumers.
- Resolve for fisherfolk participation in co-management of resources and the need to revamp co-cooperativization as well as its stress on the central role of women in the fish economy.

Further, during the preparatory phase of the Ninth Five Year Plan (1997-2002) a Task Force to suggest measures to support more “Livelihood Secure Fishing Communities” was constituted. (Govt of Kerala, 1997) This Task Force was composed of men and women representatives of various fishworker organisations, civil society organisations, trade union leaders, academicians and the chairpersons of Matsyafed and the Matsyaboard.

Due to the paucity of current data at that time, with the assistance of the Matsyafed, a rapid appraisal survey was conducted for the Task Force covering demography, housing, water and sanitation, health, education, role of women, community representation in local bodies, accidents at sea, cultural and social facilities, credit and indebtedness and fish marketing.

The Task Force Report also contained an alternative vision for coastal village housing and sanitation which was contributed by experts in the field.

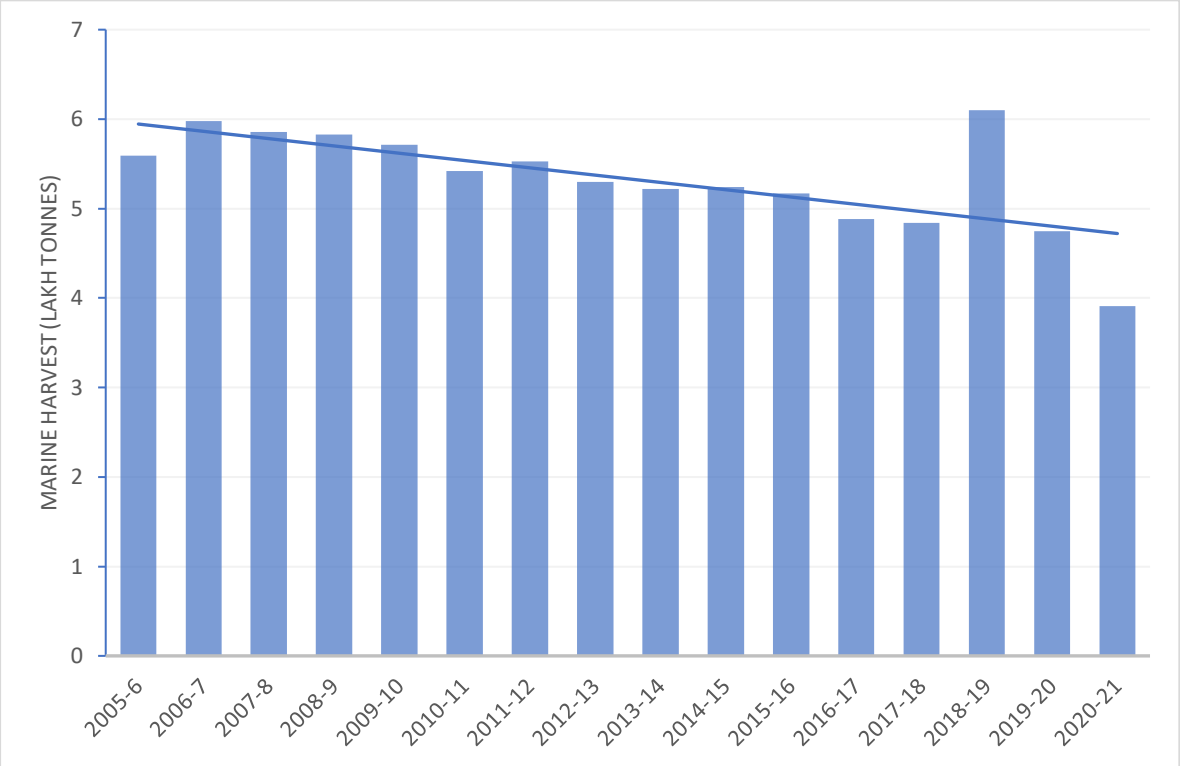
The social protection measures which were initiated by the state in the mid-1980s did make an important contribution to their overall development until 2000. (Kurien & Paul 2000,)

Assessments of the human development progress among fishing communities have been conducted since then and the general verdict was that there was significant progress, though a lot more could be done. (Shyjan 2009)

Post-2005

In the post-2005 period, the marine fishery in Kerala has been evolving towards unsustainability.[6] An extreme event which affected the marine fisheries fringing the Bay of Bengal was the 2004 tsunami. Kerala, though on the Arabian Sea did experience some of the tsunami environmental and social impacts. A plethora of relief funds poured in through the state and civil society organisations. Rather than investing in any serious social protection measures, these funds created a new vigour in fishing investments in the traditional small-scale sector. Ring seines, plywood boats, higher HP OBMs provided the possibility to fish more intensively and move into the deeper waters. Despite this – or perhaps because of this -- the secular trend in fish harvests have been downwards thereafter. (See Figure :1)

Figure 1: Trends in the Marine Fish Harvest of Kerala State (2005-2021)



This secular decline is despite the massive increase in investments and changes in technology which has spread uniformly across the coast. The investment costs and the running costs of every fishing enterprise in Kerala has increased. The indebtedness of the fishers has increased. The risks associated with fishing has escalated due to climatic change and other aspects such as the stone-walling of the coast due to erosion, The latter has led to more centralisation of the fishery.

Despite what would seem a grim scenario, the income of the fishers on average, though it is only about 50 percent of the state per capita income, has not declined. (See Table 1) Extreme poverty, which was the distinguishing feature of the marine fishers in the 1980s, has been substantially erased.

[6] See Kurien 2005

This is due to the combination of phenomenal rise in fish prices (MARKET), the support in the form of various measures of social protection and organisational arrangements (STATE) and the increased awareness and collective action among them (COMMUNITY).

Table 1: State and Fisheries Sector Product and Per Capita Incomes (At 2011-12 prices)

		2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
1	Kerala State Domestic Product (SDP) (Rs. Lakh)	46504121	51256405	56199361	63488640	70157738	78165326	73630119
2	Per Cap (Rs) (1/3)	137515	150824	164554	184979	203396	225484	211343*
3	Kerala Pop (Lakh) (1/2)	338.17	339.84	341.53	343.22	344.93	346.66	348.39*
4	Fisheries Sector Product (FSP) (Rs Lakh)	622837	704319	834359	973424	1119044	1147323	1073610
5	FSP/ Fisher Rs (4/6)	61473	69183	71908	94610	108224	110407	102800*
6	Fisher Pop (4/5)	101319	101805	???	102888	103401	103918	104437*
7	FSP/SDP (4/1)	1.34	1.37	1.48	1.53	1.60	1.47	1.46
8	FSP/head as % of SDP/head (5/2)	***44.7***	***45.9***	***43.7***	***51.1***	***53.2***	***49.0***	***48.6***

Source: Department of Fisheries (provided by DD Fisheries) - Demand Day Document Table 1 for Row 1,2,4 and 5 (*corrections made for 2019-20).

Vulnerability, not Income, is the Prime Issue

The prime issue facing marine fishers and coastal fishing communities is their increasing vulnerability. They face five types of vulnerability: **environmental vulnerability**, **physical vulnerability, occupational vulnerability, economic vulnerability, and continued social vulnerability.**

The most important reason for environmental, physical and occupational vulnerability is due to the increased unpredictability of the sea and climate, the marginalisation of their habitats on coastal land due to coastal erosion and the unpredictability of occupational prospects due to the rapidly changing impacts of climate change.

The economic vulnerability is due to the continued hold on their lives by those who control the sale of their fish. The continued social vulnerability is a cumulative effect of the other mentioned dimensions of vulnerability clubbed with their historical status as an 'outlier' community.

Addressing vulnerability will require providing social protection measures tailor-made to the manifestations of vulnerability. Such actions will provide them the confidence, bolster their resilience and enhance their trust in the state.

However, for the prosperity of the community, they will need to squarely situate their future actions, of relating to the fishery resource and marine environment, in the triad of COMMUNITY-MARKET-STATE.

The community will always be their **anchor.** The community provides the stability, the autonomy and the resilience. The market is the **engine, oar or sail**. The market motivates and provides the drive to take the wise actions in fishing and negotiate the risks. The state is the **rudder.** The state indicates the direction and facilitates the framework within which they labour.

Social protection must be situated within this community-market-state triad. That is the only way it can become adequate, appropriate and a source of sustained assurance of people's aspirations from work. (See Figure 2)

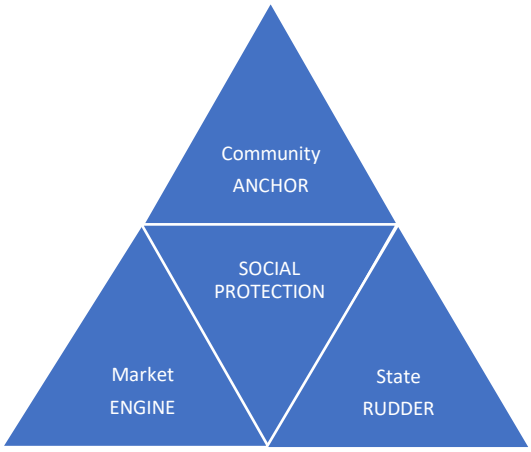


Figure 2: The Triad of Community-Market-State and Social Protection

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Between 2000 and 2020, there have only been sporadic and patchy assessments of certain specific elements of the social protection package. The journalistic coverage on the plight of coastal communities and marine fishers picked up after the Cyclone Ockhi in 2017 and there was a quantum leap in coverage when the self-less role played by the fishworkers in the rescue of the 2018 flood victims came to public notice. Coastal issues and marine fisherfolk became more mainstream in the eyes of the general public. Social media networks initiated within the community have also helped to highlight issues such has coastal erosion caused both by coastal structures and the real, visible consequences of climate change, brought the need for safe and secure coastal housing to the forefront.

Covid-19 dominated the coverage and the concerns about the need for greater interventions in the realms of public health and the efficiency of the public distribution system in the coastal areas. The high density of the coastal habitat and the potential for this to become a Covid time-bomb became a source of anxiety for all. However, finally, none of these predictions came true. The reasons for this have not been analysed, and given the continued incidence of Covid-19 in Kerala, but with a negligible contribution from the coast, the factors which account for great Covid-resilience on the coast may be worthy of investigation.

Task of this Working Group

It is against this background that as part of the preparations for the 14th Five Year Plan the Kerala State Planning Board has constituted a Working Group to study Social Protection for Fishworkers: An Assessment and Suggestions for Reform.

The Terms of Reference of the Working Group are given below:

1. To document and assess the status of social protection for fishworkers in Kerala over the past decades.
2. To identify gaps in the existing system of social protection for fishworkers and suggest remedial measures
3. To suggest measures to reduce the dependence of fish workers on private money lending.
4. To suggest necessary infrastructural and administrative changes required to improve the status of social protection for fishworkers
5. To prepare a vision for social protection for fishworkers over the next decade taking into consideration the changing developmental needs and the growth of the fisheries sector.

To prepare this Report the Working Group met online on one occasion and held two hybrid meetings with some members participating physically at Trivandrum and Kochi. The individual members submitted notes based on the Terms of Reference and also held many one-to-one discussions with the Chairperson over the phone and also passed messages and data by WhatsApp and email.

The Chairperson also held meetings with a group of fish vendors and also met with fishers on the coast of Alappuzha and a group of fishworkers in Kozhikode. The Chairperson also held phone conversations with fishworkers from Marianad of Trivandrum and fisher members of the Fishermen's Welfare Society (FWS) of Kollam. FWS also provided data of the fish sales and other governance details. The Chairperson also had phone conversations with former staff of Matsyafed; a few teachers of the Fishery Schools; an architect who has done considerable work in coastal areas; and some of the current officers of the Department of Fisheries and the MatsyaBoard to get information and obtain clarifications.

The members of the Working Group also agreed with the draft of perspectives and concerns which were presented to the Minister of Fisheries on the 1st October 2021. These points along with some requests from the Minister, form the structure of the draft of the Report.

A drafting committee composed of three members of the Working Group to assist the Chair was formed. They included Dr. C. Ramachandran, Dr. A. Suresh and Ms. Smitha Nair. Separately drafted portions of the draft report were circulated to the drafting committee (and to relevant members who may have been more closely involved with the subject under discussion) for their comments.

At the request of the Chairperson, published data on the social protection schemes of the MatsyaBoard, and data on other aspects relating to the report, was always provided by Ms. Smitha Nair in the most efficient and timely manner.

The consolidation of the data of the MatsyaBoard was undertaken by Mr. Sabin K.K from Kozhikode.

Structure of the Report

The Introductory chapter above was intended to provide **a larger backdrop to the issue of social protection** and to provide the overarching perspective for the approach to social protection needed in Kerala for its fishing communities.

The second chapter will attempt to **make an assessment of the social protection measures which have been undertaken so far, primarily focussing on the functioning of the Matsyaboard** with regard to its sources and uses of funds for the protection of the fishworkers of Kerala. The precarious situation in which Matsyaboard currently finds itself today – due to legal challenges -- is addressed here. Some suggestions for possible new sources of contributions are also examined. A radically different approach to establish the inter-dependence between fishers and dealers of fish is provided.

The third chapter enters into **a crucial debate which took place in the Working Group – that of defining who are the fishworkers of Kerala**. The changing circumstances in the marine fishery and the evolving composition of the work force in the various activities of the fishery, warrants a detailed elaboration which argues for a special and differentiated treatment of the fishworkers from the traditional fishing communities of the state. An attempt is made in this chapter.

The fourth chapter enters the discussion on **why responsible fishing of the marine resource is the bedrock of social protection.** Only a vibrant and sustainable resource can yield the surplus in the fish economy to finance both resource and social protection. Currently the marine fish harvesting patterns are unsustainable. The chapter attempts to provide the evidence for this and offers some specific suggestions which can contribute to more sustainable fishing, income enhancement and ensure greater scope for social protection.

The fifth chapter is **about the issue of sea safety**, the ways to ensure that fishers are provided with good and timely weather information and how their role in monitoring the sea and exchanging information can greatly reduce the risks of accidents and deaths. The chapter also discusses the issue of sea rescue and the measures which need to be taken with greater community participation to ensure quick action in the event of accidents at sea. The question of insurance of assets is addressed. The chapter also provides the important suggestion about the concept of parametric insurance. This is to provide income support caused by the frequent 'meteorological bans' on fishing.

The sixth **chapter examines the fast-emerging impact of climate change** and the bearing which it is having on the greater need to address the housing question and the ways and means of securing the coasts from erosion. It also provides the suggestion for a model village approach to coastal housing.

The seventh chapter focuses on the **crucial issue of credit, indebtedness and organisational support**. The need for transformational social protection is addressed here. Permanent indebtedness can only be solved by legal provisions which delink credit from the control over fish. In this chapter there is an extensive evaluation of the functioning of the key organisations in the sector – Matsyafed and Matsyabhavan.

Chapter eight is **about women's empowerment and decent work**. The key focus here is on what needs to be done to fish markets if women fish vendors are to be assured of dignified and decent work -- free of exploitation from those merchants and politicians who control markets.

The ninth chapter **deals with the continuous need for human capability development in the fishery sector.** Starting from the fishery schools to the fishery university this chapter examines what can/should be done to foster greater promotive social protection measures to enhance the quality of the capabilities of all sections of the fishery. The chapter examines forms of training, education and

support which can contribute towards the rising aspirations of the fishing communities and fishworkers.

The tenth chapter focuses on **the need for timely and better-quality data and information** for enhancing the quality of social protection delivery.

The report ends with a collation of the recommendations which are explicitly and implicitly made in the ten chapters and a key conclusion about the need to make carefully deliberated decisions about the future of social protection for fishworkers of Kerala State.

2. ASSESSMENT OF SOCIAL PROTECTION MEASURES SO FAR

In this Chapter the analysis of social protection provided to fishworkers is focused on the activities of the Kerala Fishermen Welfare Fund Board – KFWFB or MatsyaBoard. The KFWFB is not the only agency which provides social protection coverage to fishworkers of Kerala. Therefore, to that extent, the coverage in this chapter is limited and may not fully reflect all the benefits received by fishworkers in Kerala which can be subsumed under social protection measures.

The numerous social protection measures for fishworkers, which have been put in place over the years in Kerala State, is indeed impressive both for their diversity, scope and coverage.

Between 1964 (when data became available) and 1980 – a period of 16 years -- social protection measures covering housing, sanitation, health, education, training and insurance worth Rs 371 lakh were distributed. Between 1981 and 1985, with the formation of the Kerala Fishermen's Welfare Corporation the sums spent on social protection increased. For this period of 5 years the total disbursal was of the order of Rs 553 lakh.

It was the response of the state to the unrest among the fishers, and their sustained agitations (mentioned above), that resulted in the creation of Matsyafed and Matsyaboard. This then led to more focussed, diverse and elaborate social protection schemes between 1986 and 1998.

The major change was that social protection shifted from promotional measures to being protective. While Matsyafed continued with the earlier promotional measures and disbursed about Rs711 lakh during the period, the Matsyaboard placed emphasis on the protective measures and disbursed Rs 2789 lakh covering the realms of death and accident insurance, old age pensions, assistance to cover illnesses, fatal diseases, maternity care and funeral expenses, to mention a few. The Department of Fisheries during this period continued to administer the largest protective scheme. This was the saving-cum-relief scheme (an unemployment benefits scheme as it was disbursed during the lean fishing season) in which the fishworkers also made their own contribution and received a sum totalling Rs 3000 lakh in the period 1992-1998.

Putting these total disbursals of social protection measures in perspective would require that we assess them as average annual pay-out. By this measure, in 1964-1980 the annual amount was Rs 22 lakh; in 1981-85 it was Rs. 109 lakh and in 1986-1998 it rose to Rs. 782 lakh. Even taking a near 16-fold increase in inflation[7] during the entire period (1964-1998), the amount disbursed in the latter period (1986-98), was a near doubling in the social protection pay out.

Source of Contributions to the KFWFB Fund

Welfare funds in Kerala were conceived as tri-partite arrangements. State, employers and the concerned labouring section contributes to the respective fund. There are as many as 30 such welfare funds in Kerala.[8]

An elaborate assessment of the social protection measures in the marine fisheries sector of Kerala, undertaken in 1998 (Kurien and Paul 2000) shows that the record with regard to contributions to the Fund have been reasonably good, although it was the government which contributed the major share.

From 1986 until 1998 the total dues received from the state goernment, fishworkers and employers was Rs.3677 lakh[9] – government (71 %), fishworkers (18 %) and employers (11 %). Note that the

[7] The average annual inflation rate in this period was 8.5 percent.

[8] See Kannan 2003 for a review of all the welfare funds

[9] During this period (1986-1998) the MatsyaBoard disbursed Rs 2838 lakh as welfare payments.

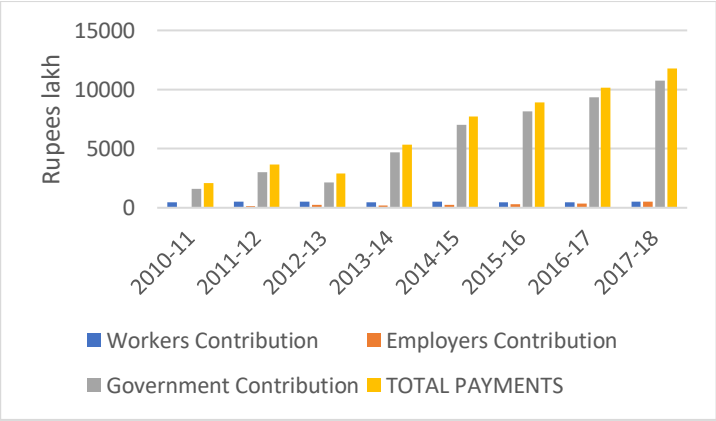
employers contributed less than the workers. The question of sustainability of a Fund, where the employers contribute less than the workers, was also pointed out during that assessment.

This situation has only worsened now. The workers continue to contribute more than the employers and the state bears the major burden for financing the difference between the social protection payments disbursed and the very merge contributions which the KFWFB is able to raise. (See Table 2 below which provides an analysis for the period 2010-2018)

Table 2: Workers, Employers and Government Contributions to Social Protection Payments
(Between 2010 – 2018 in Rs. Lakh current prices)

		Period A	Period B	C
	Parties Contributing	**2010-2015**	**2016-2018**	**Total (2010-18)**
1	Fishworkers	1333.93	794.56	**2128.49**
2	Traditional Craft Owner-workers	358.60	174.55	**533.15**
3	Allied Workers	748.78	478.42	**1227.20**
4	Mechanised Boat Owners	549.17	637.37	**1186.54**
5	Inboard Vessel Owners	162.84	148.71	**311.55**
6	Other State Vessel Owners (User fee)	71.01	391.61	**462.62**
7	Inland Fishing Net Owners	33.01	22.25	**55.26**
8	Fish Farm Owners	0.54	0.24	**0.78**
9	Prawn Farm Owners	NIL	NIL	NIL
10	Merchants	NIL	NIL	NIL
11	Exporters	NIL	NIL	NIL
12	**Total Contributions (Worker and Employers)**	**3257.88**	**2647.71**	**5905.59**
13	**Workers Contributions (Row 1+2+3)**	***2441.31 (11.2%)***	***1447.53 (4.7%)***	***3888.84 (7.4%)***
14	**Employers Contributions (Row 4 to 11)**	***816.57 (3.8%)***	***1200.18 (3.9%)***	***2016.75 (3.8%)***
15	**Government Contribution (Row 16 – [13+14])**	**18446.76 (85.0 %)**	**28222.40 (91.4%)**	**46669.16 (88.8%)**
16#	**Total Social Protection Payments**	**21704.64 (100%)**	**30870.11 (100%)**	**52574.75 (100%)**
	Source: Data for Row 1-13 from KFWFB and by Asst Commissioner KFWFB. Row 15 which is shown as "Government Contribution" is really the difference between the total social protection payments disbursed and the contributions collected by the KFWFB. This amount is assumed to be met from government funds. # Row 16 data is total payments made to beneficiaries. It is consolidated from the data provided by the KFWFB for the period 2008-2020. These payments are analysed in detail in the latter part of this Chapter.			

Figure 3: The Social Protection Contributions and Payments (2010-18) in current prices



Between 2010 and 2018, using data provided by the MatsyaBoard, the total annual collection of contributions to the Fund -- other than what is provided by the Government -- from different sources to be only Rs. 5905 lakh. Of this amount Rs 3888 (66 percent) was contributed by the labouring sections in the sector -- marine and inland fishers, fisher owner-workers and the allied workers in the processing and marketing. Owners of mechanised boats and fish farms owners, who employ fishers, contributed the remaining 34 percent. There were no collections from exporters and merchants, due to legal strictures (see discussion below). However, the reason for not making collections from prawn farm owners is not known. This is a very unfortunate situation, given the enormous incomes and profits which are generated in the fisheries sector -- particularly at the latter end of the value chain in the domestic wholesale markets and at the exporting end. (See below for estimates of the notional loss as a result the inability to collect contributions)

Brief History of Legal Strictures to Contributions

The exporters had initially, but very reluctantly, contributed Rs 210 lakh to the Fund between 1986 and 1996 (Kurien and Paul 2000). But they were always unhappy about paying 1 percent of their sales. There were initial negotiations about reducing the share of their contribution from 1 percent of their sales, as stated in the Kerala Fishermen Welfare Fund Act 1985 (hereafter Fund Act) to a mere 0.09 percent.

In 1997 they approached the High Court contesting the legality of the state extracting a contribution from them using the Fund Act. The High Court ruled in the favour of the state, and the exporters then appealed to the Supreme Court.

The Supreme Court appointed a constitutional bench of five judges to review the appeal in 2002.[10] The ruling of this bench was that the state is within its legal remit to impose an impost for the purpose of social security, social insurance and to deal with employment and unemployment under the Concurrent List (List III: 23). However, the bench was of the opinion that "*… the State cannot in an Act under Entry 23 of List III, place the burden of an impost by way of contribution for giving effect to the Act and the Scheme made thereunder for the social and social welfare of a section of society upon a person who is not a member of such section of society nor an employer of a person who is a member of such section of society. The burden of the impost may be placed only when there exists the*

[10] Koluthara Exports Ltd. v. State of Kerala -- 2002 KHC 142: 2002 (1) KLT 658: ILR 2002 (1) Ker. 453: 2002 (2) SCC459 : AIR 2002 SC 973 Case No : C. A. No. 12788 of 1996 Date : 01/02/2002

relationship of employer and employee between the contributor and the beneficiary of the provisions of the Act and the Scheme made thereunder." (Para 23 of verdict)

The Supreme Court also ruled that the "*contributions, already paid by persons falling under S.4(2), will not be liable to be refunded to the dealers-contributors by the Board."* (Para 24 of verdict)

By 1997 the exporters had already contributed Rs. 210 Lakh to the Fund.

To overcome this legal stricture, the state passed new legislation, what is legally termed a 'rectification enactment' called the Kerala Fishermen's and Allied Workers Welfare Cess Act, 2007[11] (Act No. 9 of 2007). The term 'exporter' is not mentioned in this Act. However, in the Ordinance which preceded the Act there was specific mention of 'exporting of fish', which was (strangely?) removed. The term used to include all those who buy fish was 'dealer' and the act of exporting was defined as *'bringing into the State or sending outside the State the fish (raw or processed)'*

The term dealer is defined in 2 (d) of the Act as:

2(d) "dealer" means any person who engages in the business of buying and selling of fish or processing fish or bringing into the State or sending outside the State the fish (raw or processed) or fish product or allied objects or equipment, and includes,

(i) a commission agent, a broker, auctioneer or any other mercantile agent by whatever name called, and

(ii) a non-resident dealer or an agent of a non-resident dealer or a branch of a firm or company or association situated outside the State:

The state had also not been consistent in the arguments in court about defining the impost. Is it a tax, levy or cess? Or is it a contribution to a fund for the welfare of fishermen?

Finally, the word chosen was cess and in the Kerala Fishermen's and Allied Workers Welfare Cess Act, 2007 (Act No. 9 of 2007) this is defined as:

3. Levy and Collection of Cess. *- (1) There shall be levied and collected a cess for the purpose of the Kerala Fishermen Welfare Fund Act, 1985 and the scheme thereunder, at one percent of the total sale proceeds of a dealer in a financial year.*
(2) The cess levied under sub-section (1) shall be collected from every dealer in such manner and at such time, as may be prescribed.
(3) The cess levied under sub- section (1) shall be in addition to any cess, duty or tax leviable on fish under any law for the time being in force.

This Act was also challenged by the exporters questioning the legislative competency of the state to make this Act. In 2018 the Hon'ble High Court vide judgment dated 28/05/2018 held that section 3(1), 3(2) and 3(3) of the Act are beyond legislative competency of the State and set aside the above provisions of the Act.

The state later filed an appeal in the High Court against the judgment in these cases under number 987/2019. On this appeal the High Court did not stay the Order. The case is still pending.

[11] It is not clear why the word Cess was chosen since a cess is a levy for a specific purpose for a specified time.

Currently, the Government cannot levy cess on anyone as the provisions of the Act 3(1), 3(2), 3(3) (mentioned above) have been repealed by the Court.

Beyond the Legal Strictures

The current stalemate seriously threatens the future viability of the Fund. The legal tangles have also dampened the enthusiasm of the officers of the Fund to make any serious efforts to assess the dues to the Fund from sources other than the exporters and dealers.

The Kerala Fishermen's Welfare Fund Act, 1985 (Kerala Act No. 30 of 1985) is clear about the amount and manner of payment of dues to the Fund. The assessed dues are expected to be paid in advance and Section 13 (3) of the Act and the action to be taken if there was default was also clearly spelt out in the Act. However, sadly the strict application of this provision, is restricted largely to the payments by the fishworkers, allied workers and mechanised boat owners only.

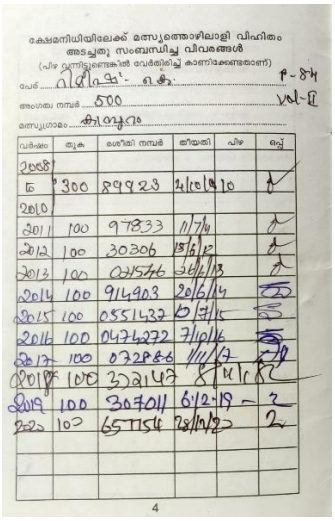


Figure 4: Sample Page from a Fishers Contribution to the Fund

What started as a tri-partite Welfare Fund with immense possibilities has been reduced to one where contributions are largely collected from the fishers and allied workers and returned to them. The burden on the government to maintain the large range of social protection payments has undoubtedly been very financially burdensome. Between 2010 and 2018 the total contributions to the Fund were just Rs. 5905 lakh (average Rs 738 lakh/annum) which was perhaps just a little higher than the annual administrative costs of the KFWFB for its sanctioned strength of 127 staff. We were provided an estimate of these administrative costs for 2019-20 which was Rs. 680 lakh for 96 staff which reduced to Rs 628 lakh in 2020-21 with the further reduction of staff to 89.[12]

The verdict of the Supreme Court is premised on a strictly technical and legal interpretation of the nature of relationship between fishers and exporters not being one of employee and employer. However, are not the profits of the exporters based ultimately on the sweat, labour and great risk to life of the fishers and the natural resources which they harvest? Or as the state contended, in its counter affidavit in the Supreme Court, do not *"the fishermen form the backbone of the industry, without whom the industry cannot survive."*

[12] Data from KFWFB through DD Fisheries. In 1998-99 the administrative costs were only about 30 percent of the annual pay outs disbursed. The situation has therefore clearly worsened and validates the general sentiment among the fishers that they are paying to the Fund to meet the salaries of the government employees.

The exporters have now adopted the practice of 'out sourcing' all the labour-intensive activities, such as peeling of prawns, so that there is no 'employers-employee' relationship and hence no liability or responsibility towards these 'workers' – who form a significant section of the 'allied workers' as defined by the Fund. The onus of social protection of these workers, who are adding significant value to the product which is finally shipped out by the exporters, falls on the state and the financial burden is on the government in power. The exporters go scot-free.

Export processing of marine products is largely restricted to adopting methods of preserving – such a freezing – wherein there is no real product transformation. This fact also exempts the exporters from sales tax (now GST) too! The profits come primarily from arbitrage -- the business strategy of simultaneously buying and selling a product in different markets to take advantage of a price difference and generate a profit. Moreover, given that much of the buying is on credit from the fishers, and payments to the fishers can take considerable time, the exporters are also being importantly financed by the fishers at zero cost since no interest is paid for these delays. (See below)

Some Crucial, Larger Issues of Concern

The Supreme Court verdict points to two larger issues which have to do with (1) the capitalist context in which tripartite social security funds were envisaged and its future, and (2) the lack of a capitalist context in developing countries and how we define the relationship between producers and merchant capitalists.

As regards the first, we know that the tripartite structure of contribution to social security funds is based on the implicit principle of work organisation in developed, urbanised, industrialised countries in the framework of capitalism, where there is a direct production relationship and contract between the employers and the employee but within the framework of the nation state[13]. In fact, in the current neo-liberal era, such a direct relationship, is indeed slowly disappearing, even for the large majority of the workers in developed countries, who were once situated in that context. This triadic architecture for social protection will become irrelevant soon.

As regards the second, the scope for creating a tripartite framework of production relationships never did exist in the predominantly agrarian, rural context in most developing countries. In India today, those who labour in the primary sector and relate to the resources of Nature (land, forest, seas) have ownership of meagre assets and mostly use family or reciprocal community labour. Their relationships to the market, for transaction of their 'surplus' harvests are made through merchant capitalists. The profits of merchants capitalists therefore intrinsically arise from the 'initial value added to natural resources' through the labour of the self-employed primary producers --peasants/fishers/pastoralists. Both these primary producers and the merchant capitalists therefore depend on Nature – for livelihoods or profits. While there may not be any employer-employee relationship between the above two sections of society, there is an umbilical relationship between them through the aegis of Nature and human labour.

Therefore, on the one hand there is the growing irrelevance of the tripartite structure of social protection based on the capitalist employer-employee relationship. On the other hand, globally and locally there is the increasing awareness that value in the fisheries sector arises both from 'exploitation' of labour, but also from the 'exploitation' of finite and increasingly scarce resources of Nature. That being the case, should we not consider fiscal measures, in the form of levies or taxes, on all incomes and profits, which utilise the resources of Nature.

[13] See Jose AV 2019, One Hundred Years in Pursuit of a Dream, Labour and Development Vol 28(1)

If a Pollution Tax – for insertions into Nature is acceptable – because pollution is an externality that affects the general population, then a Natural Resources Extraction Tax, for withdrawals from Nature, which is levied in proportion to the levels of income or profits made, should not be unreasonable[14]. Both primary producer, merchant capitalists and industrial capitalists must pay.

The final legal decision on the matter of contribution of exporters to the Fund may still have to be settled by the courts. However, viewed from the perspective of the basic human rights of social protection and issues of sustainable development of a natural resource, the current situation raises serious ethical questions regarding the relationships between the fishers, allied workers and the merchant capitalists as well as the nature of economic, social and moral obligations which the latter have to the former.

Based on the above discussion, perhaps the contributions which the fishworkers are currently making to the Fund need to be redefined as a resource tax and by the same token a resource tax can be levied on the merchant capitalists (or by the wording of the Fund Act "dealers of fish") relative to their sales and/or profits.

This is a serious issue for consideration by the state, civil society and working class.

Notional Loss of Contribution from Exporters

The notional loss to the Fund as a result of this legal ruling was no doubt substantial. Just taking the years 2012-13 to 2018-19, the value of export was of the order of Rs. 3505900 lakh. Assuming that only 50 percent of this related to fish harvested from Kerala (Rs 1752900) and taking the 0.09 percent as the notional contribution, we get an amount of **Rs. 1577 lakh**.

This amount is adequate to pay the pensions (at the current rate) of all the allied workers (many of whom work in the pre-export processing firms) for a period of 4 years!

Notional Loss of Contributions from Merchants and other Dealers of Fish

There is no aggregate available data on the number of dealers in fish even at the wholesale markets for fish. The new Kerala Fish Auctioning, Marketing and Maintenance of Quality Bill, 2021 should become the basis for obtaining these estimates and also assessing the turnover of the dealers so that they can be charged to make a contribution towards the KFWFB.

According to Aswathy N et al (2014) the wholesalers and commission agents involved in the domestic fish trade make profits from Rs 15,000 to 17,000 per day (at 2011 prices) and have transactions on average of 250 days of the year. If we re-estimate this for the present (given that the inflation between 2011 and 2021 was 85 percent) the present value of their profits is between Rs.27,750 and Rs. 31,450 per day. The yearly profit is Rs 69 lakh to Rs. 79 lakh per merchant. Even assuming the profit margin to be a modest 10 percent, the annual sales turnover will be between Rs 700 lakh and Rs 800 lakh. The Department of Fisheries data estimates 228 fish markets in Kerala. Assuming again conservatively, just 2 wholesale merchants and one commission agent in each of them with a turnover of Rs 700 lakh each will yield a turnover Rs 480,000 Lakh. The expected contribution to the KFWFB fund from 'fish market owners, lessee and licence holder' is 0.75 percent of annual income. This should yield **Rs 3600 Lakh/ annum** from the existing markets.

[14] This may be considered an ecotax (Pigovian Tax) that attempts to make the private parties involved feel the social burden of their actions. Merchant capitalists and exporters of fish do not consider the manner in which their actions of arbitrage affect the sustainability of the fishery resource, which has over time become an open access resource.

There are 39 new fish markets which have been commissioned and 51 which will shortly be completed. Assuming again, just 2 wholesale merchants and one commission agent in each of them with a turnover of Rs 700 lakh each will yield a turnover of Rs 189,000 lakh. The expected contribution to the welfare fund from 'fish market owners, lessee and licence holder' is 0.75 percent of annual income. This should yield another **Rs 1400 Lakh/ annum**.

The total notional contribution of Rs 5000 lakh/annum (Rs. 3600 + Rs 1400 lakh) is adequate to pay pensions for the all fishers of the state for half a year at current rates.

On Other Possible Sources of Funds for Welfare

Given the stalemate with regard to the contributions from exporters and the tardy collection from other dealers such as merchants, there is need to consider other sources of contributions.

Fines from Fishing Vessels

Between 2014-15 and 2018-19 according to a note from the Director of Fisheries[15], as much as Rs 347 lakh have been collected as fines from fishing vessels. This can be a source of income for the Fund. It is also legally appropriate, as per the Section 3 (2f) of the Act which states that "any penalty levied under the provisions of the Kerala Marine Fishing Regulation Act, 1980 (10 of 1981) shall be credited to the Fund". However, if one is to go by the data provided by records submitted on Demand Day in July 2021, the fines collected between 2015-16 and 2020-21 were of the order of **Rs. 736 lakh**.

These fines are levied on the (illegal/unregulated) activities of the fishworkers themselves, though it may be paid up by the owners of the vessels which commit the offence. Including this into the kitty of the welfare fund contributions would be a case of taking from the right hand and giving to the left.

Registration of Migrant Workers on E-Shram Portal

There are a growing number of migrant workers coming into the sector – mainly on the mechanised boats and the pre-processing activities. (Peter B et al, 2017) This trend is bound to increase in the near future. Therefore, it will be appropriate to register them as members of the Fund. A special ID card from the Fund can be issued to them incorporating all their personal details. (See Chapter below for details)

The E-Shram portal can be beneficially utilised in this context. (http://www.eshram.gov.in.) Helpline 14434). This registration is valid across India and will to be to the advantage of the migrant worker even when they go back to their home states. The Matsyaboard may take up this challenge of registration of all migrant workers in fisheries on a campaign mode. This should be undertaken after conducting an awareness campaign for which the services of the boat owners and operators of the pre-processing establishments – who are also contributors to the Fund -- should be solicited.

Taking the migrant fishers alone, assuming 10 migrant fishers on each of the 2000 (long trip fishing vessels) paying to the Fund at Rs 100/ month for 6 months will contribute **Rs 12 lakh** to the Fund. This is a very conservative estimate by all counts. A similar estimate can be made for those – mainly women – involved as 'allied workers' in the pre-processing activities. More than the small amount collected, it is the security which it provides to the migrant workers which is important.

Another Suggestion to Collect contributions from the Exporters

The level of marine products export earnings from Kerala was Rs. 6015 crore in 2018-19, the last year of the pre-Covid era. A significant amount of the marine products which are exported originate in other coastal states. We have no estimate of that share of value.

[15] Letter to the Secretary of Fisheries G2/1374/2018 of 09/08/2019

The representative of the mechanised sector on the Working Group explained that the exporters were always in default when it came to settling the dues to the fishing boats from which they procured marine products. Settlements often took a month or two and finally payments were made without payment of any interest for delay. Their excuses were always that there was some complication in export procedures; or that shipping containers were in short supply; or that payments from importers was delayed and so forth.

The representative was of the opinion that, if exporters were willing to pay 1 percent of their export earnings to the KFWFB, then the mechanised boat owners were willing to accept a 1 percent deduction on the payments due to them, provided that these payments dues were made within the accepted industry norms for settlement which was 7-10 days.

Contribution from Blue Economy Investors

The possibilities for greater investments being made in Kerala under the rubric of Blue Economy investments is on the rise. While there has been opposition to it from many quarters – including from one section of the fishworkers – the commitment to Blue Economy by the Union Government will result in projects being planned which will result in occupation of coastal land and use of coastal waters. These investments will inevitably result in hardships for those who continue to fish – in particular the small-scale fishers. In anticipation of such negative externalities and the need for compensatory payments, it may be prudent for the state to insist that all investors contribute to the KFWFB on an annual basis in the form of CSR payments. Alternatively, the Union Government may need to make such payments from new investors obligatory by creation of State or District Blue Economy Foundations following the pattern of the District Mining Foundations which were created by the Union Government in 2015 for the welfare of tribal populations affected by mining operations. District Mineral Foundations are statutory bodies established by the State Governments by notification. They derive their legal status from section 9B of Mines and Minerals (Development and Regulation) Act, 1957 as amended on 26 March 2015 as Mines and Minerals (Development and Regulation) Amendment Act, 2015. This amendment came into force from 12 January 2015.

User Fees from Vehicles at Ports and Fish Markets

One new source of contribution to the Fund has been a user fees charged to fishing vessels from other states. Between 2010-2018 this amounted to **Rs. 462 lakh**. On similar lines, user fees from vehicles bringing fish from other states can be charged at the ports and the wholesale markets. An estimate of this should be made. Given the large demand for fish in Kerala this is likely to contribute a modest amount to the Fund. Such contributions can even be earmarked for the benefit of the allied worker members.

Assessment of MatsyaBoard Social Protection Payments from 2008 to 2021

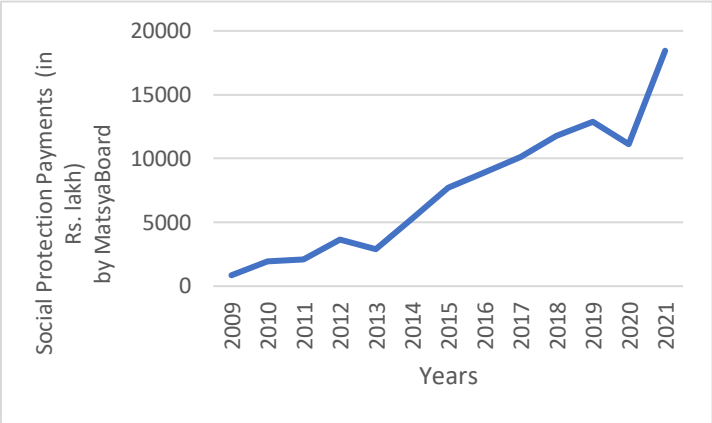
The Working Group was provided with the data from MatsyaBoard giving the details of the various schemes currently in place, the number of beneficiaries receiving assistance under each of the schemes and the total payments made. The data was available for the period 2008-2021.

The data is generally classified into two: Social protection for (1) fishers and (2) allied workers. Under each of these heads, the schemes are further divided into three groups: (1) government aided social protection schemes; (2) Board aided social protection; and (3) other social protection schemes.

Totally there are 40 separate expenditure heads under which schemes for social protection allocations are provided. Among these, 20 schemes are applicable for allied workers.

In current prices, the total social protection payments disbursed has been rising over the 13-year period for which our analysis has been made. In 2008-09 the amount was Rs 854 lakh. By 2020-21 the total reached Rs.18444 lakh – a 20-fold increase in current prices. (See Figure 5)

Figure 5 : Social Protection Payments from MatsyaBoard (2008-2021)



From the data which we have collated for the 13-year period of 2008-2020 the average total pay-out for various social protection schemes was Rs 7660 lakh per annum. The Government contribution to this social security pay out was Rs.6900 lakh/annum and what the Board provided from its generated funds was Rs 760 lakh/annum. Over that period, on average as many as 5.8 lakh individuals benefit per year from one or other of these payments[16].

Dividing this 13-year period into three, representing the periods of different political governance in the state, we notice the significant increases in the social protection payments over the three periods.

Table 3 : Social Protection (SP) Payments in Current and Constant Prices (Base 2011-12)

Years	Payments in Current prices (Rs. Lakh)	Payments in (2011-12) Constant Prices (Rs. Lakh)
2008-2011	4900	5163
2011-2016	28523	17487
2016-2021	66109	46231
Total SP Payments	99532	68881

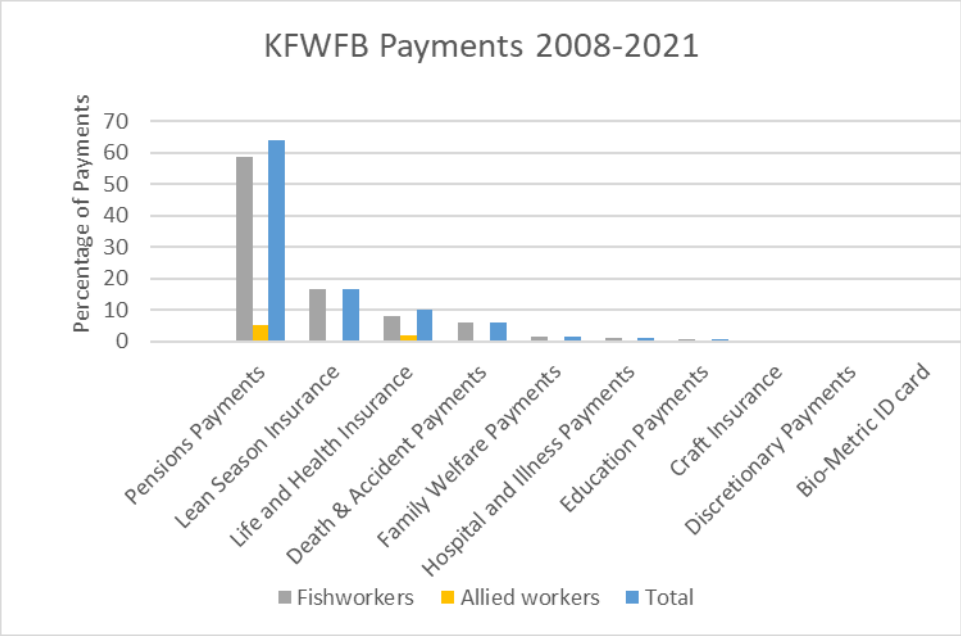
The substantial increase in the social protection payments in the last period (2016-21) is primarily due to the new Central Government schemes which were instituted after 2014 which have provided a variety of protective coverage. These include the Aam Admi Yojana, the PMJJBY-PMSBY and the increased coverage of the Group Insurance under the Matsya Suraksha Schemes

[16] In 2014-15 for example according to Kerala Marine Fisheries Statistics 2015 (Page 71) the total beneficiaries were 5.7 lakh that year.

Table 4: Share of Different Types of Social Protection Payments by KFWFB (2008-2021)

	Fishworkers	Allied workers	Total
Pensions Payments	58.7	5.2	63.9
Unemployment Insurance	16.5		16.5
Life and Health Insurance	8.2	1.8	10.0
Death & Accident Payments	5.8	0.3	6.1
Family Welfare Payments	1.4	0.1	1.5
Hospital and Illness Payments	1.0	0.1	1.1
Education Payments	0.7	0.1	0.7
Craft Insurance	0.1		0.1
Discretionary Payments	0.1		0.1
Bio-Metric ID card	0.1		0.1
Total	**92.4**	**7.6**	**100.0**

Figure 6: Share of Different Types of Social Protection Payments by KFWFB (2008-2021)



From the above Table 4 and Figure 6 it is evident that protective social protection measures – pensions, lean season (unemployment) insurance, life and health insurance and death and accident payments – form the core social protection portfolio. Together they account for 98 percent of the social protection coverage for the fishers and the allied workers of the state. The remaining 2 percent is for preventive social protection such as family welfare (e.g. assistance for daughter's marriage), hospitalisation payments (e.g. for fatal diseases like cancer) and promotional social protection (e.g. education related payments)

Table 5: Social Protection as a Share of the Fisheries Sector Product (Rs. Lakh) Current Prices

	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
Fishery Sector Product (FSP)	377363	515183	622837	704319	834359	973424	1119044	1147323	1073610
Social Protection (SP)	3633	2902	5324	7734	8928	10142	12672	13737	11112
SP/FSP	0.96	0.56	0.85	1.09	1.07	1.04	1.05	1.12	1.03
Beneficiaries (lakh)	3.77	3.91	5.54*	5.82	8.43#	8.21	7.91	7.90	8.20
SP/Beneficiary (Rs)	963	742	960	1327	1058	1234	1601	1738	1354

Source: FSP from Kerala Marine Fisheries Statistics 2020 Page 5. SP from KFWFB Data.

*Thanal scheme introduced. # AABY Scheme introduced.
Note that it is likely that in any year, some beneficiaries may receive the payout from two or more schemes

According to UNDP norms a desirable social protection ratio to the GDP of a developing nation should ideally be 5 percent. Applying this norm to the social protection payments and fishery sector product for the period 2011-2021 we see that the SP/FSP ratio is far below the desirable norm as it hovers around 1 percent of the sector product.

Moreover, based on the earlier studies (Kurien & Paul, 2000) it is sad commentary that the SP/FSP ratios have in fact dropped below 1.71 percent level at which it was during the period 1986-1998.

We have also considered how the per beneficiary social protection (taking all the beneficiaries who have received pay outs each year)[17] has increased. This shows an increase between 2011 and 2020 from Rs. 963/beneficiary to Rs 1354/beneficiary in current prices. In constant prices however, this is indeed a drop in benefits from Rs.963 to Rs 915!

This fall in the ratio of social protection to the sector product (compared to 1986-98 period) and the drop on a per capita basis in constant prices are both a reflection of the inability of the MatsyaBoard to collect contributions, due to the legal restrictions, and the lack of political will on the part of the Government to deal legally and legislatively to remove the strictures.

Undoubtedly this is an unsustainable situation. However, as we have seen above, about 60 percent of these payments relate to the minimum pensions, and the Government has an obligation and commitment to pay.

Other Social Protection Payments

Apart from the pay outs from the MatsyaBoard, the fishing community receives others forms of social protection of the promotive type in the form of assistance for housing, education, credit directly from the Department of Fisheries and its special initiatives such as Society for Assistance to Fisherwomen (SAF), the support which is provided to the fishery schools, and certain welfare schemes funded by

[17] Note that it is likely that in any year, some beneficiaries may receive the payout from two or more schemes

the Central Government. Then there are the schemes of the Matsyafed which also cover credit, subsidies for fishing equipment. Other institutions under the Department of Fisheries may also provide trainings and other benefits which go beyond the support of the individual to that of the community as a whole. The construction of artificial reefs by the Kerala State Coastal Area Development Corporation (KSCADC) is an example of the latter.

Fishworkers are no doubt beneficiaries of social protection provided to the whole population such as the food grains and other essential items through the Public Distribution System, the public health facilities, educational facilities and also disaster relief payments which are provided by the Government.

Given the limited time available to the Working Group and the constraints placed from more face-to-face discussions, due to the Covid restrictions as well as the delays in obtaining data and lack of assistance in data analysis, some of the aspects of social protection have not adequately analysed in this Report.

However, other chapters of this Report, we do consider in detail some of these forms of social protection – such as housing, credit, debt relief, educational benefits and so forth.

Need for more systematic registration and data collection

Based on our experience of obtaining information from the KFWFB, we would recommend that there be a dedicated effort to digitalise all the data which is currently available with regard to contributions and payments.

For the digitalisation of the data on fishers, the bio-metric cards issued, or the Aadhar cards now required when they go for a fishing trip, can be used for creating the data base[18]. Since the E-Shram registration process also results in obtaining an identity card, this can become the base for digital data for migrant workers. If all the allied workers may be also registered on the E-Shram site.

Over the years there has been a sharp increase in the number of persons who become successful dealers in fish and fishery products. There is need for a survey to assess the details of the new and the old dealers who will be potential contributors to the Fund, as and when the legal strictures are removed. An investigation can also be made on how other user fees (collections at markets, collections from other state fishing vessels etc) and collections from fines charged for KMFR Act violations can become potential contributions for the Fund.

Reflections on the future of the Fund

From our analysis of the data provided to us, it is clear that the Fund faces a rather bleak future if the present situation continues. To depend entirely on the Government for the major share of the social protection for fishers is an unsustainable proposition. To continue with a large bureaucracy for administering the MatsyaBoard in the present context should be reviewed.

For any Government there are political considerations for supporting the welfare of a vulnerable community which is spread all across the length of the coastline across 90 electoral constituencies. This makes it all the more urgent to take up the legal strictures which are currently preventing the collection of contribution from the dealers of fish.

[18] The bio-metric cards were primarily a national security requirement of the Ministry of Home Affairs and intended for those who fish. However, we have come across cases of women who are not involved in fishing, possessing the bio-metric cards. It is such errors which call for more diligence in any type of registration.

But perhaps, the future of the Fund cannot be viewed in isolation from the situation which is facing most of the informal worker welfare funds which have been operating in the state.

There have been suggestions from experts that rather than have 30 welfare funds for 60 lakh workers, the best solution in the current social and financial context will be for an effective restructuring of the separate funds and pool the resources so that a bigger basket of benefits, over and above the bare minimum, can be provided by the state.

This is possible if the state and the social partners can come together to foster some appropriate institutions.[19] Such institutions can provide a package of benefits including larger retirement pensions and a better health insurance for all. To this end, the beneficiaries need to share in the ownership and management of new institutions.

To address the more specific needs of the marine fishery, there is need to address the issue of an insurance to cover the 'forced unemployment' which results from the ban on fishing due to adverse weather situations. If the record of the last few years is any indication, then it is likely that such force unemployment can reach 30 percent of the normally expected 250 days of fishing in a year. If this issue if not addressed, it can become a major consideration for people leaving the fishery in search of other livelihood options.

[19] Perhaps the newly registered company Kerala Social Security Pension Ltd, is one step in this direction?

3. DEFINING THE FISHWORKER OF KERALA

The definition of the various workers in the fisheries sector of the state are contained in the definitions provided in the two acts: the Kerala Welfare Societies Act 1980 and the Kerala Fishermen's Welfare Fund Act of 1985. In the latter, the definitions of who may be considered a worker, and the nature of their activity, is comprehensively laid out in the definitions.

Defining and re-defining and broadening the definition of who is a fishworker

The term 'fishworker' in English gained widespread use in the international fisheries discourse only after 1984[20]. In the English language, until then, the terms most commonly used for workers in fisheries were fishermen or fisherwomen; and when referring to the community the term was fisherfolk.

Fishworker is defined as 'men and women involved in the pre-harvesting, harvesting, post-harvesting, processing or marketing of fish and fishery products' and hence includes all workers who earn their livelihood associating with fish and fishery products. Fishworker is therefore an inclusive term.

In Malayalam however, the term 'malsyathozhilali' has been essentially restricted and associated with the men involved in fishing[21]. Therefore, for example, in order to refer to women fish vendors, the term used is 'malsyathozhilali stree-kal' (woman fishworker) and others involved in activities such as processing and marketing are referred to as 'anubenda thozhilali', or allied workers.

Given the historical importance of certain specific coastal communities who were exclusively involved in fishing over generations, the term 'malsyathozhilali' has also been largely used to refer to them. Note also that unlike in agriculture, where there is the distinction between 'karshakan' (farmer) and 'karshaka thozhilali' (farm worker), no such terminological difference seems to exist in marine fisheries in Kerala[22].

There is need to avoid the linguistic confusion which currently exists by translating the Malayalam term 'malsyathozhilali' into 'fishermen' in English and then counting women also under this term. This will lead to confusion in the data analysis and have serious implications in policy making.

Another feature of marine fisheries has been the greater skill barriers to entry into harvesting at sea. Being comfortable on a rolling traditional boat and knowing to swim being important conditions for entry. However, with the increasing levels of mechanisation and enhanced size of the fishing vessels, these barriers have also dropped considerably. The result has been that the last bastion of protected employment in Kerala has also been open to migrant workers without any prior knowledge of fishing.

The presence of migrant labour in the 'allied activities' at ports, landing centres, ice plants, fish markets where it is mere physical labour, has increased. Also, in facilities such as peeling sheds and export processing factories, where a modicum of skill is required, their numbers are on the rise.

[20] The term was first used at the International Conference of Fishworkers and their Supporters (ICFWS) held in Rome in 1984 as a parallel conference during the FAO/UN World Conference on Fisheries Development and Management. The main organisers of the ICFWS were from Kerala, and it is therefore not surprising that the term fishworker is actually the English translation from the Malayalam term 'malsyathozhilali'!

[21] It is worth noting here that it was the collective action of the fishers in the early 1980s which led to the larger society referring to them as workers -- 'malsyathozhilali' rather than by their caste names such a 'mukkuvar' or 'arayar' or 'maraikkar' etc.

[22] At the all-India level, those engaged in agricultural activities are called agricultural workers, are classified into cultivators and agricultural labourers.

Given the pro-worker orientation of our state and the growing accommodation of migrants into all the sectors of the economy, there is need to enumerate the migrant labour involved exclusively in fishery activities as 'fishworkers' also requires consideration.
In the Working Group there was also a discussion on two aspects.

First, the need to universalise social protection so that no worker – local or migrant -- is left behind.

The second aspect was the need to prioritise social protection such that workers from the traditional communities are not denied or deprived of any benefits in our efforts at universalising and expanding the scope of social protection measures.

Box 3: Features of the Tamil Nadu Act (See Appendix L)

The **Tamil Nadu Fishermen and Labourers Engaged in Fishing and other Allied Activities (Social Security and Welfare) Act, 2007**, has borrowed heavily from the Kerala Fishermen's Welfare Fund Act of 1985. However, it makes one significant departure by defining 'fisherman' more elaborately:

"fisherman" means any person in the age group of 18-65 years:
(i) engaged in fishing, drying of fish, sale of fish or other allied activities for his livelihood;
(ii) who owns fish farm not exceeding 2.5 acres of land;
(iii) who owns:
a) one country craft; or b) one country craft fitted with outboard motor or inboard engine with capacity of less than15 HP; or c) one coracle in fresh water

In both the legal provisions of Kerala and Tamil Nadu, the term 'fisherman' is taken to be gender neutral by the use of the phrase 'any person'[23]. Also, in the Tamil Nadu Act, there is an implicit bias towards persons involved in smaller scale of operations – fish farm not exceeding 2.5 acres of land; and/or owning a country craft or a country craft with propulsion of below 15 HP. Hence, fisherman in the Tamil Nadu Act will include fishers working on any fishing vessel, but will exclude fishers who own craft with HP greater than 15 HP and those who own mechanized boats.

[23] In Tamil the term is "meenavar" which translates into English as fishworker.

Schematic representation of the various activities in which fishworkers are present

Table 6: Schematic representation of fish workers currently engaged in Kerala

Activity Undertaken	Pre-harvest			Harvest						Post-Harvest, Processing and Marketing					
				Port based			Beach based			Men			Women		
	Native		Migrant	Native		Migrant	Native		Migrant	Native		Migrant	Native		Migrant
	T	NT		T	NT		T	NT		T	NT		T	NT	
Net making/mending*	√	√													
Boat building	√	√	√												
Ice supplying *	√	√													
Artisanal fishing +				√	√	√	√	√	√						
Mechanised Fishing +				√	√	√	√	√	√						
Beach/Port Fish Hauling*										√	√	√			
Shrimp Peeling#													√	√	√
Pre-processing #													√	√	√
Fish Processing #										√	√	√	√	√	√
Market Hauling*										√	√	√			
Fish retailing^										√	√		√	√	
Fish itinerant vending^										√	√		√	√	

T= from traditional communities NT= Non-traditional Hauling = moving, lifting, loading, unloading

Notations and Sections of the KFWF Act Applicable to them: *Beach worker [2(b)] # allied workers [2(a)] ^ small scale distributors [(2 (ka)]

+ Fishermen [2(g) and as per Kerala Fishermen Welfare Act 1980]

A close examination of the Table 6 shows that with the exception of the boat building activity, all others are legally covered in the Kerala Fishermen's Welfare Fund Act of 1985 and subsequent amendments. Whether indeed all the workers in the pre-harvest and post-harvest, processing and marketing -- called 'allied workers' -- are registered members, is not clear.

Major considerations in this classification

(1) Activities undertaken: the fishers who actually engage in fishing activities is the major stakeholder who contributes to the fisheries economy. The life and livelihood of the fishers are connected with the fishing activity. The fishers pick up the skill from the surroundings at a young age, enters into the profession eking a livelihood out of the fishing activity. In addition to those who are engaged in net mending and boat repairing activities, several fishers acquire these skills upon retiring from active fishing activities due to several reasons including ill health. Therefore, the core activity is centred on fishing, but the those engaged in the fishing activity do migrate to other shore-based activities such as fish hauling, net-mending. This may also be the result of disabilities caused while fishing or ageing.

(2) Other than the traditional workers, the fisheries sector engages a large number of persons, who are either non-traditional workers from Kerala or migrants (both from fishing community and outside it) from other states, mainly from Eastern India. With economic development and changes in work preferences fisheries sector faces scarcity of workforce, particularly for multi-day fishing operations, adversely affecting the fishing operations. The multi-day fishing activity depends heavily on migrant labourers. Therefore, permitting entry of workers from other sector to fisheries is economically beneficial, and rather is a necessity. However, the

workers who are traditionally engaged in the fisheries sector and wishing to continue in the sector needs to be ensured of opportunities of adequate livelihood, and therefore their rights are to be protected.

(3) The fisheries sector has seen development of several entrepreneurships particularly in post-harvest domain: pre-processing, processing, and marketing. These are the realms of the "allied workers." While the traditional workers are continuing in the activities of fisheries sector for quite a long time, many of those from non-traditional background are transient. This raises a problem in identifying the beneficiaries for social protection. While the social protection measures are to be universal in nature, the limited availability of resources necessitates prioritization in which those who originally belong to the traditional sector and those who continue in the sector for quite a long time needs to get due priority.

In 2014 we have a break-up of the composition of the 'allied workers' (See Table 7). This clearly shows that those involved in net-mending, boat-building, ice plants, ports and markets – most often men -- are likely to be excluded in the current registration of allied workers.

Table 7: Details of the "Allied Workers" registered under the KFWF Act as on 2014

Description	Percentage
Beach workers	6
Small scale distributors	24
Fish Curers	20
Peeling workers	45
Processing workers	5
TOTAL WORKERS	79346 (100)

Source: Kerala Marine Fisheries Statistics 2015 page 14

The gender division of these worker categories was not indicated. But it was mentioned that of the total of 79346 as many as 78 percent (62257) were women.

In general, it can also be assumed that small scale distributors who vend fish and work in the fish markets which are a considerable distance from the coastal and inland fishery areas, are unlikely to be registered as 'allied workers.' It is likely that some workers in the markets are covered under other welfare funds such as that of the headload workers.

Non-Fishworkers laying claim to social protection measures

One of the frequently heard complaints about state sponsored social protection measures is that there are persons who lay claim to these benefits, though they are not eligible to do so.

However, to infer that, all persons resorting to such actions, are resorting to corrupt practice, may be a harsh conclusion. The rationale for laying claim to a benefit can be a matter of interpretation which can even be backed by social or customary ethical considerations. However, in societies where social protection measures are few and political awareness of rights is high, there can be contested claims which need to be examined carefully before they are forbidden and/or removed.

Based on the large number of complaints received with regard to the benefits being given through the Kerala State Fishermen's Welfare Fund Board, a survey was conducted in 2021 to re-assess and ensure that only legitimate claimants are retained on the lists.

The result of this re-assessment is shown in the Table 4 below. The data reveals that the excess registrations are more evident among those who claim to be inland fishers (34 percent excess) than those who claim to be marine fishers (only 18 percent excess).

One reason could be that given the respective settlement patterns, in densely populated and cohesive communities as the case of the marine fishers, the socio-cultural oversight and community pressures of making non-legitimate claims are more difficult because of greater information symmetry.

In the dispersed inland fisheries context, such pressures are less apparent and information asymmetry is high. Hence making non-legitimate claims are less under community scrutiny and adverse self-inclusion easier to achieve. Another reason could be that while the marine fishers are almost exclusively associated with fishing, the work profile of the inland fishers are more diversified. While fishing and fishery activities continues to be the major livelihood of marine fishers, it forms only one activity among several other activities undertaken by inland fishers. Further, the regularity of engaging in fishery activity is more frequent in case of marine fishers; and such fishing activity is for generating a livelihood rather than meeting direct consumption purpose (of fish) as happens in case of inland fisheries.

The same reason can also be applied to explain the higher excess claims among the allied workers who form a heterogeneous group which is also scattered widely. About larger registered numbers in inland sector, another reason maybe that many fishers who are only seasonally involved in fishing have also registered themselves.

Table 8: Analysis of the 'excess' registration of persons claiming welfare benefits

YEAR	Active Fishers MARINE	Active Fishers INLAND	TOTAL Active Fishers	Allied Workers	GRAND TOTAL
1. Total 2019	194910	52939	247849	92124	339973
2. Re-verified (2021)	160312	34988	195300	69210	264510
3. Excess Number	34598	17951	52549	22914	75463
Percent Excess (3/1)	***18***	***34***	***21***	***25***	***22***

Source: 2019 figures from Fisheries Handbook 2020, Re-Verified Data September 2021 from KSFWFB

Apart from the issue of excess registration, these data highlight the need to consider more objective criteria for registration of fishers and allied workers under the KSFWFB.

Migration of fishers, workers and the future of labour in the fisheries in Kerala

Migration is an essential feature of any fishery. Fishers follow the fish. Fishers of Kerala – particularly of Trivandrum District -- are known to migrate within the state and also across the northern and southern borders of the state. And fishers of Tamil Nadu – importantly from Kanyakumari district -- have had a very noticeable presence in Kerala's marine fishery for decades.

Fishers migrate to neighbouring areas as a measure to overcome seasonal variations in fish movements, overcome adverse weather conditions in one place, and in search of species of fish which are not harvested by local populations of the coasts to which they migrate.

Historically, the trawl sector has been based on migrant fishermen from Tamil Nadu – importantly from Kanyakumari District which was part of erstwhile Travancore. However, they have always been

from the traditional fishing communities and part of the social security system of Tamil Nadu which has been on par with Kerala, though not precisely the same. We have had the best of both worlds: getting skilled labour, without having to bother about their rights and social protection. However, that has been the situation of the fishers everywhere in India too, and about those migrating for fishing in several other countries as well. In fact, Kerala is not an exception.

Post-2000, the nature of migration and migrants have changed considerably. The arrival of large numbers of migrant workers from the north of the Vindhyas, as part of a larger phenomenon—resulting from the liberalization of the Indian economy—has created a new condition that has influenced the fisheries sector also. These workers, euphemistically called "guest workers", have found their way into the mechanized sector which can manage with a proportion of less skilled workers.[24]

This fact is a reflection of at least five important factors (1) the open access conditions in the sea have resulted in rapid increase in the larger fishing vessels in Kerala which utilise large encircling and trawl nets, creating a demand for labour (as opposed to fishers with skills) since there is mechanical power and technologies such as echo sounders and GPS, utilised for several operations (2) the great social development of youth from the fishing communities of Kerala, resulting in their lower participation in the fishery (3) the deterioration of fishing conditions in other parts of India (4) the increasing rural distress in the north and eastern states of India (5) expansion of demand for fish even in remote corners of the country due to advances in information and communication technology and emergence of online marketing, giving rise to greater business opportunities.

These "guest workers" are not getting their names registered, in contrast to the requirement specified by Government norms. They are not part of the cooperatives and fisher registration system and create a major complication for fisheries management, particularly when a natural hazard like cyclone occurs. It is difficult to get even the basic statistics on the number of people out on a fishing trip. Additionally, the absence of proper registration renders them devoid of social protection, as they are not members of cooperatives or welfare societies.

However, the human rights of these workers cannot be wished away and a fair system, ensuring their safety and social protection, is required in a state that prides itself on providing welfare and social protection for the working class.

In this situation, some important questions we will have to grapple with are: (i) are they to be treated on par with local fishers (or caste fishers)? (ii) should they be considered as part of a generic labour force that has permeated many sectors, rather than just as fishers? and (iii) will social protection measures lead to an expansion of this group and whether this is desirable?

The above questions warrant us to develop general principles to address them. The general principles in this context are:

a. Social protection to migrant labour is to be seen in the larger context of labour rights and economic development and its universality.
b. The rights of the local people and community needs to be recognized with respect to social protection and rights over resources.

[24] In Tamil Nadu, they have found their way into the ring seine sector as well. Whether the penetration of such labour exists in the Kerala ring seine sector needs to be further investigated. If this has happened, the complications for policy making and management will be more serious.

c. Enabling institutional and infrastructural facilities are to be established to implement social protection.
d. Migrant labour can register under the E-Shram site of the Ministry of Labour and Employment. The objective of the scheme is the creation of a centralized database of all unorganized workers (UWs) to be seeded with Aadhaar.

In the above background, following suggestions are made:

- Separate and differentiated treatment for social protection purposes for native and migrant fishers
- A registration system which will record the status of the migrant fisher and distinguish if they are from traditional fishing communities or from non-fishing communities, and note their eligibility for social protection in their own state.
- To ensure that their being on board any trip is recorded somewhere
- Accident and life insurance may need to be considered along with necessary documentation of nominees /legal heirs.
- Facilities for their stay on shore and recreation can be thought of on the lines of the sea farers association facilities in commercial ports.

Historically, the migration of fishers into and outside Kerala is not known to have created serious fishery conflicts. Some social and religion-related conflicts have no doubt erupted, but mostly not for sharing fish resources. They were always quickly curbed as well. However, such conflicts could have involvement of groups with non-fishing interests.

However, more recently (October 2021) the issue of fishers from Tamil Nadu migrating with their fishing craft into Kozhikode and Malappuram district in large numbers has created some tensions within the coastal community. Their arrival creates competition for fishing space and also results in a depression of shore fish prices. These migrants are being patronised and protected by merchants and politically connected persons from all the political parties in the state.

Given the large numbers of migrant fishers now coming into the sector, particularly working on the mechanised boats and in the processing sector, there is need to seriously re-think the process of inclusion and exclusion solely from a 'working class' perspective.

There is also great need to accept and recognise the socio-cultural history and legitimate claims of those who consider themselves to be 'customarily and traditionally' connected to the seas, rivers and the fishery products therein. How do we address these issues, given that the fishing communities all over India have only recently been inducted into the mainstream of the development process in the state[25]? Should here be some priority rights given to workers who originate from designated traditional fishing communities?

Prioritising the rights of traditional fishing communities of Kerala to social protection

Though the issue of inclusion is socially desirable, the traditional fishing community in Kerala apprehends that the developmental assistance and rights which the fishworkers among them are entitled to, would be thinly spread with the entrance of non-traditional persons into the sector.

Many such new entrants remain alien to the life and concerns of a traditional person who sees the ocean and fisheries activities as a "marine system", as benevolent biological entity, "mother nature".

[25] The "outlier" status of the marine fishing communities was highlighted in 1995.

The culture and beliefs of the fishing community are associated with their time-honoured socio-cultural connection with the ocean system.

For fresh entrants into the sector, the larger concern remains eking out a livelihood, though they may be concerned with the health of the marine system as well. Over a long period of time, the association of these new entrants with the sea may get stronger as well. This is however not sufficient enough for the traditional fishworkers, especially those involved in fishing, to accept the new entrants as one among them, and entitled to all aspects of social protection as a genuine "right".

This concern emerges significantly in the context of state-facilitated efforts to mainstream the fishworkers, through greater flow of direct benefits. One concern is that some workers enter into the fisheries activities targeting the developmental assistance, and remain transient, working for only a few months in a year and leaving altogether after claiming the assistance.

However, the above concerns should not obscure the larger call for universalisation and camaraderie among workers, and ensuring their rights. The issues and concerns of the marginalised resonates. Further, in view of the development needs of the sector and unavailability of sufficient number of workers of Kerala in certain fisheries activities, the non-traditional, migrant workers will inevitably play an increasing role in the sector's future.

Another issue which needs consideration is whether social protection rights should be differentiated by different activities within the sector. This is particularly so while considering fishing *vis a vis* allied activities. Fishing in marine waters is one among the riskiest professions in the world. The odds being faced by the fisherman is qualitatively quite different from that faced by any of the other workers involved in the whole fisheries value chain. Further, all the activities further up in the value chain are strongly linked to the person who actually engages in fishing. In this context, the question as to whether the activity of fishing *per se* needs to be accorded a preferential treatment in social protection measures, is worthy of consideration.

Taking all the above issues comprehensively, the following recommendations are made:

a. All workers –irrespective of gender -- who are engaged in fisheries related activities for their livelihood are entitled for social protection. Such fishworkers need to have fisheries related activities as their major livelihood activity.
b. The workers, who are not from traditional fishing communities, who are working in the fisheries sector are eligible for social protection. However, the nature of their social protection will differ with respect to the continuity in the profession and domicile.
c. In order to streamline the activities and effectively target social protection measures, all fish workers, of capture and culture (both marine and inland) are to be registered with the Government. The registration is to be reviewed every year, which would consider their present work status. Only the registered fish workers are eligible for the social protection. The criteria for registration are to be developed separately, and the rules there upon are to consider the domicile, current status of working in fisheries and membership to a traditional fishing community (of the state or elsewhere).
d. A verification process is to be undertaken to remove all ineligible persons who are wrongly included in the beneficiary list as per the criteria adopted.
e. The social protection measures are to be universal, and at the same time ***special and differentiated treatment*** should be provided to fishworkers from traditional fishing communities of Kerala who continue to be actively involved in fishing. They should have certain priority entitlements: e.g. higher risk and insurance coverage, priority in housing and

selection of locations for housing, training in certain niche areas like deep sea fishing where their innate skill matters significantly. These benefits should also be prioritised and linked to the period of contribution made by each member to the Fund.

f. All the workers are to be eligible for basic protection including right to decent work, dignity at the work place, fair wages, risk coverage (insurance and safety), skill development and basic educational assistance. Only the protection in terms of pension, housing, higher education, etc are to be differentiated based on the above criteria.

g. The status of fish-processing activity is to be documented in terms of their number, operational size, number of workers engaged (with a classification of male and female, native and migrant), activity undertaken so as to form the basis of state policy.

4. RESPONSIBLE FISHING FOR SOCIAL PROTECTION

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 (5.20 of the SSF Guidelines)

The foundation of the marine fisheries of Kerala is the phenomenal, highly productive marine ecosystem and the rich diversity of fishery resources which Nature has endowed to us. This unique and plentiful resource is the result of both sea and land-based processes that are special to the physical geography of Kerala.

Kerala's seas start in the mountains! Every single river from the Western Ghats, flows out into the sea at almost every 15 kilometres of our coastline. Each river used to bring with its fresh water tonnes of sediment and nutrients which created the basis for a highly productive coastal sea. In the sea, the upwelling phenomenon[26] which is a special process evident on the western sides of a continental peninsular, brings phytoplankton blooms that are important in attracting and sustaining a major pelagic fishery. The oil sardine and mackerel resources, for which Kerala was historically famous for, can be attributed to these land and sea processes. These resources formed the basis of livelihood of fishing communities. No wonder they gave names such a 'ku-dum-bam pularthi' to the oil sardine.

How Unsustainable Fishing affects Social Protection

Historically, the coastal sea space and the fisheries therein were the socio-ecological realms of traditional fishing communities who managed the access to the sea and then decided on the nature of the technology to be used for harvesting the renewable resource.

To some extent, the access to rivers and back-waters were also managed by specific communities who, while being part of a larger aquatic-agrarian communities, specialised in various forms of fishing on a seasonal or full-time basis.

These traditional fishing communities, accumulating ecosystem wisdom over the centuries, have understood the specifics of the physical geomorphology of the coast and the seasonal variations of the multi-species fishery resource. Based on this sophisticated ecological knowledge they devised numerous craft and gear designs which were habitually utilised in Kerala until the end of the 1980s. The gear diversity was more noticeable in the southern districts, because of the greater presence of both pelagic and demersal resources. As we proceed northwards the gear diversity decreased in keeping with the dominance of pelagic species in the resource base.

Into the seaward extension of their village boundaries, every community had their respective notions of community fishing rights, the nature of technology to be used and the *modus operandi* of settling conflicts and disputes which arose within the context of fishing for a fugitive resource in a fluid milieu. The coastal sea was bounded by a mosaic of 'community property right' regimes[27]. These realms were managed by the disciplines imposed by a variety of democratic, community village level institutions, evolved by the respective religious groups of fishers of Kerala.[28]

[26] Upwelling is an oceanographic phenomenon that involves wind-driven motion of dense, cooler, and usually nutrient-rich water from deep water towards the ocean surface, replacing the warmer, usually nutrient-depleted surface water.
[27] The 'community property rights' is a phenomenon common to small-scale, artisanal fishing community's world over.
[28] The karayogams, the kadal kodathis, palli committees and so forth are examples

The introduction of trawlers by the Indo-Norwegian Project by the end of 1950s, and their subsequent unbridled operations in the coastal waters, began to show up in the form of adverse impacts on the coastal marine ecosystem. By the early 1980s the traditional fishing communities began to oppose the trawlers, and the purse-seiners which began to slowly increase in numbers by the late 1980s. The widespread agitations of the traditional fishers resulted in pressure on the respective governments of the day. They responded to the social and political pressures by agreeing to institute new social protection measures (Kerala Fishermen's Welfare Board), create new organisations to facilitate credit and marketing (Matsyafed) and to ban trawling during the monsoon months.

Co-terminus with these new measures, the liberalisation policies of the Government of India in 1991, resulted in the possibility of freely importing new forms of technology such as out board motors (OBM) which could be easily fitted to the existing fishing craft of Kerala and also on the newly introduced plywood boats which became very popular with the fishers.

Between 1991 and 2000, there was a steady increase in the number of OBM and plywood boats in Kerala which were adopted by the traditional fishing communities. The use of OBMs resulted in the neglect of the use of sails and oars. Gradually the traditional fishing craft began to be phased out. The costs of fishing increased, importantly because of the expenses on fuel. Fish prices however did not increase commensurately.

The entry of OBMs initially provided a new dynamism to the small-scale, traditional fishery. It also provided the possibility for going further out to sea to fish, the use of more nets and tackle and different kinds of fishing methods. Some of these new methods, such as the ring seine, did meet with resistance and restrictions from the community institutions, but the youth and the new investors resisted such restrictions. The new fishing boat designs also provided the possibility for more persons from the fishing communities to be engaged in fishing. The labour absorption into the traditional fishery increased with the increase in the capital investment. Initially the returns to both capital and labour increased.

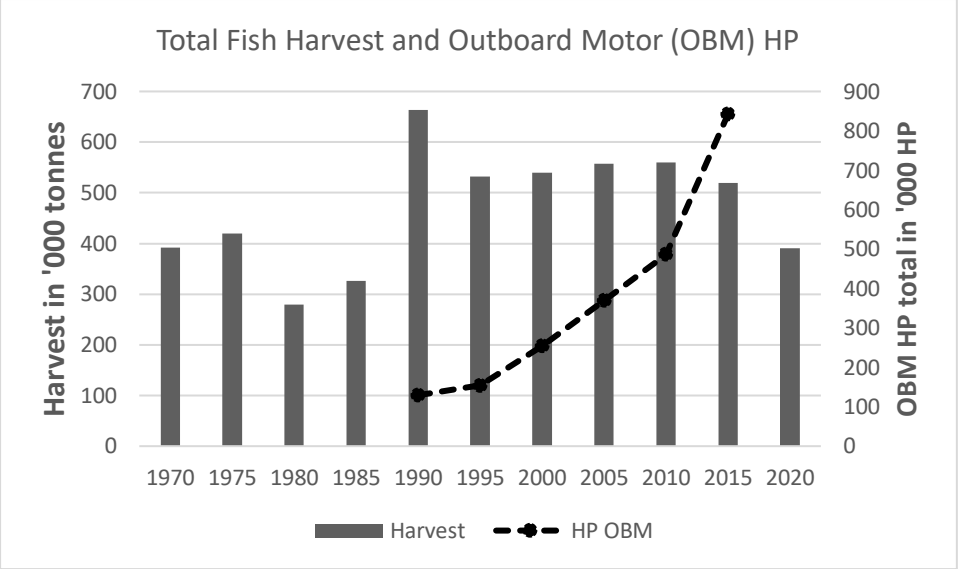
It is well known that private property rights to land place limits on investment and labour absorption. However, in marine fishing, the access to the sea being less restricted, resulted in more investments in fishing within the traditional fishing communities. Many NRIs from the traditional fishing community, across Kerala, became important financiers of these new fishing investments. In the process several fishermen, who earlier engaged in fishing, had turned into owners/ share holder of craft and gear and had moved upward economically.

After 2000, what we observe is an unrestricted entry of capital, labour and increased energy use in the fishery. The so-called 'traditional' fishing boats, along with their large ring seine nets and higher HP OBMs (they however continued to be called "vallams") costed more than the erstwhile shrimp trawlers. But as the numbers increased and productivity per unit dropped, the innovation which started in Alappuzha spread gradually to the northern districts.

Initially the marine fish production of Kerala increased beyond the 6-lakh tonne ceiling. By 2010 the major fishing method, in all but Trivandrum and Kollam districts, became the ring-seine. The coastal waters became a fully 'open access' fishing territory. A 'first-come, first-get' possession rights 'Olympic race' for fish became the norm in most fishing villages. Fishers are chasing each other, not fish! Between 1990 and 2020 the fish landings dropped from the highest landing of 663 thousand tonnes,

initially remained stable, but after 2010 has been exhibiting a steady declining trend. On the other hand, the total OBM HP has increased more than 6-fold between 1990 and 2015. [29] (See Figure: 7)

Figure 7: Trends in Total Fish Harvest and Outboard Motor (OBM) Horse Power (1970-2020)



Source: All Harvest data and OBM HP data (2010,2015) from Department of Fisheries Statistics.1990 and 2000 OBM HP data from (SIFFS,1991 & 1998). Included in all four data points are only the OBMs which are used in fishing in the respective time periods

Clearly, the 'capital stuffing'[30] has only resulted in lower physical yields of fish. Perhaps then, there is a case for going back to the 1990 level of OBM HP configuration and the related craft-gear combination which resulted in the highest fish harvest.

The capital stuffing was marked by the increase in OBM HP rating, resulting in the increasing length of traditional boats and the rapid spread of the ring-seine to all except the two southern districts of Trivandrum and Kollam. This trend of 'large-scaling' the traditional fishing sector has led to greater 'proletarianization' within the fishing communities, real incomes levels have on average stagnated or declined for some, and the levels of inequality within the fishing communities increased. Therefore, while the resource harvest on the aggregate is declining, the incidence of bumper harvests continues, and this keeps hopes high for all – the hallmark of a marine fishery.

In the mechanised fishing sector too, there is growing evidence of investment in boats being made by investors who have no relation to the fisheries sector and are using it purely as an avenue to utilise their excess funds generated from other businesses into the sea which has now become 'open access'. Added to this, an increasing number of vessels from other states are allowed to operate on payment of a small user fee of Rs. 25,000. The mechanised fishing sector initially focused on harvesting prawns using bottom trawl nets. However, today, the decline in the prawn catches have made them look to other species and use of other fishing methods. The most recent has been the use of high-open pelagic trawl nets. These nets are able to harvest whole schools of fish and their enormous physical efficiency makes them come into direct competition with the ring-seine sector. This leads to conflict at sea in

[29] This is an estimate based on the trend. However, the exact data for this is available with the Department of Fisheries. They obtain it through the 'Certificate of Registry of a Fishing Boat' issued to each fisher, but never aggregate the same for purposes such as a discussion on energy policy in fishing.

[30] The tendency to invest excessively in capital inputs. In this case it has been largely the increasing HP of the OBMs, use of GPS, echo sounders etc. without much change in the kind of fishing or its realm – which remained within the territorial waters

the near shore areas. The expanding investment is also creating its demand for labour which is one of the important reasons for the increase in migrant labour, unskilled in fishing, flowing into the fishing sector of Kerala. This is largely a post-2015 phenomenon. Fishing costs have also increased (e.g. continuously rising fuel prices) and in order to cover them the vessels tend to fish for longer periods.

These overall trends in the marine fisheries sector have resulted in unsustainable fishing (we prefer to use this term rather than 'overfishing'[31]) and ecosystem damage. This implies, declining fish harvests, changes in the species mix, reduction in the size of fish caught, the disappearance of some species, and the damage to the marine ecosystem, to name few of the important features.

Because of the 'open access' and 'lottery nature' of marine fishing, there are always 'gainers' from unsustainable fishing. It is this hope and optimism of getting a bumper harvest which will wipe out all losses which keeps the individual fisher going and not committing suicide like his agricultural counterpart.

Hence, unsustainable fishing continues, even though all the fishers are aware that there is a crisis. However, with time, the numbers of those who make the 'bumper catch' decreases. The inequalities between the winners and losers in this race for fish increases.

However, the major beneficiaries of this technological change, capital stuffing and unsustainable fishing have been the middlemen, merchants, exporters as well as investors from within the traditional fishing communities. The biggest losers in this process have been Kerala's avid consumers, who get far fewer local fish and at higher prices.

Unsustainable fishing immediately results in direct and indirect economic and social impacts.

> It results in falling incomes for fishworkers due to increased costs of fishing, increased levels of indebtedness, higher incidence of damage to fishing gear and accidents at sea as a result of the race for fish.
>
> The galloping use of fuel is also contributing to the causes for climate change such as CO2 and GHG emissions, which in turn affects the coastal communities first.
>
> There has been growing demand for harbours by the ring-seine operators. The construction of these harbours, which are also at times badly designed and executed in faulty manner, are in turn resulting in externalities such as coastal erosion due to the unpredictable changes caused in the coastal hydrodynamics as consequence of these structures.
>
> The adverse impact of coastal erosion is experienced not by those who benefit by using the harbour but by a different segment of the fishing community.[32]

One important solution for these problems is to limit access to the fishery resources and to decide on criteria for doing this. Several regulatory suggestions were proposed by members of the Working Group which include:

[31] It may be of interest to note that this term was introduced by a fisherman named John Cleghorn in UK in 1854. In his arguments, Cleghorn relates overfishing with unsustainable removals that decline fish populations to such an extent as to make them 'economically extinct,' and that such practice will inherently limit use by posterity. [This reference was made by a member of the Working Group Drafting Committee Dr. C. Ramachandran.]

[32] The case of the Muthalapozhi Harbour, in Trivandrum District and the erosion of the coast north of Perumathura is a classic example of this phenomenon. There are many other such examples in Kerala.

a. Freezing the number of mechanised boats and ring seines with immediate effect and not providing licences for any more.
b. Permitting only active fishers to make investment in fishing equipment. A 'one owner, one vessel' policy needs to be adopted. (Support for aquarian reforms)
c. Placing a limit to the length of fishing craft and a curb on maximum power of OBMs used on them.
d. Making a total HP ceiling for the state -- based on desired and optimum craft type and numbers for sustainable harvesting of the resources – is another approach. This HP ceiling can then be divided into district quotas.
e. Putting a halt to building of new infrastructure for fishing such as ports and harbours
f. Place regulatory restrictions on the fish meal industry, if its unbridled, uncontrolled procurement poses a threat to the natural resources
g. Revive the Aquarian Reforms Committee

Apart from regulatory measures, there is need to encourage positive, community level actions for reviving the coastal sea and serious efforts to make a return to sandy (rather than stony) beach based small-scale fishing which is premised on gear diversity, seasonal fishing and reduction of the length of the fish value chain[33]. Some pilot efforts to connect the fishing community with the immediate hinterland consumers through a variety of marketing and reciprocal social communication and action initiatives are also ways of creating consumer feedback measures (demand-based pressures) which will help to change the pattern of fishing to more ecological sustainable methods.

In districts such as Alappuzha, one observes that the fishery has gone through a full circle. It started with collective ownership of the large artisanal *vallam and thanguvala* in the 1950s until 1980. Then in the early 1980s a gradual shift to use of OBMs on the vallams until 1985. By 1990s this became a rapid conversion to OBM fitted large plywood canoes, perennially operating ever-expanding ring seines. And now, from 2015 onwards, there has been a return to very small-scale, individually owned thermocole rafts and delicate gill nets for seasonal, very near shore fishing. The fishermen often selling fish directly to the consumers on the nearby National Highway, thus garnering the full value of the consumer rupee.

This return to small-scale, beach-based, owner-operated fishing, points to a more convivial, socio-economically and ecologically sound fishery which needs to be valorised and propagated in its variant and appropriate forms in each of the districts.

Perhaps a 'return to the past' may be the way forward to the future for a responsible fishery, which in itself is the greatest social protection.

Promoting Green Investments

While the return to small-scale fishing at sea is one sure way to enhance social protection for the fishing community, there are other deliberate actions to revive our coasts which have been facing existential threats as a result of our excessive and mind-less human interventions.

The port and fishing harbour building spree which we have undertaken for more than half a century is now becoming an ecological and economic liability. Many of the more recently built coastal structures have failed to serve their purpose and the public investment[34] is causing huge externalities such as erosion, sediment accumulation causing unpredictable turbulence in the littoral sea leading

[33] These indeed were the special and much heralded features of the sustainable, artisanal fisheries of Kerala

[34] As per the Department of Fisheries 11 completed harbours (as of 2013) cost Rs. 193 crore. However, data for 2010 shows that the expenditure on 18 harbours (8 not completed) was Rs 257 crore (Statistics 2010 Page 38) The revenue collection till 2013 was Rs 40 crore. (Table 54 & 55 Kerala Marine Fisheries Statistics 2013).

to accidents and deaths. Much of these negative effects are being experienced by the coastal communities themselves.

Efforts to create green sea walls using wind-breaking trees like casuarina, the revival of mangroves where they once existed, the erection of large artificial reef in the littoral waters which can reduce the wave crests and other such numerous measures which can be termed as 'green investments.'

About a century ago the mangrove cover in Kerala was about 1700 sq.km. Today it is only 22 sq.km and of this only about 5 sq.km has legal protection. Extending legal cover to the remaining area is vital. Mangroves offer a natural barrier against sea erosion and, in fact, are a much better and cost-effective option than sea walls in protecting the State's coastline. They are also natural 'hatcheries,' acting as breeding grounds for fish, crabs and water fowl and other aquatic life.

In the 1980s and early 1990s the fishworkers of Trivandrum District had taken up the task of laying artificial reefs in the coastal waters of the district with the twin objective of rejuvenation of the ecosystem and also acting as barriers to prevent trawlers from operating in the area. (Titto D'Cruz et al, 1994)

More recently in 2019 the Government accorded sanction of a revival of this practice and a large Rs 3.75 crore project for laying artificial reefs was commissioned in Trivandrum District off the villages south of Vizhinjam. However, at the same time, fishers who have been collectively taking initiatives to lay artificial reefs in Kozhikode district have been arrested for 'undertaking illegal activity'. There needs to be a unified policy on artificial reefs.

Artificial reefs are considered favourable habitats for periphyton, a colony of microscopic planktonic organisms that are the prime source of food for omnivorous and herbivorous fishes. Sting ray, electric ray, lobsters, carangids and scad are expected to reach these artificial reefs to feed on the small fishes. Besides enhancing the overall fish availability off the coast, the artificial reef cluster will revitalise the aquatic environment, act as spawning and nursery ground, reduce fishing time for scouting, and provide livelihood to older fishers of the community.

Involving the coastal community in these activities can also be major employment generation sources and can be financed by the current on-demand employment schemes such as MGNREGA. Such actions can convert a situation of desperation and crisis, which we are witnessing along the coast, into major opportunities of hope and social protection.

Reducing Carbon Emissions: Electric OBMs

The fishing sector globally contributes to only less that 1 percent of the carbon emissions which are today contributing to the global warming and its related causes such as sea level rise, changes in the rainfall patterns and extreme weather event at sea.

However, it is important that every sector of the economy contribute its share to reducing the impacts of irreversible global processes.

In that context, the fisheries sector of Kerala, and of the country as a whole, has in the past 2-3 decades undergone a very rapid transition from being a substantial user of renewable energy (wind and waves) to becoming a sector which has become almost totally dependent on in-board and out-board engines which use fossil fuels for propulsion. It is estimated that the fishing power of the entire fishing fleet of India increased about 27 times in 50 years! (Vivekanandan E, 2018). This transition has not only led

to substantially increased costs of fishing, but also indirectly increased the price of fish, thus making both the fishworkers and fish consumers net losers.

Since the early 1990s Out Board Motors (OBMs) have become an integral part of the small-scale fishery. OBMs became widely available for fishing in India only after the post-1991 liberalisation.[35] Initially OBMs were fixed on the traditional fishing craft such as kattumarams, dugout and plank canoes. It was the development of the plywood vallams by the South Indian Federation of Fishermen Societies (SIFFS) in the 1990s which gave the impetus to the widespread use of OBMs, initially in Trivandrum and Kollam and soon in Alleppy and then spreading to the whole state.

At first the most popular OBMs were of the Yamaha and Suzuki brands and the HP rating was 5 and 9.9. Over the years the HP rating of OBMs has increased to 40 and 100 HP. For the current ring seine operations more than two OBMs may be used by a fishing unit for its operations.

The steep increase in the price of petrol and diesel and the strict rationing of kerosine has led to a situation where the operational costs have sky-rocketed. The total OBM HP of Kerala has not been assessed. It needs to be done as a matter of priority. The stark reality is that the energy input of the fishing operations (measured as the kilocalorie [kcal] of fuel used by the sector) is many times in excess of the energy output from the fishery (measured as the kilocalories of fish harvested)[36]. This negative energy balance is unsustainable. It is also a major contributor to the carbon emissions of the sector and will contribute to climate change, which will first affect the coastal areas![37]

The development of electric OBMs has progressed considerably in Europe. However, it is unlikely that the currently available motors can be used on the ring seines of Kerala. However, there is scope for their utilisation on small-scale plywood and FRP boats below 10 metre using passive fishing gear and fishing within 5-10 nautical miles of the coast and for 5-8 hours. The thermocole vallams of Alleppy can test them without problems.

Figure 8: Thermocole Vallams of Alappuzha

[35] The first experiment using OBMs in Kerala was conducted in 1975 at the Marianad village through the aegis of the then Marianad Malsya Ulpadaka Cooperative Society. The Yamaha Company provided 4 OBMs of 5 HP with different fuel systems for experimentation on kattumarams. The project was conducted over a year. Data was collected on the fishing effectiveness, operating costs and engine technical efficiencies. The project was funded by the People's Action for Development India (PADI) of the Ministry of Rural Development and overseen by the Department of Fisheries of Kerala. At that juncture the fishers were not particularly enthused by the speed using OBMs when compared to the efficiency of their lateen sails!

[36] Calculations show that in 2010 the fishing vessels using OBMs expend 2.1 Kcal of energy (fossil fuel) to produce 1 Kcal of energy (fish)!

[37] OBMs in India, for data based on 2010, emit 0.59 tonnes of CO2 for every tonne of fish caught (Vivekanandan E et al, 2018)

Given the big market for OBMs and the current tendency among many fishers to return to smaller scale of fishing operations, the scope for a private-public partnership for production of electric OBMs should be explored by the Government of Kerala.[38] Giving subsidies for the shift may also be considered as a 'good green subsidy'. This is also a good example of an investment which can attract climate finance funds both for the state and private investors.

While the initial investment in electric OBMs may be higher, lower running costs, maintenance costs will compensate. The silent running of the OBM may result in being able to catch more fish. The lack of carbon emissions can also be converted into carbon credits by fishers under the appropriate schemes.

Figure 9: Model Electric OBM

The overall impact of this shift to electric outboard motors can contribute to huge reduction of operating costs and enhanced incomes – particularly for the small-scale of fishing operations -- which in itself is a major source of social protection.

Leveraging markets for sustainable fishery

The market forces, are partly responsible for promoting unsustainable harvest of fish resources from the marine waters, they also have the potential to serve as a tool to bring forth elements of sustainable fishing practices as well. This is particularly with regard to the ability of the market to offer incentives in the form of better prices of sustainably harvested fish targeting both domestic and international consumers. Labelling, certification and niche marketing are the cornerstone of such initiatives. This also warrants establishment of facilities to ensure traceability.

[38] Many companies are involved in manufacture of electric OBMs. They include: Torqeedo, Evoy, Yamaha, ePropulsion

5. SEA SAFETY AND INSURANCE

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…… [6.16 of the SSF Guidelines]

Marine fishing is one of the most dangerous jobs in the world. FAO estimates that annually more than 32 000 fishers die when doing their job. Decent and safe working conditions and safety training can significantly reduce accidents in marine fishing.

In Kerala, since the turn of the century, and particularly after the tsunami disaster of 2004, the issues pertaining to the conditions at sea and the assessment of uncertainty and risk pertaining to a fishing trip have taken a new meaning, particularly for the vast majority of small-scale fishers of the state.[39]

One of the important but less known elements for increasing the risk in fishing has been the increased erosion of the coastline, its protection using seawalls, and the consequent inability of fishers to assess the nearshore wave and surf patterns. Another aspect has undoubtedly been the shift in the technology of small-scale fishing craft design without adequate regulatory measures, and the increased use of excessive mechanical propulsion on them.

Another important predisposing factor that enhances risk is the unscientific alteration of the structure of fishing vessels without following the prescribed safety and regulatory measures. Alteration of the structural configuration of the vessel renders them to become more vulnerable to natural disasters and risks. This issue is particularly serious for small-scale fisheries where many small boat yards make craft without proper specifications. Another common alteration is change in the propulsion system and its power, to catch more fish from far and deep.

The major strategies towards risk reduction falls in the realm of both mitigation and adaptation. While the policy makers have had been sensitive towards the risks in marine fishing, they have not translated these concerns into policies till recent times. The tsunami in 2004 had significant impact on disaster preparedness and risk management, particularly in the form of technologies for risk reduction by going fishing with proper safety equipment, navigation systems, communication systems. This has helped in mitigation and adaptation strategies. Coastal zone conservation has received greater attention at national and state level. The CRZ regulations started to be viewed seriously. Mangroves and conservation strategies received greater attention.

On the positive side, risk transfer strategies like insurance received greater priority. New insurance products and new risk covering partnership have emerged.

Sea safety measures, accident risks and social protection

Sea safety is today one of the issues which greatly troubles the mind of fishermen and their families. Informal discussions with fishers and their family members indicate that, in their perception, the sea has become less safe. They are less confident today about being able to predict and understand the vicissitudes of the sea. (Suresh et al, 2018)

Cyclone Ockhi was a defining moment in the lives of Kerala fishers. Fishers who held out in the sea, clinging precariously to their overturned boat hoping for help to arrive, recount having seen a

[39] The first assessment of uncertainty related to fishing trips in Kerala was undertaken in 1980-81 (Kurien J and Willmann R, 1982)

monstrous sea, of the kind they had not experienced in their whole fishing history. For some of the most expert fishers of Kerala to 'fear the sea' as an alien, is not a happy sign.

In 2000, when a count was made of the deaths at sea over a decade, by calculating the amount of insurance compensations provided, it was estimated that there was the death of a fisherman once in 4 days. (Kurien and Paul, 2000). Making a new estimate for the 6-year period 2015-2021 of fishers dying and missing at sea (meaning the bodies were not found), using data provided by the Department of Fisheries, the frequency is now 1 death in 6 days. Obviously, the level of risks which the fishers face has only reduced marginally if one considers the frequency of deaths.[40] That said, marine fishing still remains the most dangerous primary sector occupation in Kerala.

However, the slight reduction in the frequency of deaths, despite increase in weather events in the period 2015-2021, can probably be attributed to increased investment in sea rescue efforts by the Government, better weather predictions, and greater discretion on the part of the fishers with regard to the risks they are taking while engaging in fishing.

The reason why fishers often take, what may seem to be unwise risks, is a function of many factors. The most important is that uncertainty and risk is the 'norm' of their occupation. Sea conditions, the direction of the current, the strength of the wind and its impact on wave patterns, to mention a few, are constant subjects of discussion and sharing across individuals and groups.

Therefore, their decision on whether or not to go fishing is based on a calculus of factors which are more than just the weather *per se*. These factors include what they have heard from colleagues about the state of the sea; their own need for earnings; the hope of a bumper harvest, especially during the monsoon when fish prices are also high; and in some districts, such as Trivandrum, a sense of bravado in their earlier skills when fishing with kattumarams, but admittedly now, without taking into consideration the higher risk associated with fishing using the changed propulsion technology and craft design.[41] The manner in which they 'submit' to modern weather predications and 'obey' meteorological bans therefore do become contentious issues. (See below)

The Department of Fisheries has issued several orders which insist that all fishing vessels should carry the basic safety equipment and also specified colour coding of the vessels for easy identification. (12/11/2020 se G.O.(P)No. 3/2020/F&P; 06/01/2021 se G.O.(P)No. 01/2021/F&PD). However, the extent to which this is being followed has not been assessed.

Increasingly, one important difference which is being noticed in the pattern of accidents and resulting deaths of fishers, is that many of the deaths are taking place closer to shore, and while setting out to fish. Discussion with fishers points a finger at coastal structures, including those meant for fishing, being the cause for these deaths. The changing and unpredictable patterns of littoral currents caused by these structures, and the nature of sediment accumulation caused by it, has been given as an important reason for loss of control over the fishing vessels, leading to their capsizing, and fishers getting trapped, leading to deaths[42]. Important concerns have also been raised about the sea-worthiness and stability of many of the small fishing vessels which are designed and crafted without adequate protocols regarding safety.[43]

[40] One may also need to factor in the disproportionate deaths as a result of Cyclone Ockhi in 2017

[41] The kattumaram was an unsinkable, non-motorised raft. Its replacement has been the plywood/FRP boat (vallam) which is a canoe and more prone to entrapping the fishers in its great likelihood of capsizing in rough weather waves.

[42] Discussions with fishers from Anjengo reveal that most of these near shore deaths are happening in the early morning when fishers venture out to sea. As many as 11 fishers died in this manner since 2016. The adverse effect of the Mothalapozhi harbor, which was constructed as a result of their demands, have come to haunt them they say.

[43] 2010 Safety Recommendations for Decked Fishing Vessels of Less than 12 Meters in Length and Undecked Fishing Vessels. https://www.ilo.org/wcmsp5/groups/public/---ed_dialogue/---sector/documents/publication/wcms_216664.pdf

Risks Beyond Age 60

Another concern raised by fishers was about the lack of insurance cover for those above 60 who continue to fish. Many among the older fishers are still fit to work and indeed continue to fish actively. Unlike other land-based communities, they do not wish to engage in activities other than fishing. Their knowledge and skill continue to be much sought after.

However, in the event of their having an accident at sea, or should they die at sea, then they are ineligible to receive any insurance benefits. Fishers point out that with the increase in life expectancy, more members among them are facing this dilemma. It is a matter which vexes the whole community given their concern for the aged.

Two matters need to be tackled in order to find a solution to this concern. First, the insurance companies need to either increase the age at which insurance coverage for fishers will stop to 65, or work out a higher premium rate for the cohort of the population above 60 and restrict coverage strictly to accidents at sea.[44] The additional premium payable for this cohort of fishers may need to be met by the state. Secondly, the relevant provisions in the Kerala Fishermen' Welfare Fund Act and/or Rules may need to be amended to facilitate this change.

Attending to this concern will have a major impact for assuaging the worries of the senior citizenry among the fishers and enlist the full support of a vulnerable community.

Weather Information and Communications

Over the years many agencies of the government dealing with space, meteorology and ocean management, to name a few, have taken measures to innovate many instruments which can be utilised by fishers on their boats as communication devices to receive weather warnings and to send alerts in time of distress. The merit of individual devices is not in question, but costs, functionality and suitability while at sea may be a major factor in adoption of the innovations by the fishers. (See Appendix A: Details of Communication Devices (Individual and Public)

An impressive array of equipment has also been provided to fishers. These include 40,000 life jackets, 1132 lifebuoys, 941 NAVIC phones, 198 satellite phones and support for other instruments (Dept of Fisheries, Demand Day Document) While the utility of these individually owned instruments is not in question, in the final analysis, at a time of crisis, the most important consideration is whether fishers can communicate to land, informing that they are in danger, and also be sure that a protocol of action will be triggered by their SOS messages. The reliability of this feedback system in triggering action for rescue, is key to fishers developing trust in it. Without achieving this outcome, the investments made in the hardware of sea rescue are worth little to the fishers. The most important facility is a communication system from the sea to land. A two-way communication facility is ideal in this context.

The most important need is for coordination between agencies responsible for monitoring the weather, their effective communication with the state and local level departments and ensuring timely and credible last mile connectivity which includes the fishing villages and the fishers at sea. Equally important is the need for horizontal connectivity between villages for sharing of weather information. Some standard operating procedures are needed.

There is need to structure in the involvement of the local community and its institutions into the sea safety and disaster risk management plans. This is the only way to mobilise customary means of rapid communications (e.g., church/temple/mosque loudspeakers, bells), local knowledge of the fishers' usual fishing zones and the rapid response of community rescue teams. A team of dedicated

[44] The Group Insurance Scheme for Fishermen covers them up to 65. In Tamil Nadu, the coverage is also till 65.

'community first responders' in each coastal village should be designated, trained and facilities to regularly conduct mock drills should be provided. Their contact details should be easily available with all concerned authorities responsible for sea safety and disaster management. They need to be given proper recognition – social and official -- for services rendered.

The use of community radio stations should be seriously considered as they have proven to be very effective in Odisha and Gujarat in times of cyclones. Youth from the community[45] can be trained for this purpose and the radio stations can become a rallying point for entertainment and discussions on aspects important for the community.

Another suggestion has been to solicit the cooperation of the network of 20 lighthouses which exist along the coast of Kerala. The light from them has always been a source of guidance and solace to the fishers. Whether they can now be called upon to play a more pro-active role in times of bad weather to pass on information to the community is worthy of consideration. The government should take up the matter with the Directorate General of Lighthouses and Lightships of the Ministry of Ports, Shipping and Waterways. (See Appendix B On the Network of Light houses in Kerala)

Community Participation in Sea Monitoring and Communication

The role of community participation – particularly of youth – in the monitoring and communication of weather, sea safety and sea rescue are crucial for effective saving of lives at sea and land. The idea of a community monitoring and communication facility/centre (*Raksha Kendram*), initially provided by one of the socio-religious organisations in the community, should be considered a priority. These centres can be formally linked to the MatsyaBhavans. They can also be the centre where the proposed Sagar Mitras can have a dedicated space to work from. The management and governance of these centres (*Raksha Kendra Samithi*) should be allowed to evolve, but based on some overarching framework agreed upon by the state (Department of Fisheries representatives, Sagar Mitras, elected coastal ward member) and community (decided by the people) that will ensure secure representation of active fishers, trained youth and women. These centres can also double up as a meeting centre for youth and fishers who receive special training in handling rescue and providing timely localised weather information to those at sea. Given the way climate change is developing and hastening, it would be wise to have such 24X7X365 day centres which are networked with each other, in some of the key coastal centres in each district. (See below: Sea Rescue)

Such a community centre can also be provided with large digital screens on which weather information and other climate related data from the national institutions can be broadcast. Provision of wind speed and direction recording sensors (anemometers) are another very crucial instrument which can provide more local wind data which can be matched with the more macro-feeds being provided from meteorological centres. Fishers are very concerned about wind as it is a crucial indicator of the wave conditions near shore and deeper out at sea. There can also be a system where fishers can provide real-time feedback using a variety of instruments in their possession. Encouraging such exchange will also aid in building trust and thus foster a greater sense of ownership of the monitoring system by the fishers.

The wider use of social media by youth from the fishing community to communicate both among themselves and also to make the general public more aware of the coastal issues calls for consideration and encouragement by the Department of Fisheries, but without intruding into the autonomy of these actions.[46]

[45] https://monsoonradio.wordpress.com/

[46] For a good example see Facebook Watch: Ente Kadalarivukal: My Sea Knowledge

Loss and damage from slow and rapid onset climate events require careful consideration in the case of marine fisheries. The coastal areas and marine fisheries are the most exposed to impacts of climate change. In the past, it was taken as a *fait accompli* of the occupation. However, today the coastal fishing communities are becoming more vulnerable and hence more sensitive to the need to respond and be adaptive to the happenings. Greater and more innovative social protection measures are needed to cover the risks.

Sea Rescue

Sea rescue facilities also may need to be given a very serious re-look.

The traditional large-scale centralised approach (big vessels, based at a port) needs to give way to thinking which uses the latest small-scale technologies (drones, remote controlled unsinkable aquatic devices etc) and engages at a decentralised level with the skill and knowledge of the coastal fishing communities.

The constant complaint from fishers we have met has been that the effective response time of the current sea rescue system of the government is too long and fraught with delays caused by a multiplicity of factors.

Kerala has three marine ambulances – the only ones in the whole country – costing Rs 1800 lakh will need to prove their usefulness given the increasing accidents at sea in the past year. The amount of Rs 250 lakh which will be needed for "maintenance and operation" of the marine ambulances (Rs 22,000 per day per ambulance) owned by the Department of Fisheries (Demand Day notes) may also seem of very questionable value considering the serious complaints which have been raised by fishers about the tardy response of one of the ambulances in a crisis. Fishers say that the delay was primarily due to the formalities involved in activating the rescue protocols and lack of familiarity of the crew to rough seas and the temperament of fishers at a time of crisis.

New Innovations Needed

There has been significant innovation globally in sea rescue apparatus such as remote-controlled buoys, and use of low flying drones (unmanned aerial vehicle -- UAV) which carry what are called rescue pods which can be used for rapid deployment. The UAV consists of a small parcel (or Pod) containing water rescue and safety devices for deployment and is controlled by operators on the beach or rescue vessel. From a hovering position above the person/s in distress, the UAV operator is able to use the attached microphone to calm the patient and, if needed, explain that a Pod is about to be deployed containing: a self-inflating floatation device capable of supporting 3-4 people with attached sea anchor to keep it stable; an EPIRB signalling unit to keep track of them in the event vision is lost; a shark repellent device capable of keeping sharks at bay for up to 8 hours, a whistle plus an automatic SOLAS light for night rescue, SOLAS grade high visibility retro-reflective. These rescue pods are reusable. (www.sosmarine.com).

Figure 10: Rescue Pods

Ensure Community Involvement

There is need for greater formalisation of the involvement of members of the fishing community more formally in sea rescue operations. After Cyclone Ockhi the Department of Fisheries has taken steps in the right direction by recruiting and training men from the fishing community. Many were sent for training in reputed centres. However, on their return, they are employed as daily wage workers and treated as helpers at the centres in Kerala where they are deputed. This has been a serious demotivator for an otherwise meaningful scheme.

The community orientation to sea rescue also requires that local rescue initiatives, which are spontaneous, and undertaken at a time of need, should also be compensated and recognised. [47] As part of the Raksha Kendram, it may be worthwhile to consider the formation of a designated 'sea rescue corps' ('kadal raksha samithi)[48] consisting of members who can come together as per a rescue protocol which is developed in collaboration with the local community institution (church, temple, mosque committee), panchayat ward member, coastal police, and the Matsya Bhavan. It is here that the youth trained in sea rescue should be absorbed. This samithi should be provided the protocols to keep civil and revenue authorities on land abreast with real-time details which they can escalate to higher levels (coast guard, navy, light house etc) and also make efforts to contact the fishers to be rescued (if possible). The FMCS Station (mentioned below) can be the state-level coordination centre.

Sea Rescue Task Force

Central fishery agencies such as CIFT and CIFNET should take the initiative to first convene a meeting of naval rescue experts, UAV and ICT technology experts and representatives of fishers who have a track record of sea rescue from different part of the state. This group can discuss the various contexts of sea rescue and the pros and cons of different rescue approaches and protocols. These discussions should lead to a task force which can innovate devices which combine the use of the latest technologies (as mentioned above) with the participation of community owned fishing vessels which are always the first responders in a crisis.[49] Such blending of the latest technologies with the skills and resourcefulness of the community is the right way to approach sea rescue. The investment and the operational costs of such ventures will be only a fraction of what is being spend today on large rescue

[47] It may be worthy of recall that the marine fishers in large numbers took autonomous action to rescue people in inland districts during the 2018 floods. They self-organized in time of need and were only facilitated by the government (lorries to transport boats; fuel to use the boats, official support at the place of rescue and such like). Once the task was done, costs for repair to their damaged craft and official recognition for their actions was all that was undertaken. The fishers graciously refused to take any monetary compensation.

[48] The original objective of the Matsya Bhavans and the Matsya Sabhas included action in times of emergencies

[49] In January 2021 a young engineering student in Nattika, Trissur demonstrated how a drone can help in rescue of fishers. [https://www.hindustantimes.com/india-news/armed-with-drone-19-year-old-rescues-4-drowning-fishermen-off-kerala-coast/story-nvCNgclVlaxfuuG4Q4HuPP.html]

boats and ambulances which have a poor effective operational record, bring bad publicity and result in a loss of trust of the community. The key is that the community expertise must be made use in times of crises, and the institutional facilities need to be developed to leverage it by blending with modern technologies.

Boat Yards

Integration of the safety equipment with fishing vessels must be made compulsory before registration. Boat-building yards, particularly those making beach landing type plywood and FRP vessels, should be registered only on the condition that they make appropriate provisions for safety equipment storage (such as life jackets; flares; whistles, first aid, small jerry can for drinking water etc) on the vessels. These are the sort of measures for which subsidies can be provided. (Suresh et al, 2018)

Fisheries Monitoring, Control and Surveillance (FMCS) Station

We need to broaden the idea of sea rescue to go beyond the emergency events. There must be a system of regular patrolling of the sea by Fishery Observers who not only monitor sea and weather conditions but also observe the fishing practices and watch for aspects which can help to improve sea and fishing safety. Issues such as over-speeding, overloading of nets and fish can have important safety issues which get exacerbated in times of unexpected rough weather. Creating seasonal maps of common fishing locations using GIS and VMS information and linking the same to a Fisheries Monitoring, Control and Surveillance (FMCS) Station at the state level which is using real time data of fishing vessel movements must be considered. The vessels used by such these observers should also carry the sea rescue devices innovated by the Task Force (mentioned above). The fishers also need to be educated through various awareness programmes. However, one issue is that the safety equipment like life jackets obstruct the ease with which various fishing activities are conducted. This issue is to be addressed through technological interventions.

Insurance

The need for insurance is due to the combination of increased hazards and the greater degree of risk associated with such a situation. The increased level of hazards due to the impact of climate change are more evident in marine fisheries. Risk is therefore on the rise.

Researchers who have been working closely on the issue of fishery insurance (See Shinoj et al, 2017) have also called out the intense competition between fishing vessels in an ocean which has become open access, which lies at the root of the increased risks being taken by fishers in the recent past.

Lack of insurance or inadequate insurance coverage for craft and gear prompt the fishers to continue in the sea when a risky incident occurs, as they are concerned about their craft and gear which is their major source of livelihood. They tend to anticipate that the risky situation would subside, and in several cases, they pay a heavy price for it. A well-designed insurance product can serve a useful purpose in this context.

The risks in capture fisheries can be attributed to a variety of factors such as loss or damage to fishing vessels, equipment and gear in operation, loss of catch and human casualties in the sea. Though danger and risk are inherent in marine fishing, the current the economic losses arising from such incidents have increased with the climate hazards, growing investments in the sector, thereby heightening the vulnerability of small-scale fishers and boat owners.

There is a growing demand for managing risk in the fisheries sector and demands for appropriate and cost-effective insurance products are needed to satisfy this need. These are areas where governments

can provide 'good subsidies' as they help to reduce risk, save resources and lives and provide social protection for a whole population involved in fishing.

On the part of the insurers, they are looking for well-functioning organisational arrangement which can reduce the adverse selection, the moral hazard and the costs of insurance administration. The role of cooperatives like Matsyafed to make potential tie-up with insurance companies needs to be explored. Such an arrangement can be mutually beneficial for both.

Fishing Asset Insurance

The Union and state government should take a combined initiative to get insurance companies to provide innovative custom-made products to insure fishing assets. The current insurance schemes which cover assets have premiums which the fishers consider to be too high and too rigid in their operating terms. The insistence that only total damage will be covered by insurance companies is another barrier on the part of fishers to consider taking such policies. As with personal accident insurances, the scope for covering both partial and total loss of assets may need to be considered. Given fluctuating incomes, the fishers are also more comfortable with variable premiums which can be tagged to their varying incomes. There is also need for greater bottom-up initiatives to bundle micro-credit and savings schemes with insurance products. (See Shinoj P et al, 2017)

Making a gradual transition to vessel insurance at the time of annual registration may need to be considered by the government, starting with the bigger mechanised vessels, and coming down the vessel hierarchy. Subsidies for such actions are 'good subsidies' and may be encouraged. The Government should lobby for this with the Union Government.

Participatory Mutual Group Insurance schemes in collaboration with insurance companies for asset loss which have a provision for premium matching (e.g. government and the fisher cooperatives (Matsyafed) putting in a matching component of two or three times the group contribution) and details of payout being decided by the designated group, will lower claims, administration costs, prevent moral hazard and adverse selection.

An insurance demand survey in the fisheries sector should be undertaken to get a clear perception of the needs, the reasons for resistance to taking insurance coverage and the measures which can be taken to reduce risks and insurance premiums. Such a survey can be undertaken with the collaboration of insurance companies who may be keen to enter the sector.

Parametric Insurance for loss of income due to meteorological bans

Post Ockhi, the weather alerts by the meteorological department are taken more seriously by the fishermen. The alerts given are taken into consideration while deciding on fishing voyage. On several occasions, the predictions may not materialise at the local context leading to considerable economic loss. Such income loss needs to be compensated. Therefore, it is pertinent to evolve an income compensating mechanism for fishermen, in the form of an insurance.

Insurance schemes which can cover loss of earnings due to meteorological fishing bans are essential. As per the information from the Department of Fisheries, in 2019 marine fishermen were banned from going fishing on 55 days due to unfavourable meteorological conditions. In 2020 this number increased to 60 days[50]. Some minimum amount can be considered as compensation for all those who are registered as 'active full-time marine fishers.'

[50] Many fishers do not abide by the warnings and do venture out to sea. However, they remain fishing close to the coast in their effort to earn income and reduce risks.

One of the members of our Working Group had filed a petition before the Kerala State Human Rights Commission and obtained a favorable judgement about the obligation of the state to consider such a payment. For the year 2019, taking a minimum income loss of Rs 600/day for the 55 days lost due to the meteorological ban, the total loss for the active marine fishers (1.1 lakh in number) of the state alone would be about Rs. 360 crore for that year[51]. To put this in perspective, the Fisheries Plan Expenditure in 2019-20 was only Rs 224 crore.

The FAO/UN (FAO, 2019) suggests parametric (weather index) risk insurance as a relatively new but innovative approach to provide insurance that pays out benefits based on a predetermined index (e.g. rainfall level, wind speed) for loss resulting from serious weather and catastrophic events. Unlike in traditional insurance coverage, the benefit payable in parametric insurance is determined in advance of the policy purchase by estimating the loss as accurately as possible, subject to certain conditions being satisfied. Parametric insurance arose from the desire for faster claim payouts than typical insurance policies provide. This payout model aims to closely mirror the actual damage on the ground and enables a much more rapid payment as no loss adjusters are required after the event to assess the actual damage. It is a top-down approach to insurance and at no stage are the beneficiaries involved or consulted.

An insurer may prefer to issue parametric over traditional insurance products because of significant claims-processing savings. With a predetermined trigger and indemnity cost, there is no need for claims adjusting. Nevertheless, a significant drawback to parametric insurance is 'basis risk' where smaller events may cause a huge loss to the sector, while a large event may conversely cause fewer losses, i.e. people may incur higher losses than the payouts provide for. On the other hand, some of the insured may receive payouts without sustaining any losses.

Importantly, parametric insurance should not be an alternative to traditional insurance, but rather as complementary. Experts foresee parametric insurance taking a larger role in insuring catastrophic events, where there is no need for insurers to dispatch large teams of claims adjusters to assess damages or verify coverage. Considerable time and expense are associated with the thousands of claims resulting from catastrophic events. Parametric insurance eliminates the need for claims adjusters and requires only verification of the triggering event for claim payment.

The World Bank supports multi-country risk pooling mechanisms. The Asian Development Bank has been actively promoting such disaster risk reduction instruments.[52] Catastrophe Risk Insurance Programs are created to improve affordability of high-quality sovereign catastrophe risk transfer associated with geophysical and climate related events and to enhance the capacity of Ministries of Finance for developing and implementing disaster risk financing and insurance strategies.[53]

Preliminary discussions should be held with the Union Government and with insurances companies to consider this proposal for parametric insurance.

It may also be noted that a similar scheme exists in the agricultural sector to cover crop loss due to weather related issues under the Restructured Weather Based Crop Insurance Scheme (https://www.aicofindia.com/AICEng/General_Documents/Product_Profiles/Restructured%20WBCIS/WBCIS_OGs_23.03.2016.pdf)

[51] In 2020 the days lost was 60 days and in 2021 it was already 70 days by November 2021

[52] See: https://www.adb.org/sites/default/files/institutional-document/670596/financing-disaster-risk-reduction-asia-pacific.pdf . This document gives a good coverage of financing disaster risk reduction

[53] A good example is the Caribbean Catastrophe Risk Insurance Facility: https://reliefweb.int/organization/ccrif

6. CLIMATE CHANGE, SAFE HOUSING AND SECURE COASTS

States should consider assisting and supporting small-scale fishing communities affected by climate change or natural and human-induced disasters, including through adaptation, mitigation and aid plans, where appropriate. [9.4 of the SSF Guidelines]

Climate change is happening rapidly and it is most evident at sea and the coast.

Marine fishing communities are the occupational group in our state that is most closely embedded to the raw forces of nature and its constant changes. Coastal communities will also be the first to bear the brunt of climate change in Kerala. They are extremely knowledgeable on issues pertain to weather and climate, as it is central to their livelihoods. However, with the unpredictable changes which are taking place they are also unsure of the future. (Geetha R, 2015) Climate change impacts all spheres of people's lives in coastal area. This is particularly true for those who venture out into the sea eking out a livelihood. The areas affected include drinking water and sanitation, health, damage to houses, transport and coastal roads, damage to fishing assets, and impacts on household income. A master plan for their future circumstances needs to be prioritized. In particular, this will have to deal with housing and other community amenities as a matter of urgency, as the fishers have to shift their accommodation quite frequently in the event of a climate hazard.

Housing for fishworkers in the context of climate change and coastal erosion

Housing is an important issue, and must be addressed taking into consideration the general directions in which the approach to housing is being evolved in the state in general. In this context, the specific policies are to be based on certain broad principles:

a. The general approach to land use and housing at the state level so as to minimise the use of land, and harness the economies of scale in developing associated amenities including sanitation, water supply, waste management, approach to roads, vehicle parking, common amenities for exercise etc. In that context, having a large number of houses as a housing colony, or multi-storey buildings makes sense.
b. However, the general preferences of the people to have independent houses is to be given due weightage.
c. Housing development need to reckon the coastal zone regulation acts in vogue.
d. Houses should have access to the livelihood assets and activities like fishing. Therefore, the houses should not be very far from the shore as far as fishing communities are concerned.
e. Housing development also needs to consider need for upward mobility of the fishers.
f. The houses could utilise the circular economy principle of "reduce, recycle and re-use" in consumption of resources and utilise renewable sources of energy as far as possible, taking into consideration the possible disruption in future due to climate events.

The issue of appropriate housing for marine fishers was always a matter of concern of the Department of Fisheries. In the 1960s and 1970s there was a practice of establishing 'fishing colonies' – groups of houses in selected villages where coastal space was made available. Initially, these houses were built in the standard pattern of 'lines' – like that made for plantation workers. In some cases, the basic plans of these houses did not include toilets! The building of 'colony houses' was largely restricted to the thickly populated southern coastal districts of Thiruvananthapuram and Kollam (See Table 9).

Table 9: Details of the Colonies and Number of Families Housed in this manner

No.	Coastal District	No of 'Colonies"	No. of Families
1	Thiruvananthapuram	40	3001
2	Kollam	58	4268
3	Alappuzha	1	20
4	Ernakulam	5	180
5	Trissur	8	176
6	Malappuram	8	380
7	Kozhikode	10	255
8	Kannur	5	276
9	Kasaragod	8	184
	TOTAL	143	8740
Source: Compiled from data in Kerala Fisheries Statistics 2013			

Housing for fishing communities has come a long way after that initial phase. Many experimental efforts at house building have been undertaken in other coastal districts. Several NGOs and community organisations have also contributed to the variations in designs and construction materials to make housing for fishers more appropriate and liveable.

In 2010 the National Institute of Rural Development estimated that 29,209 fisher families in the state were homeless. Of these 16359 had land of their own and 12850 were both landless and homeless.

Between 2012-13 and 2015-16 under various housing schemes, as many as 13961 houses were built at a cost of Rs 28874 lakh (about Rs 2 lakh/unit) and between 2013-14 and 2015-16 as many as 5800 homes were scheduled for repair costing Rs 2900 lakh. (Budget Rs 50,000/unit).

Also, during 2013-14 houses which were built earlier by the Department of Fisheries 'Housing Colony' scheme (mentioned above) were provided with Rs. 1705 lakh for repair and revamping of 1541 units. (KMFStat 2015). In fact, the number of houses built for coastal areas and the fisher population reflects the wide range appreciation of the issues faced by the fisherfolk with respect to housing. However, the houses constructed did not consider the special needs of the coastal area in terms of protection from frequent climate vagaries.

However, in the recent past, the matter has become an issue which has been engaging not only the minds of the fishers, but the government, the media and the general public. The impact of extreme weather like storms and cyclones and other natural disasters like freak waves and tsunamis have heightened the urgency to find permanent solutions to the issue. On top of this already difficult situation, comes the additional reality of extreme erosion of the beaches causing houses on the coast – including many built with hard earned money -- to be devoured by the sea. The reasons for the sudden increase in the intensity and extent of coastal erosion has become a contentious and much debated issue.

One perspective is that this is largely due to climate change which is causing sea level rise and unpredictable sea events. The other reasoning is that, while climate change effects are real and all-pervasive, the more proximate reason, at any given local coastline, is the adverse impact of built structures – ports, piers, groins, seawalls etc.

After building a series of fishing harbours and ports, and damming all our west flowing rivers, we are realising that these human-made structures are contributing to unstoppable coastal erosion by

changing the sediment transportation dynamics along our coast. In the 1970s only 10 percent of Kerala's coast was eroded. Today over 60 percent of our coastline is walled with granite which is brought there by blasting the hills of the western ghats! While this absurdity is yielding good business to some groups of people, it is ruining two of the most fragile ecosystems of our geographically narrow state.

Adding to these coastal structures is the cumulative effect of decades of coastal sand mining and coastal dredging. These actions are further exacerbated by the decline in the flow of river sediments as a result of damming and sand mining of all our west flowing rivers. The jury is still out on all these explanations.

However, the real fact is that an increasing number of fishers are losing their homes and their socio-religious structures like temples, mosques and churches to the sea at a faster rate than a decade ago. The situation in Chellanam in Ernakulam District is a case in point.[54]

A permanent solution is needed, and this warrants all forms of social protection measures to be taken urgently before the situation gets out of hand.

Marine fishers need to live near the sea and have priority access to the shore. Consequently, any effort to rehabilitate them in housing far away from the coast is a non-starter.

Fishers must be relocated to the east of the coastal road by using land which belongs to the government or acquiring land of private parties and institutions paying market prices to them. The public cost of such a plan for re-settlement must be weighed against the huge social benefits of this action for the future. Some of these benefits include -- livelihood security for the fishing communities; the employment and revenue generation potential from a decentralised small-scale fishery; potential for revival of the coast to its original sandy state and revive sustainable tourism possibilities; and sustaining one perpetual source of nutritious food for the people of the state.

Providing secure housing for the coastal community close to the sea, but away from danger, should be a top priority for the government.

Punhargeham Project[55]

The Punhargeham project of the Government is an important and well-intentioned initiative. However, the amount offered to fishers for land and house building (Rs.6 lakh for land and Rs 4 lakh for building) are totally unrealistic given land and construction prices in Kerala. Such aspects create a mockery of good intentioned schemes.

Land should be acquired by the government for this important public purpose under special provisions of relevant Acts. If large plots are acquired, then the concept of sustainable community housing can be proposed to architects who can compete to provide viable building concepts. The match-box type constructions which are the standard models of government construction departments need to be avoided.

[54] The Online Manorama has made a detailed investigation of the situation in Chellanam which is available at: https://www.youtube.com/watch?v=mmxa0Am72_8; https://www.youtube.com/watch?v=QbS3XBI0Wp0; https://www.youtube.com/watch?v=QYc-YbxcX2U; https://www.youtube.com/watch?v=uPHfEaR0jNk; https://www.youtube.com/watch?v=kraE1XCGlZo

[55] The data in this section is analyzed from the (Govt. of Kerala, 2018-19 Report)

In response to the alarming crisis of housing on the coast, the Department of Fisheries in 2018 conducted a survey taking full details of all the houses along the coast which were situated within the 50 metres of the High Tide Line (HTL). According to the survey there are 18685 such families with houses spread across the 9 coastal districts and located in 46 of the 49 coastal constituencies.

Table 10: Details of Houses in Coastal Villages and Nearness to the HTL

	Distance from the High Tide Line (HTL) and number of houses				
	< 10 MTS	10-20 MTS	20-30 MTS	30-50 MTS	TOTAL
KERALA	**3367**	**3921**	**4577**	**6820**	**18685**

Source: Government of Kerala, 2018-19 Page 16

These 18685 houses, accounting for a population of 121,310 persons, are located in 192 villages of the coast (there are 222 coastal fishing villages), implying that in just 14 percent of the villages (30 of them) are the fishing community considered as having safe housing

Of these precariously located houses about 2 % were located in less than 1 cent of land and 55 % in below 5 cents. Only 43 % had more than 5 cents.

Of these families only 8493 (45.5 %) were willing to move, and of these 7716 have agreed to the current proposal made by the government for their relocation.

The survey highlights the various levels of precarity in which these families are living today. Considering only the closeness to the shoreline, there are as many as 3367 houses within 10 metres of the HTL. Of these, 388 houses are just huts, tents or a shed. They may certainly be classified as the most disaster-prone houses in Kerala.[56] (see Tables 11, 12 below for detailed analysis)

[56] If one is searching for the most habitat-insecure in Kerala, then this is where to find them

Table 11: LOCATION AND HOUSING DETAILS OF THOSE **NOT WILLING TO MOVE** FROM THEIR CURRENT RESIDENCE ON THE COAST FOR WHOLE OF KERALA STATE

DISTANCE FROM HTL	LEVEL OF HOUSING PRECARITY	NUMBER OF FAMILIES NOT WILLING TO MOVE	TOTAL	PERCENTAGE OF TOTAL
BELOW 10 MT	HIGHEST	62	1210	12
	HIGH	20		
	MEDIUM	35		
	LEAST	1093		
10-20 MT	HIGHEST	71	1998	20
	HIGH	63		
	MEDIUM	48		
	LEAST	1816		
20-30 MT	HIGHEST	95	2691	26
	HIGH	35		
	MEDIUM	33		
	LEAST	2528		
30-50 MT	HIGHEST	183	4293	42
	HIGH	42		
	MEDIUM	46		
	LEAST	4022		
		10192 (54.5 % of total identified)		
HIGHEST	Living is a shed, hut or tent			
HIGH	Living in house with wooden wall			
MEDIUM	Living in house with mud or brick wall			
LEAST	Living in house with bricks, carved stone or hollow bricks			
Source: Analysis from the Report on Fisherfolk Families living within 50m from HTL of Kerala Coast, Department of Fisheries 2018-19				

Making an investigation into why so many families are NOT willing to move despite their precarity is a matter which deserves serious and immediate attention.

There have been considerable misgivings among the fishing communities about the terms and conditions about housing. Over time there have been a variety of housing schemes implemented with different costs/unit and different terms, adding to confusion. Handing over the construction to LIFE also raised some anxieties about the loss of flexibility which existed when the implementation was undertaken directly by the Department of Fisheries. There was a very clear lack of proper communication about schemes which often lie at the root of the misgivings. It is pertinent to involve the leaders from the community with the purpose of re-assuring the fishers about the intension of the government and to establish an effective communication system so as to allay their fears.

Table12: LOCATION AND HOUSING DETAILS OF THOSE **WILLING TO MOVE** FROM THEIR CURRENT RESIDENCE ON THE COAST FOR WHOLE OF KERALA STATE

DISTANCE FROM HTL	LEVEL OF HOUSING PRECARITY	NUMBER OF FAMILIES WILLING TO MOVE	TOTAL	PERCENTAGE OF TOTAL
BELOW 10 MT	HIGHEST	326	2157	25
	HIGH	49		
	MEDIUM	136		
	LEAST	1646		
10-20 MT	HIGHEST	196	1923	23
	HIGH	33		
	MEDIUM	113		
	LEAST	1581		
20-30 MT	HIGHEST	139	1886	22
	HIGH	30		
	MEDIUM	91		
	LEAST	1626		
30-50 MT	HIGHEST	237	2527	30
	HIGH	43		
	MEDIUM	55		
	LEAST	2192		
			8493 (45.5 % of total identified)	**100**
HIGHEST	Living is a shed, hut or tent			
HIGH	Living in house with wooden wall			
MEDIUM	Living in house with mud or brick wall			
LEAST	Living in house with bricks, carved stone or hollow bricks			
Source: Analysis from the Report on Fisherfolk Families living within 50m from HTL of Kerala Coast, Department of Fisheries 2018-19				

The initiatives so far have been provision of flat complexes and provision of individual houses in cases where land could be identified for this purpose close to the original coastal residence. However, in case some families are ready to move to non-coastal regions due to occupational diversification and upward mobility, they could be facilitated. This is the case of some families, where certain members are engaged in other activities, and family members are no longer actively involving in fishing activities.

Model Villages[57]

During the 10th Five Year Plan a National Fishermen Welfare Assisted Housing Scheme for model villages was initiated by the Union Government. These schemes were active until 2015. However, the extent to which these measures have been integrated into the actions of the current Central Government initiatives is not clear.

[57] The contents of this section are taken from (G. Jaigopal ,1998: CRZ and an Alternate Vision for Coastal Villages)

There is scope for making attempts to create a whole model designed village[58] under the auspices of a few grama panchayats where land is available and the fishing communities are willing to make a collective transition to a new location which is better planned and also close to the sea.

Presently a number of fishing villages do not have drinking water for all, there is lack of sanitation, health centres, schools, anganwadis etc. and also there is inadequate space and possibility for building houses along the coast to accommodate the natural growth of population of the coastal dwellers.

Such villages may be identified and the villages may be motivated with the following approach for the Grama panchayats to implement.

A New Approach

a) Depending on the number of affected people, a village by itself or two or three adjoining villages can together acquire land required for setting up the basic infrastructure for a totally new "designed village" beyond the 500m High Tide Line.

b) The "Designed Village" will have proper organised circulation by a central wide and paved all weather road with a "village square" in the centre, from where it will radiate to open space which are access ways to individual plots. There is also a paved road leading to the beach from the village centre for fishermen to transport their accessories and catch.

c) The new "designed village" will have plots of size varying from 2.5 cents (I00 sq.m) to 6 cents (24Osq.m) with commercial plots (for shops, workshops etc.) adjoining the main road.

d) Thus, even the smallest of pieces of land after building a 250 sq.ft. core house, can still have its own small vegetable garden, and enough space to take another room later. The bigger plots, may be adjacent to the main road, can have bigger houses or houses with shops or workshops alongside.

e) Each neighbourhood cluster has a central open space and houses on either side. This front open space is the place for drying fish or other produce, space for children to play as well as gardening and relaxing space for the neighbourhood.

f) Each plot will have its own toilet and each neighbourhood cluster will be designed to collect its waste effluent and release it after treatment -- the responsibility being with the residents of that cluster. (If suitable and acceptable, the community can opt for composing toilets which can be more effective, scientific and less costly). There will be a central water tank for the whole village (especially if the ground water table is polluted) with drinking water facility reaching each plot.

g) There will be proper storm water drainage with adequate rain water harvesting through wells and ponds

h) Biodegradable wastes may be treated in biogas plant or made into organic manure through composting in each neighbourhood and non-biodegradable wastes separated for recycling.

i) The village can possibly have its own electric power generation (at least to complement the supply from the grid) by means of tidal power, wind, solar or other renewable sources.

[58] The village of Marianad in Trivandrum District is the earliest example of such an initiative taken by the Trivandrum Social Service Society in the early 1960s. The village is today a good example of what creative foresight and genuine people's autonomy and participation in development can achieve.

) The village square shall have a gathering space with facilities like banks, post office, PHC, primary schools, secondary schools, community centre, fishery office around it.

k) If planned optimally, a square km. of area can accommodate a population of 16500 people (3300 households) comfortably with all these facilities.

I) The cost of building such a village infrastructure can on an average be assumed to be Rs. 700,000 for a 575 sq.ft. house and proportionately less for smaller houses.

Figure 11: A 575 sq.ft house with staircase and terrace.

m) Thus, if on an average in one village, around 200 families are affected, then, the two adjoining villages together can build infrastructure for a new designed village of 400 units which would cost around Rs. 25-28 crore.

n) Land needed for 400 units would be around 30 acres including all the above said infrastructure. facilities (average of around 7. 5 cents per unit)

How it will take shape?

a) Each Grama Panchayat will have to make a survey as to how many households are adversely affected by CRZ regulations etc.

b) Then it could make a detailed project report including costing and land required (if possible, along with co-operating neighbourhood grama panchayat) to build a totally new "designed village" for those to be rehabilitated together with provision for future expansion.

c) The Grama Panchayat can then approach the Government through the (Coastal Management Authority) for a soft loan to implement their project. The CMA after examining the project proposal may forward the loan in instalments whereupon the Grama panchayat can acquire land and commence construction of the infrastructure for the new 'designed villages"'

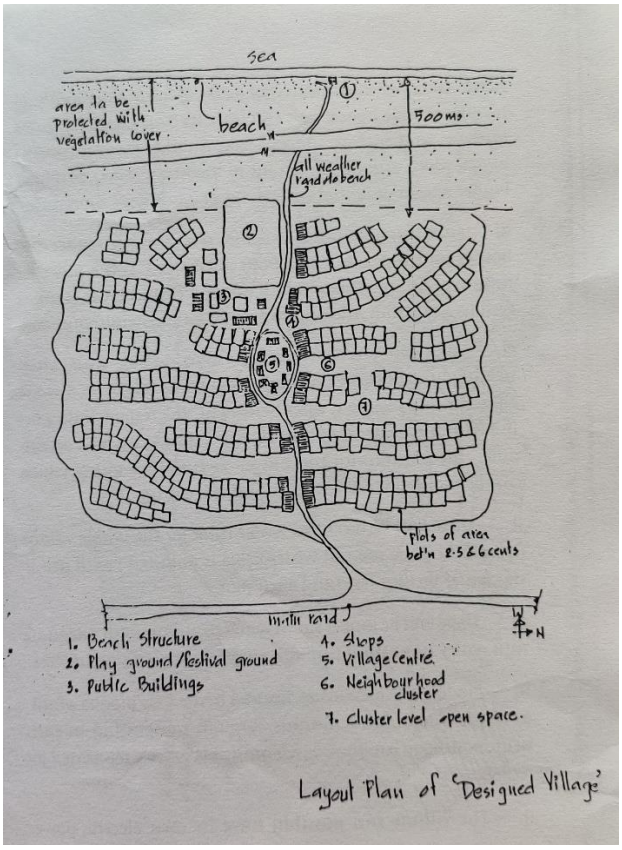
d) The Grama Panchayat can then channelize all further housing and other constructions such as those under PLEGP Schemes, IAY schemes etc. for underprivileged sections, to be built in the new infrastructure of the "designed village". Also, all new schools, hospitals, anganawadis etc. must be built here so that this becomes the new magnet for development in that village.

e) Those who come under economically weaker sections will get a minimum of 2.5 cents (100 sq.m) land and a 250 sq. ft 'core house' (free or subsidized according to government's housing schemes) in the 'designed villages' upon surrender of proportionate land in the CRZ area to the Grama Panchayat.

f) The Grama Panchayat can then sell the bigger development plots and commercial plots in the 'designed villages' for those wishing to set up new ventures, either for an enhanced value or in exchange of larger plots in the CRZ areas

g) The Grama Panchayat can then take up the responsibility of protecting the acquired land in the CRZ area and can motivate the people, especially the unemployed to grow local species, plants, trees, mangroves, herbs etc. which are beneficial to the stability of the coastal ecosystem; and from which sustainable livelihood could be procured. It can also motivate people to rejuvenate the ground water resources by digging up ponds; which would also help improve fresh water fisheries. If organized well, along with several other activities, a truly motivated Grama Panchayat should be easily able to repay the loans in a few years' time.

h) Instead of spending large amounts of money for building sea walls, the grama-panchayat can motivate land owners along the coast to grow the local species of plants, mangroves etc. which while protecting the land and its inhabitants would also enhance the ecology of the region together with the possibility of earning revenue for themselves and the grama panchayat.



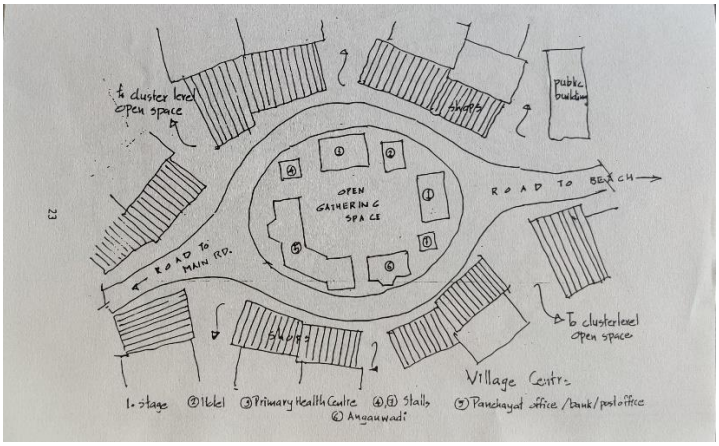


Figure: 12: Plan of a Model Village

An Integrated Vision

The pattern of development of each village will depend on several local factors such as the geography, the economy, occupation of the people etc. Hence there will never be a standard approach – each village had to be carefully studied and based on which a master plan will have to be evolved after several rounds of discussions. While the above guidelines for planning could broadly show the direction of possible growth for new villages in majority of the regions, some villages like Chellanam or Mulavukad in Ernakulam district have their own geographic peculiarities (they being long narrow peninsulas) where a different approach might be necessary. Also, the development pattern of such region as Vypeen and the nearby islands could be influenced by that of Ernakulam city – hence a

different approach might be necessary there, the villages near the Rare Earth Factory in Chavara might need to have a varied approach, and so on.

Municipalities and corporations could also embark on similar ventures in their respective regions. Hence while the basic approach can be the same, the scale may be larger. There can be a new approach for the urban centres, a new approach towards tourism, a fresh suitable and modern approach towards all aspects of development.

CRZ Notification, Coastal Spatial Planning and Participative Mapping

The use of the shore is largely governed by the Coastal Regulation Zone Notification and the Coastal Zone Management Plan of the state government. Fishing communities need to do their own coastal use resource mapping and demonstrate how the coast was, and continues to be, utilised by them for various fishery related purposes – parking boats, facilities for selling fish, space for fish drying etc, places for net repair.

The concept of the 'Gao-than' mentioned in the CRZ 199; (See Appendix C on Gao-than) the mapping of fishing villages as visualized by the CRZ 2011 (and continued in CRZ 2019), all fishing villages should be properly mapped; rights of fishing villages need to be formalized. Shoreward expansion of fishing villages based on their need for housing and other social infrastructure should be given due consideration. Village level long term planning, as visualized by the CRZ 2011, needs to be introduced.

Participative mapping is a powerful empowerment tool. Given the technologies available today, such actions to "claim back the customary uses of the coast" should be taken by the youth of the community and backed by the local grama panchayat bodies and fisher associations. There are important coastal resource mapping actions in Tamil Nadu, by youth of the fishing communities, which can be followed by their counterparts in Kerala. Such concrete actions become measures to re-assert community rights and responsibilities over resources.

In Appendix D we have given an example of a fishery resource mapping exercise undertaken in Tamil Nadu

After the fishers are properly rehabilitated, if the coast can be left to the sea for a few years, it can be brought back to its sandy (original) state. If such actions are to succeed, there also needs to be a moratorium on the construction of all coastal structures. Equally important are measures for sediment replenishment in areas where erosion and accretion have happened in close proximity due to built-structures.

Natural coastal vegetation – mangroves, beach grass etc – can also be linked to efforts at carbon sequestration measures for which there are many incentives being provided by state and environmental organisations. Community action related to such efforts have been undertaken by individual and groups in many parts of the state.

The coastal zone development has to consider the blue economy initiatives of the government. The Union government visualises blue economy as an important engine of growth, development of business and employment generation through a multitude of activities including water transport, fisheries, tourisms, commercial activities etc. Some of the approaches have evoked concern from fishers on their impact on livelihood. The coastal development needs to anticipate the potential future development in view of the thrust on blue economy.

Towards developing coastal regions in a climate resilient manner requires heavy investment from public sector. Innovative financing methods are to be devised towards this for which avenues of international financing are to be explored.

7. CREDIT, INDEBTEDNESS AND ORGANISATIONAL SUPPORT

States should support the development of and access to other services that are appropriate for small-scale fishing communities with regard to, for example, savings, credit and insurance schemes, with special emphasis on ensuring the access of women to such services. States and development partners should recognize the traditional forms of associations of fishers and fish workers and promote their adequate organizational and capacity development in all stages of the value chain in order to enhance their income and livelihood security in accordance with national legislation. Accordingly, there should be support for the setting up and the development of cooperatives, professional organizations of the small-scale fisheries sector and other organizational structures, as well as marketing mechanisms, e.g. auctions, as appropriate. [6.4 & 7.4 of the SSF Guidelines]

Credit is the lifeblood of a marine fishery.

Credit is required at all nodes of fishery value chain- fishing, input supply, processing, marketing and retailing. Credit is needed to buy equipment and to manage the running costs of a fishing unit. Fish harvested is usually sold on credit and fishers rarely get their payments within a week, unless they are members of a sales association, marketing organisation or cooperative. Credit continues to play a role up the value chain until it reaches the consumer who finally buys the fish.

The amount of credit required by a fisher depends largely on the size of his fishing unit and the degree of capital invested as well as the working capital needs.

Compared to the small-scale agriculture sector, the investment needed is substantial as will be evident from the Table below. The Table highlights the wide range in the levels of investment needed for the different fishing unit in the various geographical areas of the State. There are numerous other craft-gear combinations in the fishing sector. What is shown in the Table represents the units which together account for the largest share of fish harvest and the work force in the fishery.

Given the scale of investment shown in the Table 13, the share of own investment by the fishers, and the credit taken from the organised banking and financial institutions, is the smaller part. The large share of credit is provided by the merchants and middlemen -- who always link the credit to the marketing of the fish caught by the unit.

TABLE 13: APPROXIMATION OF LATEST INVESTMENT COSTS AND OPERATING EXPENSES OFDIFFERENT FISHING UNIT USED IN KERALA.

	Vallam and Gillnet Unit (Trivandrum and Kollam Region)	**Medium vallam and small Ring Seine unit** (Alleppy Region)	**Mechanized Vessel and Trawl unit** (Kochi Region)	**Large vessel and large Ring Seine unit** (Malabar Region**)**
Approximate Total Investment in Craft	Rs. 2.0 lakh for a 30 ft fibre glass vallam	Rs. 3.0 lakh for 32 ft vallam and Rs. 2 lakh for the carrier vallam	Rs. 124 lakh for 25 Mt vessel MS hull with electronic equipment (Life 7-9 years)	Rs. 48 lakh for vessel with all fish finding equipment. 3 carrier boats Rs 25 lakh.
Approximate Total Investment in Engine	2 OBMs of 9.9 HP costs Rs. 2.5 lakh	4 to 6 OBMs of 9.9 HP for main vallam and carrier boat costs Rs 5.6 – 7.8 lakh	Rs. 16 -22 lakh for a Chinese engine. (Life 5-6 years)	Rs 10 -13 Lakh for Chinese engine (life 5-6 years)
Approximate Total Investment in Gear	Gillnet of about 6-700 kg will coast Rs. 1 lakh	Ring seine costs Rs 5 lakh	Trawl nets: 2 lakh (2 nets) Long Line: Rs 0.60 lakh	Ring seine 2 sets: Rs 40 lakh
Approximate Total investment in fishing unit	**Rs. 6 lakh**	**Rs 15 lakh**	**Rs 150 lakh**	**Rs 125 lakh**
Approximate Operating costs per trip	**A single trip cost will be Rs 3,000-3500**	**A single day trip of 5-6 hours cost about Rs 20-25,000**	**A 10-15day trip costs (4000 litres of diesel needed) Rs. 5 lakh**	**A single day trip of 5-7 hours Rs. 35,000 (300 litres diesel)**
Approximate annual maintenance and workforce number and composition		Yearly maintenance about Rs 2-3 lakh; Workforce: 12-20 workers all from local community.	Yearly painting and maintenance costs Rs. 4 lakh Engine replacement in 5-6 years. Workforce: 14 workers of which majority (11-12) are migrants	Yearly maintenance Rs 3-4 lakh Workforce: 45 of while 4-5 may be migrants
Average time (in years) taken, in normal circumstance, to recover investment		Unit investment needs to be recovered in 2-3 years.	In normal circumstance the unit investment covered in 3-4 years	

The most important causative reasons for the galloping investment in the sector – particularly in the fishery north of Kollam – has been that in Kerala today, the fishery resource has become a totally open access resource. Capital is entering the fishery from several sources. The race for fish is resulting in a

disproportionate capital investment and running costs for all the units in the sector. This in turn is turning into an unsustainable credit burden. The competition between units is resulting in lower catch per unit of effort and lower earnings across the sector leading to high levels of indebtedness.

Features of Credit and Indebtedness

Credit and indebtedness among fishers are proverbial situations world-wide. In marine fishing communities, the lottery aspect of earnings from fishing heightens both the availability of surplus funds with some households and a deficit with others. This leads to socially approved and appropriate reciprocal credit arrangements between households, in all fishing communities.

Some of this credit may be interest free (*kai-vaipa*). Some may attract interest rates. Such credit arrangements are based on trust and reciprocity and there is little loss of freedom or any sense of bondage between the creditor and the debtor, because these roles are interchangeable and there is great intermingling between lending and borrowing. This is a special feature of marine fishing communities.

In some fishing communities there are persons who specialise in providing credit to community members, with or without collateral. Some such lenders may accept gold, a fishing net or even a ration card as collateral if they do not trust the creditworthiness of the borrower.

The extension of formal institutional credit to fishers has not been as well established as in the case of the farming community. Lack of collateral is one of the most important reasons for this. In agriculture, the farmer's land or the tractor he buys becomes the collateral. In the case of fishers, they have little or no land, and boats and nets are rarely accepted as collateral because of the high risk of loss and damage to them.

The nature of credit requirements of the fishery sector -- particularly for fishing -- is qualitatively different from that in case of agriculture and other productive sectors. Fishing needs credit on almost every trip. This is unlike the agricultural sector. Hence, the credit products need to be dove-tailed to this requirement. The fishers are not able to meet the current working capital credit criteria of the banks.

To a small extent, the spread of self-help groups, micro-finance institutions, cooperatives, other NGOs and rural branches of nationalised banks into the coastal belt has also raised the level of availability of credit for small productive requirements and consumption purposes.

Credit, and the legal right of first sale

But none of these sources are adequate when it comes to the large investment needs for capital goods in fishing such as boats, engines and fishing gear. For this, the most common source tapped by fishers, particularly those requiring large amounts of credit, is to avail credit by pledging their future fish catch to an auctioneer (tharakan) who may have tie-ups with regular buyers/merchants.

The market for credit is thus interlocked with the market for the product. On the face of it, such substantial credit amounts – they are today in several lakh of rupees – have no explicit interest rate charged against them. However, in the payments made to the fishers for their fish, the interest is largely implicit, and hidden in the price which is paid to the fishermen by the merchant-money lender. However, there is a substantial loss of freedom for the fisher-borrower since he cannot sell the product of his hard labour to a person of his own choice or at a price which he deems to be appropriate.

Most fishers would say that while they are not completely happy with this situation of credit-bondage, they do not see any other options before them to be able to avail of credit without too many formalities.

To ensure that fishers can disengage from the inter-locking of the credit and product markets a legal provision, which gives the right of first sale of their fish (i.e. at the shore or the harbour) to the owners and workers of a fishing unit needs to be enacted.

Fishers will then be free to sell their fish, and creditors will be entitled only to interest on the loans which they have extended to fishers. The creditors will not have any monopoly right over fish auctions or sales. This is the major effect of such an enactment.

Such freedom, backed by legal support, will allow fishers to individually or collectively arrange their own ways of selling fish. There may be more enthusiasm to (re)join the Matsyafed, or muster the motivation and will to start their own initiatives in the form of cooperatives, sales associations, producer companies and the like.

Initially, it will NOT be a smooth transition. Creditors will demand immediate full repayment of their large loans. There will be boycott of fish auctions by merchants. There is likely to be political pressure on the fishers from political parties and their community organisations -- which are usually dominated by merchant interests – to detest from exercising their freedom. However, resistance is a sign that the measure is affecting vested interests who are unduly benefitting from the status quo.

Once there are adequate number of fisher groups (with larger societal support) who wish to use the legal support to exercise their freedom, there will be scope for Matsyafed and also some well-run autonomous fisher associations[59] to support these groups with training and capacity development to organise their venture. This should also be provided the freedom of association to form a cooperative or a producer company or any other type of group formation to undertake their fish sales, credit provisioning and any other activity intended for the welfare of the members.

There will also be need for more formal credit arrangements which are available at the fish landing centres and administered at times suitable to the fishers, say from 2 pm to 8 pm. The possibility of starting a credit wing in the form of a Fisheries Bank with support from national agencies supporting rural development and cooperatives should be considered. The cooperatives banks, by design, are evolved inculcating characteristics of rural informality and professional management. The cooperative sector has the potential to intervene in the sector of fisheries credit in coastal regions. The support of the Kerala Bank with a tie up with Matsyafed can be considered. Such a bank can operate at major landing centres and fishing harbours and important fish markets where small women and men fish retailers operate in large numbers.

There needs to be a mass campaign for get fishers to register for the Kisan Credit Card (KCC). The criteria for marine fishers are that one must own a registered boat or any other type of fishing vessel and have the necessary license or permissions for fishing in estuaries or the sea. The possibility of extending the KCC to women vendors should also be explored with the RBI and the Central Government.

[59] A good example is the Fishermen's Welfare Society in Kollam which has a long history of fisher-controlled first sale auctioning system. The initiatives which they took to organise weight-based fish sales at 'fixed sale prices' on a weekly basis, during the Covid pandemic was appreciated by all and proved hugely beneficial for the fishers.

Organisational Support is the Key

Organisations which are by, of and for the fishworkers are key to creating the virtuous linkage between credit-production-marketing-savings. The first pre-requisite to achieve this objective is for these organisations to be genuine and democratic in their functioning and become part and parcel of the lives of fishworkers -- and not bureaucratic structures which are governed by proxies of the real producer-members.

Matsyafed

The MATSYAFED is a federation of primary fisher cooperatives in Kerala. The Matsyafed was constituted in 1984 after the existing fishery cooperatives -- which started in 1957 called Matsya Ulpadaka Cooperatives (MUCS) -- were wound up by government order.

As the Apex Federation, according to the website,[60] it has 651 primary level Fishermen Development Welfare Cooperative Societies. Of the 651 primary societies 335 are in the marine sector, 198 in the inland sector and 118 are women co-operatives. The total membership in these societies is more than 3 Lakh. The paid-up share capital of the Federation is ₹150 Crore. The primary societies are clubbed into 51 geographic clusters for administrative convenience. (https://matsyafed.in/?q=organisation)

As on 31 March 2021 the Matsyafed had 226 primary fishermen development welfare cooperative society units of which 204 were in the marine sector and the remaining in the inland sector. Taking the marine society units, there were 3885 groups participating in the fish auctions and the enrolment in them was 34162 individual fisher members.

Matsyafed has also under its umbrella as many as 15888 women self-help groups with a total membership of 191222 women. (See Chapter 8 on Women Empowerment below)

The Matsyafed has a very impressive array of commercial facilities and activities which are accessible to all fishers, including its non-members. These include net factories, OBM sales and service centres, diesel and kerosine bunks, fishing requisite stores, ice and freezing plants, pre-processing centre and several other services for fishworkers. It has also set up fresh fish markets and retail marts and online fish marketing services.

The Matsyafed also provides a personal accident insurance scheme and an input security scheme. Over the years Matsyafed has provided educational loans for professional courses for children of fishworkers, micro finance loans for members (men and women) through its self-help groups and small interest free loans for women fish vendors. This assistance was provided by the National Backward Class Finance and Development Corporation and National Minorities Development and Finance Corporation with Matsyafed's own contribution being about 10 percent of the total disbursed (also see below).

The Matsyafed has also provided liberal funding to members for making investments in fishing assets – craft, OBMs, webbing and other accessories. Between the initial formation and 2013-2014 as much as Rs 21288 lakh was distributed to 83301 beneficiaries (an average of Rs 25,000 per beneficiary).

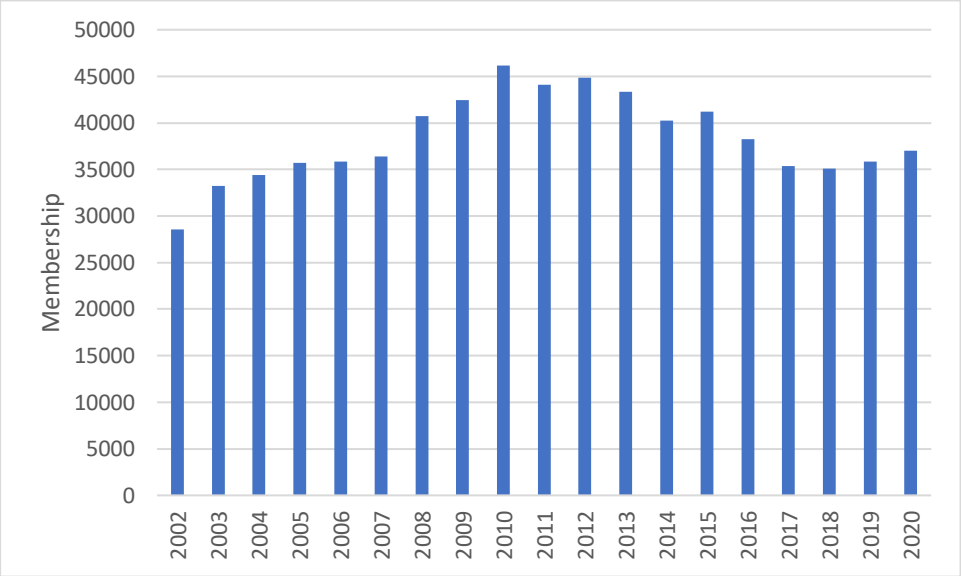
[60] The website is currently updated only till 2018

The Matsyafed was created with the explicit objectives to (1) free the fisher members from the bondage of middlemen and merchants by providing the credit and (2) by undertaking the responsibility for auctioning the fish to buyers and collecting the sales revenues from them.

Matsyafed was to ensure that the fishers obtained a fair price for their fish, without any unauthorised deductions being made from the auctioned value. However, over the years, this dream has not been fully realised across the state.[61]

Indeed, the most worrisome fact is that the membership of Matsyafed, which initially increased, has been declining over the past ten years. This is despite the increasing facilities, the liberal loans and the elaborate organisational arrangements which exist. (See Figure 13)

Figure 13: Fisher Membership of the Matsyafed between 2002 and 2020.



Source: Website of the Matsyafed (Matsyafed.in)

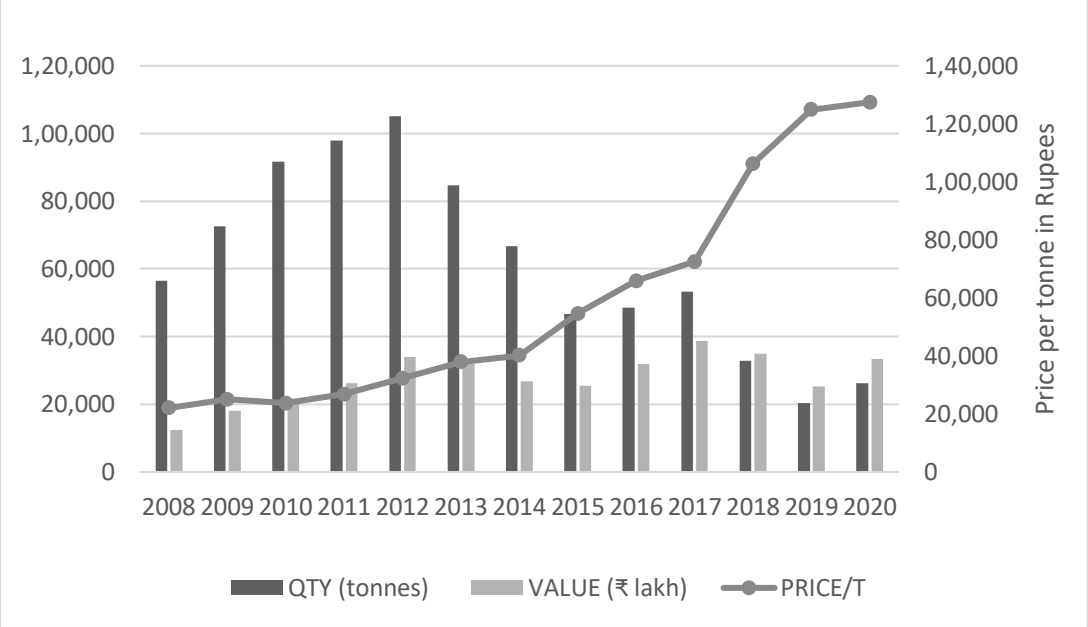
For one, Matsyafed currently has only about 20-25 percent of the active fishers of the state in its membership. Even those who are members are unable to obtain their full credit requirements from the organisation. The result is that many continue to be indebted to merchants and are therefore obliged to sell the fish through them. However, in order to maintain their membership, such members would pay up the commission due to the Matsyafed.

Matsyafed records also show that compared to 2008-09, there is a decline in member participating in auctions[62], and steep fall in the quantum of fish auctioned. The value realised however increased marginally primarily due to the phenomenal increase in the price of fish. See Figure 14)

[61] The earlier brand of fisher cooperative in Kerala called 'Matsya Ulpadaka Cooperative Societies'(MUCS) were also set up in 1958 with the same objectives. However, with a few exceptions, they also failed to achieve their dreams and were wound up in 1983. For an evaluation of them see Kurien 1980.

[62] The number peaked in 2010 to 46149 and reduced to 36983 in 2020-21

Figure 14: Total Quantity and Value of Fish Auctioned By Matsyafed Members (Marine and Inland) (2008 to 2020)



Source: Project Document 80355/2021/FC DFTVM

Greater details about the performance of the organisation which are available for the years 2018-9 to 2020-21 are provided below.

Table 14: Total Membership, value of fish auctions, commission and savings of the Matsyafed members in the marine sector during 2018-19 and 2020-21

Year	Total No. of Societies	Total Groups	Total Members	Total Value of fish auctioned **(Rs. Lakh)**	Federation Commission **(Rs. Lakh)**	Member Saving **(Rs. Lakh)**
2018-19	201	3986	33102	31077	333	450
2019-20	199	3718	33163	23477	232	313
2020-21	201	3885	34162	32153	321	445
Triennial Average				**28902**	**295**	**402**

Source: Matsyafed proposal to Director of Fisheries (75090/2021/FC-DFTVM) for production bonus to members

The Fisheries Sector Gross Value Added (FSGVA in current prices) in 2018-19 and 2019-20 were Rs 1147323 lakh and Rs. 1073610 lakh. Hence in those years the Matsyafed members accounted for only 2.7 and 2.1 percent of that amount. Even if we account for the fact that the FSGVA includes both marine, inland and aquaculture, this share of the sole fisheries cooperative federation in the state is by no means adequate, given the number of years of its existence, the staff strength and the investments which have been made.

A further analysis of the above data on a per member basis shows that the annual sales through auctions is below Rs. 1 lakh. (See Table 15)

Table 15: Sales, Commission and Saving of Matsyafed Marine Sector Members Per Year during 2018-2021

Year	No. of Societies	Groups	Members	Sales/member/ year (Rs.)	Commission/ member/ year (Rs.)	Member Saving/year (Rs.)
2018-19	201	3986	33102	93882	1005	1360
2019-20	199	3718	33163	70792	700	943
2020-21	201	3885	34162	94119	940	1303
Triennial Average				**86264**	**881**	**1202**
Source: Matsyafed proposal to Director of Fisheries (75090/2021/FC-DFTVM) for production bonus to members						

From the time of its formation the Matsyafed has received substantial assistance from national cooperative and fishery development agencies for implementing a variety of projects. From 1985 until 2018 Matsyafed has receive Rs 56360 lakh from the NCDC and between 1995 and 2021 as much as Rs 72582 lakh from National Backward Class Finance and Development Corporation and National Minorities Development and Finance Corporation[63]. With the backing of the government, the Matsyafed also has a good track record of repayment of loans to these lending organisations, even when the repayments from primary societies have been tardy.

The question arises as to why, despite the ability to provide assistance to fishers, MATSYAFED has not been able to attract the vast majority of marine fishers of the state into its fold despite being the only recognised and government supported cooperative institution in the fisheries sector.

Compare this to the milk cooperatives called MILMA. It was formed just a year before MATSYAFED. In 1983 the farmer membership that stood at 45000 during take over from the erstwhile KLD&MM Board has grown to over 9.77 lakh through 3315 milk Co-operatives by February 2019.

In many villages Matsyafed cooperatives are not involved in active fish auctioning. Many of the cooperatives are polarised along political party lines. Their effective governance control is in the hands of members of the coastal community who are not active fishers. Most of them belong to the category of membership within the primary cooperative who are not real fishers. (TISS Report 2020). Discussions with ordinary fishers in several parts of the state point to the extreme politicisation and polarisation of the primary cooperatives as an important factor for the reluctance of many fishers to join them. Cooperatives are either explicitly aligned to the UDF or the LDF. Few are truly independent.

We provide the data given to us from two primary cooperatives of the Matsyafed based in Ernakulam and Trivandrum. The data shows that the society in Ernakulam is performing well. This society is explicitly independent and claims to have been denied benefits as a result. The one in Trivandrum was one of the best functioning in the Matsyafed fold. It is exhibiting a downward trend. Two years ago, its governance and administration came under the control of one of the political fronts.

[63] These details from Project Document 80355/2021/FC DFTVM

Table 16: XYZ Fishermen Development Welfare Cooperative Society F (Ernakulam)

Year	No. of groups	Member Fishers	Sales/Member/ year (Rs)	Commission/Member /year (Rs.)	Savings/Member /year (Rs)
2018-19	29	350	114472	3434	2373
2019-20	29	350	129013	3870	2289
2020-21	29	350	187207	5616	2580
Triennial Average			**143,564**	**4306**	**2414**
Source: From the Secretary of the Cooperative					

Table 17: ABC Fishermen Development Welfare Cooperative Society F (Trivandrum)

Year	Total members (M & F)	Members Fishers	Sales/Member/ year (Rs)	Commission/Member /year (Rs.)	Savings/Member /year (Rs)
2018-19	2166	1525	161489	4843	3220
2019-20	2191	1505	85996	2576	1725
2020-21	2217	1567	87260	2608	1741
Triennial Average			**111,571**	**3342**	**2228**
Source: From the President of the Cooperative					

There are also fisher groups, outside the ambit of Matsyafed, with a long history of collaborative action for selling fish and undertaking other welfare and social activities. They function very well and effectively. One good example is the Fishermen Welfare Society (FWS) of Kollam. In fact, the operations for such autonomous groups, which are involved in the same set of activities as Matsyafed, highlight the **real** potential of the small-scale fishery sector.

Table 18: Table: Sales, Commission and Saving of Fishermen Welfare Society (FWS) Members Per Year during 2018-2021

Year	No. of societies	Members	Sales/Member/ year (Rs)	Commission/Member /year (Rs.)	Savings/Member /year (Rs)
2018-19	7	287	894,425	13588	45296
2019-20	7	287	516,376	7665	31010
2020-21	7	287	648,083	9756	49129
Triennial Average			**686,294**	**10336**	**41811**
Source: FWS, Kollam					

A comparison of the sales value per member, the commission given to the society per member and the savings credit to the individual member between the Matsyafed and the FWS (See Table 14 and Table18) highlight the vast differences in performances between the two organisations which serve the same occupational group of fishworkers.

The primary reason for this difference in performance is due to the differences in the participation of fisher members in the fish auctioning of their respective organisations. In the case of the FWS it is 100 percent. In the case of Matsyafed this is not the case.

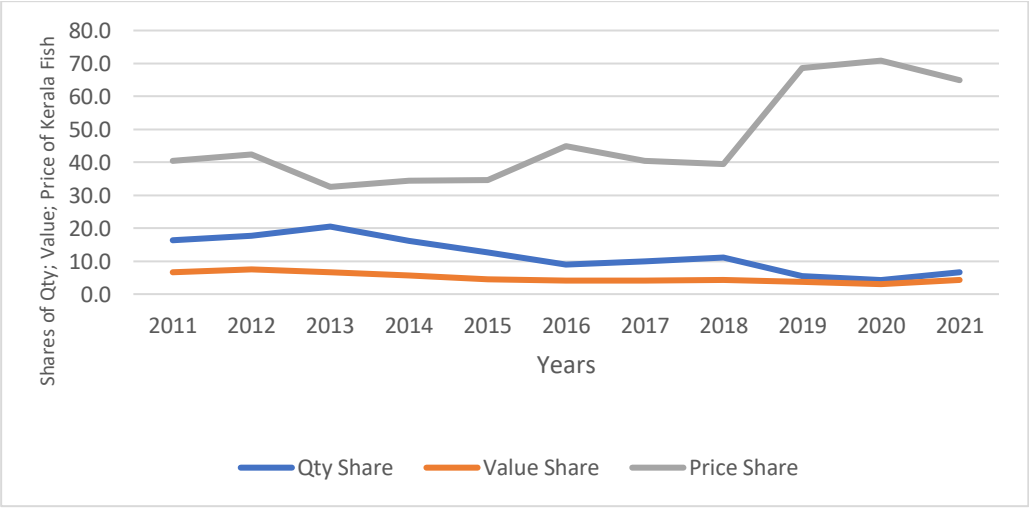
Why is there low participation in Matsyafed?

As mentioned at the outset, the purpose of forming Matsyafed was to get fishers out of the clutches of middlemen and merchants and to offer them a good price for their fish.

The assumption was that once fishers got freedom to make the first sale of the product of their hard labour according to their own will, the share of Kerala's fish landings, sold through Matsyafed would increase.

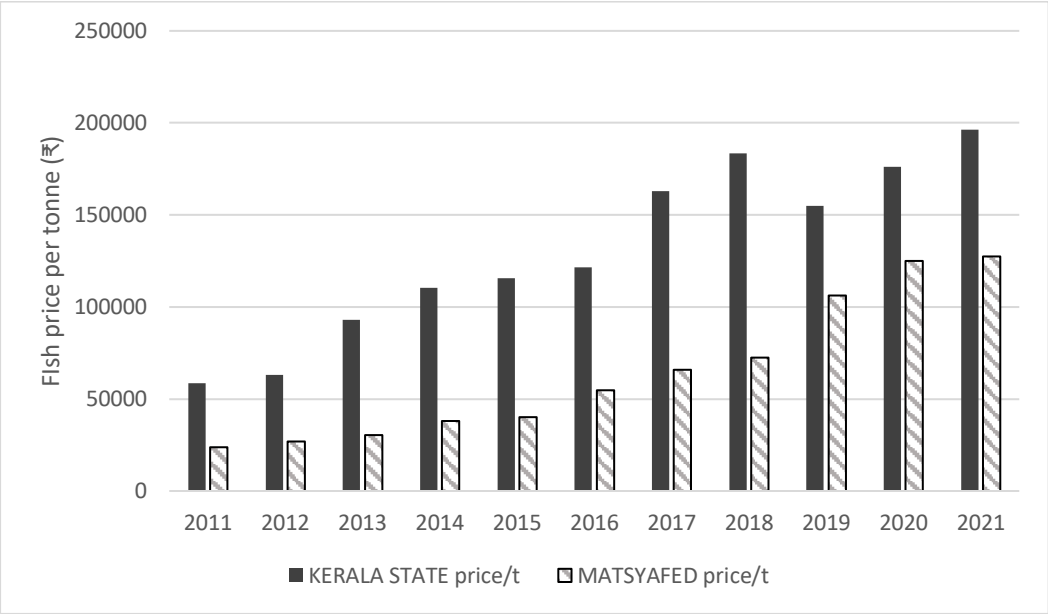
However, the evidence available does not give substance to this assumption. In the Figure 15 below, what is observed is that of the total fish landings of Kerala, the share of fish sold through Matsyafed has been on the decline from 2011 onwards. This is also true about the share of the value of the fish harvest. With regards to price, the fisher who sold fish through Matsyafed got only between 30 and 45 percent of the price of the fish sold in Kerala as a whole, until 2018. Thereafter there is a significant improvement. The reasons for this can be many, including better performance by Matsyafed during this period.

Figure 15: Matsyafed share in the quantity, value and price of fish sold in Kerala



Discussions in the field with fishers revealed that the two main reasons for them not being very enthusiastic about Matsyafed cooperatives were due to two reasons. First, the inability of the cooperative to provide adequate credit to meet the full needs of the fishers. The result of this was continued indebtedness to middlemen and the compulsion to sell their fish through them. The second reason stated was that even when they did cooperate wholeheartedly with their village level cooperative, the prices obtained were not at par with what could be obtained outside. The result was less enthusiasm to see through the cooperative. The data below gives credence to this statement of the fishers.

Figure 16: Average Fish Auction Price of Matsyafed and Average Fish Price of Kerala State



The data in the Figure indicates that the fish prices obtained by Matsyafed are lower than for the state as a whole. The reasons can be numerous. It could be that that only lower value fish are being sold through Matsyafed. As Matsyafed caters to the needs of small-scale fishermen, the kind of fish sold could be of lower value. Further, it also reflects the laxity on the part of Matsyafed to rope fishers who fish for higher value species to its fold. Another reason can be that the auctioning system adopted by Matsyafed is not efficient. A more uncharitable explanation could be that there is connivance between the buyers and the Matsyafed auctioneers which results in lower bids in the auction.

Whatever the reason, the data points to the inability of Matsyafed to meet one of its main objectives of providing its members with a fair first sale price.

What can be done?

Rectifying this situation is of paramount priority if Matsyafed is to survive into the future. This can only be achieved with transformative organisational and governance changes in order to democratize its functioning based on the seven globally accepted principles of cooperatives. (See Appendix E for elaboration of these principles).

1. Voluntary and open membership
2. Democratic member control
3. Members' economic participation
4. Autonomy and independence
5. Education, training and information
6. Cooperation among cooperatives
7. Concern for community

Discussions with fishers point to questionable performance of Matsyafed with regards to the first four principles. This may have to do with the long history of competitive control which political parties attempt to exercise over its functioning. Only active fishers, who can show evidence of selling fish through the primary societies should be allowed to compete in the elections -- both at the primary level and the Federation level. Doubts about the capability of fishers to efficiently manage their own affairs need to be totally set aside. The Department of Cooperation should also perform stringent auditing of the primary societies and the Federation.

Matsyafed must be allowed to function as a genuine people's (fishers) organisation. Only then will it attain its true potential as a business organisation.

Matsyabhavans

As per the Administrative Manual for Transferred Functions of 2017, the Matsya Bhavans have a list of 29 services which have to be delivered to the fishing community.[64]

The Matsya Bhavan is a single umbrella system where the services and benefits of various agencies working in Fisheries Sector such as Department of Fisheries, Matsya Fed, Matsya Board and Fish Farmers Development Agencies (FFDA), Society for Assistance to Fisher Women (SAF), Kerala State Coastal Development Corporation (KSCDC), Agency for Development of Aquaculture Kerala (ADAK), Fisheries Resource Management Society (FIRMA) etc. are available. Matsya Bhavan is also responsible for the formulation and implementation of the Local Self Government Plans as per G.O. (M.S) No: 41/97 F&PD dated: 22.11.1997.

One of the responsibilities of the Matsya Bhavan is to form Committees such as Matsya Sabha to support and monitor the activities of Matsya Bhavan under the leadership of elected members and ensure the active participation of interested organization and individuals. The Matsya Sabha was expected to articulate the views of the community to the Local Self Government institutions and ensure that the voice of the fishers and their genuine needs are met through proper planning and implementation of the numerous development assistance programs of the Government.

With the inclusion of three agencies (Department of Fisheries, Matsyafed, Matsya Board) representing three crucial sectoral needs in the Matsya Bhavan, active participation and lead role is expected from the Matsya Bhavan in providing necessary information and support to the Matsya Sabhas in their deliberations.

The main purpose of the Matsya Sabha was to ensure peoples' participation, and to plan guidelines to suggest strengthening the Grama Sabha. This can be achieved by convening, Ayal Sabha (Assembly of neighbourhoods), Matsya Sabha for traditional fisher people. Matsya Sabhas of traditional fisher people have to be convened in the wards that cover fishing villages as declared by the Department of Fisheries

The membership eligibility to the Matsya Sabha is restricted to households with at least one family member who is an active fisherman. The adult members from such families whose name is in the voters list are eligible for participation in the Matsya Sabha.

The purpose of the Matsya Sabha is to strengthen democratic participation of fisher people in the local planning process of LSGIs. The participation of fisher people – one of the most backward sections in the State – in the Grama Sabha has not been satisfactory for several reasons. Creating inclusive platform for fisher people, the Matsya Sabha should provide them the space to express their needs

[64] The Manual states that the services rendered to fisher folk are equivalent to the services provided to Scheduled Tribes as per G.O.(M.S).No.80/2017 dated 03.04.2017.

freely. Convening the Matsya Sabha prior to Grama Sabha ensures that their demands are represented in the democratic process; thereby ensuring social justice to the fisher people by proportionate distribution of resources, funds, and functional mechanisms.

These are noble objectives, but to say the least, they have been far from fulfilled. Part of the blame lies squarely with the community as they have not continued to take collective action to pressure the state to act in accordance with the plans. When there is no public action, officials also loose the motivation and enthusiasm to serve.

Viewing the structure and functions as mentioned in the Administrative Manual highlights the immense potential of the Matsya Bhavans in ensuring a sustainable development process in the fishing sector.

Our assessment of the data relating to the marine sector Matsya Bhavans gives the impression of an understaffed organisational structure with inadequate facilities to be able to fulfil the objectives assigned to them. See Table 19 below

Table 19: Details of Staff and Facilities of the Marine Sector Matsya Bhavans

No	District	Marine Bhavans	Officers	Office Staff	Bhavan Facilities
1	Trivandrum	8	6	14	Good
2	Kollam	10	7	5	V.Poor
3	Alleppy	8	5	16	Fair
4	Ernakulam	4	3	11	V.Poor
5	Trichur	4	3	5	Fair
6	Malappuram	5	5	11	Good
7	Kozhikode	4	2	6	Fair
8	Kannur	4	2	13	Fair
9	Kasaragod	4	2	11	Poor
	Total	51	35	92	
Source: Department of Fisheries (Per Comm DD 2021)					

The main approach for reviving the Matsya Bhavan to its intended purpose will be to take the good idea of the Matsya Sabha and start the dedicated process of initiating them in the 222 fishing villages. This can be one of the main tasks of the Sagar Mitras who are being appointed now. They can take on their role as agents of change and work as the link between the community and the Matsya Bhavan officer.

Debt Relief Commission

Taking into consideration the indebtedness situation of the fishers of Kerala, the government enacted a bill creating the Kerala Fishermen's Debt Relief Commission in 2008. Credit availed by fishers till December 31, 2007 were to be condoned up to a limit of Rs 75,000 and 25 percent of the interest payable on a loan was also to be condoned. The cut off period was then amended to December 31, 2008 and in the year 2019-20 the limit on condoning of the capital was raised to Rs. One lakh.

The Commission has 5 members constituted by a retired Judge who is the Chairperson, a socio-economic expert and 3 fishermen members. Currently an additional secretary of the Law Department is the Secretary to the Commission and is assisted by 17 staff. Between 2008-09 and 2020-21, the

Commission has condoned the loans outstanding of fishers to the tune of Rs. 200 crore (a mere Rs 15 crore per annum) and the administrative expense of the Commission during this period was Rs 14 crore. The loans which are being condoned are those which given to fisher by the cooperatives, Matsyafed and a few other government financial institutions.

The Debt Relief Commission has only been able to address a tiny portion of the huge debt burden of the fishers. Debt pardoning always creates an expectation that all debts in future will also be pardoned. This has a strong bearing on the functioning of the formal agencies which provide credit. This is not a desirable outcome.

Debt waivers, however, do impact the credit flow to fisheries due to moral hazard among both beneficiaries and non-beneficiaries who expect a bailout. This impact could be both in credit repayment performance, as borrowers choose to default strategically in anticipation of future bailouts, and in credit allocation, as banks reallocate lending to lower risk borrower segments.

However, the sources in the informal market are not in the least affected by the actions of the Debt Commission. Several studies indicate that well over 80-90 percent of the credit market in the fisheries sector is from middlemen and merchants. The biggest problem relating to credit in fisheries is the interlocking of the credit and product market. Unless this issue is tackled upfront with strong legal provisions, there will be little benefit in condoning debt.

We are not aware of any assessment of the socio-economic or social justice impact of the Debt Commission. Was it the poorer fishers who were given priority in the debt waivers, or was it the politically well connected? Without such an evaluation it is hard to take any firm stand on its merits. However, whatever evidence we have gathered, and discussions with the fishers, do not support continuance of the Commission beyond dealing with the applications which it has already processed.

8. WOMEN, MARKETS AND SELF-HELP GROUPS

All parties should recognize that achieving gender equality requires concerted efforts by all and that gender mainstreaming should be an integral part of all small-scale fisheries development strategies….. [8.1 of the SSF Guidelines]

Until the early 2000s, social protection measures for the empowerment of women were largely absent in the fishery sector. There were a few welfare activities for women fish vendors, but no other income-generating activities were implemented for women.

In the mid-1980s, women fish vendors had held sustained demonstrations demanding rights to travel by buses with their fish to markets. When the Matsyafed was formed in 1985, one of the first schemes which they instituted was a fleet of special buses for women fish vendors to travel from fish landing centres to markets and back to their homes.

A significant number of women fishworkers are still engaged in fish vending activities in the coastal districts of the state. However, the district-wise statistics relating to their numbers which is provided in the Kerala Fisheries Hand Book of 2020 is not reliable[65]. According to this 2020 data there are about 69,000 women vendors in 2016 and 2017. However, in 2018 the number drops to about just 5900 and in 2019 in increased to around 18,000. Given this variation it is hard to know what the true numbers of women fish vendors really are. This is indeed an unacceptable situation and needs to be urgently addressed.

Markets and Social Protection for Women Fishworkers

Physical markets are the main realms where fish from the coasts are redistributed or sold directly by fish vendors to consumers. These physical spaces therefore need to cater to the basic requirements of both the vendors and the customers. Vendors require clean water, properly arranged selling spaces. Customers look to the hygiene of the place and the convenience for easy inspection of the products and their purchase.

The two main complaints about fish markets expressed by women vendors who were interviewed were: (1) the male dominance in markets and the economic and social harassment they face at all levels and (2) the deplorable facilities at markets both with regarding to their professional (selling spaces) and personal needs (toilets, changing rooms etc).

The most serious complaints they had was with regard to the various official and private markets where they had to sell fish. The women contend that these men are the main financiers of the local politicians and it is this nexus which gives these men unquestioned power and control. Another complaint about the markets has been the lack of proper waste management. Women say they are often coerced to take the fish waste back to their villages in their vessels. The women contend that the filth accumulating in markets is also a reason for the decline of customers to the markets.

The undue and excessive competition from men fish sellers was another complaint which the women expressed. This had increased during pandemic times. They claim that there is no fairness or equity in

[65] The data given in the Fisheries Hand Book 2020 on Page 16 shows unexplainable variations in the numbers which do not match with the ground reality. Despite queries, no satisfactory explanation was provided to the Working Group.

the allocation of retailing space or retailing time, in the markets. It is always might is right – and the women are generally at the losing end.

The facilities such and toilets and clean water also came in for very strong critique by the women. These facilities were badly maintained, and the keys were generally in the hands of the men of the market.

The most important organisational complaint which the women voiced was the lack of any forum – such as a representative market committee – where they could place their grievances. ***(See Box: below which provides the elaborations of these complaints from women in Trivandrum District.)***

Box 4: WOMEN FISH VENDORS OF SEWA UNION

A small discussion with a group of 16 women fish vendors from different villages of Trivandrum district was held on Sunday 19th September 2021.

It is significant to note that the women were generally very appreciative of the social protection measures which have been instituted by the various governments over the past three decades. These relate to widow pensions, no or low interest loans, education grants for the children, housing under different schemes. They also acknowledged the good services of the various fisheries officers who dealt with them.

Referring to the past few years they mentioned that deserving children received mobiles and laptops for online classes as well as desks and tables to facilitate their studies. The women also acknowledge receiving large ice boxes which have helped them to well preserve the fish they buy from the fishermen at the beach, before taking it to market. The also spoke about their men receiving sea safety equipment such as life jackets. They had all received in timely manner the Covid Kits and the cash payments of Rs 2000/- as part of the Covid-relief package. The vast majority in the group were undertaking fish vending due to a variety of issues. In general, they were forced to take to/continue this for the sake of their children and due to factors like desertion of their husbands; loss of their husbands at sea (to Ockhi); unwillingness or sickness of their husbands resulting in their inability to work. It was a hard livelihood option for them. Something they would give up if there was a choice.

The most serious complaints they had was with regard to the various official and private markets where they had to sell fish. The scathing criticism was reserved for the overall male dominance and unruly behaviour of the men who controlled the market (the market tax collectors, and commission agents etc) and the head load workers. Despite repeated petitions and direct actions which have been made by individual women and their unions, there has been no respite. The women contend that these men are the main financiers of the local politicians and it is this nexus which gives these men unquestioned power and control. Another complaint about the markets has been the lack of proper waste management. Women say they are often coerced to take the fish waste back to their villages in their vessels. The women contend that the filth accumulating in markets is also a reason for the decline of customers to the markets. Many of their prime urban customers are now turning to new forms of direct fish vending also because of this fact. Online sales and sales by new entrants in the Covid-era are one of the major threats which they face into the future. There is an effort, among some of the younger fish sellers, to explore such avenues by themselves too.

The undue and excessive competition from men fish sellers was another complaint which the women expressed. This had increased during pandemic times. Fish coming from other states into the wholesale markets are brought to the retail markets and the nexus among the men creates an unfair price and product competition between fresh fish brought from the coastal villages and the iced fish from the wholesale markets. They claim that there is no fairness or equity in the allocation of retailing space or retailing time, in the markets. It is always might is right – and the women are generally at the losing end.

Women contend that commission/market agents also extend loans to men, who then go and bring fish to the market to sell. For the agent it was the market fee which mattered – a steep Rs 100 per basket/basin irrespective of the quantity of fish in it. They also contend that the rates collected are not in keeping with the published rates exhibited at the market gates.

The facilities such as toilets and clean water also came in for very strong critique by the women. These facilities were badly maintained, and the keys were generally in the hands of the men of the market.

The most important organisational complaint which the women voiced was the lack of any forum – such as a representative market committee – where they could place their grievances. Their main problems relate to the aggressive, abusive and unfair behaviour of the market-men, and it was only to them that they could express their objections too!

Kerala's fish markets

Fish markets are the commercial institution spread all over Kerala where large number of fishworkers – women and men – termed as 'allied workers' earn their livelihoods.

Fish markets are of many types. There are wholesale and retail fish markets under the jurisdiction of Corporations and Municipalities; many wholesale markets and retail fish markets also function under private patronage. (See Appendix F: On Wholesale fish market operations) Then there are wayside markets that have come up over time and their 'legal' status is not clear. Some are known to be 'controlled' by individuals who only collect a fee from the men and women who occupy space. This is more in the form of 'protection money' and does not translate into any facilities in the space.

One common factor in all these markets is the dominance and arrogance of male authority leading to conditions which seriously affect the women who participate in fish retailing.

For an avid fish consumer in the state, our fish markets are an utter disgrace and insult to the sense of personal hygiene, which we pride ourselves about.

As one officer rightly said '*These markets are institutional orphans. They are given up by all those government departments who assist in their creation and who are designated for their management*.'

The result is that the task for making the market space functional is given to a private contractor who bids in a public auction for the right to control the market for a period. The fact that few fish markets exhibit a change in the contractor, is evidence of the deep and vested monopoly control interest which pervades. The objective of the 'foster contractor' is only extraction of rent, with little concern for the short- or long-term upkeep of the 'orphan market'.

The sad and disturbing tale of the iconic Connemara Fish Market, first built during the late 19th century, brought to public attention by the Comptroller and Auditor General's Report[66] is a stark example of drastic change required to address the issue of fish markets. (See Appendix G) To achieve this requires the determination of all stakeholders and political will across party lines.

The Department of Fisheries in 2020, lists as "modern hygienic fish markets" as many as 39 which are already under the control of various the LSGD institutions. Using NFDC funds the investment in this

[66] Just this para from the CAG report is adequate to understand the gravity of the issue: "While revising the estimate, the (authority) had deleted essential items like plumbing works, water supply, etc., and included non-essential items like replacing ceramic with vitrified tiles …… changing the surface of fish vending table ….. etc. This led to a situation where the fish market was completed without provision for drainage, water, etc., which was essential for normal hygienic operation and maintenance of the fish market…. The design of the fish market was prepared without assessing the requirements of the fish vendors and the market was constructed without ensuring the facilities required for its functioning. Thus, construction of a modern fish market building ….. without proper investigation and correlating the design with the requirements of fish vendors resulted in non-utilisation of the modern fish market.

has cost Rs.7600 lakh A further number of 51 new fish markets are being planned under KIIFB financing and should be ready soon estimated to cost Rs 12000 lakh.

While investment in fish market infrastructure is welcome, the moot question is whether the facilities have indeed been constructed well and whether subsequent arrangements for management and governance and the physical upkeep of the facilities have been considered seriously.

There is need for legal provisions to regulate all fish markets (all realms where fish is transacted by sellers and buyers). The purpose of such legislation should be to ensure greater transparency in market transactions, great quality standards and the governance of markets with the mandatory participation of representatives of all stakeholders including the government. Without this regulation markets will continue in their 'orphan status'.

Measures for fish market administrative and management reform, are important to improve the quality of fish in Kerala, to reduce wastage and greatly enhanced the livelihood and social protection measures for retail fish distributors – particularly women, all of whom are considered to be allied workers under the KFWFB Act.

The new THE KERALA FISH AUCTIONING, MARKETING AND MAINTENANCE OF QUALITY ORDINANCE, 2021 the objective of which is to *"provide for regulating of fish auctioning and marketing, to promote systematic, hygienic and efficient auctioning and marketing, to maintain quality and other matters"* which markets and market processes play in the fisheries.

An examination of this Act gives the strong impression that it was framed for a virtual takeover of markets by the government rather than as a framework legislation for regulation to ensure fair and transparent functioning. This is over-ambitious and unworkable. It will not break the nexus between merchants and political parties which lies at the root of the problem of fish markets in Kerala.

Measures to Improve Markets

A list of measures suggested by the women fish distributors, and experts who have studied the market situation include the following:

- A new Regulated Fish Market Operations, Management and Regulation Act covering all fish markets in the state should be enacted[67].
- Such an Act should be enacted only after due consultations with all stakeholders. The objective is to create an Act which will not result in a government takeover of markets but provide facilitative guidelines and give legal mandate for greater democratization of the markets and thus ensure greater participation of all the stakeholders in its functioning and management. Market Committees, with adequate and representative participation of all retail sellers and other stakeholders, ensuring at least 50 percent representation to women, should be formed as per a new Act.
- There should be periodic checks to ensure that the rates being charged by the market tax collectors are in accordance with the published rates.
- Market wholesaler and commission agents should be licenced and required by law to keep accounts and maintain records as per the Act.
- A fee on their turnover should be collected which can be utilised for social protection measures of the market staff and for the maintenance and working of the market.

[67] The new Kerala Fish Auctioning, Marketing and Maintenance of Quality Bill, 2021 may address some of the issues mentioned in the list. The 1953 Act organising the activities of the fish markets in Thailand are worth examining in this regard.

- All market fishworker participants – retailers, allied fish market workers – should be licenced and the workers among them not covered by the benefits of the KSFWFB should be included.
- Regular participatory social and health audits of markets should be conducted at least twice a year by an external agency which also ensures that representatives of consumers are involved in these audits. Cleanliness, water availability, proper functioning of sanitation facilities and waste management functions should be given top priority in these audits.
- Within markets, the women selling fresh fish direct from the shore should be given a separate space. Women from the coastal area, who sell fish brought directly from the coast, should also be permitted to use a distinguishing and good work apron and accreditation badge provided by their unions.
- The total daily duration for which any person can sell within a market should be restricted to 6 hours. Logging systems should be maintained for this purpose.
- Ice box locker space should be available on rent for retailers to keep their unsold fish in good condition for later sale.
- All retail fish distributors should be covered under life and accident insurance pertaining to their work contexts.
- Provide appropriate foldable kiosks for fish selling at designated places outside of regulated markets with regulatory measures undertaken by the Corporation/Panchayat about cleanliness and hygiene. Such kiosks can be provided to women sellers by SAF. (See details in Appendix H for one example)

Processing Units for Export and Domestic Retail Markets

Women workers form the back-bone of these processing units. Most of them are merely temporary sheds with very basic and unhygienic facilities in which the fish/prawns are kept. The facilities for clean running water, toilet facilities and other such amenities are totally inadequate.

Many of the local women workers have also opted out of the peeling sheds following the popularisation of the MGNREGA activities in their respective areas. This is in spite of the fact that the wages they would earn in the peeling sheds would be much higher. However, the greater freedom of activity and the more congenial group interactions in the MGNREGA are the main attractions.

The result of the above trend has resulted in greater recruitment of migrant labour to the peeling sheds. The women – mostly single women and young girls -- are provided some very basic accommodation facilities inside the processing plant compounds. Some of these measures are also a result of the more stringent EU regulations for export processing in keeping with the Phyto-Sanitary Measures of the WTO agreements.

Domestic retail markets are another realm in which women are involved. The presence of women varies across the coastal districts. Where Christian and Hindu communities dominate the coast, and where the fishing is still small-scale the presence of women in domestic retail markets is more apparent. Clearly the number of women involved in fish vending from the coast has reduced with the large scaling of the traditional fishery. The landings from a ring seine are too large to be apportioned into small lots for women to handle. The lorry merchants gradually displace women.

Society for Assistance to Fisherwomen (SAF)

In 2005 a Society for Assistance to Fisherwomen (SAF) was established by the Department of Fisheries with the objective of facilitating the overall development and empowerment of women fishworkers in the State. Thereafter the Matsyafed also started SHGs for women.

The livelihood projects of SAF are spread across nine marine districts of Kerala and Kottayam. They are intended to bring out positive changes among the life of fisherwomen community. The SAF primarily focuses on the economic empowerment of fisherwomen living in the coastal villages by establishing micro enterprises. The flagship project of SAF is called Theeramythri. Over the years, the SAF has introduced different schemes, programs, linkages and financial/technical aid towards the upgradation and strengthening of institutional arrangements and market efficiency.

SAF has established around 2800 microenterprise units under "Theeramythri". Of these around 1600 units are currently working with appreciable sales volume and 400 Micro enterprises have attained a self-sufficient existence. On the other hand, many microenterprises established under SAF have faced, or are currently facing, lots of difficulties in continuing business.

The major hindrances in their way to success and in attaining sustainability can be noted as social/economic/personal. The conflicts between the group members, negative attitude towards their activities, financial imbalance, unskilled beneficiaries, competition with nearby groups other than Theeramythri, irresponsible behaviour, greed on incentives, damage of machineries, health and age-related issues, unavailability of building for affordable rent, lack of interest of group members, inability to run the business properly etc are the most noted reasons behind the failure of the units.

For example, in the case of a tailoring group in Alappuzha, it was observed that, only one member had the skill to do the tailoring-based works and the others remained inactive and left the group due to the conflicts based on profit sharing. The unit was run by the one who have the skill and proficiency to run the unit individually. In this case the working of the activity group is negatively affected due to the insufficient knowledge on tailoring works.

However, if the group can work as a good team, then they become successful as in the case of a fresh fish shop in Ernakulam. The group started in the year 2008 and they are achieving a sales volume of Rs 11-12 Lakh per month. All the 3 members in the group are actively involving in a systematic way in the day-to-day activities and in getting bulk orders and in delivering orders. Most interesting part is they are providing employment to around 40 local people by involving them in procuring, cleaning and in delivering fish.

The major problem faced by the units currently is the economic breakdown due to pandemic protocol. They are hit hard by the market slowdown due to Covid pandemic and the functioning of many of the high performing units has also dropped due to this. A survey conducted by SAF showed that 21% of the units were closed during the pandemic lockdown period.

Lack of brand awareness among targeted customers is also a huge knowledge gap that exists among the unit members even though SAF is providing branding and marketing support. The need of branding is not given enough importance by the units and it leads to failure in promoting the products or the unit itself. Other factors that cause problem during implementation are lack of skill up-grading, as the business grows there is a need to manage bigger and complex business and to change their business tactics according to the needs.; but many of the unit members are not getting skilled enough even after attending the skill training programmes of SAF.

Another issue that arises is cost of raw material and competition, the increase in cost of raw materials has forced many units to increase their rates without compromising quality. This issue is mostly seen in food related sector. This may reduce demand for their products among common people.

Self-Help Groups (SHGs)

Through the Matsyafed as many as 15888 self-help groups with a total membership of 191222 women were formed. The present status (which year is not clear from the website) of the self-help groups and micro credit is given below.

Table 20: Funds Disbursed to SHGs by Matsyafed (Period not mentioned)

Sl No	Particulars	Amount
1	Total number of self-help groups	15888
2	Number of members in self-help groups	191222
3	Thrift generated by self-help groups	18.94 Crore
4	Amount of thrift distributed as loan	117.01 Crore
5	Term loan distributed	81.90 Crore
6	Micro finance distributed	323.79 Crore
7	Interest free loan distributed to vendors	148.36 Crore
Total amount distributed to SHG's		**519.26 Crore**

Though this is a sizeable amount which has been distributed there is no systematic case analysis of which of these schemes are producing desirable results in terms of income generation which is contributing to social protection needs. The scope for linking SHG schemes to social protection contributions, such as insurance products needs to be considered. For example, if all women fish vendors who receive interest free loans are requested to take out an accident insurance as their own contribution.

The potential for extending the Kisan Credit Card (KCC) to women involved in the value chain of primary sector activities, such as fisheries, should be seriously taken up with the Reserve Bank of India and the Central Government.

As per the current provisions the eligibility for the card is restricted to individual farmers and self-help groups (https://www.rbi.org.in/commonman/English/Scripts/Notification.aspx?Id=2311). Therefore it should be possible to provide the card to women fish vendors who are part of SHGs.

9. HUMAN CAPABILITY DEVELOPMENT

All parties should recognize that capacity development should build on existing knowledge and skills and be a two-way process of knowledge transfer, providing for flexible and suitable learning pathways to meet the needs of individuals …. [12.3 of the SSF Guidelines]

Human capability development is for all, always.

In a sector where technology and communication developments have been very rapid since the 1990s, hard and soft skill development of various kinds are required to match the technological hardware that has overtaken the sector so rapidly.

In fishing communities, the skill capabilities are very significant both among the men and the women at various levels of fisheries value chain, from production to export. The skill set is important for lateral and upward movement of the labour force and improving labour productivity in fisheries. The ecosystem knowledge of the fishers is phenomenal. The marketing and sales prowess of the women is proverbial. The adaptability of children to the wild forces of nature and learning to swim and dive in rough seas – skills which are rare, but was under-valued, has turned into a highly valued skill today in many of the Blue Economy activities both at land and sea.

These community abilities have placed them in good stead for pursuing a simple and frugal livelihood. However, with the fast-changing circumstances of a globalised world -- in the realms of technology, educational requirements and market competition -- the need for greater capability development for all becomes inevitable.

Fishers

In the 1960s the Department of Fisheries set up training centres to orient traditional fishers to take to the new mechanised gill net boats and later the trawlers. The skilled fishers quickly picked up the technical requirements. However, as the general level of education among them was low at that time, the soft skills like nautical map reading, for example, was not widely picked up. For navigation, the fishers on mechanised boats continued to depend on their traditional skills of triangulation during the day and reading the stars at night. The fish shoals were identified based on the learnings and experience acquired over a long period of time, rather than using any electronic equipment or satellite imagery. The impending climate variability was assessed based on the knowledge derived from experience with winds , ocean currents and other similar changes in the nature.

Experience suggests that fishers are quite quick in adopting technologies. Trawl technologies were adopted very fast, immediately after their introduction in 1960s. In the 1990s when the outboard motors (OBM) became easily available (due to liberalisation policies of the Government of India) their use became widespread. Many fishers in each village became experts in manoeuvring the OBM and were much sought after. However, for the servicing and repairs they had to depend on the company service shops. Until then, the main source of propulsion for traditional fishing vessels was using human (oars) and wind (sails) power – both of which required considerable skill and knowledge, and all of which was totally within the realm of the community. However, the second generation of fishers who

started using the OBMs in the 2000s became totally dependent on the engines, as they did not imbibe the traditional skills of rowing and sailing[68].

Today even the so-called traditional vallams – use smart phones, satellite phone, GPS, echo sounders, about 200-250 HP of OBM power and mechanical winch for gear retrieval. However, the fishers may still be reluctant to wear life jackets or carry the basic safety equipment on board their vessels. This is mainly because they hinder the physical manoeuvring required during fishing operations and the space that they may occupy in the fishing vessels. However, very few fishers would still know to read a nautical map or have the basic knowledge of maritime signalling in the event of an adverse event at sea.

Women

The situation with regard to women fish vendors remains frozen at the 1970 levels. They still carry the fish on their heads, the material change being that the wicker basket has been replaced by an aluminium basin. Many use the cell phone to communicate between themselves. But there has been little effort to utilise the technology innovatively to communicate with their consumers, for example. Further, women are now increasingly being marginalised from fish business, with the entry of more organised retailing and online fish marketing. Further, their capital constraints and the greater centralisation of fish landings are also affecting women's access to fish.

Compared to the fishing vessels, which are the men's realm, in the fish markets, which are the women's realm, the conditions have only deteriorated. There has been little technological or material upgradation in them. The women's dress and sales equipment leave much to be desired from the cleanliness and hygiene perspective demanded for sale of a food grade material. (See section on markets).

Children

As regards children, the attention given to fishery schools – particularly after 2016, is welcome and is worthy of greater encouragement. In 2021 there were 589 children in these high schools. Each school has a sanctioned teaching strength of 6 teachers which includes a teacher for fisheries subjects and 9 non-teaching staff. The teacher student ratio is therefore very favourable being about 1:10. Perhaps this is also an indication of the low student participation in the schools due to quality and other issues (See below Table 21)

The measures taken by the state to refurbish and modernise the physical infrastructure of the schools has been welcomed by all. However, physical infrastructure is a necessary condition for capability development, but certainly not a sufficient condition. Since 2016, the government has invested as much as Rs. 6858 for the coastal schools. The major share of this expenditure has been for the ten Government Regional Fisheries Technical High Schools (GRFTHS) and the 7 Vocational Higher Secondary Schools which function in the same premises. Some modifications and repairs have been undertaken in the government primary and other aided schools located in coastal villages.

[68] Fishers realised a bit late that with the adoption of the OBM they had lost their autonomy, as both the control over their decision to go fishing and the price of their fish (especially prawns) was determined from Japan!

Fishery School Teaching and Practices: The Need for Re-Organisation[69]

In the general schooling system in Kerala, the extent of inclusion of matters about the sea, fisheries or fishworkers and coastal issues in primary and secondary school text books is extremely limited. Such inclusion is needed to familiarise and create a positive awareness in the larger child population about the fishing communities. (TISS Report, 2020)

While the above needs attention, the situation and status of the special fishery schools in the state requires careful review. The reports in the press, and by more official bodies, like the Kerala State Commission for the Protection of Child Rights (KSCPCR, 2017) have provided very dismal reports. More recently, the coastal communities are also unhappy with the status and facilities of many schools. (TISS Report, 2020).

There was a time when these government schools were much sought after. However, various factors have led to a decline in the demand for these government-run, residential schools among the fishing communities. Firstly, the number of children per women in the fishing communities has declined drastically and is currently close to 2-3. The household incomes have also increased gradually for the majority of households. The consumption levels have improved. Hence, the majority of households are not interested in sending their children to residential schools for food and other basic requirements. So, although the basic food and other amenities in these government-run, residential schools had been attractive to these families until a few decades ago, this is currently, not the case.

The expectations of these households have gone up and some of them may even consider the facilities in these schools inferior or unattractive. With the educational aspirations going up, some sections in the fishing community have started using private schools for their children, which is the general trend within Kerala and also in other parts of India.

Though this is the general picture, there are groups within these communities or households which may still want to send their boys to the RFTS.

The teachers believe that though there is a general decline in the demand for the RFTS, there is a set of children who may not get an adequate education if these schools are closed down. It is therefore evident that the students who continue to use these residential schools are faced with more difficult socio-economic and family conditions compared to others in the community.

Given that the children who currently use these residential schools are likely to have specific disadvantages compared even to others in their own community, one should not be surprised by their poor educational achievements. Even as some schools record a 100% pass rate, a significant number of students who pass out of grade ten cannot even read and write fluently.

There has been a decline in the quality of infrastructure and other facilities available in the RFTS. It is possible that these schools have failed to improve the facilities as per the expectations of parents which have changed over time based on the improvement in the socio-economic conditions within the state.

The need for and the absence of well-trained and motivated wardens of hostels, who can also be counsellors to students, was noted by teachers who have worked in these schools. The current

[69] Fishery Schools, in what is now Kerala State, were started by the British. Recognising that the illiteracy among fishermen was significantly very high, earnest efforts were taken to reduce this rate. In 1913, a special Fisheries School was started by the Fisheries Department at Tanur in the West Coast. By 1919, Government sanctioned the opening of a training institute at Calicut for the training of schoolmasters of fisheries schools and they were given special technical instruction in Fisheries.

practice of hiring temporary hands or assigning this responsibility to the physical education teachers is not desirable. Though these schools come under the fisheries department of the government, there is not enough supervision from the government's side. The fact that these schools are controlled administratively by the Department of Fisheries but teachers are under the control and supervision of the Department of Education, could be creating problems in coordination and effective supervision.

The number of students taking admission in each school has come down drastically and hence the pupil-teacher ratio is very low. This situation could have been used as an opportunity to improve the learning levels of these students. Since these schools have only grades VIII, IX and X, the poor learning in lower grades may continue to affect the education of the students and there may be a need for remedial support to mitigate this problem. (See Table 21)

Table 21: Number of Students Currently Studying in the Government Regional Fisheries Technical High Schools (GRFTHS) in 2021

No	School	Std. VIII	Std. IX	Std X	Total
1	GRFTHS Valiyathura, Trivandrum	4	8	23	**35**
2	GRFTHS Karunagapally, Kollam	18	26	28	**72**
3	GRFTHS Arthungal, Alleppy	14	9	11	**34**
4	GRFTHS Thevara, Ernakulam	9	7	8	**24**
5	GRFTHS Chavakkad, Trichur	11	32	26	**69**
6	GRFTHS Tanur, Trichur	40	40	40	**120**
7	GRFTHS Beypore, (Boys) Malapuram	16	12	24	**52**
8	GRFTHS Koyilandy, (Girls) Kozhikode	9	21	13	**43**
9	GRFTHS Azheekal, Kannur	10	15	10	**35**
10	GRFTHS Kanghangad, (Girls) Kasargode	25	40	40	**105**
	Total Students	156	210	223	**589**

Source: Department of Fisheries (From DD 6th October 2021)

Given the decline in the demand for residential schools among the fishing communities, but the persisting need for it among a smaller section of them, the government of Kerala will do well to consider continuing only a few but better equipped residential schools. There are such models within the state, a couple of such schools with adequate facilities are run for the Scheduled Tribes (ST) and the Scheduled Castes (SC) by the departments for the welfare of the SCs and the STs. There are similar residential schools for underprivileged groups in others states (such as Andhra Pradesh). Similarly, there are the Navodaya Vidyalaya's which are also in very high demand even among the middle-class sections of the Indian society.

Hence, it may be possible to have a fewer (probably three – one each in the southern, central and northern parts of Kerala) well-equipped residential schools for children belonging to the fishing communities. These schools must avoid the current situation of admitting only boys and must create favourable conditions so that girls can join too. Since these schools cater to grades VIII, IX and X, the issues associated with taking children away from their family/social surroundings at an early age (an issue regarding residential schooling of the underprivileged discussed globally) are also not of concern.

The GRFTHS should have a better-quality infrastructure and a higher allocation of resources for the boarding and lodging of students. Each of these should have well-trained and well-motivated warden-cum-counsellors. Teachers for these schools must be hand-picked from those who work under the Department of Education. In addition to the academic credentials, their ability and willingness to work with and motivate these students who come from difficult family and social situations should be taken into account in the selection of the teachers. They can be provided with additional support and recognition (not financial since such incentives may not be appropriate in organizations like schools). There should be enough opportunities for co-curricular and extra-curricular activities in these schools along with those for the learning of academic subjects.

However, since these students are from the fishing communities, activities or knowledge related to fishing can be used as a pedagogical tool to study other subjects (such as science, geography, and mathematics). There can be innovative efforts in this direction. Moreover, fisheries including aquaculture can be a vocational subject as part of higher secondary schooling

Assessing fishery education as part of Vocational Higher Secondary Schools

The curriculum of fisheries taught in the VHSS covers a number of useful topics, like fishing technology, fish processing technology, and aquaculture. However, it needs to be upgraded periodically to include other relevant issues. There could be a reluctance to upgrade curriculum periodically and this needs to be addressed. It may be better to have wider consultations with all stakeholders for this purpose.

In this context, the introduction of the National Skills Qualification Framework (NSQF) by the Central Government needs to be converted into an opportunity. Appropriate syllabi for a variety of job positions such as aquaculture farm managers; hatchery technician; aquaponics technicians; value-added product technicians, to name a few, can be submitted for course approval to the Pandit Sunderlal Sharma Central Institute of Vocational Education (PSSCIVE), Bhopal by the state government. The experienced teachers of the VHSS fisheries schools and other relevant stakeholders can come together to formulate these. A few gaps are notable in the current fisheries syllabus.

Fishing as an occupation and industry needs to be concerned with the sustainable and responsible use of marine and water resources. There is a need to develop responsible fishery all over the world. Though fishing resources and responsible fisheries are covered in the module of fishing technology in the syllabus, our impression is that there is not enough coverage of the marine ecosystem, the potential impacts that the fishing of different kinds may have on this ecosystem, and the technological and institutional (rules and laws) options that are in tune with sustainable fishery or sustainable use of marine resources (like the conservation-oriented tourism to watch marine life; community tenure rights, valorising small scale fisheries and so on). These need to find a place in the curriculum.

After training in fisheries at the VHSS, students may take to individual or family owned, small-scale fishing activity if they are also provided with the required capital. Alternatively, they may join industrial fishery or find jobs in the currently modernizing fish-processing and marketing sector. There is also a great need to revive the institution of cooperatives. These requirements need to reflect in the teaching of fisheries as a vocational subject. It may require not only skills but also awareness, attitudinal changes and entrepreneurial skills, for example, to work as part of a cooperative or collective entity.

There is a need to develop closer linkages between vocational schools and the fishing industry/sector. Such associations would be useful in various ways. They may enable the updating of the curriculum to make it appropriate to the contemporary requirements of the industry. Technicians and managers from the fishing industry can be invited for guest lectures in the schools, which will enable the students to form a clear association of classroom instruction of skills with the practical needs. It may enable

students to undertake internships and practical work in industrial firms to enhance their skills. It may also lead to the placement of students in fishing-related industry after the successful completion of their studies. Such an industry-vocation linkage is envisaged in the skill development programs which are currently going on in the country, and it may be useful to bring about such a strong connection in the VHSS-fisheries schools.

Even if there is a placement service in the VHSS, only some students may show interest in taking up a job after passing out of the school. It is understandable that some students will want to pursue different streams of higher education. But students who are from the fishing communities may be interested in taking up jobs after secondary schooling and the availability of a placement service may motivate them to complete schooling successfully.

Making vocational education closer to the practical skills necessary for fisheries jobs, developing close linkages with the industry and the sector as a whole, and job placement for students who are willing to work may enhance the attractiveness of the VHSS- fisheries schools.

The fishery schools which started in the 1960s, though they have been partially successful, are facing different kinds of challenges currently. There is a need to understand their requirements, the relevance of their current curriculum, and redesign it to better meet the challenges of today.

Through the discussion with different stakeholders, we highlight a few changes that are desirable in the current context. There are two key suggestions: (a) it may be better to have a fewer but well equipped fully residential high schools for children from the fisher families; (b) there is a need to change the curriculum and pedagogy; and, establish institutional linkages to make the education in the VHSS- fisheries schools closer to the needs of fishing sector and communities.

A group of the current teachers in the GRFTHS and the VHSS associated with them have provided some key suggestions for revamping the facilities and education in the schools to make them more attractive to the students from the fishing communities (See Box 5 below).

Box 5: Towards a Renewal of Fisheries Schools to Meet the Future Challenges

Vision and Mission: Vision and mission of the Fisheries schools in Kerala should be redefined in such a way that the students from the fisher folk should be trained to aim high and pursue higher education in preferred stream while offering them fisheries-oriented aptitude. This will help to attract more students to fisheries school in this new scenario.

Infrastructure: Development of infrastructure on par with the "Hitech schools" concept of Department of General Education for the Fisheries school will definitely pave the way for regaining the glory of yesteryears. Priority should be given to upgrade the infrastructure like Classrooms, Hostel facility, Libraries and Laboratories, Indoor and Outdoor sports and games facilities etc. Students should sense the 'feel good factor' which in turn will motivate them in their studies.

Academics and Curriculum: While following the General stream of curriculum vocational/skill component should be updated yearly basis. Courses from NSQF can also be changed after a period of time in order to meet the job role requisites of industry inside the country and abroad.

Skill Development: Three fisheries schools can be upgraded to Finishing schools/Skill parks with state-of-the-art skill training facilities. The department of Fisheries can develop these centres for training students of fisheries schools/ colleges, officials of the department and others.

Physical education/ Swimming/Diving: Life skill training as well as skills for acquiring jobs in the field of Maritime arena, Deep-sea fishing, Disaster management etc should be imparted to students. Job oriented physical training for securing jobs in Armed forces also can be considered.

Guidance, Counselling and Career Formation: Guidance of children at hostel is an area where good attention is needed. Warden, Watchman, Guide/Tutor all should look into the matter very seriously. As in "Jawahar Navodaya Vidyalaya", government should consider the idea of teaching staff residing in hostel premises guarantees the discipline of students at the same time it will encourage the parents to send their children to fisheries schools. Residential support of faculty will help the students in doubt clearing and build up confidence in them.

Industrial Linkage with Government/ Private Institutions: Linkage with government / private institutions in the field of Aquaculture, Fish processing for training programmes will attribute to real time training and skill development. Facilities of agencies like ADAK, MATSYAFED can be utilized in this regard.

Finishing School / Skill Park: Three fisheries schools can be upgraded to Finishing schools/Skill parks with state-of-the-art skill training facilities. These centres should be equipped with good infrastructure, trainers and skilling programmes to impart globally relevant skills in the field of Fisheries. It can act as a unique skill development facility to generate skilled manpower in the field of Fisheries The programmes or courses should give emphasis to real-time, real-world work experience and knowledge.

Vertical mobility in Higher Studies: Special coaching classes should be given to students from high school level itself for qualifying entrance examinations like NEET, KEAM etc. Special reservations for Fisheries school pass outs should be given in B.FSc courses and professional courses in similar lines followed by Kerala Veterinary University and Kerala Agricultural University.

Integration of High school and Higher Secondary wing: Immediate merging of High school wing and higher secondary wing needed for better administration. This will be a giant leap in protecting the interests of those students who are passing out from the school after completion of Secondary Examination but fail to pursue their studies due to the non-availability of hostel facilities or due to social and economic backwardness of parents.

Induction of new NSQF Courses in High School Level: At present the NSQF courses are implemented in Vocational Higher Secondary Wing as Level 3 and Level 4, Level 1 and Level 2 can be implemented in Standard IX and Standard X respectively with novel fisheries courses available in National Skill qualification Registry.

Induction of new NSQF Courses in Higher Secondary Level: Yearly updating the existing courses and induction of new courses related to Disaster management, Professional Diving, Navigation and Seamanship, Deep Sea fishing, Aquaculture, Seaweed culture will satisfy the needs of job aspirants in upcoming job prospects.

Job Assurance: Induction of NSQF Level I, II, III and IV in school along with prevailing curriculum, other Skill imparting programme and Certification courses can improve the competency of job seeking pass outs. Placement cells for the same can be established

Staff Pattern: The integration of high school section and VHSE section will lead to better utilization of teaching faculty in fisheries schools so also it will improve the prevailing teacher student ratio

Hostel Facility: Hostel facility should be made available to the higher secondary students of VHSE wing attached to the fisheries students. The integration of high school section and VHSE section will ultimately prevent the drop out phenomenon of students who were passing out from the school after completion of Secondary Examination but fail to pursue their studies due to the non-availability of hostel facilities or due to social and economic backwardness of parents.

Linkage to Central Institutions: Linkage with Central Institutes like CIFT, CMFRI, CIFNET, RGCA, MPEDA, NIFPHATT etc. for imparting training and conducting short term courses will be beneficial to the students as well as it will help in raising the standard of the institution.

Quality Control: A pilot project can be easily implemented in Fisheries schools for Implementation operating procedure, Evaluation, Review, Ratings and Standardization which can further be made part of the system.

Administration: Incorporation of Committee for the Fisheries schools and appointment of Nodal Officer for looking after the functioning of the fisheries schools

Sensitization: Awareness programmes should be carried out officially as in the case of "*Podhuvidhyabhyaasa Samrakshana Yagnam*" to sensitize the fishermen community about the schools after the transformation process.

SUBMITTED BY:

***Sabu Joy**, Vocational Teacher in Fisheries, Dr. VVVKAM Govt.RFT VHS School, Karunagapally, Kollam*

***Arun A**, Vocational Teacher in Fisheries, Govt. RFT VHS School, Valiathura, Trivandrum*

***Beena MS**, Vocational Teacher in Fisheries, Govt.VHS School, Kaipamangalam, Thrissur*

***Sreekumar KN**, Vocational Teacher in Fisheries, Govt.VHS School, Vaikom West, Kottayam*

***Nisha Raj**, Govt. RFT VHS School, Arthunkal, Aleppey*

***Pushparajan S**, Vocational Instructor in Fisheries. Govt.VHS School, Vaikom West, Kottayam*

***Sujith C**, Vocational Teacher in Fisheries, Govt.VHS School, Cheriazheekal, Karunagapally*

***Jayakrishnan AG**, Vocational Instructor in Fisheries, Govt. RFT VHS School, Arthunkal, Aleppey*

Assistance for Education

The emphasis on educational concessions for children of fishermen has been a major priority ever since the formation of the MatsyaBoard. In the years prior to 1986 the annual average expenditure on education and training was a mere Rs 8.3 lakh in 1964-80 and increased to Rs 33.0 lakh between 1981-85. Following the fisher's agitation and the formation of the MatsyaBoard the expenditure on educational concessions grew to Rs 205.5 lakh per annum between 1986-1998.

In the more recent years, with data from the Kerala Marine Fisheries Statistics 2015 and 2020 we get a clearer picture of the distribution of these concessions across the state and also an idea of the levels of education for which they were utilised. For example, between 2012 and 2015 as many as 180,677 students were given concessions amounting to Rs 4400 lakh. Between 2016 and 2019 the number assisted was 178,528 and the amount disbursed was Rs. 8022 lakh. The largest number of students were from the district of Malappuram, followed by Alappuzha, Thiruvananthapuram and Kollam.

The major share of the concessions (2012-15) was for children doing studies up to the school leaving level and Plus 2. This accounted for 85 percent. About 11 percent of students who were at the degree level received the concessions. The remaining 4 percent of concessions were spread across students who took courses in industrial training, polytechnic, and degrees in engineering, nursing and education and post-graduate studies. It should be noted that only a miniscule number chose studies in fisheries.

During discussions with community members (in Trivandrum, Alappuzha, Kozhikode) one issue highlighted was that the funds being allotted for higher education is inadequate to meet the rising expectations of the children of the fishing community. There may need to be a closer examination of this request considering that over time the educational attainments of members of the community have risen significantly.

Box 6: Experience of Educational and Other Social Protection Benefits Received

As a student from the primary school to my graduation I have received an amount from the fisheries department through the respective educational institutions. For that purpose, I only needed to fill out a form from the fisheries office and a photocopy of my father's fisheries book. Some of my fellow students got a table and a chair from the fisheries department through the welfare program which focuses on the improvement of education for the children from the fisher community, which I didn't get and I don't remember why. I applied to get a laptop which was provided by the department. For that purpose, I filled up an application form, provided the photocopy of my father's and my Aadhaar card, a photograph of my father, my photograph, a bonafide certificate from the college, income certificate and a copy of my father's fisheries book. This is the educational support I received from the fisheries department.

My father pays a small amount every year to the fisheries department which will help him to get financial aid if anything happens to him while he is fishing. This is another support from the department.

Even though we have been a fisher family for the past many years my family didn't have any fishing assets on their own. They go in fibre boats owned by others. Only a year ago my father and my uncle had the chance to buy a small boat. But due to Covid-19 and its applied strict rules the situation to go fishing was hard.

I have not faced any challenges to get the support from the department and never in need of any political recommendations to get what was rightly due to me.

One small suggestion I wish to add that the welfare programs and financial aid that the fisheries department is providing should be communicated efficiently. I personally know people who haven't heard about some of the help that the department is providing to them. This gap should be filled to reach out to the people who need support.

Statement from Ms. Geethu.P.P of Payyoli, Kerala
currently post-graduate student at Azim Premji University, Bengaluru

Meanwhile, data from the Department of Fisheries (Demand Day) indicates that 331 youth from the community received training for the medical entrance exams between 2015-16 and 2020-21. Of this 49 got admissions to the medical course, 32 to related courses (e.g. BDS) and 52 for other courses making a total of 133 successful candidates – a success rate of 40 percent. During this period also 273 persons received training to bank tests, IAS and PSC.

Kerala University of Fisheries and Ocean Studies (KUFOS) and the Community

KUFOS is mandated to set aside an additional 20% of the sanctioned seats of its UG and PG programs to the children of fishermen as supernumerary seats. Likewise, 80 seats (56 under different PG programs and 24 seats under UG programs) are provided exclusively to wards of fishermen who have been registered under the Kerala Fishermen's Welfare Fund Board (KSFWB). Similarly, seats under reservation category for Dheevara (2%), Latin Catholic and Anglo Indian (3%), other Backward Christian (1%) also include students from the fishermen community. Likewise, presently over 100

students from the fishermen community are pursuing their UG and PG program. All these students who are children of fishermen registered under KSFWB are being given scholarship through the Fisheries Department. The scholarship includes payment of tuition fee, lump sum grant and stipend. Similarly, for students who are not coming under the KSFWB, e-grant scholarship is provided under the OBC or OEC category. Similarly, to enhance the employability of children of fishermen, the university is also running one-year skilled based courses in brackish water and marine aquaculture as well as Aquarium Science and Technology.

KUFOS may consider conducting regular interactive sessions with real expert master fishers of the state. These sessions can become the place for students to appreciate the need for greater blending of knowledge and technology and also a way of making the fishers aware of the relevance of the University. Fishers today are using their smart phones to record their fishing activity and sharing the same on social media. Such real time audio-visual products can become an interesting and credible means for sharing and appreciating the evolution of fishing techniques and matters such as the hazards of fishing. Such exposure will also be useful for students who are not from the fishing communities who study in the University to get 'first hand' knowledge of the sea and fishing, which would otherwise be difficult to observe, unlike in other realms like agriculture.

In many agriculture universities in S-E Asia, there is a tradition of having one special day when the people of the sector – e.g. fishers/ fish farmers and other relating to the sector – are invited to the University for a series of events and exhibitions – ***Kadal Kootangal***. Such an interaction is mutually beneficial as it creates a two-way communication process. University teachers and students get to understand the needs of the sector and the people; the people of the sector get to see the latest innovations, practices, gadgets and so forth. Creating ocean literacy should be the goal.

All our universities and research institutes have extension wings. However, these departments largely tend to be a one-way process – taking what WE know or produce to show and teach THEM. The underlying logic of extension services was that fishworkers need to be taught many new techniques and technologies, but without paying respect or heed to the knowledge and technology of the fishers themselves. Extension is a long outdated, top-down, non-participative approach. This logic of EXTENSION needs to be replaced with the logic and concept of INTERACTION – a more horizontal, participative and mutually respectful process. We need Fisheries Interaction Departments and Services.

KUFOS may consider conducting such an open event on World Fisheries Day (November 21st) every year to showcase its work and also to get fishworkers and their leaders to speak about their needs and aspirations and expectations from the University. Such events may start as symbolic efforts to bridge the gap between the University and the fishers, but can develop into a fruitful and long-term collaborative venture for exchange between two systems of knowledge and technology which will work to the benefit of both.

Village Motivators

The possibility of training a cadre of village motivators under the Sagarmitra (SM) scheme, for example, and providing them with small honorarium and social recognition. It is crucial not to politicize the selection of this cadre. They need to be selected by a committee of officials (*ward member, Matsyafed officer etc and non-official members for each of the villages – parish priest, dheevara sabha reps etc*). The essential criteria for the candidates *(e.g. parent to be active fishworker or living in the coastal village; education level; demonstrated interest in village affairs; willingness to stay in the village etc)* should be broadly agreed upon. But it should be possible to add other specific criteria

according to local conditions. It is essential that there is a proper gender balance in the recruitment of the volunteers. There should be a 60:40 gender balance in the selection.

The SM can also be the motivator for women who form groups for various activities under SAF, the Kudumbashree units, SHGs etc. They may also assist in data collection on aspects of crucial importance for the future of the sector. (See below)

There should be regular district and state level meetings of this group of volunteers for the purpose of exchange of information and to be updated on the status and trends in the sector. At these meetings, apart from the Department of Fisheries under whom they will function, the staff of the many Central fishery institutions, KUFOS, the officers and Board of Matsyafed, the representatives of the fisher's trade unions and boat owner associations should be involved.

Equipping Fishworkers for the Global Fishery

A Foreign Fishing Certification Program that will give training and information which will be useful for them to take up jobs in fishing industries outside India. Many fishers are already migrating regularly to the Gulf taking up jobs on fishing vessels. In Europe too, the marine fisheries sector, both small and large scale, are faced with generational renewal issues, with ever increasing average age of fishers. Scotland in United Kingdom, for example, has become highly reliant on crews from South and South East Asia. (See Appendix J) This is only the beginning of a global trend and the fishers of Kerala should be ready to take advantage of this opportunity.

Hence, there is great potential for Kerala fishermen if they are properly trained and certified. The National Institute of Fisheries Administration and Management can become the coordinating agency which can obtain assistance from the central institutes of fisheries in Kerala to start such a certification program. Funds for this may be forthcoming under Central Government Skill Development Schemes such as the Pradhan Mantri Kaushal Kendra (PMKK) and the Ministry of Skill Development and Entrepreneurship. There are also programs under the Ministry of Minority Affairs for skilling of artisanal communities. The focus is on terrestrial, agrarian communities, but a case for including traditional fishing communities into the scope of such skilling initiatives should be lobbied by Kerala.

The focus can be on soft skills like use of smart phones, tablets, nautical map reading, safe navigation, plotting positions on maps, filling catch log sheets and other data entry procedures, interpreting echo sounder information, signalling, use of life saving appliances and CPR emergency kits; steps to be followed in case of emergency at sea basics of maritime law, rights under ILO Convention 188 On Work in Fishing, FAO Port State regulations, Code of Conduct for Responsible Fisheries and so forth. Functional English related to fishing may also be considered where needed for the candidate. Given the extraordinary skills of our fishers, this additional training and certification will give them greater and safer access to the international job market.

In the 1960s and 1970s there were Fishermen Training Centres in Kerala which were meant to train traditional fishers to use the mechanised boats being introduced by the state as part of the fisheries development programs. Into the future there may be scope to start at least two Fishworker Training Programs which are joint-ventures between the state, fishery institutes, and private international fishery concerns[70] in which the fisher unions and cooperative organisations are also involved. There are relevant examples of such initiatives in the Maldives and the Philippines from which we can learn. Fish workers of some regions of Kerala, as in southern parts of Thiruvananthapuram and some parts of Tamil Nadu like Thoothoor and Colachal are highly skilled in fishing activities. The service of such

[70] One example is the International Pole and Line Foundation (IPLNF) and its collaboration with fishers in Maldives to improve their traditional pole and line tuna fishery skills.

fishermen can be availed to train others. Such trainer fishermen can be given proper remuneration as well. Such programme would serve a useful tool for recognising the fishing prowess of such fishermen, their commitment to the profession in addition to raising their prestige in the society.

Raising General Awareness about Schemes

One of the constant refrains heard along the coast is that the fishers are unaware of the numerous social protection schemes which are available to them. Considering that these schemes were the result of public action by the fishworkers themselves, this situation highlights both the failure on the part of the community and the state.

The Government's Information and Public Relations Department has numerous booklets which give all the details of the schemes for social protection available to different groups of the population. These publications however, do not seem to reach the ground level. Such a situation is easily rectified if these booklets, and other publicity material, are made available at the Mastya Bhavans and at the primary cooperatives of the Matsyafed.

Another very simple measure is to paint one of the walls of the Matsya Bhavan and put the details of all the schemes available so that everyone can see and make enquiries.

An annual coastal children's painting competition which highlights the current themes of concern to the fishing communities can be organised. Such cultural events, which do not require much expenses, and can be easily sponsored by civil society organisations and private companies, can go a long way to foster awareness and recall within the coastal community. Participation in the International Coastal Clean-Up (ICC) Day (third Saturday in September) is another event which can help mobilise awareness.

Information brochures, posters and illustrated booklets

A twelve-page annual combined calendar of the Dept of Fisheries/Matsyafed/MatsyaBoard which gives all the social protection schemes and other information about marine fisheries regulation (mesh size, trawl ban dates,) contact details of fisheries department, KSDMA; IMD etc and any other essential information such as lunar dates etc should be produced. This calendar can be distributed widely so that every fishing household will have information on their walls. If the private companies who supply fishing inputs are allowed to sponsor each page, then this can be a public-private information dissemination partnership. The production of the calendar can also be delegated to the district level so that information which is more relevant to the district can be included. Posters about any specific aspects of schemes for fishers can be widely distributed. Sponsorship of private companies may be obtained for achieving this.

10. DATA AND INFORMATION

States should establish systems of collecting fisheries data, including bioecological, social, cultural and economic data relevant for decision-making on sustainable management of small-scale fisheries with a view to ensuring sustainability of ecosystems, including fish stocks, in a transparent manner. Efforts should be made to also produce gender-disaggregated data in official statistics, as well as data allowing for an improved understanding and visibility of the importance of small-scale fisheries and its different components, including socioeconomic aspects [11.1 of the SSF Guidelines]

Unless data and information are used for informed policy making, there will never be any pressure to ensure their accuracy and useability. Data will remain in the glossy handbooks of departments and very little of it will get converted into valuable information on which people, politicians and policy makers can obtain meaningful understanding in order to take actions which will assist to improve the lives of the fishers.[71]

Good data and timely information for empowerment and policy making

Data systems tend to get ossified, particularly when they become part of a mere regular requirement for inclusion in annual reports. Analysis and information which should be gleamed from it, lose their function as an empowering tool for management of the sector, as well as policy and decision making.

One good example to illustrate the point made above is the following.

Consider the data collected on the fisher population of the state. There was a time when the population count of marine fishing communities was made by the Livestock Census staff when they enumerated the number of fishing craft and gear. This obnoxious practice was however stopped.

The Gender of Children?

The Department of Fisheries now regularly publishes data on the numbers of fisherfolk in its annual statistics publications. However, the data has followed a rather un-questioned categorisation of the population in the fishing villages into three categories: Male, Female and Children. There is no male and female categorisation of the group "children". There is also no indication about the age at which 'children' transit into the classification 'male and female'! These faulty classifications have been mindlessly replicated for decades. There has never been an age-wise, gender-wise classification provided from the data collected. The result has been that no meaningful analysis of the demographic changes -- sex ratio, infant mortality rates, dependence ratios etc -- of the traditional fishing community has been possible. The sad fact is that the primary data exists. But what is provided in the public realm, is of very limited utility.

Who are the 'active fishermen/women'?

Consider another example. Take the case of categorisation of the active workers in the sector. Often the number provided in the published data under "active marine fishermen" includes both the men and the women who are "active".

However, since very few women go fishing, we must assume that the 'active marine fishermen' who are indeed 'women' are perhaps the women from traditional fishing communities who are active in

[71] During the course of the work of this Working Group this fact became very apparent. There is a mass of data available in official publications. However, many inconsistencies, and lack of rigour in the presentation posed many problems.

fish vending, processing etc. But then, there is also a category called 'allied workers' (i.e. those in activities other than fishing). This also involves men and women.

The question therefore arises: Are the women in the category "active marine fishermen" included, or not included, in the count of women who are "allied workers?" Either way there is a data problem. Again, though in the primary data the gender is separately recorded, attention is not being paid to its proper classification. The result is that, what is published can be misleading and also result in faulty policy decisions.

Even in this report we had trouble to arrive at one credible series of data on the number of active male fishworkers in Kerala. We were not able to obtain the accredited data from the Statistical Cell of the Department of Fisheries. In Table 1, right at the outset of the Report, we have arrived at the numbers of fishworkers by dividing the Fisheries Sector Product (FSP) by the per fisher FSP given in a document (Demand Day document) from Department of Fisheries which are used to plan for the years ahead.

There is also need to collect data on the labour, employment and changing forms of work organisation in the whole sector, in all its activities of pre-harvest, harvest, post-harvest, processing and distribution and marketing – domestic and export.

Therefore, lack of definitional clarity and such ambiguity in categorisation of workers in different activities of the fisheries sector makes analysis and policy formulation difficult. Such ambiguity needs to be settled once for all -- by clear and unambiguous definitions, proper enumeration, proper coding and collation of the data and storage in electronic formats which are easily accessible.

Data on Craft and Gear

The same state of affairs exists with regard to the data pertaining to the craft and gear. We know the totals of the three main categories of craft (mechanised, motorised, non-motorised). But, for example, there is no data on the district-wise distribution of these craft by gear-type, overall length and HP rating.[72] The availability of such data would be essential to make decisions about fisheries management measures, the problem of excess investment and reasons for the steeply falling productivity (physical and value) of all fishing units.

There has also never been any systematic effort to make any costs and earnings calculations for different combinations of fishing craft and gear[73]. Such data are very crucial to understand the economic health of the fishing sector. Such information can in turn yield better targeting of subsidies, social protection measures and other financial assistance packages.

Fish Harvest

The most extensive data sets are provided about the fish catch (harvest) which is available by species, season and district. However, fish harvest data in itself -- however detailed -- only provides an idea of the fish output we have for consumption. For example, we are not able to correlate harvest with forms of technology and therefore make any estimates about productivity and profitability. The paradox of stagnation in marine fish production and unbridled increase in investment in fishing combined with

[72] The South Indian Federation of Fishermen Societies did make an effort to provide such village wise information of craft and gear and motors in 1991 and 1998.

[73] On and off there have also been efforts by the researchers to make case studies of the economics of different fishing methods. However, the last systematic effort to undertake a costs and earnings study in fisheries was undertaken in 1980 when the distinction between mechanised and non-mechanised craft was stark and motorisation had yet to make its entry into Kerala fisheries in a big way. The sector has undergone a drastic change since, importantly blurring these distinctions. The need for another costs and earnings study covering all the different craft-gear combinations across Kerala is imperative for formulating resource management policies and social protection measures.

increasing indebtedness and inequality requires the right data and information to be able to provide the appropriate policy perspectives to get the fishery out of its current crisis.

Given the extensive organisational set-up and competent officials of the Department of Fisheries available along the coast, the collection and interpretation of credible fisheries, economic, technological and social data requires only a very marginal additional effort. In fact, what may be needed is merely to re-organise the data entry and data presentation formats in most cases because the basic data is already being collected. The Statistical Cell officials and data collection and analysis staff of the Matsyaboard will need to be provided with some additional training on data analysis and presentation.

Expert Consultation on Fisheries Data and Information

An expert consultation, comprising social scientists, technologists, data analysts, demographers, fishery department officials in charge of statistics in the Department of Fisheries (FIMS), representatives from the Planning Board and informed representatives of cooperatives, trade unions, associations, NGOs, should be held. The objectives of this consultation should be to make a review of the status of current data collection methods, their modes of analysis and presentation. The consultation should provide creative suggestions for improving the quality, the appropriateness, ensuring greater gender-balance and ensuring more friendly and understandable modes of presentation. The focus should be to examine how data and information can lead to empowerment of the fishworkers and help in astute policy making.

Same Day Census of Fishers and Fishing Equipment

One suggestion for a credible re-assessment of the traditional fishing population, the number of active fisher and their fishing assets is to hold a mandatory same day census type operation at all landing centres and designated harbours. This will also be a good occasion to identify migrant labour, particularly those working on the mechanised boats. Among them, those who have valid proof of being fishers in their respective states (or can provide proof being from traditional fishing communities) should be categorised separately from those who are from other trades and/or communities.

The modus operandi of conducting such an operation will need to be coordinated by the Department of Fisheries, Matsyafed, Civil Supplies Department and the Fishing Harbour Authorities. The Local Self Government Institutions should also be involved. Wide publicity should be given to the event in the coastal districts. The cooperation of the trade unions and boat owner associations should be fully ensured so that there are no complaints later about lack of information. The staff involved should be adequately trained to be able to understand the details of fishing craft and nets so that there is no misclassification. Such on the ground initiatives can also be supplemented by drone verification, particularly with regard to fishing vessels berthed in government and private fish landing harbours and landing centres.

11. RECOMMENDATIONS AS VISION FOR THE FUTURE

PERSPECTIVES AND PRIORITY CONCERNS

1. **Social protection is a human right of fishing communities and all fishworkers in the state.** They harvest a safe and nourishing food item from the sea; generate a substantial amount of employment on land by creating networks to efficiently distribute fish; contribute to the country's foreign exchange and potential tourism revenues, and act as beacons of our seas. They are a valuable human, economic and socio-culturally important segment of our society.

2. Fishworkers of Kerala, like their counterparts in other parts of the world, have a Magna Carta for social protection in the form of the UN/FAO Voluntary Guidelines for Sustainable Small-Scale Fisheries (SSF Guidelines). **The Government of Kerala must use the SSF Guidelines as a guide for planning social protection of fishworkers for the future.**

3. We have enumerated four types of social protection measures: protective, preventive, promotive and transformative. There needs to be a balance of these measures. But the emphasis may change according to the circumstances of the workers, the external factors and the state of the economy. Social protection must be situated within the community-market-state triad. That is the only way it can become adequate, appropriate and a source of sustained assurance of people's aspirations from the labour they perform. **Currently, and into the future, the focus of social protection for fishworkers should be on the protective (e.g insurance, pensions) and the transformative measures (e.g resource management and supportive legislation).**

4. Fishworkers of Kerala were considered to be 'outliers' of Kerala's overall development experience. However, since the 1990s, the median and average income levels of fishworkers have increased and in the last decade, has remained stable. However, today, and into the future, the main issue facing fishworkers is not their income levels. Rather, compared with all other primary producers in Kerala, fishers face far greater environmental and physical vulnerability due to climate change events which will affect them both at sea and on the coastal habitation. Their occupational and economic vulnerability is also substantial because climate change impacts and due to the far greater credit and indebtedness trap in which they find themselves. **Social protection measures for fishworkers needs to focus importantly on mitigating environmental, physical, occupational and economic vulnerability.**

5. In small-scale, artisanal, fishing communities, the task of earning a livelihood can be a risky and tenuous pursuit. However, the perpetual harvest of the plentifully available renewable fishery resources, in the near-shore tropical seas, hugely compensates for this risk. **If this resource is cared for, and if the fishers can get a fair return for the produce of their hard labour, then they can lead a good, decent and dignified life.**

6. Addressing vulnerability will require providing social protection measures tailor-made to the manifestations of vulnerability. Such actions will provide them the confidence, bolster their resilience and enhance their trust in the state. The community will always be their **anchor.** The community provides the stability, the autonomy and the resilience. The market is the **engine, oar or sail**. The market motivates and provides the drive to take the wise actions in fishing and

negotiate the risks. The state is the **rudder.** The state indicates the direction and facilitates the framework within which they labour. **Social protection must be situated within this community-market-state triad. That is the only way it can become adequate, appropriate and a source of sustained assurance of people's aspirations from work.**

7. The nature of work in fisheries and the composition of the labour force is also changing. On small-scale, traditional fishing craft, the average age of the worker is on the increase, as educated youth from the community have other occupational aspirations. However, many persons with basic educational attainments happily continue to fish and still form the backbone of the marine fish harvesting operations in the state**. This core section of marine sea-going fishers from traditional communities, need to be encouraged to stay in the sector and provided the incentives for doing so.**

8. Today, the mechanised vessels are almost entirely dependent on migrant labour because male fishers from the traditional fishing communities are reluctant to work on vessels for long fishing trips away from family and village. The same can be said about the women workers also. Very few young women are attracted to the traditional modes of fish vending in the retail markets nor do they wish to work in the fish peeling establishments. The latter are also becoming avenues for women migrant workers. **There is need for a closer investigation of the changing patterns of work in the sector and the role of migrant workers in Kerala's fish economy.**

9. Kerala State has pioneered social protection for fishworkers and become an example for other states to follow. In Kerala there is also the growing call for greater inclusion and universalisation of social protection. With the changing composition of the labouring sections in the fish economy, there are anxieties among the traditional fishing communities – particularly among those who continue to fish. They fear that they may, in the future, be treated at par with other (migrant) workers in the sector with regard to all social protection benefits. **The sentiment that fishworkers from traditional fishing communities in Kerala, should be prioritised for *special and differentiated treatment* with regard to social protection must be respected. The fishers among them must become the focus of attention for matters such as: higher insurance coverage, housing allocations, higher education for children and enhancement of their technical capabilities. These benefits can be prioritised according to the period of contribution which each of them has made to the Fund.**

10. Another issue which needs consideration is whether social protection rights should be differentiated by different activities within the sector. This is particularly so while considering fishing *vis a vis* allied activities. Fishing in marine waters is one among the riskiest professions in the world. The odds being faced by the fisherman is qualitatively quite different from that faced by any of the other workers involved in the whole fisheries value chain. Further, all the activities further up in the value chain are strongly linked to the person who actually engages in fishing. **In this context, the question as to whether the activity of fishing *per se* needs to be accorded a preferential treatment in social protection measures is worthy of serious consideration. This consideration is irrespective of whether the worker is a native of Kerala or a migrant from another state.**

11. There is the growing irrelevance of the tripartite structure of social protection based on the capitalist employer-employee relationship. On the other hand, globally and locally there is the increasing awareness that value in the fisheries sector arises both from 'exploitation' of labour,

but also from the 'exploitation' of finite and increasingly scarce resources of Nature**. That being the case, should we not consider fiscal measures, in the form of levies or taxes, on all incomes and profits, which derive from the utilisation of the resources of Nature.**

12. If a Pollution Tax – for insertions into Nature is acceptable – because pollution is an externality that affects the general population, then a Natural Resources Extraction Tax, for withdrawals from Nature, which is levied in proportion to the levels of income or profits made, should not be unreasonable**.** The primary producers, merchant capitalists and industrial capitalists must pay**. Perhaps the contributions which the fishworkers are currently making to the Fund need to be redefined as a resource tax and by the same token a resource tax can be levied on the merchant capitalists relative to their sales and/or profits.**

ASSESSMENT OF SOCIAL PROTECTION FUNDS

13. Social protection funds in Kerala were envisaged as tripartite in nature with employers, workers and the state making appropriate contributions to the corpus. Such a system was envisaged with the Kerala Fishermen Welfare Fund Board (the Fund) and also operated in that manner until 1998. Thereafter, due to legal strictures, the share of the employers (dealers in fish such as exporters in this case) stopped. Currently, the share of the workers to the Fund is higher (7.4 percent) than that of the employers (3.8 percent) and the state is making the large contribution (88.8 percent). **This situation is clearly unsustainable. It is also highly unjust, given the huge profits which are being garnered by the dealers of fish. A quick calculation of the notional loss resulting from the dealers of fish not contributing to the Fund yields a figure of about Rs.6600 lakh per annum. This amount is adequate to meet all the annual protective social protection measures promised to the fishworkers.**

14. The future of the Fund is therefore under threat. Possible sources of contribution such as the fines collected from fishing vessels for unsustainable fishing; registration of all migrant workers; a share of users fees collected in ports and markets; contributions from the potential blue economy investors should be explored actively. **Short term measures, to find other sources of contributions to the Fund, must be undertaken as a priority.**

15. The social protection payments made to fishworkers can be classified under 60 separate schemes. In current prices, the total social protection payments disbursed has been rising over the 13-year period for which our analysis has been made. In 2008-09 the amount was Rs 854 lakh. By 2020-21 the total reached Rs.18444 lakh – a 20-fold increase in current prices. **From the data which we have collated for the 13-year period of 2008-2020 the average total pay-out for various social protection schemes was Rs 7660 lakh per annum. The Government contribution to this social security pay out was Rs.6900 lakh/annum and what the Board provided from its generated funds was Rs 760 lakh/annum. Over that period, on average as many as 5.8 lakh individuals benefited per year from one or other of these payments.**

16. The core social protection portfolio from the Fund consists of protective social protection measures – pensions, lean season (unemployment) insurance, life and health insurance and death and accident payments. Together they account for 98 percent of the social protection coverage for the fishers and the allied workers of the state. The remaining 2 percent is for preventive social protection such as family welfare (e.g. assistance for daughter's marriage),

hospitalisation payments (e.g. for fatal diseases like cancer) and promotional social protection (e.g. education related payments)

17. According to UNDP norms a desirable social protection ratio to the GDP of a developing nation should ideally be 5 percent. Applying this norm to the social protection payments and fishery sector product for the 13-year period 2011-2021 we see that the SP/FSP ratio is far below the desirable norm as it hovers around 1 percent of the sector product. Moreover, based on the earlier studies, it is sad commentary that the SP/FSP ratio has in fact dropped below 1.71 percent level at which it was during the period 1986-1998. The per beneficiary social protection (taking all the beneficiaries who have received pay outs each year) has increased in monetary terms. Between 2011 and 2020 in increased from Rs. 963/beneficiary to Rs 1354/beneficiary in current prices. In constant prices however, this is indeed a drop in benefits from Rs.963 to Rs 915! **This fall in the ratio of social protection to the sector product (compared to 1986-98 period) and the drop on a per capita basis in constant prices are both a reflection of the inability of the MatsyaBoard to collect contributions, due to the legal restrictions, and the lack of political will on the part of the Government to deal legally and legislatively to remove the strictures.**

18. To address the more specific needs of the marine fishery, there is need to address the issue of an insurance to cover the 'forced unemployment' which results from the ban on fishing due to adverse weather situations. If the record of the last few years is any indication, then it is likely that such forced unemployment can reach 30 percent of the normally expected 250 days of fishing in a year. **If this issue if not addressed, it can become a major consideration for people leaving the fishery in search of other livelihood options.** (See Sea Safety and Insurance below)

RE-DEFINING THE FISHWORKERS

19. In the Working Group there were discussion on two aspects. First, the need to universalise social protection so that no worker – local or migrant -- is left behind. The second aspect was the need to prioritise social protection such that workers from the traditional communities are not denied or deprived of any benefits in our efforts at universalising and expanding the scope of social protection measures. **Given the pro-worker orientation of our state and the growing accommodation of migrants into all the sectors of the economy, there is need to enumerate the migrant labour involved exclusively in fishery activities as 'fishworkers' also requires consideration.**

20. One of the frequently heard complaints about state sponsored social protection measures is that there are persons who lay claim to these benefits, though they are not eligible to do so. However, to infer that, all persons resorting to such actions, are resorting to corrupt practice, may be a harsh conclusion. However, the MatsyaBoard recently conducted a survey to re-assess and ensure that only legitimate claimants are retained on the lists. The data reveals that the excess registrations are more evident among those who claim to be inland fishers (34 percent excess) than those who claim to be marine fishers (only 18 percent excess). **Apart from the issue of excess registration, this data highlights the need to consider more objective criteria for registration of fishers and allied workers under the KSFWFB.**

21. Migration is an essential feature of any fishery. Post-2000, the nature of migration and migrants have changed considerably. The arrival of large numbers of migrant workers from the north of the Vindhyas, as part of a larger phenomenon—resulting from the liberalization of the Indian economy—has created a new condition that has influenced the fisheries sector also. These workers, euphemistically called "guest workers", have found their way into the

mechanized sector which can manage with a proportion of less skilled workers. These "guest workers" are not getting their names registered, in contrast to the requirement specified by Government norms. **However, the human rights of these migrant workers cannot be wished away. A fair system, ensuring their safety and social protection, is required in a state that prides itself on providing welfare and social protection for the working class.**

22. Migrant labour can register under the E-Shram site of the Ministry of Labour and Employment. The objective of the scheme is the creation of a centralized database of all unorganized workers (UWs) to be seeded with Aadhaar. A registration system which will record the status of the migrant fisher and distinguish if they are from traditional fishing communities or from non-fishing communities, and their eligibility for social protection in their own state should be noted. **Accident and Life Insurance may need to be considered along with necessary documentation of nominees /legal heirs. Facilities for their stay on shore and recreation can be thought of on the lines of the sea farers association facilities in commercial ports.**

RESPONSIBLE FISHING

23. The fishers of Kerala are currently fishing unsustainably. There is now growing acceptance of this fact among them too. The need to reduce the number of vessels at sea and the rising investment in fishing gear is today an accepted fact. The question is only about who should take the first step – state or community! **There is need for urgent discussions between the government, the union representatives of the small-scale fishers, women workers unions, mechanised vessel owner associations and the scientific community on how this reduction is to be justly negotiated.**

24. Some of the steps to curb unsustainable fishing suggested by various members of the Working Group include: freezing the number of mechanised boats and ring seines with immediate effect and not providing licences for any more; a 'one owner, one vessel' policy; placing a limit to the length of fishing craft and a curb on maximum power of OBMs used on them; making a total HP ceiling for the state -- based on desired and optimum craft type and numbers for sustainable harvesting of the resources; putting a halt to building of new infrastructure for fishing such as ports and harbours; place regulatory restrictions on the fish meal industry, if its unbridled, uncontrolled procurement poses a threat to the natural resources. **The Government should revive the work of the Aquarian Reforms Committee with the involvement of all stakeholders.**

25. Examining the scope for new green investments to make the fishery sector more carbon neutral should be given top priority. Such investments, coupled with the initiatives for aquarian reforms will contribute to major reduction in operating costs and enhancement of fishing incomes. There is also scope for large greening initiatives with community participation. **Exploring the potential for public-private industrial partnerships for investments in equipment used in fishing -- such as electric out board motors, and other instruments powered by solar and wind energy should receive serious attention. These are avenues where international funding agencies and banks, as well as the new facilities for financing the reduction of greenhouse emissions (GHE) will be interested to participate.**

SEA SAFETY AND INSURANCE

26. Following several extreme weather events, which were out of the ordinary, both fishing communities, the state and civil society have become acutely aware of the impending, unpredictable dangers which lurk at sea. Accidents at sea have been on the increase. Many of these have been closer to shore and spurred by unscientifically constructed coastal structures. Quick response to sea rescue is imperative. Timely, reliable, real-time information on wind, other atmospheric weather conditions, wave heights and other such details are crucial. It is paramount that credible last mile connectivity to the coastal villages is ensured. There should be assurance that SOS messages from the fishers at sea will be received and acted upon with diligence and haste. All this can only be achieved with accredited community participation. **A network of Raksha Kendra Samitis should be set up. The management and governance of these centres (*Raksha Kendra Samithi*) should be allowed to evolve, but based on some overarching framework agreed upon by the state (Department of Fisheries representatives, Sagar Mitras, elected coastal ward member) and community (decided by the people). These *samithis* must have secure representation of active fishers, trained youth and women.**

27. Kerala has three marine ambulances – the only ones in the whole country – costing Rs 1800 lakh. Their operating costs are Rs 22,000 per day. This sort of costly large-scale, centralised approach to sea rescue (big vessels, based at a port) needs to give way to approaches which uses the latest small-scale technologies (drones, remote controlled unsinkable aquatic devices etc) and engage at a decentralised level with the skill and knowledge of the coastal fishing communities. This is also another realm where and public-private partnerships and financial assistance may be more readily forthcoming. **Therefore, sea rescue facilities need to be given a very serious re-look. The effective response time of rescue operation needs to be reduced from what it is today. For this, new innovations in sea rescue devices, which are smaller in scale and can be used from beach landing centres, with the participation of the coastal community, should be given priority.**

28. The State should request the Central fishery agencies such as CIFT and CIFNET to take the initiative to first convene a meeting of naval rescue experts, UAV and ICT technology experts and representatives of fishers who have a track record of sea rescue from different part of the state. This group can discuss the various contexts of sea rescue and the pros and cons of different rescue approaches and protocols. Following these discussions, create a task force which can innovate devices which combine the use of the latest technologies (as mentioned above). Such devices need to be utilised with the participation of community-owned fishing vessels which are always the first responders in a crisis. Such blending of the latest technologies with the skills and resourcefulness of the community is the right way to approach sea rescue. **The key to success is that the community expertise must be utilised in times of crises, and the institutional facilities need to be developed to leverage it by blending with modern technologies and existing facilities, such as the lighthouse network.**

29. Marine fishers of Kerala suffer the greatest mandatory “meteorological unemployment” days. Over the last few years, it has averaged about 60 days/per annum. A notional calculation of collective loss of income, based on a minimum wage of Rs 600/day, is about Rs 360 crore/year. This loss will need to be compensated in some way. Direct social protection payments may not be sustainable. The FAO/UN suggests parametric (weather index) risk insurance as a relatively new but innovative approach to provide insurance that pays out benefits based on a predetermined index (e.g. rainfall level, wind speed) for loss of employment or assets resulting

from serious weather and catastrophic events. Parametric insurance is certain to play a larger role in insuring catastrophic events, where there is no need for insurers to dispatch large teams of claims adjusters to assess damages or verify coverage. Considerable time and expense are associated with the thousands of claims resulting from catastrophic events. Parametric insurance eliminates the need for claims adjusters and requires only verification of the triggering event for claim payment. **The Government of Kerala, ideally with the cooperation of other state governments, should urgently hold preliminary discussions with the Union Government, with insurances companies and international banks such as the World Bank and Asian Development Bank to consider adoption of parametric insurance products to address the increasing problem of climate-forced unemployment for fishers.**

30. The current insurance schemes for fishing assets have premiums which are too high and too rigid in their operating terms. Fishing asset insurances which cover both partial and total loss of assets may need to be considered. Given fluctuating incomes, the fishers are also more comfortable with variable premiums which can be tagged to their varying incomes. There is also need for greater bottom-up initiatives to bundle micro-credit and savings schemes with insurance products. **The Union and state government should take a combined initiative to get insurance companies to provide innovative custom-made products to insure fishing assets.**

31. A concern raised by fishers was about the lack of insurance cover for those above 60 who continue to fish. Many among the older fishers are still fit to work and indeed continue to fish actively. Unlike other land-based communities, they do not wish to engage in activities other than fishing. Their knowledge and skill continue to be much sought after. However, in the event of their having an accident at sea, or should they die at sea, then they are ineligible to receive any insurance benefits. Fishers point out that with the increase in life expectancy, more members among them are facing this dilemma. It is a matter which vexes the whole community given their concern for the aged. **The government should attend to this concern as it will have a major impact for assuaging the worries of the senior citizenry among the fishers and enlist the full support of a vulnerable community.**

CLIMATE CHANGE, HOUSING, SECURE COASTS

32. Coastal areas and marine fisheries are highly vulnerable to climate changes and climate variability. Construction of structures including harbours, and other human-made structures are contributing towards coastal erosion. However, there are still demands from various quarters to construct additional structures and infrastructure along the coasts. With respect to infrastructure development in terms of ports and harbours, the focus needs to be on better utilising the already constructed one, by improving the facilities and operational efficiency. **Further decisions on new constructions, if any, are to be based on environmental impact assessment, particularly focusing on the impact they have on coastal erosion and housing**.

33. The present strategy to address coastal erosion is by constructing sea walls along the coast. This strategy is being followed for decades in the state, and requires mining of large quantity of granite from the quarries in far off places, causing several environmental issues. Further, this has not yielded any lasting solution to the problem, except moderating the impact of the waves for some time. However, a range of technological solutions including biological one like growing mangrove forests in certain locations are available, with varying efficacy and costs. **As matter of policy government needs to adopt the coastal zone protection measures based on**

scientifically recommended criteria. Preventing coastal zone erosion by using granites should be considered only as a last resort.

34. The ocean, rivers and estuarine ecosystem are to be seen as a single continuous entity, and the biophysical relationship of these three should be seen in entirety. The sedimentation of rivers and lakes, excessive sand mining, not removing the sediments from the rivers for quite a long time thereby losing the water holding capacity of the rivers, sea water intrusion into rivers etc is to be considered together, to be managed by scientifically recommended methods. **Therefore, a study should be launched on the issues by involving appropriate scientific agencies, on a priority basis, and holistic management practices should be developed following the recommendations. The recommendations are to be subjected to wider consultations. The management strategies need to involve stakeholder participation, including inland and marine fishers. The government should relook its policy on sand mining from rivers and should develop a well calibrated scheme for removing the sediments, following scientific recommendations.**

35. Housing and settlements in the coastal area are to be allowed by strictly following the coastal zone regulation acts. The identified families are to be relocated towards the east of the coastal roads, by using land which belongs to the government or acquiring land of private parties and institutions paying market prices to them. The government needs to chart out a plan for relocation for the identified families with yearly targets. **Priority must be given for relocating them to such locations from where the interested families can engage in fishing activities which should be walking distance. Those who are currently nearer to the HTL are to be given priority.**

36. After the fishers are properly rehabilitated, if the coast can be left to the sea for a few years, it can be brought back to its sandy (original) state. Equally important are measures for sediment replenishment in areas where erosion and accretion have happened in close proximity due to coastal built-structures. **If such actions are to succeed, there also needs to be a moratorium on the construction of all coastal structures for a period.**

37. The existing *Punargeham project* should be reviewed in view of the escalating costs in land acquisition and construction. The Rs 10 lakh currently earmarked appears to be inadequate in most coastal areas. Despite living in very vulnerable locations and sufferings from the high tides, several families are not willing to move out to newer locations due to their apprehensions. **The relocations plans should address their apprehensions, and involve the affected persons / stakeholders in the decision-making process on relocation.**

38. Fishing is a collective activity, and fishermen live in close interactions with each other. Considering the social situation, the government should plan for housing facilities which promote collective activities, but away from the risky HTL. This could help to realise economies of scale in construction of various facilities and amenities in 'model villages' or 'designed villages.' The villages either singly or in groups can be identified and assigned for housing a group of persons, and follow a design that will facilitate and support present day requirements of transportation, education, health management, recreation and entertainment while allowing to engage in traditional occupation and or to diversify the profession. The plan has to follow the extant CRZ regulations. **The government may leverage the concept of National Fishermen Welfare Assisted Housing Scheme for model villages, proposed in the 10th five-year plan. The Grama Panchayat should be an integral part of the whole process in identification of the families and the related plans for 'model villages.'**

39. The concept of the 'Gao-than' mentioned in the CRZ 1991; the mapping of fishing villages as visualized by the CRZ 2011 (and continued in CRZ 2019) should be undertaken and rights of fishing villages need to be formalized. Shoreward expansion of fishing villages, based on their need for housing and other social infrastructure should be given due priority. **Village level long term planning, as visualized by the CRZ 2011, needs to be introduced.**

40. Fishing communities need to do their own coastal use resource mapping and demonstrate how the coast was, and continues to be, utilised by them for various fishery related purposes – parking boats, facilities for selling fish, space for fish drying etc, places for net repair. **Participative village spatial use mapping with involvement of youth of the community and the Grama Panchayats are to be adopted.**

41. The Union government visualises blue economy as an important engine of growth. However, many sections of fishers have raised concerns on these initiatives mainly due to the impact of such initiatives on their livelihood. **The resettlement and rehabilitation plan has to consider the potential effects (both negative and positive) of the blue economy initiatives, on a medium term and long-term basis.**

42. The government should promote adoption of climate friendly measures including growing mangroves so as to promote carbon sequestration in coastal regions. **The panchayats and communities should be encouraged to avail incentives for the same which are available from national and international agencies.**

CREDIT AND INSTITUTIONS

43. Fishers should have the freedom to sell their fish – the product of their labour -- to whosoever they desire. Interlocking of the credit and product markets should be stopped. Creditors should be entitled only to interest on the loans which they have extended to fishers and not have any monopoly right over fish auctions or sales. **The Government should enact a legal provision which gives the right of first sale of their fish (i.e. at the shore or the harbour) to the workers and owner-workers who actually fish.**

44. Matsyafed primary societies being the only accredited cooperatives in the fisheries sector need to be revitalised to perform their basic function of attending to the proper means of transacting the first sale of fish of its members on the beach or the landing centres. All its other numerous activities, however profitable, are only supportive to this prime objective. The data provided shows that collectively Matsyafed has been faltering in achieving this prime objective. The fishers, who are members, view the primary societies as government organisations and not as their own. The exceptions to this are in the primary societies where the active fishers are involved in the governance and management. **Efforts need to be urgently taken by the Government (Department of Cooperatives) to ensure that only the active fishers who sell fish through the primaries are involved in its governance, ensuring that they function in accordance with the universally accepted 7 principles of cooperatives.**

45. The functioning and effectiveness of organisations that work in the fisheries sector are to be enhanced by making them more democratic, participatory and genuine. Of late, the membership in Matsyafed, number of members participating in auctions and the quantity of fish transacted through it are gradually declining. It has only about 20-25 percent of the active fishers of the state as members. Even they are unable to meet their credit requirements from Matsyafed, which forms a reason for their dependencies on informal credit. There are some cooperatives in fisheries outside the ambit of Matsyafed, which are well-functioning mainly

due to the genuine participation of workers in them. **Matsyafed should take urgent steps to enhance the membership, participation of members in auctioning, increase credit flow and realise better value for the fish of the members.**

46. Fish harvest and post-harvest activities including marketing are capital intensive and depends on credit, overwhelmingly from informal sectors. This credit is given on the basis of trust and linking it to the sale of fish. Availability of such credit is the major driver of capital intensification in fisheries. The tied credit-market relationship in fisheries has accentuated the vulnerability of fishers and renders them perpetually indebted. **In view of the qualitative and higher credit requirement for the fishery sector, the formal banking sector has to develop fisher-friendly credit products exclusively to fishery sector.**

47. The Matsyafed can have tie up with the Kerala Bank to have better delivery of credit to fishers by developing suitable credit products. Credit should be delivered at landing centres and harbours with the operation times being modified in accordance with the requirement of the sector, say for example 2.00 pm to 8.00 pm. **The possibility of starting a credit wing in the Kerala Bank, in the form of a Fisheries Bank with support from national agencies supporting rural development and cooperatives should be considered.**

48. Fishers should be encouraged to avail the beneficial schemes available from the Union Government such as the Kisan Credit Card (KCC). The condition for availing the KCC is that a fisher must own a registered boat or any other type of fishing vessel and have the necessary license or permissions for fishing in estuaries or the sea. Flexible terms and conditions are provided for availing credit through KCC. **A mass campaign should be initiated to promote Kisan Credit Card in the fisheries sector including fishers and women vendors.**

49. The Matsya Bhavans have a key role in ensuring a sustainable development process in the fishing sector. One of the key responsibilities of the Matsya Bhavan is to form Committees such as the Matsya Sabha to support and monitor the activities of Matsya Bhavan under the leadership of elected members and ensure the active participation of interested organization and individuals. The Matsya Sabha was expected to articulate the views of the community to the Local Self Government institutions and ensure that the voice of the fishers and their genuine needs are met through proper planning and implementation of the numerous development assistance programs of the Government. **The Government should take urgent steps to improve the staff strength of Matsya Bhavans and the facilities therein, which are affecting their functioning adversely. The creation of Matsya Sabhas should be undertaken on a priority basis.**

50. The Debt Relief Commission has only been able to address a tiny portion of the huge debt burden of the fishers. It fosters a strong probability of moral hazard among the fishers. **The Government may take a decision on continuance of debt relief (in its current form) based on a comprehensive study on its performance and impact. For the time being, the Commission may not engage in activities beyond dealing with the applications which it has already processed.**

WOMEN AND MARKETS

51. Physical markets are the main realms where fish from the coasts are redistributed or sold directly by fish vendors to consumers. These physical spaces therefore need to cater to the basic requirements of both the vendors and the customers. However, fish markets in Kerala are rarely spaces of convenience or cleanliness. For an avid fish consumer in the state, our fish markets are an utter disgrace and insult to the sense of personal hygiene, which we pride

ourselves about**. Immediate action should be taken to greatly improve the standards of convenience and cleanliness of retail and wholesale fish markets from the perspective of the fish vendors and the consumers.**

52. Fish markets are 'institutional orphans.' This is because the department which builds them and those designated to manage them rarely take responsibility in the proper functioning of the market. The task for ensuring that the market space works functionally is given to a private contractor who bids in a public auction for the right to control the market for a period. The fact that few fish markets exhibit a change in the contractor, is evidence of the deep and vested monopoly control interest which pervades. The objective of the 'foster contractor' purely to extract the maximum rent at the shortest period of time. Contractors have little concern for the short- or long-term upkeep of the 'orphan market'. **The Government should ensure that no market contractor is permitted to have control over a fish market for more than three years. The bidding process needs to be made more transparent.**

53. The two main complaints about fish markets expressed by women vendors interviewed were: (1) the male dominance in markets and the economic and social harassment they face at all levels and (2) the deplorable facilities at markets both with regarding to their professional (selling spaces) and personal needs (toilets, changing rooms etc). **The Government should also use the new KERALA FISH AUCTIONING, MARKETING AND MAINTENANCE OF QUALITY ACT, 2021 to attend to these pervasive complaints about male harassment and market facilities.**

54. A considerable amount of effort needs to be taken to bring fairness and dignity to the work of women fish vendors – particularly those from the coastal communities. Those who sells fish brought straight from the coast should be assigned a separate space in retail markets which function within 5-10 kilometres from the coast. **Agencies such as SAF should collaborate with these women, or their trade unions, to provide these women vendors of fish with proper identification badges and good quality waterproof aprons.**

55. Considerable attention has been given to the formation of self-help groups (SHG) among women of the fishing communities. Through these SHGs women have also received a good amount of credit and have been able to create savings. **However, SHGs can also become good institutional arrangements to provide women with protective social protection measures such as insurance against accidents.**

HUMAN CAPABILITY DEVELOPMENT

56. Fishery Schools in Kerala – ten in number -- were once much sought after by both the fishing and larger coastal community because of their facilities and the quality of teaching. The Government has continued to invest in upgrading the physical facilities of these schools. The teachers also continue to be a committed lot. However, these residential schools are not anymore in great demand in the fishing communities. There is a strong case for a review of the current status and utility of continuing all these schools. **The government of Kerala will do well to consider continuing only a few schools -- but better equipped and fully residential fishery schools. The first steps in this regard should be to undertake a discussion with the teachers and parents**.

57. Universities must be centres of excellence. But they also need to be relevant to the community which they serve. In this light KUFOS is already giving preference to students from the fishing community in their admissions and courses. **However, more needs to be done with regard to**

co-evolution and co-creation of knowledge by interacting closer with the fishing communities.

58. KUFOS may consider conducting regular interactive sessions with real expert master fishers of the state. These sessions can become the place for students to appreciate the need for greater blending of knowledge and technology and also a way of making the fishers aware of the relevance of the University. KUFOS may consider one special day when the people of the sector – e.g. fishers/ fish farmers and others relating to the sector – are invited to the University for a series of events and exhibitions. University teachers and students will get to understand the needs of the sector and the people. The people of the sector get to see the latest innovations, practices, gadgets and so forth. Creating widespread ocean literacy should be the goal. **KUFOS should do away with the top-down concept of "extension" and replace it with the more horizontal and participative concept of 'interaction".**

59. Under the Union Government's Sagarmitra (SM) scheme, the possibility of training a cadre of village motivators and providing them with small honorarium and social recognition should be actively considered. They need to be selected by a committee of officials (*ward member, Matsyafed officer etc and non-official members for each of the villages – parish priest, dheevara sabha reps etc*). The essential criteria for the candidates *(e.g. parent to be active fishworker or living in the coastal village; education level; demonstrated interest in village affairs; willingness to stay in the village etc)* should be broadly agreed upon. There should be a 60:40 gender balance in the selection. **In the interest of securing the trust of all the fishing communities across the state, the Government must not politicize the selection of this cadre.**

60. There is growing demand for skilled fishworkers to man the fishing fleets in countries where the number of active fishermen is decreasing sharply. Many fishers are already migrating regularly to the Gulf taking up jobs on fishing vessels. In Europe too, the marine fisheries sector, both small and large scale, are faced with generational renewal issues, with ever increasing average age of their fishers. Scotland in United Kingdom, for example, has become highly reliant on crews from South and South East Asia. This is only the beginning of a global trend. Fishers of Kerala should be made ready to take advantage of this opportunity. **A Foreign Fishing Certification Program that will give training and information which will be useful for fishers to take up jobs in fishing industries outside India should be a priority of the Department of Fisheries.**

61. One of the constant refrains heard along the coast is that the fishers are unaware of the numerous social protection schemes which are available to them. The Government's Information and Public Relations Department has numerous booklets which give all the details of the schemes for social protection available to different groups of the population but they do not seem to reach the ground level. Such a situation is easily rectified if these booklets, and other publicity material, are made available at the Matsyabhavan and at the primary cooperatives of the Matsyafed. **A very simple measure is to paint one of the walls of the Matsya Bhavan and put up the details of all the schemes available so that everyone can see and make enquiries.**

62. A twelve-page annual combined calendar of the Dept of Fisheries/Matsyafed/MatsyaBoard which gives all the social protection schemes and other information about marine fisheries regulation (mesh size, trawl ban dates,) contact details of fisheries department, KSDMA; IMD

etc and any other essential information such as lunar dates etc should be produced. **The production of the calendar can also be delegated to the district level so that information which is more relevant to the district can be included. Sponsorship of private companies may be obtained so that there is no financial implication for the Department.**

DATA AND INFORMATION

63. Evidence-based policy making is the cornerstone of good governance. It is therefore difficult to overstate the importance of reliable data provided on timely basis. Information obtained from analysis of such data have a direct bearing on the state's capability to design and implement relevant programs for the people. Achieving this will require good technology for data collection and storage. Data which is comparable over time. Occasional sample surveys to re-examine the definitions and premises used. Training of the personnel responsible for providing data. **The Department of Fisheries and the Matsyaboard should invest time and funds to improve the data base and train the staff for its analysis and maintenance.**

64. There is an urgent need to understand (1) the changing demographic profile of the communities (2) to assess the current socio-economic status – asset ownership profile, work and labour practices, earning, credit, indebtedness, nature of housing, and other livelihood assets (3) to assess the evolution and adoption of different forms of fishing technology and the related economic costs, earnings and energy balance (4) to assess their opinions about the current situation in fishing and their suggestions/options for the future management and governance of the sector (5) to evaluate the nature of educational attainments and aspirations and the extent of involvement of the youth to the fishing sector. **The Department of Fisheries and the Matsyaboard, in consultation with an expert group, should conduct a carefully planned comprehensive demographic and socio-techno-economic survey of the fishing community. The credibility of the Fisheries Information and Management Services (FIMS) can be greatly enhanced through such a comprehensive exercise.**

65. An expert consultation to examine how data and information can lead to empowerment of the fishworkers and help in astute policy making should be conducted. **The Kerala State Planning Board should take the lead to organise this consultation.**

66. It is necessary to make a credible re-assessment of the traditional fishing population, the number of active fishers among them and their stock of fishing assets. There is also need to identify migrant labour, particularly those working on the mechanised boats. The number and latest details of mechanised boats licenced in Kerala, and those of other states operating seasonally out of our ports, need real time monitoring. **To achieve this, it is desirable to hold a mandatory same day census type operation at all landing centres and designated harbours.**

12. CONCLUSION

Social protection for fishworkers of Kerala State stands poised at a historical conjuncture.

On the one hand, a substantial portion of the customary intra-community sharing and caring arrangements have worn thin over the decades of modern fisheries development. On the other, the architecture and substance of the state-led tripartite arrangements are faltering primarily due to the inability to collect the anticipated contributions.

The burden of vulnerabilities on the fishworkers has been on the rise. Most of these are totally out of their control and hardly a result of their own creation. A few can be addressed by their own collective action and with the support of the state. But overall, we are confronted with a fragile ecological, economic, social and political stalemate situation.

The need of the immediate future is to undertake some collective consultations in which the state and the fishworkers, along with scientists and civil society, can think through the measures needed to take the right path forward at this conjuncture.

Kerala State is blessed with the most fortuitous edifice with regard to its marine fisheries: a rich and substantial renewable resource so readily available; a highly skilled and knowledgeable community of producers spatially spread across the entire length of the coastline; a network of allied workers and entrepreneurs to quickly and efficiently distribute the most nutritional and culturally acceptable food to the most avid consumers; a huge, enlightened scientific community and dedicated set of administrators and implementors.

The smooth functioning of the above edifice depends vitally on the meaningful and sustainable livelihood of all the fishworkers of the State. To ensure this, an efficient, well financed, dependable and caring social protection system is key.

APPENDICES

APPENDIX A: DETAILS OF COMMUNICATION DEVICES

(Source: Roshan M, 2018: Cyclone Ockhi: Disaster Risk Management and Sea Safety in the Indian Marine Fisheries Sector, **Samudra Monograph, Chennai)**

Mobile Phones

With the rapid expansion of telecommunications networks across India, mobile phones [Global System for Mobile (GSM) and Code-division multiple access (CDMA) technologies] have become the most common mode of communication, even in coastal villages. According to census data (MFC, 2010), 36 percent of fisher families in Kerala (17 percent in Thiruvananthapuram) and 47 percent in Tamil Nadu (25 percent in Kanyakumari) reported the use of mobile phones (CMFRI, 2010). Field observation and anecdotal evidence suggests that mobile phone usage has significantly increased in areas visited as part of the study.

Limitations: While this noticeably decreases relay time for emergency messages from government agencies to the villages, mobile phones are relatively ineffective as a mode of communication at sea – their range is limited to 2-5 nmi. (Vizhinjam fishers claimed that SIM cards of the service provider, MTS, which is no longer operational, used to allow a range of up to 15 nmi.) Network tower density is lower near the coast and service providers have said in the past that security concerns and regulatory hurdles prevent them from increasing the range of tower signals.

Very High Frequency (VHF) Radio

Very High Frequency (VHF) radio is the most commonly used communication devices used at sea. Most mechanised vessels and several motorised vallams carry at least one VHF set. VHF radio operates in the 30-300Mhz band of the spectrum and allows two-way communication, making them very useful to share information on fishing grounds or the weather between boats or fleets. Nearly all mechanised trawlers and long-liners carry two VHF sets: one tuned to the international marine band (156-162 MHz, Channel 16) to communicate to nearby merchant vessels or the Navy/Coast Guard; and another band used among fishers (Channel 9 and 65), though the practice is not strictly legal (IMO, 2004). Interviewed fishers said that they often communicate with nearby merchant vessels using the marine band when in distress, or to alert the vessels about an impending collision or damage to their nets.

***Limitations*:** Nearly all Indian fishing vessels unlicensed use VHF Land Mobile Radios, and not Marine Radios, as the law demands. Marine Radios have special features, most importantly, the GMDSS, which gives each vessel a Maritime Mobile Service Identity: when a vessel turns on the distress channel, a GPS Generated latitude-longitude coordinate gets captured by all vessels in the vicinity.

But Marine Radios are more expensive and fishermen claim that the license is difficult to obtain. VHF radio, however, is limited to line-of-sight signals – they don't travel beyond the horizon – and therefore have a range of not more than 15-20 nmi, even when fitted to large mechanised vessels (antennae height of 5-7 meters). Big vessels like merchant ships (antennae height of 30 meters) are able to communicate as far as 65 nmi. Signal strength depends on the power output of the radio device: while handheld two-way radios have power usage between 1-5 watts, fixed-mount boat radios usually broadcast at 25 watts and need an external power source (ITU, 2015). Range enhancement is possible by constructing high towers or using repeater stations at sea – either mounted on buoys or even on coast guard vessels. This, too, enhances the range by only 25 nmi. But it is uncertain which department will be responsible for maintenance of repeater stations. (BOBP, 2013)

The smaller country craft (motorised or non-motorised) have room only for nets and other essential fishing equipment. Another concern is that the inside of the craft are also constantly damp and radio sets are easily damaged in these conditions.

High Frequency (HF) Radio

High Frequency (HF) radio broadcasts in the shortwave 3-30 MHz frequency band and therefore travels much longer distances than VHF and UHF – 250 nmi ('ground wave' propagation using the earth's curvature) to even beyond 3000 nmi ('sky wave' propagation where the radio signal bounces off the earth's ionosphere or the atmospheric layer electrically charged by solar radiation). Signal strength is dependent on multiple factors like power output, time of day, antennae height, etc.

Sri Lanka widely uses HF radio as a part of the MCS operations of its department of Fisheries and Aquatic Resources, which allows fishers in remote locations to communicate with shore stations and also allows broadcast of fisheries-related information, entertainment content and weather bulletins for its multi-day fishers in the high seas.

***Limitations*:** HF Radio is nowhere in use by Indian fishermen because licences are strictly regulated and are generally issued only to the police and public institutions. The Wireless Planning and coordination Wing of the Department of Telecommunications oversees licensing of all radio technology in India. There is also a view that the HF signal is susceptible to interference due to sun spots because it relies on the earth's ionosphere. There is also a need for clarity on the cost of equipment and of establishing coastal radio stations.

Distress Alert Transmitters (DAT)

Distress Alert Transmitters (DAT) are small (15 kg, 30 × 23 × 20 cm) battery operated devices that work on satellite technology to transmit four types of alerts: fire, boat sinking, man overboard and medical emergency, between fishing vessels and shore stations. Once set off, the signal is received by the ISRO office in Bengaluru, which is transmitted to the appropriate coast guard station, which initiates a SAR operation. The hub for Tamil Nadu fishing operations is MRCC Chennai (BOBP, 2013). An Inter Agency Standing Committee oversees SAR operations through the National Maritime Search and Rescue Board (NMSARB), consisting of Department of Space/ISRO, the Shipping Directorate, Airports Authority of India, Indian Coast Guard and Defence services.

Limitations: Although the device costs only INR 10,000 (75 percent subsidy available through a centrally sponsored scheme), pilot projects have thus far only distributed a small number of DATs to fishermen (Indian Coast Guard, 2017: 1,853; Kerala, 2016: 5000, Tamil Nadu, 2010: 1800, Andhra Pradesh, 2015: 2000). Interviewed fishermen in Kanyakumari acknowledged that DATs had been distributed to a few members but they had not been trained in the proper use and maintenance of these devices. Many had discarded or lost their transmitters. There were also reports of false alarms on many occasions, due to which the Coast Guard had stopped responding to distress calls, according to the fishermen.

SagarVani integrated information dissemination system

Launched in July, 2017, SagarVani is a multi-platform ocean information dissemination service developed by ESSO-INCOIS under the Ministry of Earth Sciences to provide ocean information and advisories for various stakeholders. The service will provide an integrated information system to Fisheries Departments, disaster management authorities and the community through multi-lingual SMS, voice calls, mobile apps, social media, email, GTS, Fax, radio or television broadcast units, etc. In October, 2017, INCOIS signed an agreement with the Kerala Fisheries Department to issue SMS alerts to fishermen in several languages.

Limitations: INCOIS SMSs rely on GSM or CDMA technology, which is only useful if the fishermen are on or near the shore. Moreover, fishermen have to opt in for the SMS service and only 480 fishermen had signed up for the service before the cyclone. (Ilakanth, 2017) According to the Kerala SDMA, the number has grown to over 100,000 subscribers since Ockhi.

NavIC Satellite Navigation System

Developed by the ISRO, India's regional satellite navigation system Navigation by Indian Constellation (NavIC) uses satellite waves to transmit warning signals and messages to the fishermen from the shore. The service will provide daily updates on sea state, wave height and the occurrence of extreme weather. A pilot project to fit 500 satellite-enabled communication gadgets in fishing boats and deep-sea vessels in Kerala was launched in January, 2018. But the device only has a receiver and no transmitter, thus allowing only one-way communication. The project will involve INCOIS and IMD, with a master control room at Thiruvananthapuram and six regional control rooms near main harbours such as Cochin, Kollam and Kozhikode. The service allows messages to be sent up to a distance of 1500 km (Varma, 2017).

Limitations: The technology is not yet ready for widespread use. A pilot project has been launched and the ISRO is in the process of determining the cost of commercialisation and inviting tenders to expand production.

Mobile Phone Apps

The use of Information and Communication Technology (ICT) in fisheries resource management has gained ground in recent years with widespread use of Smartphones and affordable mobile internet connectivity. Mobile applications or apps now provide the combined functions of information sharing on fishing zones, catch and fleet management (Abalobi in South Africa) and dissemination of alerts and SOS communications for local emergency response authorities (MFisheries in the Caribbean). In India, Fisher Friend Mobile Application (FFMA), developed by the MS Swaminathan Research Foundation provides real-time information to fishermen in nine Indian languages covering most coastal states. Fishermen receive messages on their mobile phones on weather, potential fishing zones, ocean state, and market related information. Most of these app suites are designed for Android phones and are free software, making them affordable sources of information and tools for connecting with other fishers.

***Limitations*:** While applications like FFMA are popular and have several thousand subscribers, especially among younger fishers, the technology is based on mobile network connectivity, which is very limited at sea. Although fishers can feed their GPS coordinates into the apps, real locations at the time of accidents or disasters cannot be communicated when the fishers are out of signal range. Moreover, their popularity among fishers in developing countries is limited because older, often unlettered, fishers still find it difficult to use such technology.

Television and Radio

With its near-universal reach, television presents the most effective means of disseminating emergency warnings on the shore.16 IMD's national bulletins are transmitted to All India Radio and Doordarshan (public broadcasters), besides regular weather coverage by private radio and TV channels, as well as newspapers. During the start of Cyclone Ockhi, while the media reported on heavy rainfall on land, it missed the plight of the fishers at sea, till an alarm was raised by the fishers of Thiruvananthapuram. In addition to the existing weather reporting by the media, reporters can be trained to provide more user-oriented data and warnings. Channels can also make use of pre-recorded fishermen warnings for broadcast at the time of cyclogenesis.

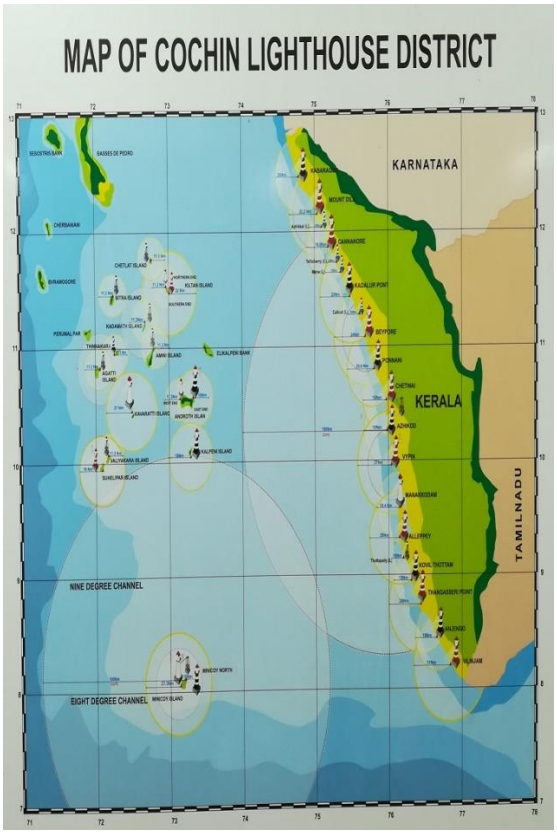
Limitations: Many fishers carry transistor radios for FM (Frequency Modulation) and AM (Amplitude Modulation) broadcasts but their range is limited. Television and Radio are very useful channels to broadcast warnings but they must complement and not replace official fool-proof modes of dissemination. Without more direct communication through phone calls or press conferences, warnings in the form of emails and fax messages are often missed by news agencies, as was the case during Ockhi.

Community Radio

Community Radio (CR) can be a cheap and effective solution to the last-mile challenge in dissemination of cyclone warnings. Indian CR stations broadcast on FM radio mode, making them easily accessible to resource-poor fishermen at sea. Transistors are inexpensive and coastal tower signals have a range of up to 50 km at sea, making them very useful for nearshore craft. Locally run stations in Odisha and Gujarat provide crucial lessons for a community-based disaster management approach. During the 2013 Phailin cyclone in Odisha, the state government was able to evacuate over 800,000 people from coastal villages, largely with the help of the media, particularly community radio stations like Radio Namaskar, a Konark-based coastal station. They also have multiple uses. Coastal radio stations can broadcast content developed by and for the fishing community, and cover weather forecasts, songs, discussions, and market information such as prices and new government schemes.

Limitations: FM radio has a limited range of 25-50 nmi, depending on the strength of the broadcast signal. Resource constrains prohibit the use of high towers. Community Radio alone cannot replace official and reliable modes of dissemination.

APPENDIX B: NETWORK OF LIGHTHOUSES IN KERALA (COCHIN LIGHTHOUSE DISTRICT)



APPENDIX C: ON 'GAO-THAN' AS MENTIONED IN CRZ 1991

Gaothan and Gaothan Expansion Schemes of Maharashtra State:

'Gao-than' is portion of the land of the village which is ordinarily used for settlement. "Gao-than "or" village site" means the land included within the site of a village, town or city as determined by section122 of Maharashtra Land Revenue Code. It states that;

It shall be lawful for the Collector or for a survey officer acting under the general or special orders of the State Government, to ascertain and determine what lands are included within the site of any village, town or city and to fix and from time to time, to vary the limits of the site determined as aforesaid, regard being had to all subsisting rights of landholders.

Gaothan Extension Scheme:

In the village area the rate of increase in population is high. Gaothans are not in position to absorb residents of the village. Government felt necessary to supply land for residence to the local people at reasonable price. Provisions are made in the section 18 of the Bombay Prevention of Fragmentation and Consolidation of Holdings Act, 1947 for acquiring land for extension of Gaothan. The section states that,

it shall be lawful for the Consolidation Officer, in consultation with the village committee, if any area under consolidation no land is reserved for any public purpose including extension of the village site, or if the land

reserved is inadequate, to assign other land for such requirements and for that purpose to effect a proportionate cut in all holding of the village.

Principles for Gaothan Extension Scheme and regulation of buildings are given in the rule of 1967 of the Bombay Village Panchayat Act.1958. Collector is empowered to grant permission under section 44 of MLR Code.1966 for Gaothan Extension Scheme. He is required to consult Town Planning Department. Since the introduction of standardized building bye laws and DC Rules for B. & .C. Class municipal councils in the State in 1981, these have been used for scrutinizing applications for Gaothan Extension Scheme by Town planning Department for the areas outside the jurisdiction of planning authority. As Village Gram panchayats are not equipped with the staff required for planning, Town Planning Department is preparing village layouts for extension of old village gaothan and new village gaothan sites

If an agricultural holding is situated, within the limits of 200 m. from the existing boundaries of the Gaothan, holder of the land can apply to the collector under Section 44 of MLR Code1966 for conversion of use of land from agricultural purpose to non-agricultural purpose under Gaothan Expansion Scheme and can sell the plots/Buildings to the local people.

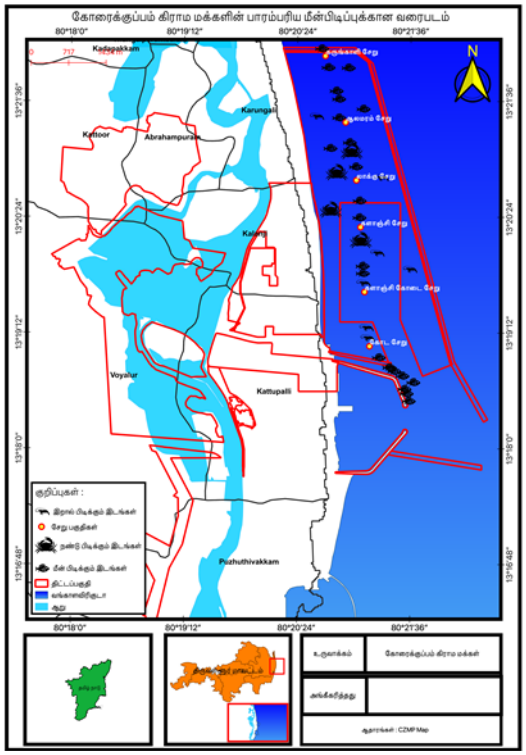
Note: Definition of local people is not given in MLR Code 1966, Bombay Village Panchayat Act.1958 Maharashtra Regional and Town Planning Act, 1966 and in the Bombay Prevention of Fragmentation and Consolidation of Holdings Act, 1947

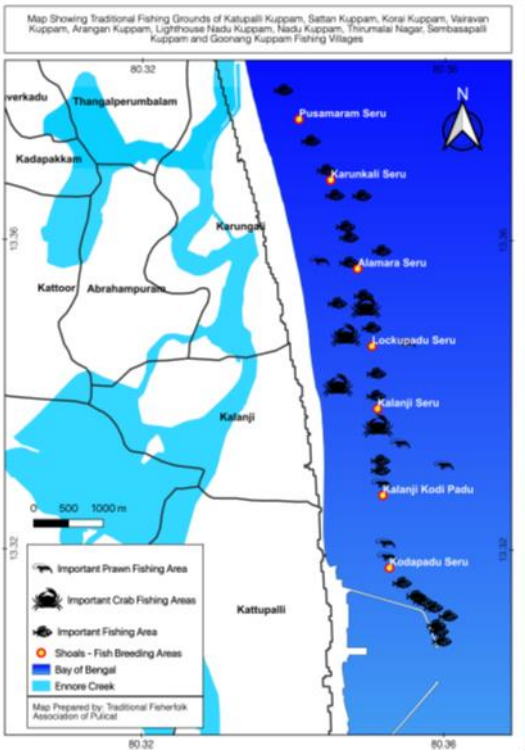
Where an agricultural holding is situated within the limits of any planning authority, or where Development Control Regulations are made under MRTP Act 1966, Gaothan Expansion Scheme shall be in conformity with the detailed land use provisions of the Development Plan, Planning Proposals, Town Planning Schemes, Layout proposed as a part of the Regional Plan and in accordance with the Development Control Regulations.

The below mentioned activities are permitted in Gaothan Expansion Scheme:

1.Residences;
2.Retail shops, restaurants and banks, personal service establishments and repair service establishments;
3.Schools;
4.Community centres and other social institutions;
5.Religious places;
6.Clinics, dispensaries, health centres;
7.Essential public services and utilities including local Government offices.
8.Stables for domestic animals subject to limit of 5 animals on each plot.
9.Traditional household industries;
10.Storage of crop, fodder, manure, agricultural implements and other similar needs;
11.Parks and playground;
12.Fishing, fish and net-drying, boat storage, boat repairs and servicing, storage of fuel;
14.Public conveniences;
15.Service industries class A. as stated in the standardised bye-laws and D.C. Rules sanctioned by the State Government for B. and .C. class municipal councils.
16.Warehousing and cold storage on plot not more than 0.20 ha.

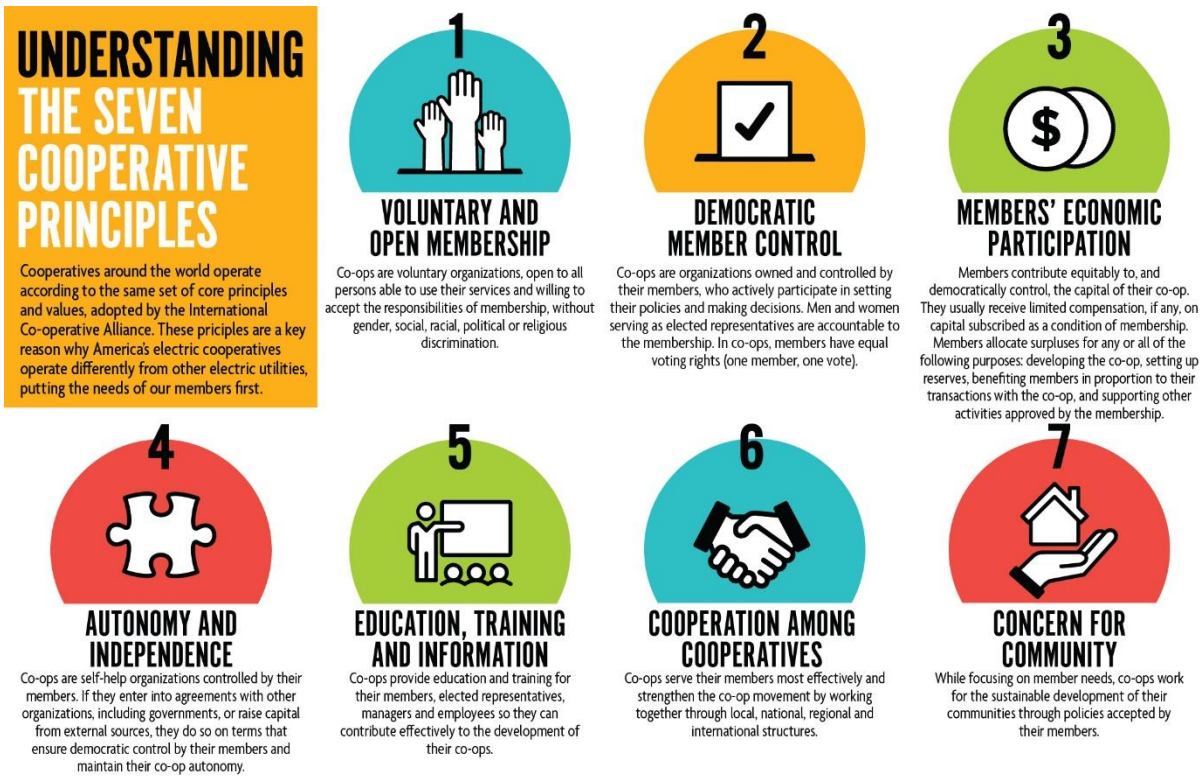
APPENDIX D: EXAMPLE OF AND COASTAL SPATIAL USE AND SEA MAPPING BY COMMUNITY





Mapping of fishing grounds is now being used as a means to challenge the setting up of a mega port in north Tamil Nadu. 2000 areas of reclamation in the sea are being envisaged.

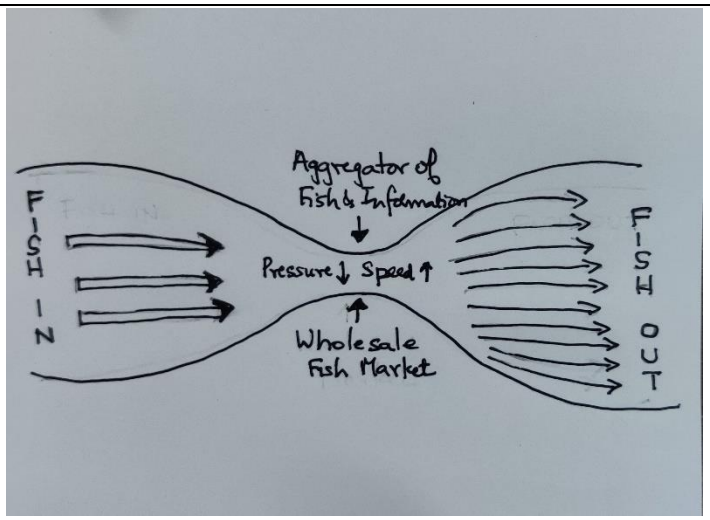
APPENDIX E: UNIVERSAL PRINCIPLES OF COOPERATIVES



APPENDIX F: ON WHOLESALE FISH MARKETS

Fish wholesale markets play an important role in matching excessive supply points to excess demand locations. Market integration is poor and market price information is very imperfect at the supply points. Much of the movement of fish by traders to the wholesale market are acts of pure arbitrage because of the high information asymmetry which exists along the fish chains. A certain price levelling (for each species) does take place to a considerable extent in the wholesale market. This is because the supply and demand are physically visible in a confined space and sellers and buyers interact personally between themselves. However, in the market space it is the commission agents who are the 'go-between'. They (generally male in India) initiate an auction for a sample quantity of the fish brought (in fish boxes or baskets etc) by each trader. For any given species of fish, it would be the early arrivals that fetch better unit prices. As time moves, prices fall as the demand is quickly fulfilled.

Wholesale fish markets act like venturi tubes. As fish is a highly perishable commodity. There is a huge pressure to sell bulked quantities as quickly as possible. But this pressure to sell needs to be lowered, made orderly, and the speed of catering to the huge pressure to buy in smaller quantities needs to be increased. Wholesale fish markets assume this role (they are the narrow part of the tube) and help to regulate the flow of fish in (*coming in as large individual consignments by relatively small number of suppliers*) and fish out (*going out as small individual consignments by a larger number of distributors*). They are aggregators of fish and information. The control of a wholesale market is exercised by the 'commission agents' operating in it. They are oligopsonists vis-à-vis the bulk suppliers of fish and oligarchists vis-à-vis the retail buyers!



This position which they occupy in the fish marketing system gives these markets, and those who control it, a disproportionate power and control over the flows. They are able to arbitrate the setting of the price and also garner a fixed share of the value for which the supply is traded – irrespective of whether the supplier makes a profit or loss in the transaction. For the buyers at the wholesale market on the other hand, this is their 'base buying price' and they must sell to their consumers at a price above this level to make a profit. Whether this can be achieved will depend on the number of other retailers they confront and the 'base buying price' which they operate upon.

It needs to be borne in mind that the transactions in the wholesale market do not significantly affect the price received by the fishers, but will have a bearing on the prices in retail markets and hence the price paid by the final consumers. Wholesale markets therefore have an important role in conditioning the availability and accessibility of fish and to that extent have a bearing on food security.

Almost as a rule of thumb, in the Indian domestic fish market situation today, of the rupee paid by the final consumer, 30 percent accrues to the retailer, 30 percent to the wholesale market commission agent; 25 percent to the suppliers selling to the wholesale market; and 15 percent to the fisher.

Though wholesale fish markets play basically the same functional role in every fish economy, they are socio-economically and culturally embedded in the society which they serve and can be radically different in their visual appearance; their decibel levels of operation; olfactory sensations; the level of human activity and standards of cleanliness and hygiene. Some of these aspects are determined, *inter alia,* by the overall standards of infrastructure in the country; the legal regulatory framework which exists and the cultural significance of fish in that society. These attributes also have a bearing on food security outcomes for all consumers.

APPENDIX G: HOW AN ICONIC FISH MARKET WAS RENDERED USELESS

[Source: REPORT OF THE COMPTROLLER AND AUDITOR GENERAL OF INDIA on GENERAL AND SOCIAL SECTOR for the year ended March 2019 Government of Kerala Report No. 1 of the year 2021]

Unfruitful expenditure on construction of a modern fish market Construction of a modern fish market by Thiruvananthapuram Municipal Corporation without proper investigation and correlating its design with the requirements of the vendors resulted in non-utilisation of the modern fish market constructed for Rs. 23.25 lakh, rendering the expenditure unfruitful

As per Section 1402 of Kerala Public Works Department (KPWD) Manual, 2012, every work shall be properly investigated and all relevant data collected and correlated before finalising the design and estimate for the work. Wrong choice of site or designs based on incorrect or insufficient data can result in considerable avoidable expenditure and delays.

Thiruvananthapuram Municipal Corporation (TMC) undertook (March 2015) a two-year project (2014-16) for the construction of a modern fish market in Palayam Connemara Market. The project was to construct a new modern fish vending zone to replace the existing temporary fish vending zone in the market. The estimated cost of the project was `25 lakh and technical sanction was accorded for the same amount (March 2015). Tenders were invited and the work was awarded (May 2015) to the lowest tenderer at 6.20 per cent below estimate rate. While executing the work, based on the request (September 2015) of the 39 Chapter II – Compliance Audit then Ward Councillor to accommodate more vendors in the available space, TMC revised the items in the estimate without change in the total project cost. The work was completed in October 2016 and an amount of `23.25 lakh was paid to the contractor (May 2017).

Scrutiny of the records in TMC and joint site inspection (May 2018) conducted by Audit along with TMC officials revealed that the fish market remains unutilised due to its unscientific design and lack of space for fish vendors.

Fish vending is still carried out from the temporary fish market. Audit noticed the following lapses in construction of the fish market which were the primary reasons for non-utilisation of the fish market.

• There was no seating facility provided for the fish vendors due to lack of space. The fish vendors had to stand and do their work which was not acceptable to the vendors.

• As per the approved plan for construction of fish market, the fish vending tables were to be arranged in three rows, i.e., two rows back to-back and a separate third row. A space of 1.90 metre width should have been provided between the fish vending tables of the two back to-back rows and 1.06 metre was to be provided between the table and wall for the third row of fish vending tables. Against this, the space provided was only 1.60 metre and 0.80 metre respectively, which was insufficient for making any seating arrangement.

• While revising the estimate, the TMC had deleted essential items like plumbing works, water supply, etc., and included non-essential items like replacing ceramic with vitrified tiles for floor, changing the surface of fish vending table from kota stone to mirror finished marble stone, etc. This led to a situation where the fish market was completed without provision for drainage, water, etc., which was essential for normal hygienic operation and maintenance of the fish market.

Further, scrutiny of Measurement Book (M-Book) and joint site verification of the fish market revealed that the contractor was paid `4.11 lakh for works not executed as detailed in Appendix 2.8. The design of the fish market was prepared without assessing the requirements of the fish vendors and the market was constructed without ensuring the facilities required for its functioning. Thus, construction of a modern fish market building by TMC without proper investigation and correlating the design with the requirements of fish vendors resulted in non-utilisation of the modern fish market, rendering an expenditure of `23.25 lakh unfruitful.

Further, the failure of Executive Engineer to verify the actual work done before effecting the payment resulted in overpayment of `4.11 lakh to the contractor.

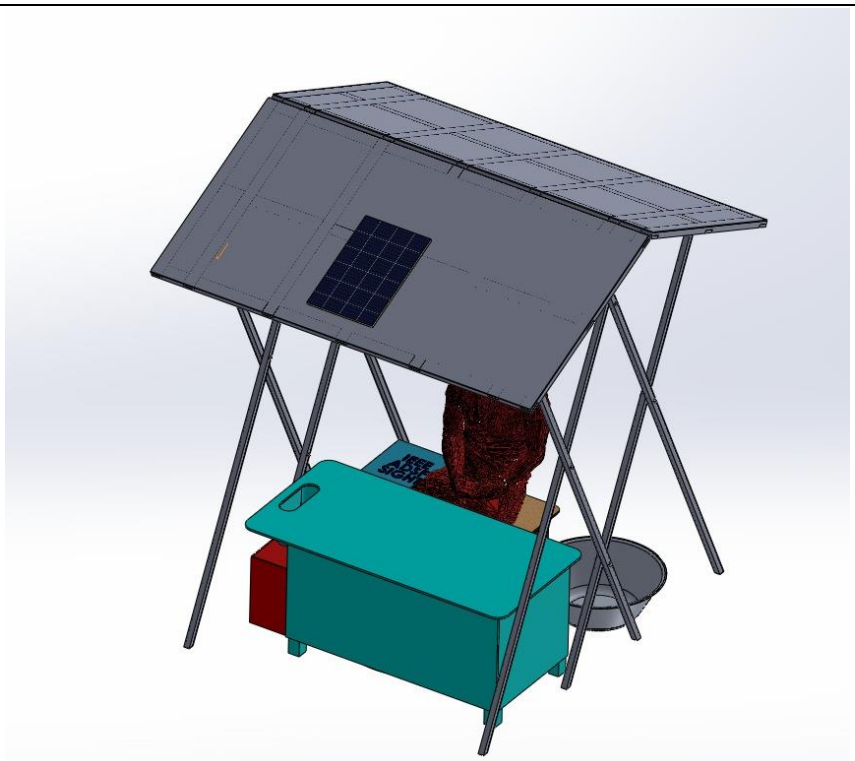
The Government of Kerala agreed (January 2019) with the audit findings that the estimate was technically defective as it did not provide seating facility for 40 fish vendors and the space provided was insufficient.

It also agreed that deletion of some items from the original estimate like provision for water, drainage, etc., led to non-utilisation of the market. Regarding excess payment to the contractor for works not executed, GoK intimated that based on the direction of the Government to the Corporation, the contractor has refunded an amount of `3.61 lakh (October 2018).

The Government of Kerala further informed that necessary steps have been taken to rectify the defects identified by Audit and initiated disciplinary action against the officers responsible for the failure of the project.

Though the excess payment has been partially recovered, the fact remains that the fish market remains unutilised even after a lapse of two years. Local Self-Government Institutions may ensure that utilities being created are designed to meet the requirements of end-users and the constructed utilities possess all required facilities.

APPENDIX H: ONE DESIGN OF A ROAD SIDE FOLDABLE



APPENDIX J: SCOPE FOR SKILLED FISHERS IN UK

[https://www.gov.uk/government/news/new-immigration-rules-provide-boost-for-scottish-fishing-industry]

The Home Office has accepted the Migration Advisory Committee recommendation that deckhands on large fishing vessels, with three or more years of experience using their skills, should be included in the list of occupations eligible for Skilled Worker visas.

The decision was welcomed by UK Government Minister for Scotland David Duguid who said:

This is good news for the Scottish industry, particularly the demersal – or white fish –fleet, and represents the fruits of close co-operation between Government and industry.

We have listened to concerns that crewing problems have been particularly acute here with some boats unable to fish within 12 miles of the shore because of visa restrictions on their vital deckhands. The new arrangements should quickly ease these difficulties.

Mike Park, Chief Executive of the Scottish White Fish Producers' Association, said:

This is something we have been campaigning about for over four years and the industry will find it very useful and supportive. It is of particular significance for vessels operating in the remoter parts of the west of Scotland and helps those vessels who faced problems when forced to operate outside the 12-mile limit, and helps too with landing crew for essential rest periods.

The change means that although deckhands are not being added to the UK's Shortage Occupation List (SOL) – which specifies which jobs have insufficient resident workers – they will become eligible for Skilled Worker visas which should make recruitment from abroad easier.

To qualify, their sponsoring employer must be offering a salary of at least £25,600, in line with other non-shortage occupations. If the deckhand is a 'new entrant' (mainly those under the age of 26), a lower salary threshold of £20,480 will apply. In all cases, their pay must also be at least £10.10 per hour. The changes take effect from 6 April 2021.

APPENDIX K: RING SEINE EARNING DISTRIBUTION

Table: Example of a ring-seine net (30 to 40 ft vessel with 12-15 crew) which has landed fish which is auctioned by the auctioneer (tharakan) for an amount of Rs.100,000

	Value, Deductions and Shares	Rupees
1.	Gross Value of fish landed and auctioned	**100,000**
2.	Customary auction deduction by merchant (10-13 per cent)	10,000
3.	Net receipt from merchant	90,000
4.	Commission of the auctioneer (tharakan) 10 percent	9,000
5.	Paid to the boat owner	81,000
6.	Common expenses of the trip (food, local travel etc) for crew	10,000
7.	Divisible earnings	71,000
8.	Owner's share (returns to capital) (1/3 share)	23,670#
9.	Crew share (returns to labour) (2/3 share)	47,330
10.	Per capita crew earnings (15crew)	3155 to 3945 * (3-4 % of Landed Value)
	# The cost of fuel, interest on capital etc paid by owner	
	* If owner participates in fishing, he will get one crew share also	

Source: This is a typical example, provided by Working Group member Antony Kurishinkal, of the situation applicable to the ring-seine sector in 2021

Table: Example of a ring-seine net (60-70 ft vessel with 35 crew) which has landed fish which is auctioned by the auctioneer (tharakan) for an amount of Rs.3,41,000

	Value, Deductions and Shares	Rupees
1.	Gross Value of fish landed and auctioned	**341,000**
2.	Customary auction deduction by merchant (10-13 per cent)	40,000
3.	Net receipt from merchant	301,000
4.	Commission of the auctioneer (tharakan) 10 percent	30,100
5.	Paid to the boat owner	270,900
6.	Common expenses of the trip (bata, food, local travel etc) for crew	8,500
7.	Divisible earnings	262,400
8.	Owner's share (returns to capital) (50% share)	131,200
9.	Crew share (returns to labour) (50 % share)	131,200
10.	Per capita crew earnings (35 crew)	3750 * (1-2 % of Landed Value)
	# The cost of fuel, interest on capital etc paid by owner	
	* If owner participates in fishing, he will get one crew share also	

Source: This is a typical example, provided by Working Group member Antony Kurishinkal, of the situation applicable to the ring-seine sector in 2021

APPENDIX L: TAMIL NADU FISHERMEN AND LABOURERS ENGAGED IN FISHING AND OTHER ALLIED ACTIVITIES (SOCIAL SECURITY AND WELFARE) ACT 2007

Definitions

In this Act, unless the context otherwise requires, —

(1) "allied activity" means an activity of a person who is working as beach worker, peeling worker, processing labourer, boat building yard worker, net mending worker, or small-scale fish distributor for his livelihood.
(2) "beach worker" means a person who is employed in fishing harbours or fish landing centres or fish landing sites to carry out activities such as:
(a) unloading of fish from fishing craft to fish baskets;
(b) transportation of fish baskets to auction site or icing site;
(c) transportation of trash fish or, small fish, to curing site;
(d) sorting of fish at the landing site, unloading and crushing of ice, packing of fish with ice in boxes and loading of packed boxes into vehicles used for transportation;
(e) loading of fish directly from boats to lorries, sale of ice in the fishing harbours or fish landing centres;
(f) cleaning of auction hall, fishing craft and supplying water for fishing boats;

(3) —boat building yard worker" means a worker who is engaged in construction and repairing of fibre reinforced plastic and wooden boats;
(4) —dealer" means any person who carries on, within the State of Tamil Nadu, the business of buying or selling or processing, fish or exporting fish in raw or in processed form or fish products and includes.
(a) a commission agent, a broker or any other mercantile agent, by whatever name called; and
(b) a non-resident dealer or an agent of a nonresident dealer or a local branch of a firm or company or association situated outside the State of Tamil Nadu;

(5) —dependent" in relation to a registered member means any of the relatives of such member as specified below; —
(i) wife or husband, as the case may be; (ii) children; (iii) widow and children of the predeceased son; and (iv) parents;

(6) "employer" means a person who engages labourers;
(7) "fish" means fish of all varieties including prawn, lobster, shell fish, clam, squids and any other aquatic organism exploited commercially for edible purpose or for manure.
(8) "fish farm" means the land of water spread area of fresh water or brackish water or saline water in which cultivating of fish is carried on;
(9) "fish products" means fish in raw or in processed form;

(10) "fisheries‖ means marine fisheries, inland fisheries, brackish water fisheries, mariculture which includes lobsters, crabs, fin fish, seaweed, oyster, mussel culture, pearl and chank fishery, breeding, raising of fish seeds and farming, ornamental fish culture, sewage fed fish culture and also any other fisheries as may be notified by the Government;

(11) "fisherman" means any person in the age group of 18-65 years, —
(i) engaged in fishing, drying of fish, sale of fish or other allied activities for his livelihood;
(ii) who owns fish farm not exceeding 2.5 acres of land;
(iii) who owns, - a) one country craft; or b) one country craft fitted with outboard motor or inboard engine with capacity of less than 15 HP; or c) one coracle in fresh water;
(12) "laborer" means any person in the age group of 18 to 65 years, engaged to work in fishing or other allied activities or in fisheries or in fish farms for wages <u>but who does not own any craft;</u>

(13) "net mending worker" means a worker engaged in mending and repair of fishing nets;
(14) "peeling worker" means a worker who is engaged in peeling prawn, lobster, clam, cleaning squids and cuttle fishes in huts, peeling sheds and fish processing plants;
'processing" means any means of preservation of fish products effected with or without physical or chemical changes by mechanical means or otherwise, intended to facilitate increase in the shelf life of fish or fish products or to avoid loss during transit or value addition;
(15) —processing laborer‖ means a worker who is engaged in cleaning, grading, processing and packing of fish or fish products; _
(16) —registered members" means fishermen and labourers engaged in fishing and other allied activities registered as a member under a Scheme;
(17) "small scale fish distributor" means any person engaged for a period of not less than one hundred and twenty days in a year in the distribution of fish from fish landing centres or fish harbours or fish curing yards or markets through retail outlets or by house delivery and includes—- (a) auto—carrier distributors; (b) cycle load vendors; (c) drivers and cleaners engaged in fish transporting on a permanent basis; (d) head load vendors, including vendors, who sell fish in temporary camps; (e) mini lorry distributors; and (f) moped load distributors.

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