A Platform for Action

Meeting in Mumbai, women fishworkers of the coastal districts of the Indian State of Maharashtra drew up an agenda to advocate for their rights and livelihoods

In December 2021, a dozen women from the coastal districts of the western Indian State of Maharashtra assembled in the capital, Mumbai. All experienced fishworker leaders—most of them representing the Maharashtra Machhimar Kruti Samiti (MMKS)—they had gathered to learn from one another and discuss strategies to address the challenges faced by fisherwomen and coastal fishing communities. Organized by the International Collective in Support of Fishworkers (ICSF) Trust the meeting was hosted by the Central Institute of Fisheries Education (ICAR-CIFE) from 3 to 4 December.

Purnima Meher, vice president of MMKS and the National Fishworkers' Forum (NFF), and Nalini Nayak, ICSF Trustee, welcomed the participants and explained the purpose and structure of the workshop. Thereafter, the discussion proceeded to the impacts of the COVID-19 pandemic on the sector and its workers. The aim of the meeting was to understand how the women's livelihoods had been sustained, despite new and existing challenges. At the same time, it was important to connect their experiences in India to global trends in fisheries, the acceleration in the ocean and coastal economy, and the climate and biodiversity agenda. The outcomes of this meeting will feed into ICSF's national workshop on the Voluntary Guidelines for Securing Sustainable Small-scale Fisheries in the Context of Food Security and Poverty Eradication (the SSF Guidelines), and women in fisheries, to be held in Chennai in April 2021.

The first session kicked off with the identification of women fishworkers' concerns in the State. Participants from its five coastal districts presented accounts of the day-to-day working conditions of women in the sector, their livelihood issues and the programmes of their organizations. The leaders largely represent women in post-harvest fisheries—ranging from fish sorting, salting, drying and processing, to auctioning and vending activities. (An estimated 77,000 women work along the fisheries value chain in the state, 70 per cent in fish marketing.) As the presentations drew out details of their fish chains, the women noted both similarities and differences in their experiences. Contexts varied greatly—from the big harbours and markets of bustling Mumbai to the distant village landing centres of the Konkan coast; and from the organized and vocal women in formal markets to the dispersed and vulnerable dry-fish vendors.

Despite their diversity, the women identified a few key issues that were relevant to a majority of fishworkers and communities. They noted the marginalization of women's livelihoods as a result of rapid changes in the value chain. When traditional fish landing centres were replaced by new harbours, along with the bigger boats fish merchants with deep pockets arrived on the scene. Women, if they are not organized, lose out in the auctions. In a discussion on women's access to credit and finance, the women noted the community's hardships with indebtedness. They said that large lending institutions are not the answer, instead highlighting more equitable

The aim of the meeting was to understand how the women's livelihoods had been sustained, despite new and existing challenges

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ICSF Trust thanks the Central Institute of Fisheries Education (ICAR-CIFE) for hosting the event.

CÉDRIC Z

A fish processor at Mumbai's Sassoon Docks. An estimated 77,000 women work along the fisheries value chain in the state of Maharashtra, 70 per cent of those in fish marketing

financial models, including through self-help groups and co-operatives, which could help fishing communities break out of the cycle of debt and poverty.

The changes in the fisheries value chain mirrored those on the coast. Discussing the tenure rights of coastal communities, the women pointed out several instances when they had lost access to community commons, fishing grounds and livelihoods. In Mumbai and other areas, urban development has often excluded and marginalized fishing communities, as they are displaced by other more powerful economic interests, or their livelihoods are slowly choked by pollution and environmental degradation.

... fishworkers conducted a mapping of formal and informal street markets in Mumbai to demand that the city administration protect them from eviction

Customary rights are rarely recorded or recognized, including to market spaces. Although the Koli fishing communities of Mumbai have had some success in garnering visibility for the rights over their *koliwada*s (fishing hamlets), the women continue to struggle with municipal authorities to recognize their livelihoods. Their demands to improve their working conditions in formal city markets are rarely met. Similarly, they face the constant threat of being displaced from their street vending sites. In an inspiring case of the women mobilizing to safeguard their rights in 2012, fishworkers conducted a mapping of formal and informal street markets in Mumbai to demand that the city administration protect them from eviction. Discussing the mapping exercise, the women noted that now they have the aid of a national legislation for street vendors and they should ensure its implementation.

The second day opened with a Koli song describing boats going out

OMKAR KHANDAGALE

Participants at the Mumbai meeting in December, 2021. At the end of the meeting, the women drew up a series of demands to be addressed by their organizations at the national and sub-national levels

fishing on moonlit nights. The day's programme was split into two parts. The first was a discussion of strategies to strengthen fishworker organizations, particularly to enable women's participation in decisionmaking at the State and national levels. In the next session, the women identified the main issues that connected their struggles with the international and national legal instruments that offer pathways to redress their problems.

At the international level, they noted the SSF Guidelines, endorsed in 2014 by the Committee on Fisheries (COFI) of the Food and Agriculture Organization of the United Nations (FAO), and, at the national level, the National Policy for Marine Fisheries (NPMF), 2017.

At the end of the meeting, the women drew up a series of demands to be addressed by their organizations at various levels. They demanded that women have the right of first sale of the fish landed at their beaches and harbours. This would protect their access to markets. They pointed out the urgent need to record and protect their customary use of coastal village lands for housing, fisheries livelihoods and community infrastructure. Women's access to clean and well-equipped market spaces to sell their fish should also be improved. The women discussed the importance of the Street Vendors Act, 2014 in regulating street vendors in public areas. Highlighting the impacts of industrial pollution on the health of fishing communities and the marine environment, they noted the ongoing struggles of their organizations to draw attention to existing and emerging threats on the coast.

As the meeting concluded, the women looked to the future with resolve and decided to build on these discussions at the national level, with their partners and collaborators from India's other coastal States.

For more

Report of the National Workshop: The SSF Guidelines and Mainstreaming Gender into Fisheries Policies and Legislation, Tamil Nadu, India, 2019
https://www.icsf.net/wp-content/uploads/2022/03/930.ICSF214.docx

Report of the Brainstorming Session for the National Workshop on Enhancing Capacities of Women Fishworkers in India for the Implementation of the SSF Guidelines, Kerala, 2019
https://www.icsf.net/wp-content/uploads/2022/03/930.ICSF212.pdf

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Bringing Back the Artisanal in Small-scale Fisheries

The future of sustainable fisheries around the world does not lie merely in the scale of operations but in the artisanal attitude and its attendant culture.

This is the International Year of Artisanal Fisheries and Aquaculture (IYAFA 2022). From a quick survey of the website of the Food and Agriculture Organization of the United Nations (FAO) and many other publicity briefs of civil society organizations (CSOs) that are co-celebrating the year, the focus is strongly on small-scale fisheries and aquaculture. 'Small in scale, big in value' is one of the key messages.

But I wonder: What has happened to the 'artisanal' dimension of the celebrations? Why is there no focus on that? Is there today no overlap between small-scale and artisanal? Or was this a relationship of the past? Should we seek to revive it in the future?

Without getting into the detailed etymology of the word, there are three very appealing attributes to any activity that we can call 'artisanal': skill of body and mind; judicious use of human and renewable energy; and freedom of work and expression. These combine to give the activity an artistic overtone. Together, they lead to convivial and sustainable livelihoods.

I had spent a considerable part of my early working life with fishing communities in the state of Kerala in India. They joyfully embodied these three attributes in their daily lives. However, observing their context half a century on, I notice that there is little overlap between how they fish today and the valuable attributes of artisanal activity they possessed earlier.

I have also been a keen observer of their trajectory over the years, studying the manner in which they lost these attributes.

But I am happy to report that some of my recent observations on the coast reveal that there is a slow return to artisanal practices. Let me try to briefly explain this cycle of events, starting with the initial context of the fishery, and restricting my story to the technology of fish harvesting at sea.

We start with the craft called the *kattumaram*. For a deep-sea going marine fishing craft, this is as simple as it can get. The *kattumaram* is just four logs of wood, about 10-15 ft in length, tied together with coir ropes across a cross bow at each end—the ultimate do-it-yourself (DIY) craft. At sea it is unsinkable, though being on it makes you feel like you are sitting or standing on water! The *kattumaram* is initially powered by rowing with a split bamboo pole. Later the lateen (triangular) cloth sail can be rigged mid-sea, with bamboo poles and coir ropes, to even gather the swell of winds blowing almost in the opposite direction. This is the ultimate in sailing skills.

> **... I am happy to report that some of my recent observations on the coast reveal that there is a slow return to artisanal practices**

The launching of a *kattumaram* is followed by rowing it speedily to get across the rough surf waves. The art of rigging and operating the sails, fishing in deep waters out of sight from the shore, then getting back to the village on the shore, even at night, guided

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MANAS ROSHAN

Shore-seine operations in Trivandrum, Kerala. Three appealing attributes to any 'artisanal' activity are skill of body and mind, the judicious use of energy, and the freedom of work and expression

only by the stars... all evidence of the remarkable skill of body and mind, as also the creative ability to harness renewable energy to make a living. This is the artisanal way par excellence, with zero operating cost.

... OBMs relieved the drudgery of physical labour and increased the time available exclusively for fishing

The change began with the introduction of the outboard motors (OBMs) in the early 1980s. Initially, the motor was fitted to one of the cross bows. But, it soon became evident that the centuries-old DIY *kattumaram* and the sleek Japanese-manufactured OBMs are structurally incompatible. This realization led to design of the plywood *kattumaram*. An unsinkable craft looking much like the original, it better accommodated the OBM. The only downside was that it could not be dismantled.

The propulsion power of the OBM soon led to the obsolescence of the sail. That, in turn, caused the gradual loss of the artisanal skill of understanding the nuance of winds and working in tandem with nature. While OBMs relieved the drudgery of physical labour and increased the time available exclusively for fishing, they also contributed to decline in the fishers' fitness. They also increased accidents on crossing the surf.

On the financial side, the motors added significantly to investment and operating costs. But they changed little in the probability of harvesting more fish. On occasions when fishers harvested more fish, prices dropped

on shore. Their net earnings increased only marginally.

While only a few fishers adopted OBMs of a certain power rating, they stood to have a comparative advantage over those who did not have the motors. They could get to the fishing ground faster, fish for longer periods and get back to the shore earlier, thus getting a higher price. That advantage disappeared when all fishers in a village adopted the same type of motors; everyone reached a lower equilibrium, so to speak. The investment and operating costs increased but the increase in earnings was not commensurate with the expenditure incurred.

A few fishers broke out of this trap by opting for motors with more power. This triggered a vicious cycle of higher capital investment and a race to guzzle fossil fuels. Bigger and more powerful engines, in turn, fuelled the demand for newer types of craft. The modified plywood *kattumaram* was not suitable any longer. Bigger craft, more canoe-shaped, were prized. The new models provided more room for carrying larger nets. This warranted a bigger crew; their total lack of artisanal skills—even knowing how to swim—was not an issue now. Seasonal migrants from non-fishing communities, with no knowledge of the sea, were adequate. You just needed 'labour'! And the race to the bottom went on and on.

I recently estimated the collective results of this adventure over 50 years. It shows that the individual outcomes have been varied and that inequalities between fishers have increased. The net result has been a rise in the fossil-fuel consumption and in the average investment in craft and gear. The median level of indebtedness has increased at galloping speed. Yet the collective fish harvests began to plateau a decade ago and have now started a downward trend.

Discussions with fishers—all small-scale, beach-landing operators—reveal the realization among them that this Olympic race of adopting larger boats, more fishing gear and more powerful motors is leading to collective catastrophe. They realize that this needs to stop.

But their quandary was who will take the first step?

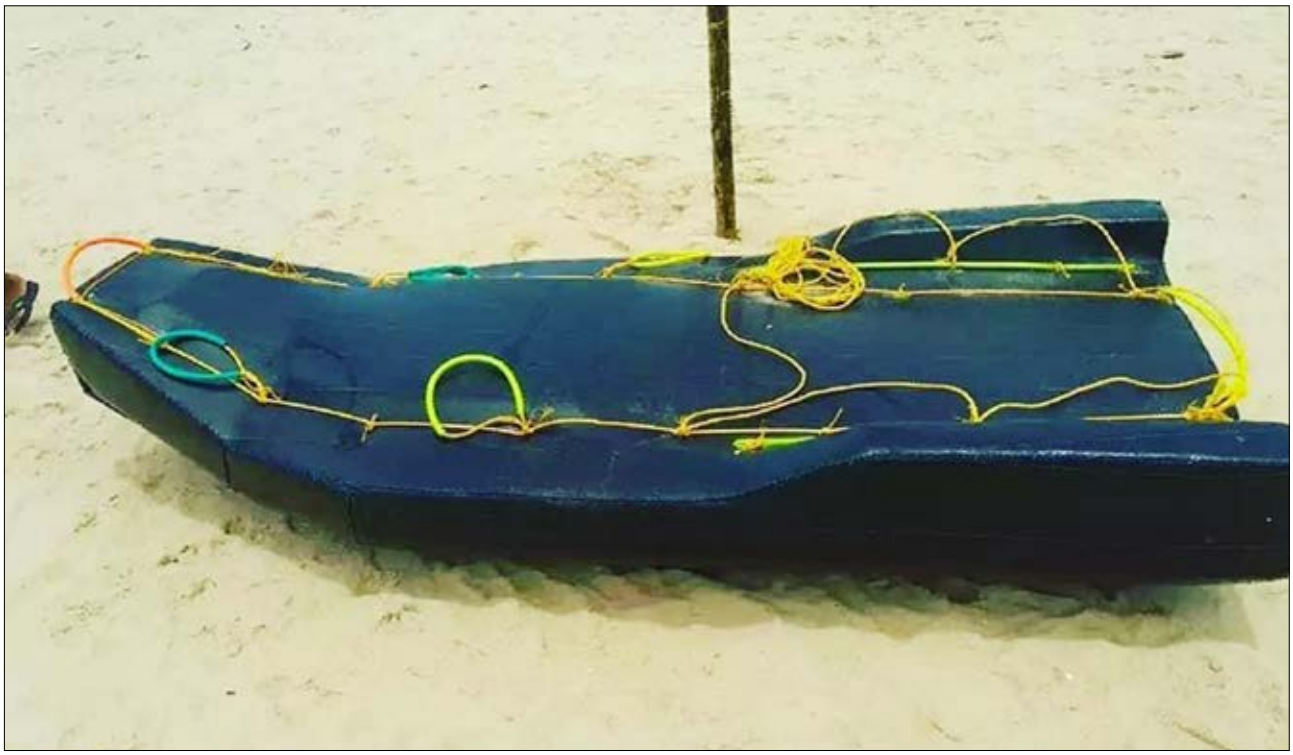
That was when I discovered a new but raging trend on the coast. Along one stretch of a sandy beach, I noted a new raft-like contraption. It had a flat base of thermocol/polystyrene, about nine ft by four ft, stitched around in black rexine. It looked more like a Brazilian *jungada* than a *kattumaram*! There were over 200 of them in close proximity.

They were steered with a paddle-shaped oar. Each could carry about 10 kg of gillnets and accommodate two fishers. The owner-operators of these rafts were middle-aged fishers; they had not forgotten their skills of rowing and sailing. Fishing was in eyeshot of the coast, from 5 a.m. to 8 a.m. Afterwards, they took their nets with the fish still gilled onto them to the highway and sold the fresh fish, straight off the net, to customers passing by in cars. No fuel costs! A daily income made from five hours of labour, adequate for sustaining their families—and the freedom to engage in other pursuits.

A fisher was close at hand and he spoke into my voice recorder: "There is no meaning in this race we have got ourselves into. Every other fisherman is steeped in debt. We started with 9-hp (horsepower) OBMs. We are now using 45 hp, but still fish the same shoals. When I started fishing 25 years ago everyone got enough fish. Now one unit catches it all. The others come back without even casting their nets, and having to bear the cost of fuel and pay for the food of the crew. The losses accumulate. Many like me have now gotten out of this race. The future is perhaps in stepping back to traditional (artisanal) ways of fishing. Near our homes. Using our knowledge and skills."

The thermocol rafts are certainly not the answer to the fishery problems of Kerala. They are a calibrated response to the overall crisis facing the fishery. These rafts can only be used in the months when the sea is calm, usually November to February. But such surety about the condition of the sea is also a thing of the past. The rafts do pose crew-safety issues in the event of overturning, particularly for those

CASTLE THERMOCOL BOATS



The new raft-like contraption commonly used by fishers in Kerala. It has a flat base of thermocol/polystyrene, about nine ft by four ft, stitched around in black rexine, looking more like a Brazilian *jungada* than a *kattumaram*

who may not be expert swimmers. The Fisheries Department is unwilling to provide a registration for these vessels because insurance companies will not cover risks of fishers using such 'unseaworthy' structures which do not qualify to be defined as fishing craft.

Yet, these rafts represent some basic, innate and hidden attributes that are worthy of serious consideration. These are attributes historically associated with artisans, and with what we call the 'artisanal' way. Let me mention a few: Artisanal fisheries can be decentralized and spatially dispersed. They have a low carbon footprint and near-zero operating costs. They embody freedom and emancipation from indebtedness, owing to the possibility of owner-operatorship. This allows fishers to flexibly combine fishing, at a chosen time of day or night, with other meaningful avocations. The conviviality of labour and work also makes it possible for fishers to revive a healthy and active lifestyle. Artisanal methods can help communities regain the intimate knowledge of the sea and its moods, now lost with fuel-powered propulsion. Finally, the shorter value chains of these fisheries are more viable, providing fresh products and direct contacts between harvesters and consumers.

As the world celebrates the International Year of Artisanal Fisheries and Aquaculture, can we also ponder over these attributes and issues?

For more

The Human Relationship with Our Ocean Planet
https://oceanpanel.org/blue-papers/HumanRelationshipwithOurOceanPlanet

From Individual Rights to Community Commons
https://www.icsf.net/samudra/from-individual-rights-to-community-commons/

Involving the People
https://www.fao.org/voluntary-guidelines-small-scale-fisheries/resources/detail/en/c/1475206/

Rings of Fire

Conflicts over fishing gear have again erupted along the Coromandel Coast of India, pointing to the urgent need for effective management

In August, 2021 tensions escalated in the state of Tamil Nadu along India's southeastern coast when an altercation between fishers at sea led one to be hospitalized with serious injuries. A few days later, there was a riot between two fisher hamlets in neighbouring Puducherry (formerly Pondicherry) when ring-seine fishing nets were burnt at sea. The police had to intervene to stop the violence.

The previous month, a section of fishers from two districts in Tamil Nadu blocked a highway to protest against a state government decision to implement a ban on ring seines. Over 1,000 fisherwomen from one of the area's largest fisher settlements protested in front of the district police headquarters for two days.

Despite the raging pandemic, the coastal villages in Tamil Nadu and Puducherry have repeatedly witnessed violence over the past year. Our team of researchers at the French Institute of Pondicherry have been travelling along this strip of the east coast since 2018 to document the lives of local communities as they cope with socioeconomic and environmental changes.

Disputes over fishing gear are not new in this area, but the reason behind the recent tensions seem to be the oil sardine (*sardinella longiceps*). An increase in demand for oil sardine, along with administrative failures to implement existing fishing regulations, have resulted in this protracted conflict, causing widespread anxiety and uncertainty in the community. Over the past two years of the COVID-19 pandemic, we have become concerned about conflicts over this widespread fishing gear that has divided fishers in the region. The disputes have escalated since 2018, peaking in 2021. The underlying reasons need to be understood before any help or support can be offered to ease tensions.

Oil sardine is not a preferred delicacy in coastal Tamil Nadu. The pride of place afforded to the *kavalai* (*sardinella gibbosa*) does not extend to the *mathi* or the oil sardine. *Kavalai* curry is a favourite dish in the kitchen of any class of people; it costs ₹80-100 per kg (US$1 = ₹75). The costs of oil sardine can range from ₹20 to ₹100 per kg, depending on the market in the neighbouring State of Kerala, where consumer demand for the species is high. Large quantities of small pelagic species going into the fishmeal industry adds to the value of this fish. The Kerala market absorbs about 90 per cent of the oil sardine catch along the Coromandel Coast.

Oil sardine availability has declined along the west coast for reasons that remain unclear; the changes have been attributed to overfishing and environmental factors, including climate change. Along the eastern coast, they are netted in large quantities like never before. Fish landings data, collected by the Central Marine Fisheries Research Institute (CMFRI), register a huge increase in oil sardine landings in Tamil Nadu in 2019, accounting for 43 per cent of the national total. Anandan, a fisherman from Pudukuppam village in Puducherry, said: "Although the fish was always available, large quantities have been landed throughout the year since 2000. With no real value in the local market, we were reluctant to cast our nets into a shoal of oil sardine; half the catch spoils by the time it is removed from the gill-net. But today fishers go out in search of it. No matter the quantity, vehicles queue up on the shore to move them to Kerala."

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BHARAT SINGH A

Fishing boats stranded at Sothikuppam in Tamil Nadu. Both its adherents and its opponents—artisanal fishers using selective gear such as gill-nets—have compelling arguments for and against the ring seine gear

Over time the craft and gear for sardine fishing have evolved. These days, the largest quantities are caught by ring seines. The gear is the smallest form of purse seines or encircling nets in many parts of the world. The ring seine, first introduced in Kerala, requires a large 55-ft-long fishing vessel (called *kanna* locally) and seven to 10 small craft. At least 50 workers are required for a ring-seine operation. The large fishing net—handled by a hydraulic winch fitted to the big vessel—encircles the fish shoal. Floaters are attached to the top of the net and a series of rings at the bottom. A long rope threaded through the rings is tightened to close the net at the bottom, forming a purse around the shoal. The catch is loaded on to the small craft. Fishers claim that damage to the catch is minimal, compared to that caught in gill nets. This technology also targets mackerel, seer, trevally and several species of tuna.

Eventually, as the oil sardine migrated from Kerala to the Coromandel Coast, so did the ring seines, as idle boats were sold cheap. Considerable profits catalyzed the spread of ring-seine fishing. When the ring seine was first introduced in northern Tamil Nadu in 2003, rival fishers from a village called Devanampattinam set fire to the nets. Later, this same group of protesting fishers became the leaders of the new technology, accounting for the largest number of ring seines in one village. A leader of this village explained: "We opposed the technology believing fish stocks should be available to all. But we were sued for our protests. When the government favoured this new

technology, many people bought ring-seine boats to tap into this lucrative business."

The ring-seine trips take place in two seasons: from January to mid-April, and from mid-June to November, the onset of the northeast monsoon. At the beginning of each season, the district administration and the police seize some ring-seine boats and trucks with netted fish. Despite the action, operations continue for the next few months without any hindrance. But in the past years, disputes over ring seines have started to become more heated and increasingly violent.

In 2000, the Tamil Nadu government banned the gear with the stated reason of conserving fish stocks. Amendments to the State fisheries law were proposed that year. Fishers who had invested millions fought against the ban. After negotiations, the ban was relaxed for a few more years. Up until 2017, more ring-seine units were purchased cheaply from Kerala. Meanwhile, new steel-hulled ring-seine boats were built locally.

Since *kanna* boats can operate only with ring seines, fishers invested in a new type of steel boat, combining ring seining and trawling operations. While rare in parts of the northern coast, such boats number more than 100 at three important fishing harbours in Tamil Nadu. Poompuhar, a large settlement with a new fishing port, reveals the scale of this fishery. Here, fishers built the new boats at a cost of ₹20 mn (US$264,000), shared among 20 to 40 investors. Then the pandemic struck, followeed by successive lockdowns that severely disrupted the fisheries value chain. Since January 2021, the state government has not allowed these newly-built boats to venture into the sea. The investment is earning nothing for the shareholders, many of whom had borrowed heavily. The sudden ban was devastating to many fisher families.

... in the past years, disputes over ring seines have started to become more heated and increasingly violent

Both the adherents of the ring seine and its opponents—artisanal fishers using selective gear such as gill-nets—have compelling arguments for and against the gear. Although the law appears to favour the artisanal fishers at the moment, in practice the bureaucracy treats both sides in an even-handed manner. It is worthwhile trying to understand the arguments of either side.

Ring seines catch entire shoals of fish, including juveniles. They are also highly effective gear whose benefits accrue to a few boat owners and crew. On the other hand, the divisions between these categories and crew are not always clearly defined: Ring-seine fishers operate with small-scale craft and gear in other seasons. They employ large crew sizes, and the earnings from this gear has improved incomes and standards of living. Its supporters also reject the accusation that the nets indiscriminately catch juveniles.

Neither side is without its arguments. "The whole country is developing, moving towards newer technology. Why should we remain paralysed, limited to artisanal technologies," asked a young fisher from Thirumullaivasal village in Tamil Nadu. "Should a fisherman live only with one piece of cloth hung around his waist in the future, too?"

Fishing conflicts are common around the world. Fisheries authorities and communities have employed various measures to create a level playing field, ranging from traditional rules such as the *Padu* system in Pulicat, Tamil Nadu, to legally authorized controls on inputs (craft, gear and other regulations) and the demarcation of fishing zones for artisanal fishers. Tamil Nadu's Marine Fishing Regulation Act, 1983 was itself a result of the disputes between artisanal fishers and mechanized trawlers. The Act and its Rules demarcated inshore zones reserved for artisanal fishers, protecting their access from mechanized fishing vessels. But the regulations have not been updated to

BHARAT SINGH A

Small-scale fishers pick oil sardines from their gillnets in Pudukuppam, Puducherry. Although the oil sardine was always available on the East coast, large quantities have been landed since 2000

reflect the changes along the coast, and the Fisheries Department has opted for a blanket ban instead of sound management.

As the dispute simmers, ring seiners have demanded not to be singled out; they say all mechanized boats must be stringently regulated. They have emphasized that provisions in the law for minimum mesh sizes and the length of fishing vessels be followed in letter and spirit. Ring-seine fishers have also demanded that large vessels operate only between 5 a.m. and 6 p.m.

To maintain law and order, district administrations restricted all mechanized boats. Explaining the rationale behind the ring seiners' demands, a fisher leader from Devanampattinam village in Tamil Nadu, said: "This [will] make it clear to the government and the opposition that it is not prudent to ban fishing methods based on a legislation that has not been modified in light of the latest technological developments." He added: "Since the foreign exchange revenue associated with the oil sardine is low, they can easily block ring seines. They will not do the same to the shrimp industry." He urged the research community to investigate whether policy has kept pace with environmental and technological developments.

Both fishers and scientists agree that the regulation of ring seine units is imperative. They operate within five nautical miles from the shore, which leads to almost daily conflicts with artisanal fishers. However, the present conflict needs to be understood in the wider context of increasing capacity in the fisheries. In Tamil

BHAGATH SINGH A

Oil Sardines iced and ready to load on to trucks going from Tamil Nadu to Kerala. Fishers and governments should together resolve conflicts and ensure a fair distribution of benefits

Nadu, mechanized vessels (mainly trawlers) account for 83 per cent of the catch. "Why don't government officials intensify their efforts against the negative impacts of trawling and industrial pollution in the coastal belt, instead of concentrating only on ring-seine fishing?", asked a fisher from Rasapettai village in Tamil Nadu.

Since 2021, several dozen ring-seine boats have lain stranded on the shore—dead investment for marginalized fishing communities. Both sides are victims in this story. As this episode unfolds, it is important to address the shortcomings in existing fisheries-management measures. "It is the fishers' fault for investing in a banned gear. On the other hand, the Fisheries Department and the district administration [enforced] the law without understanding the issue on the ground," said SG Rameshbabu, co-ordinator of the Coastal People's Right to Life Organization.

Increasing demand for seafood, combined with ecological changes and developments in the value chain, will continue to drive innovation and relentless competition in fisheries. The state government of Tamil Nadu should resolve this conflict and ensure a fair distribution of benefits to fishing communities. It can consider strengthening local governance with the participation of traditional institutions and civil society, and updating its regulations to reflect the reality of the fishery. Tamil Nadu's fishers need a management system guided by the principles of equity and sustainability.

For more

The Troubled Ascent of a Marine Ring Seine Fishery in Tamil Nadu
https://www.epw.in/journal/2020/14/special-articles/troubled-ascent-marine-ring-seine-fishery-tamil.html

Clash over use of ring nets, group sets fishing boat on fire
https://timesofindia.indiatimes.com/city/visakhapatnam/vizag-clash-over-use-of-ring-nets-group-sets-fishing-boat-on-fire/articleshow/88687142.cms

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https://www.casemine.com/judgement/in/600125cc9fca1917ab0f9549

Shifting Sands

The COVID-19 pandemic poses an additional challenge for the social-ecological resilience of the fisheries of Pulicat, India's second largest lagoon

Pulicat, India's second largest lagoon, which straddles the states of Andhra Pradesh and Tamil Nadu on the Coromandel Coast of south India, covers a maximum area of 750 sq km and has an average depth of 1 m. The depth at the mouth (opening into the Bay of Bengal) is almost 10 m. When full, the lagoon spans up to 60 km in length and 18 km in width. About one-third of the lagoon lies in the Thiruvallur district of Tamil Nadu and the rest in the Nellore district of Andhra Pradesh.

The lagoon harbours three islands—Venadu and Irukkam, almost in the middle of the lagoon, and Sriharikota acting as the barrier island between the Bay of Bengal and Pulicat. In addition to other smaller streams, the lagoon derives its freshwater source from three major rivers: the Arani, the Swarnamukhi and the Kalangi. Seawater enters the lagoon through the northern end near Sriharikota Island (Tupilipalem) and flows back into the Bay of Bengal through the southern end (Pulicat). This interaction of fresh- and sea-water in the lagoon acts as a breeding ground for many species of fish and prawn, including commercially important white prawn (*Penaeus indicus*) and tiger prawn (*Penaeus monodon*), which supports the lives and livelihoods of fishing communities residing in and around the villages.

The outbreak of the COVID-19 pandemic has had an unprecedented adverse effect on public health, as well as on livelihoods, around the world, leading to precautionary and preventive measures such as nationwide lockdowns, social distancing and temporary closures of industries. The resultant economic downturn and job losses as a result of these measures have only worsened the situation. The pandemic control measures have also threatened—or have the potential to threaten—the social-ecological resilience of the fishing communities situated within the Pulicat Lagoon.

Based on the experiences of one fishing village located on an island in Pulicat, we explore how (a) resource-governance institutions function on the island; (b) social-ecological resilience was impacted during the first wave of the pandemic; and (c) a larger set of environmental, social, and political factors that impact the day-to-day life of the islanders. Of the three islands, our study focused on the people of Irukkam, particularly fishing communities, and their relationship with the lagoon. This walnut-shaped island, located south of Venadu, spans over 2,636 ha and has a total population of 1,820 individuals and 513 households.

This interaction of fresh- and sea-water in the lagoon acts as a breeding ground for many species of fish and prawn.

Focus-group discussions

With the consent of the fishing community, we conducted the study in Irukkam from January to March 2020, employing detailed, semi-structured interviews with 25 households in the village. Two focus-group discussions were also conducted, including one with women who commute to the mainland to work in factories for processing fish, and manufacturing shoes and pharmaceuticals. During the COVID-19 pandemic, four telephonic interviews were conducted with participants in July and August 2020, to understand the impacts of the lockdown and other restrictions on their daily life.

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The only means of transportation between Irukkam and the mainland is by boat. Anyone who wishes to leave the village and relocate to the mainland has to pay the Jamaat, a traditional, self-organized village committee, a sum of INR40,000 (USD532)

The island of Irukkam has two settlements, Irukkam and Kuppam, which are geographically separated by grasslands and sand dunes, and are situated in the north and south of the island, respectively. Human settlements on Irukkam are segregated on the basis of caste. The people of Irukkam, who constitute the non-fishing, agriculture community, are considered higher in the caste hierarchy, whereas the people of Kuppam, belonging to the fishing community (Pattinavar) are considered lower in the hierarchy.

There is a third category of 100-150 households of Irula people (a Scheduled Tribe) who work as labour on the agricultural lands owned by the upper castes in Irukkam. Most inhabitants are Hindu, though there are also a few Christian households. Although the island falls within Andhra Pradesh, most inhabitants speak Tamil with the exception of a few bilingual Tamil-Telugu speakers.

The only means of transportation between Irukkam and the mainland is by boat. Boat services operate twice a day, with separate jetties and boat operators for the two dominant castes of Irukkam and Kuppam. Fishers, students and workers commute daily to the mainland, to industrial centres such as Tada, Sri City, Sullurpeta and Chennai, which are also important fish-marketing and processing hubs.

The people of Kuppam have institutions of their own to govern the social, economic and environmental interactions in their lives. One such institution is the Jamaat, a traditional, self-organized village committee whose members (usually males) represent their respective households. It has the power to take decisions in all socioeconomic, environmental and political affairs in Kuppam, and is led by the village head (elected by the members of the Jamaat).

Economic activity

All economic activity has to go through the committee, be it the management of the lagoon fisheries, the allocation of boat contracts or the sale of goods from the mainland. The committee also controls social organization, imposing rules on marriage, the resolution of conflicts and the celebration of festivals. Transgressions are usually punished

through a cash penalty: For instance, inter-caste marriages are strictly forbidden and are fined INR20,000 (USD266). Anyone who wishes to leave the village and relocate to the mainland has to pay the committee a sum of INR40,000 (USD532). These sums are significant, relative to the average income in the area, and serve as strong disincentives against certain forms of behaviour.

Most households depend on the lagoon for their livelihood; many own their own fishing craft, usually purchased with the help of a loan. The Jamaat allocates fishing grounds—most of which are located near Sriharikota to the north—on a rotational basis to individual households. Fishers depart for their fishing grounds at night, setting their stake nets near the shores of Sriharikota. They collect their catch in the morning. The major portion of the Kuppam fishers' income comes from prawn, most of which is sold for INR300-400 (USD4-5) per kg to processing factories in Sullurpeta, Sri City and Arambakkam.

Most women are engaged in repairing nets and selling fish, in addition to household work. In Kuppam, traditional gender roles usually have women engaged in fisheries pre- and post-harvest activities and in household work, while the men go fishing. However, with the perceived reduction in the productivity of the lagoon in the past two years, women have begun working in other sectors on the mainland. Most men, on the other hand, continue with their precarious fishing livelihood.

The money that the Jamaat collects from the leasing of economic activities and other sources is used to conduct festivals, construct village-owned infrastructure and for the welfare of the community. The Jamaat is also the guardian of the coastal and marine common-property resources, and has traditionally played a greater role in fisheries management than the State. The committee regulates the allocation of fishing grounds and decides on days when fishing is banned (locally called '*thalavu*'). The practice of thalavu is a community-evolved mechanism for sustainably managing fish stocks in the lagoon during the breeding season (mid-April to mid-June). Additionally, the Jamaat declares one day every month when fishing is banned. All members of the fishing community are answerable to the Jamaat and there were no instances of people operating outside its influence. Therefore, any changes in the practice of thalavu can affect the resilience of the ecosystem as a whole.

Social resilience in this context is seen as the ability of groups or communities to cope with external stresses and disturbances as a result of social, political and environmental change. In the case of fisheries, social and ecological resilience are linked because the lives and livelihoods in the community directly depend on common-property resources managed by traditional institutions such as the Jamaat. Disturbances or changes could threaten the resilience of the whole social-ecological system. As the example of Irukkam shows, COVID-19 is one such major disturbance that can have ramifications at the level of both the individual and the system in small-scale fisheries.

Most households depend on the lagoon for their livelihood; many own their own fishing craft, usually purchased with the help of a loan.

The catch from Irukkam is either sold locally, or sold directly to wholesalers on contract. Fishermen from the island usually sell most of their catch at the nearest market town of Arambakkam (8 km away) or to factories located along the national highway nearby. However, almost throughout the first wave of the pandemic (March-May 2020), Arambakkam was declared a 'Red Zone,' in which very few activities were permitted. No vehicular movement of any kind was allowed.

Devastating effect

This total lockdown during the first wave of the pandemic had a devastating effect on Irukkam's fishery. The men were unable to return to their fishing grounds even after

the fishing ban period. Despite the community's demands to the Jamaat, the thalavu remained in force. The Jamaat themselves were powerless due to pressure from the police and administration, and for all practical purposes, the thalavu had been extended due to the pandemic control measures.

Individual households were thus presented with a dilemma—whether to disobey the thalavu or to comply with the community rules, thereby increasing their economic hardships. The Jamaat generates its revenue by levying duties and fines on households, whose incomes are mostly from the fisheries. Naturally, the resources flowing to the Jamaat have greatly reduced or stagnated. In these circumstances, there are chances that this pandemic could test the strengths of the traditional thalavu system and the Jamaat, which, in turn, can considerably affect the management of the lagoon fisheries. The resilience of the community, its institutions and the ecosystem are thus inextricably linked.

While the COVID-19 pandemic poses several challenges to the community and to the lagoon, there are also other factors that destabilise their resilience. These factors have played out over larger temporal and spatial scales than the pandemic. As discussed earlier, three rivers drain into Pulicat: Arani, Swarnamukhi and Kalangi. During the monsoon, Arani and Kalangi bring in sewage, agricultural chemicals and industrial effluents into the lagoon. In recent times, the flow and balance of freshwater in the lagoon has been impeded by siltation. The average depth has reduced over time and its mouth is almost entirely closed by a sand bar. This has affected both the productivity of the fisheries and the ability of fishing vessels to enter the sea. (Several fishers from Pulicat also fish in the sea.) Proposed solutions by scientific institutions, such as building training walls on either side of the bar mouth, could themselves have long-term ecological consequences and have been kept in abeyance for the time being. In addition to these threats, the lagoon is also impacted by industrial activity in and around nearby Chennai, such as a petrochemical factory, a thermal power plant and a port project. Together, these developments have severely polluted local rivers, cleared thousands of acres of land and encroached on coastal commons.

The impacts of these interconnected factors make it imperative to be aware of the complex historical, social and environmental factors that underpin the relationship of the community and the lagoon. The future of the Jamaat in Irukkam rests on governing the fish and prawn fishery in Pulicat. Eventually, the sustainability of the livelihoods from the fishery, the effective enforcement of the thalavu system and the maintenance of equitable trade with the mainland all rest on the ecology of the lagoon.

Vital questions

With the productivity of the fishery under threat due to siltation and the pollution in the region, the Jamaat is stuck between a rock and an even harder place. These local and regional stressors have coalesced with the impacts of the COVID-19 pandemic, such as market disruption, reduced access to fishing grounds and the out-migration of people from Irukkam, thus raising vital questions about the importance of maintaining social-ecological resilience.

For more

Study of territorial use rights in small-scale fisheries: Traditional systems of fisheries management in Pulicat lake, Tamil Nadu, India.
https://indianfisheries.icsf.net/images/Indian%20Fisheries%20Site/Resources%20others/Study%20of%20territorial%20use%20rights%20in%20small-scale%20fisheries.pdf

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Hand in Hand

Though Kerala and Tamil Nadu are top performers on the Human Development Index, their advances in sustainability and social development do not reach small-scale fishers

Social development of fishing communities can be made possible only through policies and services for poverty eradication, employment generation and social inclusion that address the specific needs of the community and ensure their well-being, through successful governance processes at different levels. Being socially and economically backward and lacking access to development opportunities makes the road to social empowerment difficult for fisherfolk.

Kerala and Tamil Nadu are two of India's highest performing states in human development. There are a number of schemes and policies in both the states for the social development of small-scale fisherfolk. And yet there is a long way to go. Both the states fail to pick up their fishing communities along the overall development journey. In many of the social-development indicators, fisherfolk are way lower compared to the general population, data shows. While the general population shows a relatively better state of development, it has not trickled down to the fisherfolk—economically, socially or politically. Though there exist promising policies and programmes, a big push is required in policies, schemes and welfare programmes for development to reach fisherfolk.

Analyzed data reveals that Tamil Nadu should focus more on improving the healthcare facilities accessible to fisherfolk...

More than half of the fisherfolk population in Kerala and Tamil Nadu live below the poverty line. This figure is substantially worse than the proportion of people below the poverty line among the general population. A string of poverty-alleviation policies and programmes do not seem to have created a sizeable improvement in their condition. Some economic, social and cultural attributes unique to fishing communities have prevented their members from reaching the degree of 'capabilities' other Kerala communities have reached. Frequent natural disasters also reverse the development process of the fisherfolk. In order to reduce poverty among fisherfolk, policies that focus on climate-change resilience have to be the first priority, be it in housing, employment or healthcare. Without this, the policies will remain unsustainable.

Culturally conditioned livelihoods lead to many disadvantages, including the least likelihood of mobility out of employment. This adds to the misery of fisherfolk. There are alternative employment opportunities for fisherfolk communities in both the states, including exclusive opportunities. Many of these are in the making, especially in Kerala. Policies and programmes in both the states seem to be less efficient in case of providing access to healthcare to the fisherfolk villages. Analyzed data reveals that Tamil Nadu should focus more on improving the healthcare facilities accessible to fisherfolk as the number of hospitals near fishing community villages is much lower than the average.

Uneducated proportion

Access to education creates inclusion in the development process. Analysis shows the existence of a much-higher-than-average proportion of uneducated people among fisherfolk.

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The proportion of fisherfolk with higher education is also very small, which limits occupational mobility. The proportion of females who had no formal education at all is very high compared to the general population. Kerala seems to have exclusive policies to improve the education status of fisherfolk but unless access is assured through institutional inclusion, there will not be a drastic improvement in the educational status of fisherfolk. Housing is a major issue. Lack of access to land in fisherfolk villages adds to this problem. Both Kerala and Tamil Nadu seem to have exclusive policies for improving the housing conditions of fisherfolk.

Collective action has been the major strength of fisherfolk. A number of establishments dedicated towards the welfare of fisherfolk exist in Kerala and Tamil Nadu. Both the states have co-operatives that work towards the betterment of the community. Non-governmental organizations (NGOs) have contributed vitally to the resilience of the fisherfolk in the face of the COVID-19 pandemic.

Globally, concerns over resource sustainability have led to fishing prohibitions and withholding of fisheries subsidies. This is a tricky issue for fisherfolk. The bans and restrictions keep them away from their daily fish catch. Though both states offer compensations, the amount is very small. Then there is the disruption brought to the fishers' livelihoods by natural disasters. The uncertainties they face need a careful examination. In comparison to other fishing methods, the techniques employed by small-scale fisheries have fewer negative impacts on the ecosystem. The development of small-scale fisheries not only contributes to global food security, but it is also desirable for environmental sustainability.

The state governments must ensure land security by assuring tenure for fisherfolk. Policies and programmes need to consider the unique characteristics of small-scale fishers. They lack alternative livelihood opportunities, especially during the fishing ban period. This calls for urgent government action. The fisherfok need increased financial assistance during the duration of the fishing ban. Compensation for injuries and for the needs of the disabled needs to be more generous and widespread, given that fishing is one of the riskiest jobs in the world.

A large number of workers in activities allied to fisheries are women. Their work and lives are not protected adequately by social-security systems when compared to active fishers, who are mostly men. The provision of pensions for fishing-allied workers is needed, especially for women. Access to social development is directly related to access to education and healthcare. More public hospitals need to be built near fisherfolk villages. Community study centres need to be organized in fishing villages to make sure there are no dropouts, and that nobody is left out of school.

Some economic, social and cultural attributes unique to fishing communities have prevented their members from reaching the degree of 'capabilities' other Kerala communities have reached.

Complementary policies

The digital divide needs to be addressed by improving access to the Internet and information technology, critical for access to education as well as for the development of resilience. Sustainability and social development should go hand in hand because one is complementary to the other. Policies related to one must take the other into account.

For more

Nets for Social Safety - An Analysis of the Growth and Changing Composition of Social Security Programmes in the Fisheries Sector of Kerala State, India by John Kurien and Antonyto Paul, 2000
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The Beauty of the Small
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The Sea arou**nd Us**
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Looking at the Long Term

A survey of fisherfolk in the Indian state of West Bengal shows that relief measures for natural disasters and the COVID-19 pandemic must take into account long-standing vulnerabilities

The two most important concepts to set the agenda for the Sustainable Development Goals 2030 (SDGs) are 'social development' and 'sustainable management'. The Food and Agriculture Organization of the United Nations (FAO) has been the key player in raising awareness and providing guidance on sustainable aquaculture development and management, as stated in the Code of Conduct for Responsible Fisheries, laid down in 1995. Almost two decades later, in 2015, FAO introduced the Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication (SSF Guildelines).

Ensure the social development of fishing communities through basic amenities like education, access to drinking water, food, shelter and healthcare.

Partly in recognition of the SSF Guidelines, the Indian government brought out the National Policy on Marine Fisheries (NPMF, 2017), the Draft National Inland Fisheries and Aquaculture Policy (NIFAP) and the National Fisheries Policy (2020). They aimed to create a conducive environment for an integrated and holistic development and management of fisheries for the socioeconomic development of fishers and fish farmers, keeping in view the concerns of sustainability, biosecurity and the environment.

Despite the importance of fisheries to livelihoods, food security and economic development, fisherfolk are often poor and marginalized. This is especially true in West Bengal, which prompted the International Collective in Support of Fishworkers (ICSF) Trust to conduct a study on social development and sustainable fisheries in the state.

The study intended to examine the socioeconomic conditions of the fisherfolk in West Bengal, with special reference to the COVID-19 pandemic and cyclone Amphan that hit the state on 20 May 2020. It was an opportunity to study various aspects of fisheries and the means to improve the social conditions of the fishing community, especially the small-scale and traditional fishers of the state. It was also a search for viable solutions to 13 specific day-to-day challenges facing the fishing community. This was to happen within a rights-based framework, looking into several fisheries concerns: improved access of full-time, part-time, occasional and subsistence, informal and formal, migrant and resident, women and men fishers and fishworkers; health, education, housing, sanitation, potable water and energy, as well as social development, social security and standard of living.

The state has rich natural endowments and fishing occurs in various kinds of water bodies, a feature that makes India the country with the second-highest fish production in the world. The small-scale and traditional fisher community are the primary custodians of these natural water bodies. They strive to maintain, protect and conserve the water bodies and fish resources. The challenges they face are well documented: declining access to resources; weak processing units; lack of proper market and infrastructural facilities; poor economic status; non-implementation of existing laws; exposure to natural disasters, especially in the district of South 24 Parganas; marginalization of women fishworkers; and gender inequalities.

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To stand up to these threats, fishers have been organizing themselves, and participating in movements at regional, national and international levels. Their usual hardships were multiplied in 2020 by the COVID-19 pandemic, which resulted in lockdowns. Then tragedy arrived with the gale winds of the tropical cyclone Amphan. Its devastation was wide-ranging, damaging fishing communities, in particular. The pandemic magnified the vulnerabilities of women in these communities—the single, the widowed, the old and the infirm. The study showed that government schemes, federal and provincial, offered social and occupational security through welfare measures that provided succour during the pandemic and in the aftermath of the cyclone. Significant relief efforts also came from fisherfolk organizations, voluntary associations, non-governmental organizations (NGOs), public trusts and individuals at all levels: regional, state, national and international.

The study allowed researchers to distill the most important demands and recommendations of the fishing community of West Bengal, which are summarized below:

- Ensure small and traditional fishing communities' control over resources like land, water, forests, fish resources, the commons and livelihoods, especially in preserving the fish and ecological resources of the Sunderban area.
- Provide preferential access to the small-scale fishers and implement—in letter and spirit—the West Bengal Marine Fisheries Regulation Act and FAO's SSF Guidelines.
- Cease illegal and unauthorized encroachment of fishing areas. The government should proactively confer community user rights over fishing grounds to the fishing communities.
- Recognize and establish the rights and entitlements of fishworkers by mobilizing the community with specific awareness programmes that enhance skills and capacities. These must be built on a mandatory interface of the fishing community and government representatives.

SHILPA NANDY

Kathi Nona Jol fishmarket, West Bengal, India. The government schemes, federal and provincial, offered social and occupational security through welfare measures that provided succour during the pandemic and in the aftermath of the cyclone

MILAN DAS,DMF

Impact of Amphan cyclone, south 24 Parganas, India. The devastation of cyclone Amphan was wide-ranging. Besides shattering the livelihoods of communities, the cyclone destroyed basic amenities like shelter, housing, food, healthcare and education

- Introduce effective efforts to form and sustain fishworkers' collectives at all levels: local government, block and district, and state government. Develop and strengthen fishworkers' co-operatives as a step towards democratization of society and the economy.
- Sensitize state and local government institutions to identify gender gaps and gender discrimination prevalent in the community. Policymakers must give prime importance in framing welfare laws that directly benefit and empower women in the fisher community, especially the most vulnerable among them—old, infirm, single, widowed—who are dependent on fishing activities.
- Create national and state commissions for people who depend mostly on natural resources like land, water and forests.
- Ensure the social development of fishing communities through basic amenities like education, access to drinking water, food, shelter and healthcare.

This study has provided an overview of the concerns and demands of small-scale fishers of West Bengal. The immediate priority, however, is access to basic amenities for fishing communities in the state, which has been rendered very difficult by the COVID-19 pandemic. Even as this is emerging as the vital concern of fisheries organizations across the world, efforts to provide basic relief from the COVID-19 pandemic's consequences must also incorporate a long-term perspective.

For more

A Heavy Price
https://www.icsf.net/images/samudra/pdf/english/issue_81/4397_art_Sam_81_art14_A_Heavy_Price_FANI_A_Senapati.pdf

Easy to watch and informative
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Fish Vendors Struggle for their Rights!
https://www.icsf.net/images/yemaya/pdf/english/issue_35/1698_art08.pdf

At Sea, Out of Sight

A first-of-its-kind survey in coastal Andhra Pradesh, India, revealed the peculiar vulnerabilities and demands of fishworkers who migrate regularly to Odisha, Karnataka and Gujarat

When the authorities enforced large-scale lockdowns to prevent the spread of the COVID-19 pandemic, the vulnerabilities of migrant workers were thrown into high relief. Other than the hardships and challenges that are common to migrant labourers across sectors, migrating fishworkers face certain specific adversities. The International Collective in Support of Fishworkers (ICSF) conducted a detailed survey of 14 migrant fishworkers to understand their conditions, their vulnerabilities and what is required to provide them the security and dignity outlined in international labour laws.

Previous surveys and studies have shown that fishworkers from this region have been migrating to as far as Gujarat—the other end of the Indian coastline—since the 1990s, especially to work on multi-day trawlers.

The respondents of the survey were from three locations in coastal Andhra Pradesh (AP): across Srikakulam district, across Visakhapatnam district, and from the hamlet of BCV Palem (Boddu Chinna Venkataya Palem) in Korangi, a fishing village in East Godavari district. Previous surveys and studies have shown that fishworkers from this region have been migrating to as far as Gujarat—the other end of the Indian coastline—since the 1990s, especially to work on multi-day trawlers. A 2016 study had estimated the number of migrants from AP to Veraval in Gujarat at 25,000 every season.

The 14 fishworkers were surveyed in the month of June after they had returned to their villages following the COVID-19 crisis and the resulting lockdown. The surveyors were two civil society activists from AP, well versed in the local language, Telugu, and who have significant experience of working with fishworkers. They enquired after not only the migrant fishworkers themselves but also their groups and communities. They were asked about the reasons for migration and their experiences during the COVID-19 crisis.

The fishworkers had been migrating to three locations to work as crew on mechanized boats: Veraval in Gujarat; Malpe in Karnataka; and Paradeep in Odisha. Almost all the respondents have worked in all three locations at some point or the other, adding to the representative nature of their feedback. All of them migrate for better income. Their migration is largely fuelled by relationships of kinship and family. The survey showed its pattern.

Srikakulam district: Five respondents

The respondents from Srikakulam were in two groups. One migrates to Malpe and the other to Veraval. Dhoni Lakshmana Rao, 40, is from D Matsyalesam village of Echherla Mandal. For 20 years now, he has been going to Malpe to work on mechanized fishing boats. Four others from this district had returned from Veraval, where they have been working as crew on mechanized boats for between nine and 16 years. They include: Cheekati China Danayya, 45, from Narasayyapeta; Komara Gurumurthy, 40, of Mohfus Bandar; and Ganagalla Korlayya, 30, who comes from China Ganagalla Peta. All three areas come under Srikakulam Rural. The final respondent from this district is Moogilkkayya, 35, who hails from D Matsyalesam of Eccherla Mandal.

*This article, by **Sopan Joshi,** is based on ICSF's fishermen migration survey conducted by **Arjilli Dasu** (arjillidas@rediffmail.com), executive secretary of the District Fishermens Youth Welfare Association, Andhra Pradesh, India; **B.L. Narasimha Raju** (blnraju1992@gmail.com) of Andhra Pradesh, India; and the report prepared by **Venkatesh Salagrama** (vsalagrama@gmail.com), independent consultant based in Kakinada, Andhra Pradesh. The preliminary report was prepared by **Ahana Lakshmi** (ahanalakshmi@gmail.com), an independent researcher based in Chennai, India*

MOOGI APPANNA

Srikakulam migrant fishers are working in Gujarat, India. The diet comprises a breakfast of freshly cooked rice with fish fry; lunch usually features rice and fish curry; dinner consists of chapati and fish curry. Vegetables are served with each meal on Saturdays

Visakhapatnam district: Four respondents

The migrant fishers from this region go to work as crew in Gujarat, Karnataka, Goa, Maharashtra, Odisha and Tamil Nadu. The respondents to the survey, in particular, had returned from Veraval. They included: Koviri Mahesh (Nookaraju), 46; Perla Apparao (Danayya), 48; Perla Dasu (Danayya), 35; and Garikina Mandulodu (Peddayya), 32. They are all from Gangavaram village in Pedagantyada Mandal of the district.

BCV Palem (East Godavari district): Five respondents

Karri Annavaram (Suryanarayana), 35, has been going to Malpe for the last 15 years as crew on a mechanized boat. Previously, he had migrated to Paradeep and Veraval. While he was still living and working in BCV Palem, his father and he fished together on a wooden shoe-*dhoni*. The catches were meagre and hardly sufficient to meet the family needs. After he got married, his father-in-law Annavaram helped him go to Paradeep, later to Chennai and finally to Malpe. Once he found his feet in the new place, he arranged for around 15 people to find work in Malpe's fisheries, including his father, 10 younger family members, and four young men from the village. His condition improved since he started migrating. Besides, his father being on the same boat gives both of them security and support. Had COVID-19 not forced them back, they had two more months of good fishing left before the monsoon break. Nowadays, he is part of the crew on a Kakinada-based trawler.

Kopanati Peda Acchiraju (also called Bhairava Swamy), 46, and Karri China Suryanarayana (Peda Narayana), 56, have been going to

MOOGI APPANNA

Srikakulam migrant fisherman. In a 29-day trip, they get to take a bath hardly four to eight times. When they bathe, it is mostly with seawater that is washed off with about four small containers of freshwater towards the end.

Paradeep for the last 10-12 years. Both have previous experience of working on similar boats in Gujarat, Mangalore, Malpe and Chennai. Prior to venturing into mechanized fishing, they were fishing with various kinds of estuarine gears in the creeks and backwaters near BCV Palem. After running up debts, there was no option but to migrate on a long-term basis to Paradeep. Once Acchiraju found his feet, his uncle and his brother-in-law followed him into the seasonal migration. It was the other way round for Suryanarayana; his son and the son's father-in-law had been working in Paradeep and he followed them there.

Pinapothu Mahalakshmi (aka Pentayya Kamaraju), 50, also fished 15 years ago in the creeks near the village on his wooden boat, using estuarine nets—both fixed and drag nets. He found additional income in agricultural labour and net making/repair. Over time, as the family grew, it became difficult to meet the household needs. Moreover, small fishing activities in the village declined, with the wooden boats getting replaced by fibre-reinforced plastic (FRP) boats and the fishing grounds shifting to the sea and the Kakinada Bay; his estuarine gears were of little use there. Faced with problems on several fronts, migration to Paradeep to work on mechanized trawlers offered a way out. The demand for fishing labour meant that the income was good, regular and sufficient for the family's needs. Mahalakshmi spends most of the year on a trawler in Paradeep, visiting home for festivals. Living on the boat for extended periods of time has its disadvantages but Mahalakshmi has made a virtue of a vice. He said it keeps his expenses down and helps him to save enough to pay off his old debts.

Like him, Sangani Gangadhara Rao (aka Chinna Apparao), 57, has also been working as a crew member on a mechanized boat in Paradeep for the past 10 years. Previously, he worked on a similar boat from Kakinada. That did not work out because his expenses were higher than the returns, partly because he found excuses to avoid going to fish. As he watched his daughters grow up, he felt the drive to work harder and earn better. Migration to Paradeep paved the way for that.

Nature of work, life at sea

The migrants who go to Veraval described their work cycle. The fishing operations last eight months (mostly eight trips) in a year. They leave their villages for Veraval by the last week of July. Work begins in the first week of August. Each fishing trip lasts about 25 days; the return to the harbour takes an additional four days. In Malpe, the migrants are engaged only on the larger boats; the smaller boats are crewed by the local fishers. In Veraval and Paradeep, the boats are more uniform in size and the smaller boats of Veraval employ mostly local crew. In Malpe boats employ 10-15 crew members; in Veraval the count is nine; and in Paradip it is eight to nine. They spend one day in the harbour, unloading the catch and loading supplies for the next trip, starting back for fishing that same night. Fishing is carried out some 270 nautical miles from shore. The sale of fish and shrimp from each trip generates about INR 10-15 lakh (USD 14285-USD 21428) in revenue. The operations close in March and by early April they are back home.

Onboard, the fishers hardly get any sleep because sleeping arrangements are poor, leaving the fishers exposed to the elements; rainy months are much worse. In Malpe, it rains June to August; in Paradeep the season is July to August; and in Veraval, it rains from August to November. In a 29-day trip, they get to take a bath hardly four to eight times. When they bathe, it is mostly with seawater that is washed off with about four small containers of freshwater towards the end. The harbour and its surroundings are unhygienic and the facilities are very poor. The occasional stay on land while the boat is getting repaired—or for some other contingency—is not a welcome distraction.

Despite all the hardships, the fishers still choose to migrate because of the assurance of regular monthly salaries. While fishing in their own neighbourhood can fetch between INR 5,000 (USD 71) and INR 10,000 (USD 142) a month, the expenses are much higher when a fisher works on his own and lives with the family—there are opportunities for extravagance. Being stuck onboard for 29 days at a stretch off the Gujarat shore precludes any opportunities for expenditure, automatically enforcing a discipline of austerity. There is no opportunity to spend the income; the boat owners meet the daily needs. The diet comprises a breakfast of freshly cooked rice with fish fry; lunch usually features rice and fish curry; dinner consists of chapati and fish curry. Vegetables are served with each meal on Saturdays.

Terms of work and payment

When the fishermen spoke about the location of their migration, their responses often overlapped, regardless of whether they were talking about Veraval, Malpe or Paradeep. But when they talked about their own villages, very little was common. It is usual for each group of fishermen to work out their arrangements with the boat owners. This does not happen directly, however, but through the mediation of the *tindels* or skippers. It means the migrant routes tend to be stable and unchanging year after year.

The demand for fishing labour meant that the income was good, regular and sufficient for the family's needs.

There are no written contracts of employment. The mode of payment varies from place to place. In Veraval, the fishing crew are paid on a monthly basis; 40 per cent of the annual salary is paid out in advance and the rest in equal instalments, depending on the mutual agreement. The Srikakulam fishermen said the monthly salary varied from INR 10,000 (USD 142) to INR 12,000 (USD 171); the fishermen from Visakhapatnam said the salary ranged between INR 8,000 (USD 114) and INR 10,000 (USD 142). They do not have any share from the catch returns. The boat owners have very little role in the recruitment, the payment of salaries, or addressing the crews' concerns. All such responsibilities rest with the skippers, who are also migrants hailing from Andhra Pradesh. They have separate agreements with the owners

MOOGI APPANNA

Srikakulam migrant fishers. While drinking water was supplied, a single well within the harbour premises was the only source of water for all non-drinking purposes

to cover all their expenses and earn monthly salaries of INR 25,000 to INR 30,000 (USD 357-USD 428); even INR 35,000 (USD 500), in some cases.

A different mode of payment is used in Malpe and Paradeep where the duration of the fishing trip is seven to 10 days: A share of the catch. The average value of catch fluctuates wildly based on the quantity, variety, quality and season of the fishing. Broadly, the value of catch in each trip is INR 8-12 lakh (USD 11428-USD 17142) in Malpe and INR 3-6 lakh (USD 4285-USD 8570) in Paradip. In Veraval it is at least INR 8 lakh (USD 11428), going up to INR 15-20 lakh (USD 28570-USD 21428) The two groups migrating to Malpe reported slightly different arrangements. The crew's share in the income is 21 per cent, divided among the eight members. Dhoni Lakshmana Rao of Srikakulam said one share goes to each crew member, while two shares are taken by the captain. The BCV Palem fishers said that after deducting all operational expenses from the gross income, 22 per cent of the income is shared equally among the crew members.

Fishers from BCV Palem going to Paradeep said 17-18 per cent of the income from the catch is shared among the crew members, after deducting operational costs from the gross income. Here, too, the crew has no direct contact with the boat owners; from recruitment to all subsequent dealings, the skipper handles it all. He is also a migrant, usually from the same area as the crew—that's how recruitment happens—but has longer experience and a working relationship with the boat owners.

Migrant fishworker sector: A profile

The respondents were asked to enumerate the migrant fishworkers from their state; their gender; their age groups; and the availability and quality of on-shore accommodation. The responses indicated it is mostly men who migrate. No accommodation was provided in Malpe and Veraval and none of the migrants had a place to stay on shore; they spend 29 days in a month at sea. They said it was impractical and unsafe to take their families with them.

A few Telugu women do migrate and are involved in shore-based activities like supply of ice and water; but they were from areas other than where the respondents had come from. In Malpe, it was estimated that 700 fishers were from AP, of whom 280 were from Srikakulam and 40 from BCV Palem. Fishers from Ichhapuram, Nellore and Kakinada also migrated to Malpe. They ranged in age from 16 years to 55 years.

Respondents who migrate to Veraval said that there were between 12,000 and 15,000 fishers who migrate to other states exclusively for fishing.

Most migrant fishers from BCV Palem go to Paradeep (except for a group that goes to Malpe) and the numbers, according to the respondents, ranged from 160 to 1,000. The men lived on the boat for 25 days at a stretch. They fell in the 25-60 age group, with a majority of them between 40 years and 55 years of age. A few fishers here had taken their families along with them because they speak Odiya; this helped them make a living on their own while the men were away fishing.

COVID-19 crisis: Immediate relief and shelter

The fishers were asked about incidences of COVID-19 among the fishermen. All of them said they had not heard of any fishers testing positive for COVID-19, though they were worried about getting infected. In Malpe the fishermen were in a 45-day quarantine in the Malpe harbour. They were given two masks and medical check-ups were carried out on them twice each day. In Veraval, doctors tested fishers but all the tests came out negative. Both in Paradeep and in BCV Palem, the migrants received good medical attention. They were quarantined for eight days after their return to AP and allowed to go only after all precautionary conditions had been met. One group from BCV Palem said that they visited the local Community Health Centre upon return to BCV Palem from Paradeep, and were sent to Kakinada for quarantine. Once the period was over, they were tested thoroughly for any symptoms and allowed to go home. Doctors and other medical professionals looked after the fishers well.

Boat owners called in their boats, asking them to stop fishing after 18 March, 2020. The fishers in all three locations returned to their harbour base between 19 and 22 March. They had to stay within the harbour area till they left for home. The Malpe fishers left for their hometowns on 17 May, while the Veraval fishers left on 30 April.

The migrant fishers were asked whether, during the lockdown, they were entitled to food rations, good hygienic accommodation, medical facilities, counselling and communication with their families. Were they provided timely and accurate information on COVID-19 in a language they understood?

Despite all the hardships, the fishers still choose to migrate because of the assurance of regular monthly salaries.

Fishermen who worked out of Malpe said that, initially, food was reasonable but the quality declined with time. Unable to move out of the harbour area, the option was to go hungry. BCV Palem respondents said that the rice they received initially was undercooked; when they complained, they got overcooked rice. In general, the accommodation in the harbour was unhygienic. While drinking water was supplied, a single well within the harbour premises was the only source of water for all non-drinking purposes.

Good health services were provided to all but no counselling. COVID-19 information was available in Kannada in Malpe, but not in Telugu. While cell phones helped in communication with their families, it only made them feel more lonely and homesick. The

BCV Palem respondents also said that supervisors did not respond adequately or appropriately.

Fishers in Veraval said that they were fed during lockdown and quarantine but the accommodation in the harbour was poor. Health services were good but there was no counselling. While information on COVID-19 was available, it needed to be translated by some of them who knew Gujarati. Communication with families was through cell phones.

In Paradeep, responses varied. Kopanati Peda Acchiraju and Karri China Suryanarayana said that while they remained stuck at Paradeep harbour, each fisherman received five kg of rice, lentils and other groceries to cook their food; both the owners and Odisha government helped with this. The owners paid INR 1,000 (USD 14) as advance and that was the sum total of the help they offered. They spent 45 days in the jetty, during which time there were twice-a-day health checkups. The health workers also provided them with face masks. The owner sent drinking water, but there was no water provision for bathing and other purposes other than one well. Pinapothu Mahalakshmi said that in Odisha, several officers from the police, fisheries and other departments visited the jetty regularly and explained what the novel Coronavirus was about. It became difficult to stay in the harbour indefinitely, with no idea of the future.

Getting back home, compensation

The boat owner in Paradeep booked train tickets for the fishworkers to get back home, but when the trains were cancelled again, he handed each of them INR 1,000 (USD 14) to make their own way back; after the first few days, though, he stopped taking calls from the fishers. (The migrant workers are not sure if that is a handout or an advance.) They walked about 85 km to Cuttack where they had heard that a Telugu-owned transport company was helping migrants back home. During quarantine at Icchapuram on the border, they received good food and tea. There were hygienic kitchens and good medical facilities; the fishers were able to charge their phones, talk to their families and keep up-to-date with everything. However, the INR 2,000 (USD 28) promised by the AP government was not forthcoming. One group received essential food items from volunteers on their return to the village; the state government provided ration four times and gave a one-time cash allowance of INR 1,000 (USD 14). No compensation was provided for the loss of fishing days and opportunities.

Those returning from Malpe also denied getting this cash. They said boat owners who had been supportive earlier were not so forthcoming this time around. Fishers returning from Veraval to Srikakulam said that about 30 per cent of them received INR 2,000 (USD 28) compensation. According to fishers returning to Visakhapatnam from Veraval, until now, no government officer has shown interest to know about their situation or to offer any assistance. When the fishers approach them, they reply that they have no information or orders to support the fishers.

The migrant fishworkers were asked if they were repatriated to their villages under government arrangements; if not, who had borne the costs. The responses were varied. Migrant fishermen from Srikakulam in Malpe said that each of them had raised INR 4,400 (USD 62) from boat owners to pay for the bus journey back home. It took them two days to go from Malpe to Srikakulam, where they were quarantined for two weeks, followed by another six days of quarantine in the villages before meeting their families. They said that their travel expenses were INR 2,000 (USD 28). They had not received the relief promised to help them tide over the quarantine period. BCV Palem migrants in Malpe said that they raised INR 4,000 (USD 57) each to find their way back to their villages.

From Veraval to Srikakulam or Visakhapatnam cost the fishers INR 3,000 (USD 42) each that they raised from boat owners. The group from Visakhapatnam said that the state governments of AP and Gujarat had discussed their repatriation several times. The fishers had tried their best to pressure them into prompt action. There was a proposal to send the workers back by sea route on a ship, but this was abandoned in favour of bus transport.

Relief and assistance

The migrants were asked if they had been receiving help from other quarters. The Srikakulam group from Malpe said that they had not received any support from anyone. The group from Veraval said the same. While they were in Veraval, the AP government had arranged to distribute to each of the migrant fishers 10 kg of rice, blankets, groceries for cooking, soaps, mosquito nets and masks. The Veraval group from Visakhapatnam said aside from a dry ration kit provided by the NGO District Fishermens Youth Welfare Association (DFYWA)—itself quite inadequate—they had not received any support from any other source, government, NGOs or otherwise.

The BCV Palem group from Malpe said that the Boat Union association provided food from day four onwards because their food stocks did not last beyond the third day. Back in BCV Palem, the state government supplied rations in four cycles along with INR 1,000 (USD 14) per family as immediate assistance.

Some local philanthropists (Boddu Satyanarayana and Voleti Jaggarao) as well as the local shrimp processing units like Apex provided the fishers with rice and other essential supplies. The Member of the Legislative Assembly of Yanam, Malladi Krishna Rao, supplied vegetables to every household in the village. More recently, ICSF helped a small number of fishers with a package of essential items.

What do the migrant fishworkers demand?

Their list of suggestions and demands is long, be it related to recruitment, working and living conditions, or social protection. The responses were quite similar on this count, pointing to a clear path of common action.

Those who go to Malpe and Veraval demanded written contractual agreements directly with the boat owners, signed in the presence of officials of the two state governments and the local boat owners' associations in Malpe; these bodies should vouch for the agreement. They demanded identity cards and the reduction in the duration of fishing voyage from 29 days to 15 days, letting the crew rest for at least five days in a month; this led to the demand that the harbour premises need cleanliness and maintenance. The captains, they urged, should be instructed to avoid fishing near the Pakistan border. They need insurance cover because those who die or suffer accidents at sea are not protected at all just now, covered neither by the boat owners nor the state governments, even though the boats are insured. They demanded bio-toilets on the boat for safety and convenience; fishers sometimes fall overboard while relieving themselves, in the absence of toilets.

They need the same support and services that the AP government extends to other fishers in the state. The fishers said that if mini-jetties were built in AP and they were provided boats and nets at 90 per cent subsidy, they will not need to migrate for work.

They said that the monthly salary must be enhanced from INR 15,000 (USD 214) to INR 20,000 (USD 285).

The average value of catch fluctuates wildly based on the quantity, variety, quality and season of the fishing.

Some portion of the income from fishing revenue is set apart from the sharing process (Veraval does not have a sharing system); the respondents said this amount should also be shared with the crew. They said sharing patterns differ between the boats that have skippers from Tamil Nadu and those from Karnataka. While the owners pay impartially, how the skippers pay the crew depends on their whims. This needs to stop, they said; recruitment is best handled by the owners directly, making them responsible for the needs and well-being of the crew.

All information, warnings and other notices should be provided in Telugu, they said; the boat owners should pay for the travel expenses incurred on account of the lockdown, compensating the fishers for the loss of two good months of fishing.

Location, location, location

Paradeep migrants said their conditions were better than those who stayed and worked in their villages. They received regular salaries and are looked after well. Only an emergency like the COVID-19 pandemic left them in need of support that was difficult to find. They called for a systematic approach to support migrant fishers in emergencies. One part of it will have to be improved facilities to rest in the harbour after the fishing trips. During the COVID-19 lockdown they had to spend several days in the harbour, putting up with poor amenities.

Several of their demands were the same as those of the migrants of Malpe and Veraval: accountability from the boat owners; toilets on the boats; insurance; emergency cover; and identity cards, among other things. A major difference was how the Paradeep migrants wanted to deal with the boat owner; they were happy with the captain as the via media. They thought direct contact with the owner put the worker at a disadvantage on account of difference in language. They also thought the owners were on their home turf in Paradeep, while the workers were not, reducing their ability to drive a bargain.

Respondents who migrate to Veraval said that there were between 12,000 and 15,000 fishers who migrate to other states exclusively for fishing.

The reaction to the question of insurance was different, too. Some fishers of BCV Palem said in case of a fatal accident, the deceased fisher's family receives a compensation of INR 50,000 (USD 714), contributed from a common fund set up by the skippers in Paradeep. In earlier times, the Paradeep fishers said, the owners arranged for medical treatment of a migrant who had fallen ill. If the treatment was prolonged, they arranged for the worker to return home.

Pinapothu Mahalakshmi said that each fisherman has an insurance policy, but no savings schemes nor other government support programmes. Every fisherman has his own cell phone. The state government relays weather warnings and organizes a meeting with all people in the harbour every 10 days to give advice on safety practices.

Skilled but unrecognized

When asked if they considered themselves skilled, all the respondents responded in the affirmative, citing their considerable experience of fishing. They knew swimming and signalling and were adept at using different kinds of fishing gear – trawl, long-line and hand lines, for example.

Malpe migrants said that they knew their fishing grounds lie between 13°N and 17°N; that if they travelled closer to 18°N, they would reach Mumbai. They know how to operate a global positioning system (GPS) and put it to regular use on their boats.

In addition, Paradeep's migrant fishers said that since there was no difference in fishing between Kakinada and Paradeep, they found it easy to adapt to the fishing systems there. Gangadhara Rao is partially blind on account of having only one eye but is a skilled fisherman. He is of advanced age and hence in charge of cooking and is a good cook—an example of the diverse skills that go into migrant fisher's work.

For more

ICSF's Survey of Migrant Fishers and Fishworkers during COVID-19, India
https://www.icsf.net/images/what%20is%20new%20page/India%20Migrant%20fishworkers%20survey.pdf

India: Left in the lurch
https://www.icsf.net/yemaya/article/EN/60-2343.html?lang=en

Inter-state migration of fishers from Srikakulam district, Andhra Pradesh
https://www.academia.edu/10610681/Inter_state_migration_of_fishers_from_Srikakulam_district_Andhra_Pradesh

A Study of Migrant Fishers from Andhra Pradesh in the Gujarat Marine Fishing Industry
https://www.icsf.net/images/occasionalpapers/pdf/english/issue_160/160_Migrant_Fisher_Study_Manas_Roshan.pdf

A Twisted Trajectory

The fish-processing industry's path of using fishmeal to grow shrimp amounts to exporting the precious nutrition that India's children badly need

In the early morning of 25 September 2019, on the shores of Cuddalore in Tamil Nadu, India, the humble sardine commenced its journey. The journey of its afterlife, that is.

A group of women waited together, empty baskets in hand, chatting while waiting for the boats to arrive. Their expectations do not remain unanswered. Boats bulging with little shiny sardines return from calm seas. Boats carrying sardines, along with their histories of struggle. Big trawlers, small trawlers, ring seines, fibreglass boats: everyone has been scooping up schools of sardine today.

The women are eagerly waiting for a good auction, hoping to take some sardines to their loyal customers and earn a livelihood. Their customers are waiting to make a sumptuous fish curry of the sardines, keeping a little aside to be fried. Tasty curries, destined to nourish families with the nutritious wealth of the humble sardine. But today is not a day for sardine curry.

The plants are growing increasingly hungry. Their ever-growing bellies need to be sated. They push trawlers into the seas; sponsor madness through credit...

Big boxes of sardines are swiftly unloaded from boats to the shore on the heads of careworn labourers, who blithely pass the baskets along and straight into waiting trucks. The number plates reveal the trucks' origin and destiny. Securely filled metal bellies thronged with tonnes of tiny humble sardines, ready to traverse the highways to Karnataka. We wonder whose stomach would require so much sardine! Will they satisfy any hungry stomachs at all? Will they get transformed into sumptuous curry? As onlookers, our glances are brimming with questions.

Small sardines, juvenile sardines, flapping sardines, damaged sardines, bulk-landed sardines. Three out of four sardines landed in Cuddalore make their way on to the trucks. Trucks that provide a safe haven for unruly schools of fish arriving in unpredictable quantities.

We turn our eyes back to the waiting women, with mixed feelings. Some of them display a bit of relief for being able to procure some sardines. Other faces are about to erupt in frustration as their expectations are crumbling in front of them. They never wanted too much, yet their baskets are almost empty. They didn't get a chance at the auction! Who said competition is fair? They waited in vain. No need to ask why the sardines ended up in the trucks beyond their reach, though. They know why.

Bulging trucks

Hundreds of miles to the west, packed in line, the trucks move through the gates of a plant in Udupi, a coastal town in Karnataka. Trucks from harbours near and far away, piled with fish, their bulging intestines squeezed out of overflowing baskets.

We land upon one such fishmeal plant, established in 1989, one of the earliest in India. It arrived on the coast as a saviour in 1989, to accommodate the overproducing modernized fleets, to convert bumper catches into fish oil and fishmeal. Bumper catches that couldn't be stored, iced or eaten. The fishmeal plants arrived as a welcome rescue, and converted supposedly worthless bycatch into 'real' value. Yet, as time passed, dozens of fishmeal plants were built along the Karnataka

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JOERI SCHOLTENS

Inside a fishmeal plant in Mangalore, Karnataka. What looked like a humble enterprise in the beginning began to stare gluttonously at the sea, desiring any fish that could be caught. The humble sardine is the prized prey for its oil and high protein.

coastline, their hungry cravings to be satisfied by the ocean's wealth. They began to pollute the water, the coastline and the air.

The trucks release their sardine-filled bellies onto piles of unidentifiable oceanic biomass. Fish treated without care; fish treated worse than waste. Waiting to be released to machines that devour sardines, smashed, trashed, squeezed and meshed. The humble sardine is transferred to oil and powder. Meal, yet not a human meal.

The plants are growing increasingly hungry. Their ever-growing bellies need to be sated. They push trawlers into the seas; sponsor madness through credit; contract trawlers to ensure future supplies; and navigate the market in innumerable ways. Ever-growing boats, with ever-growing nets and engines, spread their reach like octopi. They search for whatever is there in the sea. The plants aren't so picky. Their centrifugal machines gratefully grind any fish into oil and meal.

What looked like a humble enterprise in the beginning began to stare gluttonously at the sea, desiring any fish that could be caught. The humble sardine is the prized prey for its oil and high protein. From Cuddalore to Kanyakumari, from Malvan to Mangalore, the sardine keeps finding its way to the fish-devouring machines.

This is where the humble sardine begins its journey. We continue to follow the sardine. Some sardines find their way to overseas fish farms. Yet we follow the larger share and, bypassing the shrimp feed plants, we reach the mouth of the Godavari in Andhra Pradesh. The coast here is buzzing with enterprising enthusiasm that has already transferred rice fields into 100,000 ha of high-yield shrimp ponds. The whiteleg shrimp (*Litopenaeus vannamei*) descended from nowhere to become Andhra's new white-pink gold. And its growth knows no limits.

Vannamei is hungry too: hundreds of thousands of tonnes of shrimp do not grow on air or murky waters. They need the powdered little fish. We sit down and calculate. Growing 680,000 tonnes of shrimp requires almost 1 MT of shrimp feed, including 220,000 tonnes of fishmeal. Producing such amounts of fishmeal requires over 1 MT of marine fish. Sufficient to lay a dense

fish tapestry over New Delhi. A third of India's annual marine fish catches are required to feed the hungry shrimp.

By now transformed into frozen shrimp, the sardine is destined to leave the country. Masses of shrimp are exported to feed foreign elites. Americans, Europeans and Japanese all love Indian shrimp. This route doesn't nourish the needy or hungry children. Empty stomachs cannot afford shrimp. But these exported shrimp certainly make a lot of dollars. *Vannamei* is championing the art of transforming our humble sardine from Cuddalore into dollars. It powerfully adds dollar value in the chain, destroying other values along the way.

Why, we wonder, do we allow over 1 mn kilos of little fish to fill the shrimp's stomach? Foreign exchange and employment are worthwhile, for sure. Yet, had the sardines been sold in Cuddalore or Mayurbhanj, Nalgonda or Srikakulam, they would have been sufficient to nourish 35 mn children. Sufficient to nourish a nutrient-deficient nation. A nation headlining the global ranks of malnutrition; headlining the global ranks of child stunting; leading the global ranks of child wasting.

It's a choice between feeding the shrimp for export dollars or nourishing the nation.

Leading the global ranks of shrimp exports, then, isn't so innocent anymore.

A few hundred kms north of the Godavari delta, a ray of hope emerges when we reach Cuttack in Odisha. It is 17 October 2019. Here, the possibility of an alternative journey fires our imagination. Along with WorldFish, the Odisha government is seeking to put small fish to a better use.

The idea is straightforward: supply fish-based nutrients to those who most need the nutrition. Nourishing children, pregnant and lactating mothers, provided they welcome fish in their diet. The work builds on the existing infrastructure of the mid-day meal and the Integrated Child Development Services (ICDS) scheme. It draws the connection between prolific malnutrition and the nutritious wealth of small fish. The movement from fishmeal to mid-day meal is a salutary re-orientation in purpose that sits much better with the soul.

This repurposing of little fish to local schools is not as simple as it sounds. On a different day, about 80 km from Cuttack, we visit a shelter home called Nilachal Seva Pratishtan (NSP) in a place called Kanas. It hosts hundreds of orphans, visually and physically challenged children, homeless elders and helpless widows. If so much vulnerability and suffering doesn't melt you, nothing else will.

It is the day of the week when small fish is served in the mid-day meal, an experiment initiated just a few months ago. We are curious: how do they cook the fish, how is the response from the cooks, children and others when they eat the fish; what are the challenges? *Mola* fish (or *Mahurali* in Odia) is fried in an open kitchen and added to the curry prepared with a strong mustard flavour. The ecosystem of NSP is like a family despite the people being far from blood relations; the children, elders and the physically challenged are cared for by able women and men. There is a glow on their faces when the crunchy fried fish touches their lips. The rice filling the hungry stomach, the fish appealing to the taste buds. The sardines missing in the plates in Cuddalore are replaced with the joy of Mahurali in the plates at last. Of course, *mola* isn't sardine. Yet it could well be to Odisha what the sardine is to Telangana or other regions. (Here, sardine covers a broader range of small pelagics, including oil sardine, lesser sardine, Indian scad and small-sized mackerel.)

More challenges

Yet the challenges come when the numbers grow. How to scale up this approach? There are 6 mn school going children in Odisha. There is an equal number of children in the pre-school group. Great numbers of lactating and pregnant mothers would

Fishmeal production and exports

At the time of writing, in between 45 and 60 fishmeal plants were functioning across India, about half of them in the state of Karnataka. The maximum capacity of these factories is 100-800 tonnes raw fish processed per day. Since the 1970s, the capacity of these plants and exports increased approximately by a factor 100. India's total cultured shrimp production was estimated at 680,000 tonnes for 2018, according to FAO data.

The feed conversion ratio (FCR) of whiteleg shrimp is 1.2-1.6 kg feed input per kg shrimp output. Only 6 per cent of these feed requirements are imported, and 17-27 per cent of this feed consists of fishmeal. To produce 1 kg of fishmeal requires 4-5 kg of fresh fish. We have used the averages of these ranges, verifying the data with local industry. India is also a net exporter of fishmeal (about 25 per cent of the total production is exported, whereas imports are minimal), making total fishmeal production larger than required for shrimp production alone.

Using these figures, fishmeal production is estimated at 280,000 tonnes per year in 2018, requiring approximately 1.25 MT of raw fish. And this is accounting for only industrial fishmeal production from 'wet fish'. It excludes the fish that is sun-dried on the beaches and subsequently sold to poultry feed manufacturers, which can also be referred to as fishmeal.

Shrimp exports

The total export value of shrimp was US$ 4.8 bn in 2017. India is the number one shrimp exporter in the world, both in terms of volume and value. It ranks fourth in terms of total seafood exports. A central minister announced in February 2020 that India was keen to become the top global seafood exporter. Up to 60 per cent of India's shrimp exports are destined for the US, Europe and Japan. *Litopenaeus vannamei* of Indian origin sold for € 26.90 (US$ 31.5) per kg in a mainstream Dutch supermarket in June 2020, which positions shrimp in the upper price range of fish and meat products in these supermarkets.

Food and nutrition security

In absolute terms, India has the highest number of stunted, wasted children in the world, both key indicators of malnutrition. In relative terms, corrected for population size, India ranked 102 out of 117 countries measured, according to the Global Nutrition Report 2018. Iron and zinc inadequacy is high in India. The total content of iron and zinc in fish entering the fishmeal plants equals the recommended intake of these nutrients for 35 mn children. From a food and nutrition security perspective, the significance of eating 'small' fish, as compared to larger fish like carp or tilapia, stems mostly from the fact that small fish tends to be eaten whole, including bones and heads, which is where significant parts of the nutrients are located. World Fish recommends 75 gm of fish powder or dry fish per child per week.

also be in need of nourishment. Even a crude calculation of 10 mn individuals needing 100 gm equivalent of fresh fish for 50 weeks would mean 50,000 tonnes of fish for Odisha alone. And to nourish the entire non-vegetarian population of the country, we need far more than this.

Yet it requires less than a miracle; it doesn't require a production boom; it doesn't require a high-tech innovation. The sardine and other varieties of small fish are quite plentiful. Only their course needs to change, a reimagination of the sardine's journey and some bold, co-ordinated action. It needs to return the sardine to those baskets of waiting women. To find frugal technologies for drying, packing and distribution. This will allow the sardine to find their place on the plates of school children across the nation.

Looming disaster

Our journey traced the fate of the humble sardine. The anguish of the Cuddalore fisherwomen and their near-empty baskets! The gloom of the factory in Udupi where the sardines were crushed into meal for shrimp and salmon! The looming disaster in Andhra with its shrimp culture that exports the sardine hidden in its flesh while degrading the surrounding soil and waters. There was hope still. At NSP, the plates carrying fish and the

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Fish vendors waiting for the sardine catch to be unloaded at Cuddalore, Tamil Nadu. Big boxes of sardines are swiftly unloaded from boats to the shore on the heads of careworn labourers, who blithely pass the baskets along and straight into waiting trucks.

happy faces of children savouring the food despite the adversity that brought them to this place provided a glimmer. We left the place with some wishful thoughts. How can the sardine go to these plates and nourish the children, instead of disappearing in the export markets? Isn't this just plain sense?

This isn't to say that a good diet is merely a matter of compiling a cocktail of adequate nutrients. Human diets reflect historical and cultural preferences. People should be able to choose a diet fitting their taste and preferences. Yet diets and preferences are also subject to change. Who will argue against adding some fish to carefully devised school meals?

In a page from history, way back in 1978, when the fishmeal plants were only infants, John Kurien noted prophetically: When the option is between fishmeal for earning foreign exchange and protein for the masses, the choice is obvious. He was referring to the obvious choice in front of the powers that be. Four decades later we realize the choice isn't obvious, the path is tangled. It's a choice between feeding the shrimp for export dollars or nourishing the nation. The twisted trajectory must be unknotted and straightened. We need to abandon this madness and rebuild the sardine's road. A road that leads to the plates of the needy children, to nourish them now and forever.

For more

http://changingmarkets.org/wp-content/uploads/2019/10/CM-WEB-FINAL-FISHING-FOR-CATASTROPHE-2019.pdf
Fish meal and fish oil industries pose threat to the fishing sector in India

https://www.researchgate.net/publication/267381587_Production_and_marketing_of_fish_meal_in_India_-a_study
Production and marketing of fish meal in India: A study

http://eprints.cmfri.org.in/9607/1/3.pdf
Economic analysis of fishmeal plants in Uttara Kannada district, Karnataka

The Future is Inland

If managed sensibly, inland water bodies can go a long way to provide India with a sustainable future and food security for its population

Fish production in India registered a remarkable 16-fold increase during the last six decades to reach 12.59 mn tonnes (MT) in 2017-18, propelling the country to the position of the second-largest fish-producing nation in the world. During this period, the share of inland fish production has increased from 30 per cent to 70 per cent, and the present inland fish production has reached 8.9 MT. More than 14 mn fishers and fish farmers depend on fishing and fish farming for their livelihoods; many times more than that number eke out their living through support and ancillary activities like fish processing, trade and making of fishing craft and gear. The Gross Value Added (GVA) from fisheries is estimated at ₹ 1,330 tn (US$ 17.80 bn), which contributed to nearly 1 per cent of the national GVA, at current prices in 2016-17, and about 5.37 per cent of agriculture GVA.

Recognizing the role of fisheries and aquaculture as a major driver for the security of food, nutrition and livelihood, the government of India has recently made substantial investment in the sector, both in terms of financial allocation and institutional support. A dedicated department for fisheries has been created under the newly formed Ministry of Fisheries, Animal Husbandry and Dairying, which is entrusted with the task of doubling farmers' income and achieving a target fish production of 15 MT by 2022 under the Blue Revolution scheme. The recently launched schemes like Fisheries and Aquaculture Infrastructure Development Fund (₹ 75.22 bn or US$ 1 bn) and Pradhan Mantri Matsya Sampada Yojana (₹ 200.5 bn or US$ 2.7 bn over the period 2020-25) are the highest-ever fisheries development projects launched in the country, aiming at raising the income and quality of life of fishers and fish farmers in the country.

Inland fisheries are crucial for several socially, economically and nutritionally vulnerable groups of people around the world. But the challenges in monitoring inland fisheries preclude a complete understanding of the magnitude of their contributions. The low profile of inland water ecosystems (including their fisheries) in the UN Sustainable Development Goals (SDGs) exemplifies their marginalized status in major policy arenas. India is no exception to this. However, this situation is rapidly improving with the increasing recognition of inland fisheries in development discourses; this has also encouraged research to enhance knowledge on the importance of inland fisheries.

Inland fisheries are crucial for several socially, economically and nutritionally vulnerable groups of people around the world.

Small-scale operations

Unlike marine and aquaculture segments, where both small and large scales are relevant, fisheries in inland open waters of India are based exclusively on small-scale fishing operations. In all such water bodies, including large reservoirs and lakes, traditional fishing craft–coracles, improvised rafts, dug-out canoes and wooden country boats–and gear (mainly gillnets) are employed. Motorized boats are rarely seen even

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Unlike marine and aquaculture segments, where both small and large scales are relevant, fisheries in inland open waters of India are based exclusively on small-scale fishing operations.

in large reservoirs that yield several tonnes of fish every year. Individual fishers who operate under co-operatives or have obtained a lease to fish in the water body get a limited quantity of fish, often below what might be called the subsistence level. Thus, the entire gamut of inland fisheries in India falls under the ambit of small-scale fisheries.

India has rich natural inland fisheries resources in its rivers, ponds, lakes, reservoirs and floodplain wetlands. Fish-production systems in these water bodies can be summed up as the capture fisheries of the rivers, estuaries, lagoons and lakes; aquaculture in ponds; and various forms of enhancements. Of these, enhancements–mainly culture-based fisheries and stock enhancement–being practised in reservoirs, lakes and floodplain wetlands offer relatively ecofriendly options for sustainable fish production from aquatic resources.

The inland open-water fisheries is a complex mix of artisanal, subsistence and traditional fisheries; their marketing system is highly dispersed and unorganized. The tenure rights are archaic and inequitable. Capture and enhancement fisheries being common-property regimes, the community is often not empowered to manage the ecosystem and fisheries on a sustainable and equitable manner. Appropriate policy-level interventions are required to bring them under co-management platforms to enable and empower the community members to follow the norms.

Often, it is not the complexity of technology that comes in the way of achieving higher production and maintaining sustainability in aquaculture and open-water fisheries. It is the lack of appropriate community governance arrangement for open-water fisheries and lack of institutional mechanisms to regulate the growth in aquaculture that lead to low productivity and unsustainable practices. There is also a social dimension of enhancement. The profit obtained in aquaculture ventures accrues to an entrepreneur, investor or a small group of individuals as 'return on investment'. On the contrary, a sound regime will provide for the sharing of the benefits due to increased fish production obtained

Fig. 1. Fish production trends during the last six decades in million tonnes

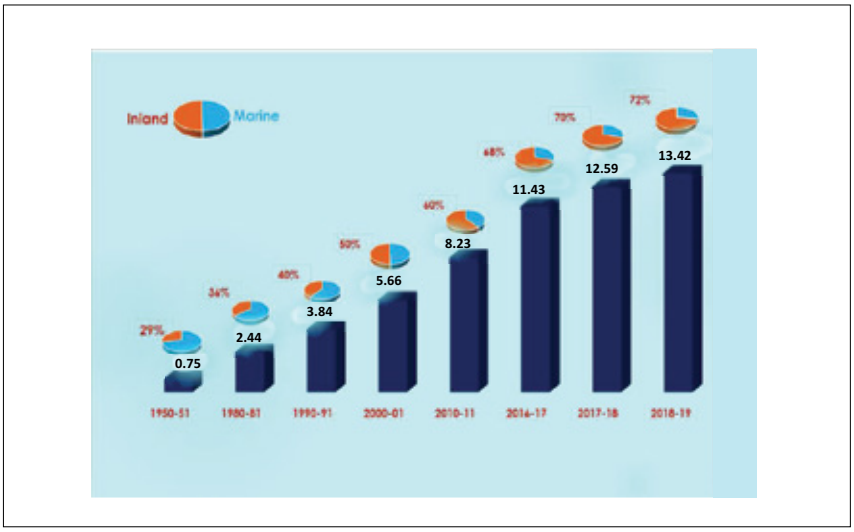


Fig. 2. Small scale fisheries in India

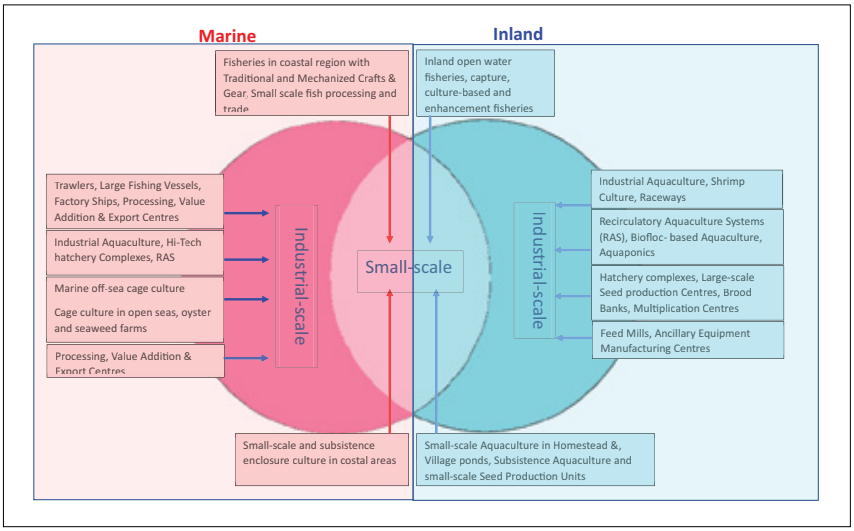
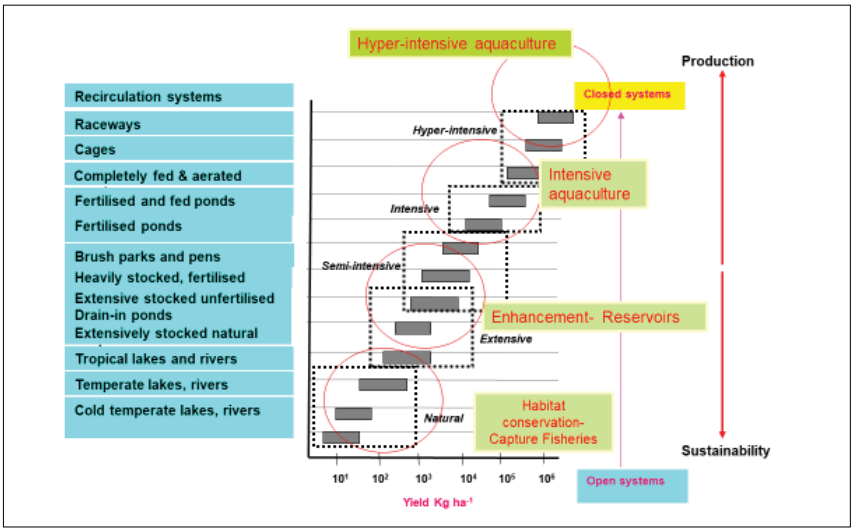


Fig. 3 Inland fish production systems and their sustainability (Modified from Welcomme and Bartley, 1998)



in an enhancement fishery among a large number of fishers–the key stakeholders. There is this large cake and each stakeholder gets a slice, albeit small. Thus, the enhancement provides opportunities for inclusive growth that is economically sound and socially equitable.

In order to realize the production potential of open-water bodies and ensure sustainable growth of aquaculture, several challenges must be addressed. Technologies used for developing capture fisheries and enhancements in open waters are relatively simple and do not demand exceedingly high technical skill. These can be applied by anybody with some basic management skill and intelligence. Still, the rate of adoption of scientific advice for open-water fisheries is remarkably low.

Most water bodies in the country are still being managed in a very arbitrary manner, leading to low productivity and low sustainability. This can be attributed to lack of proper governance environments. The open-water bodies in India are common-property resources; their management is generally based on community activity. Thus, organization of the community that manages the system plays a key role.

The main challenges facing the inland open-water fisheries are:

- Archaic tenure systems are not conducive for helping the fisher community to utilize natural resources for supporting their livelihood and generating income on a sustainable and equitable manner.
- Consequently, the fisher communities that utilize the water bodies as common-property resources are not empowered and well-organized. Their resources are exploited by numerous other stakeholders like market intermediaries and money lenders.
- The lack of post-harvest and market infrastructure, long market chains and no value addition result in making fishing unremunerative to the primary stakeholders.

The land and water resources are becoming scarcer in the wake of increasing, demands from various water and land-use sectors; climate change...

Compared to intensive aquaculture, capture and culture-based fisheries provide management options more compliant with the norms of sustainable development. The sustainability of fish-production systems is inversely proportional to intensification. Hyper-intensive culture systems are not environmentally sustainable and, many a times, these work against social equity by affecting access to resources by many stakeholders. The future strategy for inland fisheries development should centre on the principle of growth with sustainability. Sustainable development should not degrade the environment, and should be technically viable and socially acceptable.

Currently, fish production in India is growing at the rate of 6 per cent per annum. Various projections on demand for inland fish during 2021-22 range from 5.3 MT to 15 MT. It is now well accepted that the country can achieve 15 MT by 2021-22 as envisaged in the Blue Revolution targets. But it is also obvious that any big increase in fish supply must come from the inland segment, considering the slow growth of mariculture and the dwindling catch from marine capture fisheries.

Fish production

From 2009-10 to 2017-18, inland fish production increased by nearly 3 MT. It is estimated that the current inland aquaculture production is about 7.75 MT – 7 MT from freshwater aquaculture and 0.75 mn from coastal aquaculture. By the end of 2020-21 it is expected to touch at least 9 MT, with coastal aquaculture inching to 1 MT and freshwater aquaculture increasing by 1 MT. It is pertinent to note that inland fisheries enhancement (and capture fisheries) accounted for only 1 MT in 2016-17, which can be raised to 2 MT. Combined with marine capture fisheries production, this is the way to achieve the Blue Revolution target of 15 MT by 2020-21.

Looking beyond 2020-21, maintaining the 6 per cent growth for prolonged periods, say up to 2025-26, will bring in many new challenges. The land and water resources are becoming scarcer in the wake of increasing, and often conflicting, demands from various water and land-use sectors; climate change and environmental concerns compound the problem. While it is unavoidable to practise intensive aquaculture in order to keep the pace of growth and to meet future demands, it is equally important to ensure that all avenues for increasing production through more sustainable use of resources and protection of the ecosystem are explored.

Herein lies the importance of enhancement fisheries. As culture-based fisheries and other forms of enhancement in reservoirs are a non-consumptive water use, it does not create any extra demand for water. Moreover, in the absence of feeding and chemical treatment, there is no chance for eutrophication and chemical pollution. It is necessary to utilize the opportunities for raising fish through culture-based fisheries, enhanced capture fisheries and sustainable cage culture in reservoirs. Prioritizing culture-based fisheries and other forms of enhancement from reservoirs holds the key for increasing inland fish production in India in a more sustainable way. It will reduce the necessity to depend heavily on unsustainable practices like high-intensive aquaculture.

As with any other development sector, Indian fisheries is at a crossroads. The living aquatic resources, although renewable, are not infinite and need to be managed on a sustainable basis if their contribution is to be harnessed for the nutritional, economic and social well-being of a growing population. In the enthusiasm to produce more fish from all available water bodies, many developing countries in the past paid higher attention to production and yield, while ignoring key issues like environmental sustainability and social equity.

India is no exemption. A number of key ecosystem goods and services and their significance to the livelihood, nutritional and health security of riparian populations have almost been ignored, at least during the early years of development. Today, awareness about environmental impact assessment, biodiversity conservation and environmental flows is increasing. A substantial section of the scientific community in the country and its civil society at large are now aware of, and committed to, achieving a sensible trade-off between sustainability and increased productivity.

Small-scale fisheries of the inland water bodies in India need greater attention from planners and policymakers. There is a glaring lack of institutional mechanisms to ensure healthy growth of inland fisheries and aquaculture. Globally, despite its high productivity and contribution to the livelihood and nutrition of the poor, water resources planning gives little recognition to freshwater-dependent fishery production or its ecological basis. Poor appreciation of the importance of small-scale fisheries of inland waters has several consequences. It exacerbates the lack of data, which, in turn, hampers research and management.

Small-scale fisheries of the inland water bodies in India need greater attention from planners and policymakers.

The national policy on inland fisheries needs to:

- strike a balance between aquaculture and various enhancement practices to achieve higher fish productivity, environmental sustainability and social equity;
- assist fishers to organize themselves to take advantage of community management schemes and establish their user rights as envisaged in the 1995 Kyoto Declaration; and
- provide necessary institutional mechanisms to ensure the healthy growth of small-scale inland fisheries and aquaculture.

For more

https://igssf.icsf.net/images/SSF%20India%20workshop/Kelkar_Situation%20Paper_Inland%20Fisheries%20and%20Aquaculture%20in%20India.pdf
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India: Welcome, JOHAR

A Platform for Women

Women in fisheries can utilize the SSF Guidelines to advance their interests, even as they relate to one another and build up solidarity and a common vision

Over the last several years, many fishworker organizations have been engaged in spreading awareness among the fishing communities on the Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication (SSF Guidelines). It is certainly a tool that can be used to advance the sustainability of small-scale fisheries, if sufficient pressure is applied on governments, despite the fact that there has been a massive change in the sector.

In India, in 2016, the International Collective in Support of Fishworkers (ICSF) had organized a large national workshop to discuss the provisions of the SSF Guidelines with women in fisheries from various states (provinces). A follow-up workshop was organized in August 2019, this time focusing on states where women are better organized, in order to help them take the discussion towards concrete action. This was also in the backdrop of the National Policy on Marine Fisheries (NPMF), which was notified in late 2017 by the Government of India.

It was also clear that the socio-economic situation of women varied from state to state, with women in Maharashtra being the most advanced, followed by Kerala, Tamil Nadu and West Bengal.

It was deemed necessary to understand whether or not there was convergence of this national policy with the provisions of the SSF Guidelines.

The session was organized in collaboration with Nikita Gopal from the Central Institute of Fisheries Technology (CIFT), Kochi, and Ananthan PS from the Central Institute of Fisheries Education, (CIFE), Mumbai. Thirty women leaders from the states of West Bengal, Maharashtra, Tamil Nadu and Kerala got together for this three-day session.

The August workshop began with women sharing their activities and the issues they face in the workplace in their respective states. It was encouraging to see that women's organizing capacity in these states has progressed substantially and that they have been making their demands heard either through public demonstrations or by constantly applying pressure on the administration to safeguard their rights. Women's leadership is growing and is building links among women across districts. It was also clear that the socio-economic situation of women varied from state to state, with women in Maharashtra being the most advanced, followed by Kerala, Tamil Nadu and West Bengal. The variation in socio-economic situation also has to do with differences in fisheries across states. The first step was to help women not only to understand these differences but also to help them relate to one another, in order to build solidarity and a common vision.

While analysing NPMF, it was apparent that women do not even figure in the preamble. Although gender justice is mentioned as one of the pillars of the overall strategy, NPMF recognizes only post-harvest activities of women. It does not take into account other activities along the fisheries value chain that are performed by women. Nikita Gopal tried to emphasize and discuss those areas where gender mainstreaming could be advocated to benefit women. The reference to tenure rights of traditional fishermen under fisheries

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ICSF

Group photo of National Workshop on The SSF Guidelines and Mainstreaming Gender into Fisheries Policies and Legislation, YWCA, Chennai, India, 18-20 August, 2019. The group decided to create a national platform to design a mechanism to take up national issues

management, for example, could be broadened to also include secure tenure rights to fisherwomen. Areas can be reserved not only for traditional fishers under NPMF but also for fisherwomen to undertake traditional fish-drying activities. Territorial use rights, which are tenure rights, could thus pertain to water as well as to the rights of women over specific land areas to undertake fish-drying operations. In the case of mariculture, while encouraging small fishing communities, fishermen's groups and fishery co-operatives, fisherwomen's groups or co-operatives could also be created and encouraged to undertake and benefit from mariculture operations.

The education level of fishing communities was rising on the whole but still remains below the state average. The education status of women was below that of men, it was noted. Nikita Gopal indicated certain pockets where the education levels are falling. The premature death of the male parent often led to young boys being forced into fishing and leaving school. Also, the participation of mothers in fish vending led girls to drop out of school to take care of the family. In addition, poor access to educational institutions, located far away from home according to a sample study as reported to the workshop, led to dropping out of school. Health-related issues appeared to be common across states for women and were mainly related to the occupation of fish vending/fish processing, lack of water and sanitation infrastructure or just living at a distance from healthcare facilities.

The session on tenure rights and fisheries management highlighted the difference between the gender perspective in the NPMF and the SSF Guidelines and the need for women to use the latter to advocate for their rights. To do this effectively, it is important to better understand various terms and concepts such as 'the ecosystem-based approach', 'management', 'co-management' of fisheries resources, the 'value chain', and 'biodiversity conservation', as understanding of these terms is part of the requisite knowledge in engaging with fisheries issues while asserting their rights. Understanding these concepts would

help if women seek to make their claim included in management committees and to integrate issues that also affect their lives, in general.

After giving a broad outline on the gender budget, Ananthan PS talked about the budget allocations in the fisheries department. The Central Government has instructed that at least 30 per cent or nearly one-third of the funds under state programmes should go to women beneficiaries or to women-oriented programmes. Up to 2017-18, there were more than a dozen schemes under the Central Government. In 2018-2019, though, several schemes have been amalgamated under one called the 'Blue Revolution' scheme.

Although clarity is still required on the specificities of allocations, there is a 75 per cent grant-in-aid to self-help groups (SHGs) of women for the creation of modern hygienic fish-marketing infrastructure. This is available for retail fish markets and transportation infrastructure. Women were to be made to understand how they can demand budget allocations at the state level and how these allocations can be utilized. Ananthan highlighted how various state governments demanded and utilized the Central funds. Although women leaders were aware of the schemes, they were not aware of how allocations were made to these schemes. Once this process is understood, they would strategize to influence allocations to schemes that benefited women.

There was then a sharing of some innovative and successful development projects that the CIFT has been engaged with women, like the use of the fish dryer and the cultivation of clams and processing of clam meat.

All sessions were followed by group discussions so that women could digest the inputs and make their responses, which made the programme quite intense and indicated the interest on the part of fisherwomen to understand and share their experiences. Discussions were also held on labour issues within the framework of labour rights in India and other specific legislative provisions like The Street Vendors (Protection of Livelihood and Regulation of Street Vending) Act, 2014, and The Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013–all important pieces of legislation but not known to many of the participants.

On the concluding day, the state groups worked on their action plans. While sharing them, it emerged that some issues were specific to their regional context whicle others carried national relevance. The group decided to create a national platform to design a mechanism to take up some of these national issues. To begin with, the platform could take up two major issues: The first was related to budgets, monitoring how much of the budget allocations go to schemes that benefit women, and how they could lobby for this. The second was for the platform to work on demanding enhanced assistance from the state and Central governments to compensate for their non-fishing days, including fishing days lost due to the ban on fishing and fishing days lost due to bad weather conditions.

While the modalities of the functioning of the platform were not discussed, this will hopefully be taken forward in the coming year in order to advance the interests of women in fisheries.

For more

https://igssf.icsf.net/en/page/1095-India%20Mainstreaming%20Gender%20and%20Fisheries.html
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Chewing the Policy Cud

Reflections on the ICSF workshop and recommendations to India's draft National Inland Fisheries and Aquaculture Policy (NIFAP), September 2019

The International Collective in Support of Fishworkers (ICSF) organized a national workshop to discuss the draft National Inland Fisheries and Aquaculture Policy (NIFAP), being finalized by India's Union Ministry of Agriculture and Farmers' Welfare. The main objectives of the workshop, held in Kolkata on September 6-7, 2019, were to review existing social and ecological knowledge-gaps, to develop long-term and short-term recommendations—action points—for implementation, to integrate the Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication (the SSF Guidelines) with NIFAP, and to build capacity and awareness of fishers and fishworkers about the draft policy and its realization.

The workshop intended to generate discussion on the factors that could influence processes and outcomes of existing and proposed inland fisheries governance systems. It embraced a human-rights-based approach (in accordance with the SSF Guidelines) to address the needs of vulnerable and marginalized fishing groups. The workshop was an important step towards expanding the relevance and scope of NIFAP by connecting it with on-ground experiences of the participants. It brought together fishworkers—men and women—fisheries scientists, academics, policymakers, activists, community workers, and non-governmental organisation (NGO) representatives.

Five months on, the recommendations that evolved from the workshop can be broadly classified, analysed and mapped. By understanding the core positions from which discussions took place and reflecting on the conflicts and complementarities that emerged, it is possible to detail their positive outcomes—and some difficult questions they have left behind.

The NIFAP vision

NIFAP provides the Indian states and union territories with guidelines to implement fisheries management. It helps identify and prioritize sustainable management and governance of inland fisheries and aquaculture. Its vision is: "ecologically healthy, economically viable and socially inclusive inland fisheries and aquaculture that generates gainful employment and economic prosperity." Other objectives pertain to increasing fish production and fishers' living standards, to create gainful employment and marketing opportunities, and to ensure food security while conserving native fish genetic stocks and associated ecosystem services from fisheries, in a complementary manner. NIFAP advocates an ecosystem approach to fisheries management and recognizes significant scope for utilizing the potential of inland waters for commercially viable fish production. It also incorporates a wide range of issues, including development of post-harvest and trade, gender equity, governance, stakeholder participation, public-private and community partnerships and market support, among other things.

NIFAP advocates an ecosystem approach to fisheries management and recognizes significant scope for utilizing the potential of inland waters for commercially viable fish production.

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The chair of the NIFAP drafting committee addressed the workshop participants and said that the time had come to move from mass production to "production for the masses". Given this intent and vision, we must bear in mind the various challenges to implementing the NIFAP. Fisheries researchers and forums have emphasized that the policy's implementation across states needs more discussion. This pertains especially to addressing issues of rights that are essential to realizing the benefits of fisheries, as also to acknowledge and engage with conflicts over fishing rights and access that complicate effective governance of inland fisheries.

Inland fisheries are complex, diverse and dynamic socio-ecological systems. Varied outcomes are expected when the NIFAP is superimposed upon and adapted to locally changing and socially contingent realities. These stem from the varied characteristics of ecosystems and social contexts—including cultural practices, community norms, power relations, and history—in which inland fisheries relate with broader social objectives. The diversity of existing policies, legislation, and institutional arrangements at the national and subnational levels highlights the need to find consensus principles for implementation, which can be brought about by combining NIFAP vision with the SSF Guidelines.

An encouraging sign in the recommendations from these themes was that ecological, environmental, social and policy research figured as critical to address the existing gaps.

Classifying the recommendations

Overall, 50 recommendations emerged from the workshop. They were organized as per the themes of awareness and outreach, data gaps and review needs, pollution and health issues, gender issues, and interventions in legislation and policy issues. Almost 50 per cent of the recommendations were related to legislation and policy-related interventions. Discussions on rights and entitlements, responsibilities, co-operative management, environmental protection, restoration, and sustainable use of fisheries resources, livelihood security, and gender issues dominated the suggested final recommendations.

The themes on data gaps, awareness and outreach, pollution and health, and gender issues were strongly linked. An encouraging sign in the recommendations from these themes was that ecological, environmental, social and policy research figured as critical to address the existing gaps. The degraded or deteriorating ecological condition of India's rivers and floodplain wetlands was repeatedly flagged by several participants. Their emphasis included the recognition of ecological flows, not just minimum flows, for conservation of fish resources as well as biodiversity; fisheries studies to understand fish responses to hydro-climatic changes; impacts of dams and barrages on river flows; fishing practices that are illegal and regarded as destructive; generation of basic knowledge on fish ecology and biology; and biological assessments of water pollution status.

The degree of water pollution and impacts of hydrological modification on riverine-wetland fisheries had to be assessed at large landscape or region scales. The formalin problem in fish from Andhra Pradesh, which was experienced across eastern India in May-June 2019, was a strong reference point in discussions during the workshop. A complete ban on dangerous additives, improved sanitation at fish markets and accessibility to soil and water labs were some crucial recommendations for these issues.

Sanitation and health issues were also directly connected with sustaining the involvement of women in fishing and fisheries' work. Poor literacy, lack of a secure working environment, limited social bonds and networks, and their decreasing participation were strong hindrances for women in fishing communities.

Social science research was proposed on a range of subjects, including demographic and socioeconomic data, legislation, fishing practices and

cultural beliefs, seasonal fishing activity especially in poorly-known irrigation ponds and canal systems, and migration of fishers. Participants highlighted the need for focused attention on fishery conflicts with business interests, especially tourism, industry and aquaculture. Key recommendations included the need to promote gender-sensitive and gender-disaggregated research and data on women's involvement in inland fisheries.

The call for rights

The primary drivers of legal and policy recommendations were the perceived gaps related to recognition of rights, awareness about rights, allocations of rights through equitable and just ways, the minimal right to water, collective and individual rights, community rights, and so on. NIFAP states the minimal right to water but the call for recognizing fishers as the primary non-consumptive users of river water is equally important. It was driven home by activists that the National Water Policy of 2012, which guides the grant of rights to water use, does not even mention 'fishers' or fisheries as important stakeholders. The Policy thus needs revision to include fishers' inalienable rights to water. Recommendations towards the recognition, definition and formal or legal codification of rights came mostly from fishworkers and their institutional representatives across several states.

The call for rights involved the recognition of a large bundle of rights. A key aspect of the recognition of rights was their diverse origins. Rights demands were pervasive across categories, and hence most important to engage with. The recommendations involved demands to replicate community-based fishing rights akin to community forest rights to be granted as per the provisions of the Forest Rights Act, 2006. The need to secure the rights of fishers by modifying national and state management priorities and institutional structures was also expressed. Institutional processes towards maintaining rights also needed to involve rural self-governments (panchayats, tribal councils, societies) and co-operative functionaries. Examples of successful governance could be shared for their application in other contexts.

Overall, some important recommendations emerged. It was discussed that fishing rights could be granted on a hierarchy of needs: from locality-based rights (proximity to water body) to traditional identity, and to preferences and priorities of fishing communities. Women also needed to be recognized as fishers 'in their own right' and not through their status as dependents of fishermen. In river channels, community rights over access and use were thought necessary to prevent conflicts over open access, which remains the dominant mode of access for riverine fishers. Similarly, leasing periods should be increased up to 10 years in water bodies fished through leasing arrangements. Shorter leases might lead to overharvesting. For large reservoirs, while lease systems were needed, stocking rights and responsibilities could be granted to communities. This could bring a sense of stake and ownership to the fishers involved in leasing regimes. Special arrangements are also needed to secure rights pertaining to dynamic shifts in the spatial extent and characteristics of the fishing areas; this bears upon tenurial uncertainty in river channels and estuaries due to flooding, meander cut-offs, frequent and rapid erosion-deposition processes. Inland water bodies in India are almost always multi-use systems. Hence the issue of equitable management comes to the fore, when fishery rights compete with other rights to the same water. It was discussed that the 'first right' to use water to fish must be granted to fishing communities. The compatibility of such rights with other uses needed to be ensured.

Special arrangements are also needed to secure rights pertaining to dynamic shifts in the spatial extent and characteristics of the fishing areas...

The rider of responsibilities

It was stated throughout the workshop that the enjoyment of fishing rights

came with responsibilities of fishers towards protecting human rights, social harmony, economic opportunity and equity, and environmental conservation. The demand for fishing rights and tenure thus needed to include voluntary expression by fishing communities of responsibilities towards environment and biodiversity conservation, prevention of crime, and prevention of human exploitation in the form of child labour and forced labour. Fishing involved risks both to and from biodiversity. In inland waters, where fishers interacted closely with threatened species, therefore, there was a need to identify ways in which any mutual negative impacts could be minimized. To do so, conservation laws for biodiversity could not be side-lined, while securing fishing rights. The risk of bycatch of threatened species in fishing gear, the introduction of exotic and potentially invasive species in inland waters, disease spread and the contribution of fishers to plastic waste pollution were some of the issues discussed.

In light of the already noticeable impacts of climate change, 'climate-smart' fisheries and aquaculture needed identification, especially in the aquaculture sector. Fishers agreed that fishing rights came with responsibilities. However, when rights had not been granted, responsibilities are being imposed without the rights getting granted. Responsible tenure and rights are essential to the effective and sustainable governance of inland fisheries, but existing laws and regulatory regimes do not allow for both. In this regard, it was proposed that a review of fishing policies be undertaken in relation to legislation on biodiversity and environment, and other social issues. This would mean amendments to existing regional and national laws concerning fisheries and environment laws, such as the Forest Rights (Traditional and other Forest-Dwellers) Act, 2006 and the Wildlife (Protection) Act, 1972.

A significant part of the discussions focused on safeguarding and improving the conditions of fishers.

The appeal for improvement

A significant part of the discussions focused on safeguarding and improving the condition of fishers. Numerous gaps remaine unaddressed: disaster relief and insurance schemes for fisherfolk who are the most vulnerable to disasters such as cyclones and flooding; protection from harassment related to corruption and crime and its tussle with law enforcement (for example, the suspicious activities associated with sand mining); measures for full social security and safety of fishworkers during work; reviving and restoring wetlands for urban and rural poor who could avail of their fishing benefits; and mechanisms for grievance redress.

Many recommendations also involved structural changes in the working of fisheries departments and their governance systems. The need for independent fishery departments in all states was strongly felt, because currently, fisheries are often managed together with agriculture and animal husbandry. Independent fisheries departments could be more active in directly addressing the needs and grievances of fishers, especially with regard to constitutional violations of human rights and fishing rights.

Improvements in the staffing and technical capacity of fisheries departments were recommended, as also increase in extension and training for fisheries development. Reviews of fishery legislation and co-operatives across states were wanting, and a priority for upcoming planning of inland fisheries and aquaculture development was welcomed. Value addition of fish produce was a major area of intervention called for. In fish supply-chains, reducing the length and role of market intermediaries could help add value and secure consistent prices for fish. In the case of water bodies on which major fisheries depend, inter-sectoral and inter-departmental co-ordination at the state-level, between states, and between the state and national levels was identified to be of utmost importance.

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Group photo of Kolkata workshop on India's National Inland Fisheries and Aquaculture Policy (NIFAP), September 6-7, 2019. It is hoped that the collective learning at the workshop will remain cognizant of generally unacknowledged realities

Co-operatives in special focus

A major strand of discussions throughout the workshop was the performance of co-operative institutions in inland fisheries. It was vehemently emphasized by the director of the National Federation of Fishers Co-operatives Ltd. (FISHCOPFED) that co-operatives were the most widespread institutions in India. They were thus best placed to grant community rights in inland fisheries. However, their failure in doing so, over the past decades of their existence deserved critical attention. The ineffectiveness of co-operatives emerged repeatedly and throughout, as also the need to overhaul or revisit many basic assumptions about them. The recommendation to have state-level reviews of co-operative institutions to identify the factors responsible for their current functioning and their relevance to fishing rights and tenure was made in this respect. It was suggested that model studies on selected co-operative institutions that were both regarded as 'successes' and 'failures' be undertaken. Women's co-operatives, on lines similar to those in Bangladesh, also needed to be created.

Fundamental questions

To realize and implement the above recommendations, some fundamentals needed to be known well. We still do not have accurate or precise estimates of how many fishers are actively fishing in India, how many in each state, or who can be defined as a fisher. The participants learnt that clear or correct answers to these fundamental questions are still not forthcoming. Who are traditional fishers? More importantly, in a changing economy and climate and shifting ecological baselines, what do we mean by community, tradition and knowledge in inland fisheries?

The need for active applied research towards understanding more on these aspects was emphasized. It was pointed out that recognizing fishing rights based on traditional identity has direct connections with deep-rooted caste politics at local scales. How we overcome exclusionary politics over fisheries would be an important challenge to the sustainability and productivity of fishing tenure—in the process of granting rights and access to fishers.

Conflicts and complementarities

The dominant discourse of the workshop was on fishing rights, but the means to realize them were negotiated from multiple positions. Overall, there appeared to be broad agreement on the need for moving institutional regimes towards community-based and participatory management. Importantly, while the call for rights mostly came from fishworkers, activists and development workers,

government officials, scientists and NGO representatives emphasized more on the responsibilities of fishers that come along with their rights. The primary normative concerns of scientists were related to the state of freshwater ecosystems and their decline, which needed restoration for actually realizing the most benefits from the allocated rights. Legal concerns about the status of fishing rights in multi-use water bodies and the conflicts involved therein formed the mainstay of the views of scientists and officials. Scientists and policymakers often took a balancing position, while fishers and fishworkers remained largely focused on the granting of rights and access. The balancing or reconciliatory position was summed up well by a senior speaker, who said that we needed a "development-oriented" and "value-chain oriented" approach towards fishery management in a departure from current modes of operation, which are either only revenue-oriented or welfare-oriented.

There were some key outcomes of these alignments. First, several inland fisheries experts who were part of the drafting committee of the NIFAP were present; they did not appear overtly defensive of the NIFAP guidelines and were open to listening to the participants' varied concerns. It appeared that the workshop had succeeded in facilitating discussion in ways that sustained the dynamic and adaptive evolution that was envisioned for the policy.

Scientists and policymakers often took a balancing position, while fishers and fishworkers remained largely focused on the granting of rights and access.

Second, almost all participants agreed that the state fisheries departments needed more autonomy and should be the central institution to the vesting and transfer of rights. This derived consensus leads us to think about what would be the hypothetical point where fishing rights would truly become autonomous. Once fishing rights were granted according to sets of rules and principles, the role of the fisheries department role would be largely that of a regulator and an arbiter of conflicts. Or would it? A member of the audience asked why government officials do not initiate consultations with inland fishers proactively, rather than as reconciliation, response or reaction. This issue will remain as long as radical shifts happen towards stronger bottom-up management processes for inland fisheries. But such shifts have seen numerous endogenous and exogenous hurdles.

In the big policy vision for inland fisheries, there is a need to ideate about the social justice and ecological conservation goals that must be achieved first. A senior scientist said that fisheries has always been a "residual activity". This must change to allow inland fisheries, especially capture-based fisheries, to develop in an organic way.

Today's rights in future possibilities

The workshop tossed up difficult questions. One of the most telling examples of this came about in the exchange sessions when the translator for participants from Andhra Pradesh found it hard to share with the audience what he had just heard. The fisher representatives from Andhra had told him that the basis for providing fishing rights must be caste, that some so-called 'lower castes' had no business getting fishing rights. The translator appeared embarrassed as he went about translating. He told the audience that he was only translating and did not subscribe to what these participants had said. This shows how it's impossible to wish away caste in any matter pertaining to traditional fishing rights. Typically, we treat human rights and fishing rights as inseparable in matters of fisheries sustainability and development. Sound research has highlighted that human rights and fishing rights show convergences and divergences. Human rights are universal whereas fishing rights are specific. Thus achieving one could come at the cost of the other.

When we speak of shifting institutional management towards community involvement, where is the community we are talking about? If the community is to be defined by caste and tradition, it could lead to the exclusion of other socially and economically marginalized fishers. If the community is to be defined by locality and spatial access, seasonal fishers that traditionally visit specific water bodies to fish might get excluded. In short, we cannot take for granted the idea of what makes a fishing community. This becomes particularly important in regions such as Bihar where community institutions have eroded and fragmented. With distress-linked out-migration being a major determinant of active fishers across the Gangetic plains, few fishers remain on the ground to assert their rights in many areas. If we must go by the numbers, most members of particular fishing communities may not be fishing. Will they be recognized as fishers and granted rights? These issues are by no means simple. Policymakers or the people fishing on the ground don't understand them in their complexity. But that does not mean that they remain neglected or wished away in our continuing engagement.

Conclusions

The ICSF workshop was a remarkable and invested effort. It facilitated serious discussions on numerous issues affecting inland fisheries governance, tenure and rights. The primary draw of the workshop was that it deliberated on several aspects before the finalisation of the draft NIFAP. This generates hope. With its diverse representation across regions, its elaborate and cross-cutting recommendations, it provides NIFAP with an excellent opportunity to move forward. The destination of 'successful implementation' must be reached by taking the path of recognizing the multi-dimensional nature of inland fishers' rights. But this path is not all roses.

As NIFAP embarks on the ambitious effort of guiding state policies on inland fisheries, it must also take on the challenge of conflicts across a range of politics. In times of deepening social divisions, conflicts over identities, entitlements, priorities, resources and even histories, are very real in their political expressions. It is hoped that the collective learning at the workshop will remain cognizant of these generally unacknowledged realities. Will the implementation of NIFAP be successful in creating and sustaining a space for rights of inland fishers? Only time will tell. But a good beginning has been made at chewing the policy cud; more rumination always helps!.

For more

https://igssf.icsf.net/images/SSF%20India%20workshop/Kelkar_Situation%20Paper_Inland%20Fisheries%20and%20Aquaculture%20in%20India.pdf
Governance of Inland Fisheries and Aquaculture in India: Situation Paper in the Context of India's Draft National Inland Fisheries and Aquaculture Policy and the FAO SSF Guidelines

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Some Grains of Salt, Samudra Report No.81, June 2019

A Heavy Price

The cyclonic wind that swept through the shores of the Indian state of Odisha in the wake of Cyclone Fani have razed the livelihoods of many fisherfolk

On 3 May 2019, as Cyclone Fani swept through the coast of Odisha on the eastern seaboard of India, many homes were either badly damaged or completely shattered. Thousands of trees were uprooted. Most businesses and infrastructure were also destroyed, including the fishing industry, which is the economic backbone of the state's fisherfolk community of around 600,000-strong.

Fani affected over 200,000 fisherfolk. About 11,000 fishing vessels anchored along the Odisha coast were damaged in the gusty winds under the influence of the cyclonic storm. Many fishing vessels collided with one another and many were tossed over, said Prasan Behera, secretary of the Odisha Traditional Fish Workers' Union (OTFWU).

Hundreds of houses in the fishing hamlets were damaged and, as a result, large numbers of fisherfolk are now living under the open sky, added Behera.

"We underestimated the intensity of Cyclone Fani and paid a heavy price," said Apala Raju, a fisherman in Penthakota fishing hamlet in Puri district. Raju was not alone. A large number of fishermen suffered heavy losses for not taking precautionary measures to keep the fishing boats safely away from the beach.

A large number of fishermen suffered heavy losses for not taking precautionary measures to keep the fishing boats safely away from the beach.

Fishing vessels were damaged in Penthakota, Chadrabhaga, Chilika, Paradip, Kharinashi and other areas. Penthakota, with a population of 15,000, was the worst-affected fishing village in Odisha, said Iswar Rao, a local marine fisherman.

In a bid to conserve fish stocks at sea during the breeding period, the government of Odisha had imposed restrictions on fishing by mechanized fishing vessels from 15 April to 14 June in the state. The 60-day-long fishing ban had stopped all fishing activities in fish-landing centres and fishing hamlets, as large numbers of fishers and fishworkers had gone to their villages in Andhra Pradesh and other areas, leaving behind their fishing vessels and gear in the fishing hamlets. These boats got damaged in the cyclone, said P Apara, a fisherman of Penthakota.

The Odisha state government has announced a compensation of Rs 9,600 for each damaged boat and Rs, 2,600 for damaged fishing nets. These are not expected to cover the cost of even minor repairs, said M Suribaba, a fisherman of Penthokata.

The gales of wind that swept through the shores have razed the livelihoods of many fisherfolk. Electricity has not been restored and people have very little access to drinking water even a week after the cyclone, said M Jagadish of Penthakota fishing village.

"I renovated my fishing boat by spending around Rs 50,000 two weeks ago during the fishing holiday period. As ill luck would have it, my vessel was damaged in the cyclone," said Ramana Rao, a fisherman of Chandrabhaga fishing village. "Fani damaged my boat and my house all at the same time," said 45-year-old Gopi of Chandrabhaga. "Our thatched house was damaged in the cyclone. Now we are staying in a nearby school," said Durga Ma, a fisherwoman of Penthakota.

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ASHIS SENAPATI

Cyclone Fani affected over 200,000 fisherfolk. About 11,000 fishing vessels anchored along the Odisha coast were damaged in the gusty winds under the influence of the cyclonic storm

"Cyclone Fani crossed Puri with wind speeds of 175 kmph. On May 3 it destroyed and damaged thousands of fishing vessels and related infrastructure, causing a loss of over Rs 110 milion as per our preliminary survey. Up to 6,390 fishing vessels were damaged in the cyclone in the state; 4,620 fishing vessels in Puri, 1,514 in Chilika, 78 in Kendrapara, 76 in Jagatsinghpur, 54 in Balasore and 48 fishing vessels in Bhadrak. About 7,240 fishing nets have been damaged. Fish-landing centres at Markandi in Ganjam district, Saran in Puri district, Bandara in Jagatsinghpur district, the fishing harbour in Paradip, fishing jetties at Jamboo, Kharinashi and Talacua in Kendrapada district have been damaged by Fani. Hundreds of boats are lying scattered on the beach. The fisherfolk are helping us in our work," said Pratap Ranjan Rout, joint director of Fisheries (coastal) Department of Odisha.

"Our department is preparing support measures for fisherfolk, providing essential fisheries inputs and assisting in the repair of damaged fishing vessels and damaged fishery infrastructure. It is the fighting spirit and the past experience of the fisherfolk in many seaside fishing hamlets that made them leave their coastal homes to safer places to save their lives. Around 41 persons died in Fani, but no fisherfolk have so far been reported dead in the state in this cyclone."

For more

https://www.icsf.net/samudra-news-alert/articledetail/58452:cyclone-fani--the-worst-is-over,-but-picking-up-the-pieces-won%E2%80%99t-be-easy.html?language=EN
The worst is over, but picking up the pieces won't be easy

https://www.icsf.net/en/samudra-news-alert/articledetail/58431-Cyclone-Fani-hi.html?language=EN
Cyclone Fani hits Indian coast, a million people evacuated

https://dc.icsf.net/en/component/dcnews/articledetail/13860.html
Fishermen vulnerable due to frequent cyclonic events

ANALYSIS

Some Grains of Salt

India's 2019 Draft National Policy on Inland Fisheries and Aquaculture is an ambitious effort but limited in depth and vision

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The Draft National Inland Fisheries and Aquaculture Policy (NIFAP) is an important and welcome development on the manifold issues of managing inland fisheries. It was prepared in March 2019 by an expert committee appointed by the Government of India, The need for such a policy stems from two important features of inland fisheries. One, they are a sprawling, heterogeneous, and ambiguous bricolage of diverse ecologies, institutional regimes and cultural practices. As a result, the administration of these systems is inherently complex and perhaps in need of an umbrella policy. Two, due to the boom in freshwater food fish, especially carp, aquaculture in India—economists call this chimera the 'inland fisheries sector'—is big and growing; it warrants efficient, revenue-oriented and sustainable management by the state. Both aims are difficult to achieve, and make the draft NIFAP an ambitious attempt.

The policy remains limited in its depth and vision, however, and can benefit through a more thorough engagement with inland capture fisheries by recognising:

- The ecological declines facing inland capture fisheries and fisher livelihoods;
- The complexities of fishing rights and access conflicts; and
- The political constraints to implementation of fishery policies in capture systems at large.

This article attempts to discuss these three main limitations and identify where we have to take this well-meaning policy on freshwater fishes–with some grains of salt–while engaging with its broad vision.

Inland fisheries in India comprise capture fisheries (mostly in rivers and streams, floodplain wetlands, estuaries, etc.), culture fisheries (intensive pond-based fish aquaculture), and mixed capture-culture systems, in which fish seeding is practised and wild fish are also harvested in, for example, dam storage reservoirs, tanks, ponds and other wetlands. Each of these systems is linked with different ecological conditions and social settings. The dominant contribution of culture and mixed systems to India's total revenue from inland fisheries (over 90 per cent) biases the understanding of the word 'inland' in a way very unfair to river-floodplain capture fisheries. Capture fisheries in natural water bodies may have a negligible revenue share, but are immensely important in sustaining the protein needs and livelihoods of millions of people across India. Further, due to the degraded and altered state of river flows and water quality in most parts of India, capture fishery yields are reducing in both quantity and quality. Hence, assessing the so-called 'potential' of river/wetland fisheries in terms of their area and length is not enough. The ecological and social health of these fisheries needs to be the primary variable of management, not just revenues and stocks.

General neglect

But, unfortunately, it appears that the general neglect of concerns related to capture fisheries has also carried over into the NIFAP, which discusses these aspects only in a cursory manner. The emphasis of the policy framework on intensive aquaculture fisheries and comprehensive state control of inland fisheries is problematic. By privileging state control and focusing mostly on aquaculture systems, the NIFAP downsizes the relevance of reviving community-based fisheries management in riverine and wetland capture fisheries. This has implications

NACHIKET KELKAR

Fishermen take their boat out to use a multi-mesh drag-net in the Ganga river, India. Capture fisheries in natural water bodies may have a negligible revenue share, but are immensely important in sustaining the nutritional needs and livelihoods of millions of people across India

not only for equity and justice, but also for food security, poverty alleviation, biodiversity conservation, water quality, and alternative–sustainable–water management scenarios.

The NIFAP's classification scheme of 'Inland Fisheries' appears artificial and arbitrary. Capture and culture fisheries have also not been properly distinguished in relation to the geographic categories, despite their divergent characters. This is important because the management practices and governance structures are entirely different in these two modes of fish production. Another example of the arbitrary classification is in 'recreational fisheries', which does not sit together with the other geographical categories like river, reservoir, wetland or cold-water. Recreational fisheries are minor, but exist across rivers, wetlands, reservoirs and even cold-water streams in India. A composite and nuanced scheme of classification would have been excellent, integrating institutional management categories, capture/culture practices and geographical attributes. But the opportunity to frame helpful distinctions of types of inland fisheries systems has been missed.

To date, a reasonable estimate of livelihood dependence of people on inland capture and mixed fisheries remains wanting. With successive inland fisheries interventions at the state and national level being strongly biased towards aquaculture over the last few decades, the neglect of capture fisheries has compounded. An effort to co-ordinate countrywide intensive data collection for the quantification of fishing effort and nature of dependence is much needed in riverine capture fisheries. A comprehensive fishery census and stock-revenue assessment of capture fisheries can provide a strong baseline for further implementation, monitoring and adaptive management guidelines, before the NIFAP recommendations are operationalized.

A comprehensive fishery census and stock-revenue assessment of capture fisheries can provide a strong baseline for further implementation, monitoring and adaptive management guidelines...

Ecological flows are not only important for biodiversity, they are critical for riverine capture fisheries as well. The NIFAP's emphasis on river and wetland ecology is weak although it aligns with the 2012 National Water Policy's recommendation for 'minimum' ecological flows. Strengthening the focus on optimal water allocations for ecological needs and to maximize ecosystem services, which include capture-fisheries yields, needs to be a component of greater significance. The minimal right to water for fisheries is undoubtedly important, but one worries that the minimal right should not merely translate to the dated idea of 'minimum flow' in rivers. The right to water for fisheries can be supported in the true spirit only when ecologically adequate flows are provided, which can mimic natural seasonal variability in river flow.

From the early 1900s, with plans for the commercial development of fish aquaculture, rivers were merely seen as a stock for spawn collection, especially of the Indian Major Carps or IMC species that now dominate all pond-based carp culture. Excessive and unregulated collection of spawn through the 1950s and 1970s directly affected riverine fish stocks of IMCs and other species as well. With this history, restocking of inland water bodies with seed of native fish species is an interesting suggestion in the NIFAP. Yet, it might be difficult to link seed production units with actual success in the restocking of any native species. Restocking success will be predicated upon maintenance of near-natural flow regimes in regulated rivers. Growth and survival bottlenecks of fish larvae/fry are influenced by the timing and duration of river flow across different seasons. To ensure population recruitment and survival towards stock enhancement, such restoration measures will need to depend on major, radical changes to existing paradigms of river water management in India.

...organic practices and improvement in aquaculture efficiency–akin to irrigation efficiency and crop water use improvement–need to be integrated in aquaculture and mixed fisheries.

Feedbacks between intensive aquaculture and river flows, especially in semi-arid regions, also deserve careful attention. The NIFAP glosses over the key distinction that, while capture fisheries are non-consumptive water users, aquaculture is often a consumptive water user. With intensive carp culture in regions such as Andhra Pradesh or Rajasthan, large chunks of inland aquaculture in India depend on extraction of groundwater or surface water. The quality of water extracted from these sources might then deteriorate with the continued use of weedicides and pesticides in aquaculture ponds, and even affect the soil health of catchments. Therefore, organic practices and improvement in aquaculture efficiency—akin to irrigation efficiency and crop water use improvement—need to be integrated in aquaculture and mixed fisheries. Such practices can also help protect natural water bodies in the vicinity from pollution and degradation. Another factor contributing to declines of native fish species has been the wanton introduction of exotic fish populations. While the NIFAP recognizes that the entry of exotic species is to be regulated, the policy should recommend bans on any further additions of species or populations of exotic alien fishes to inland fisheries in India.

The NIFAP emphasizes the vesting of leasing and management rights in state departments, and supports the entry of private businesses to develop inland fisheries. This is to be done while retaining the trusteeship and custodial rights of respective local agencies and institutions. Yet such an arrangement may become contested without exact guidelines on implementation. Frictions between local non-state institutions and state departments invested in fisheries are not new. Conflicts between local communities, state agencies, and third parties—private players, contractors, NGOs, etc.—are common over issues of hierarchy, control and benefit sharing.

Big question

As for the NIFAP, are local agencies and institutions to be recognized by the state as trustees, or participants, or as equal partners in fisheries management?

How they interact across hierarchies and scales is a big question, given that local agencies would inevitably be nested underneath government structures. The same question applies to the revival of functional fishery co-operatives, which the NIFAP emphasizes, while retaining all leasing and licensing powers with the state at the same time. The potential of fishery co-operatives in managing fisheries has been limited in many regions due to state or elite interference. So, reviving community-based and local co-operative institutions that work with state agencies, and not under them, is critical. In fact, consolidating state control over riverine or reservoir fisheries might lead to erosion of local institutions that have demonstrated effective fishery management through community-based interventions, for example, tribal groups in Jharkhand and Maharashtra.

Active participation of fisheries governance in management of river systems is also identified as an important area, but what organization models might work in rivers is not addressed. The political dimensions (especially with regard to caste and access) also impinge on making state control effective beyond a point. As river fishers generally receive little consideration in matters of inland fisheries, it seems unlikely that their inclusion in river management strategies will be easy or even acceptable across many quarters, including state agencies themselves. Acknowledging these systemic conflicts and seeking ways towards their resolution or management is an aspect missing from the NIFAP, which, while not ignorant about them, appears to wish away these problems.

The NIFAP's emphasis on the state becoming almost the sole controller and regulator of fisheries affairs may work well for intensive, organized and high-revenue aquaculture systems. But its application to river-floodplain capture fisheries is questionable, for various reasons. In Bihar, for instance, all river fisheries on flowing waters are open-access and state involvement in managing river fisheries is almost non-existent because there is no revenue to be extracted. The hands-off approach of the state fisheries department for riverine fisheries has led to near-total control of access to fishing grounds by mafia-style gangs and other 'anti-social' elements that regularly exploit local fishers through violence and threats. These are ground realities along many rivers of north India where gangs or bands maintained by strongmen or fishery contractors work as a 'shadow state' ruling the fisheries. Criminal control of fisheries has serious implications for fishing rights as well as human rights, but these have not been acknowledged in the NIFAP. A steady trend of exit has also been noted from such areas. Fishers forced to continue fishing in these regimes have limited choices, and often involve compromises with the gangs in order to maintain access to fishing grounds. In such situations, it appears impossible that state agencies will even consider—let alone be proactive—about assuming control of risky, scattered and low-revenue yielding capture fisheries.

Even if state interest in managing capture fisheries may be low, state agencies cannot avoid engaging with fishers' development and well-being issues. State-led incentives to better organization and development of capture fisheries are very important. To improve and sustain revenues obtainable from capture fisheries, state funding channels and investments towards improving market access and fish price regulations are much needed. In the absence of financial incentives and support structures, local fishery institutions may find it difficult to manage their fisheries. At present, the primary way to revive state interest in capture fisheries is, it appears, to make it more revenue yielding and commercially viable.

...there is also room to change the approach towards capture fisheries, by focusing on their food security, livelihood and conservation dimensions rather than profitability.

However, this would need radical changes in river water management. Given these complications, there is also room to change the approach towards capture fisheries, by focusing

on their food security, livelihood and conservation dimensions rather than profitability. Open-access regimes, despite being riddled with pernicious conflicts over fishing rights and access, continue to provide a safety net to the most marginalized fisherfolk. For the poorest of the poor, the space offered by free entry and exit helps ensure some continuity in basic incomes and independent decision making by fishers. State control and regulations in such contexts may end up excluding from fishing the most vulnerable groups such as the landless, economically backward, or Dalit fishers.

That said, the NIFAP's point about updating fishing regulations is of utmost importance. Currently, the focus of regulations is on fishing practices—limits to mesh sizes, bans on destructive methods, for example. But there is a need for more nuanced regulations on spatio-temporal fishing behaviour, catchability and effort applied for gears used in fishing. A systematic revision of existing ad hoc regulations and management guidelines might thus be an important step towards implementing fishery regulations to foster sustainable fisheries. Fisher mobility allows for some buffering capacity against external social and environmental shocks. But mobility is also a hurdle to organizational management of fisheries and a reason for inter-sectorial/institutional conflicts. Thankfully, inter-sectoral co-ordination receives adequate attention in the NIFAP. Reservoir fisheries above dams or barrages, for instance, often overlap with the boundaries of protected areas managed by the state environment/forest departments. In such settings, forest and fisheries departments need to work together to plan fisheries development as well as minimize impacts of fishing on wildlife and vice versa. Access to fishing is also affected by conservation and protection laws and entry restrictions in protected areas. There seems no way other than inter-departmental co-ordination to manage such boundary conflicts. Conflict management is thus central (albeit neglected in the NIFAP to the objective of balancing livelihood needs and developing fisheries production alongside ecological conservation priorities. NIFAP neglects this aspect.

Given the complex nature of inland capture fisheries, NIFAP's vision of 'pluralistic and participatory systems' is the ultimate challenge and deserves continued engagement. This calls for expanding the scope of inland fisheries research and management in India to socio-political and cultural dimensions. This requires going beyond the biological heuristics of fish stock assessments, the technical calculations of intensive fish culture, and the economic forecasts of fishing revenues and 'potential', which have so far dominated the discourse on inland fisheries.

Beyond regulations

In summary, the NIFAP offers hope, but also lets loose several uneasy questions. As a set of guidelines, it appears distanced and sanitized from ground realities in capture fisheries that are murky, difficult and even unsettling. It is hoped that it can see beyond regulations and revenues, and grapple more with contestations that are like the clockwork of India's inland capture fisheries.

For more

https://www.icsf.net/en/samudra/article/EN/75-4258-Tempered-Down.html
Tempered Down

https://www.atree.org/users/nachiket-kelkar
Nachiket Kelkar's page

http://dadf.gov.in/sites/default/filess/NIFAP%20%28English%29%20%28merged%29_0.pdffor more
Draft National Inland Fisheries and Aquaculture Policy (NIFAP)

Welcome, JOHAR!

A World Bank-funded loan project has been developed in the Indian state of Jharkhand to enhance and diversify household incomes for targeted beneficiaries through fish culture

Jharkhand is one of India's poorest states. Its poverty rate is the highest in the country after Chhattisgarh's, with 37 per cent of the population below the poverty line. The average rate of decline in poverty in Jharkhand up to 2012 was 0.9 per cent per year—much slower than in the rest of India's rate of 4.8 per cent per year. A female literacy rate of 55 per cent is much lower than the rest of India's rate of 65 per cent. Malnourishment is a serious problem; 47 per cent of the children under five years are stunted, about 42 per cent are underweight and 16 per cent are wasted. More than 70 per cent of women and about 67 per cent of adolescent girls in the state are anaemic. Most households lack basic access to water and sanitation.

Agriculture provides employment to more than 60 per cent of the working population in rural areas; 63 per cent of the farmers have marginal land holding, averaging at 0.52 ha per head

Agricultural production in Jharkhand can be characterized as poor and marginal. Farmers are unorganised and generally unaware of market opportunities. Most operate at a subsistence level of low surplus and rely on agents in the local markets *(haats)*. Most of the marginal and small-scale farmers raise one crop in a year that is rain-fed, leaving them highly vulnerable to climate change. Recent droughts in the state resulted in crop losses of 40 per cent.

It is against this background that the Jharkhand Opportunities for Harnessing Rural Growth (JOHAR) project was launched. 'Johar' is a greeting in the local tribal language. The project comes under the umbrella of the Jharkhand State Livelihood Promotion Society and targets over 200,000 rural households formed into 3,500 farmer producer groups (PGs), based on women's self-help groups (SHGs). The World Bank funds this six-year loan project designed to enhance and diversify household incomes in select farm and non-farm sectors for targeted beneficiaries in the project areas of Jharkhand.

The target households are a sub-set of the SHG households supported by the National Rural Livelihood Programme (NRLP). These women SHG members come predominantly from the Scheduled Caste and Scheduled Tribe households that are either landless of have small land holdings; they are spread across 17 districts and 68 blocks of Jharkhand.

The project aims to help develop climate-resilient agriculture by focusing on year-round cultivation of vegetables, diversifying into new, high-yielding varieties of pulses and oilseeds. The project will also demonstrate resilient technologies for improving productivity and reducing climate risk in paddy cultivation, promote community-based micro-irrigation, and support the PGs to move into value-added sectors like livestock, fisheries and non-timber forest produce.

Water bodies

The fisheries and aquaculture sector in Jharkhand, principally comprising capture fisheries in large water bodies and fish culture, is viable and productive. Despite recurrent droughts, there is a large number of perennial and seasonal water bodies, which are increasing as water conservation programmes construct more small ponds *(dhobhas)* throughout the state. The popular fish species consumed here range from Indian major carp to indigenous species such as the local clarias catfish *(maghur/moghli)* and

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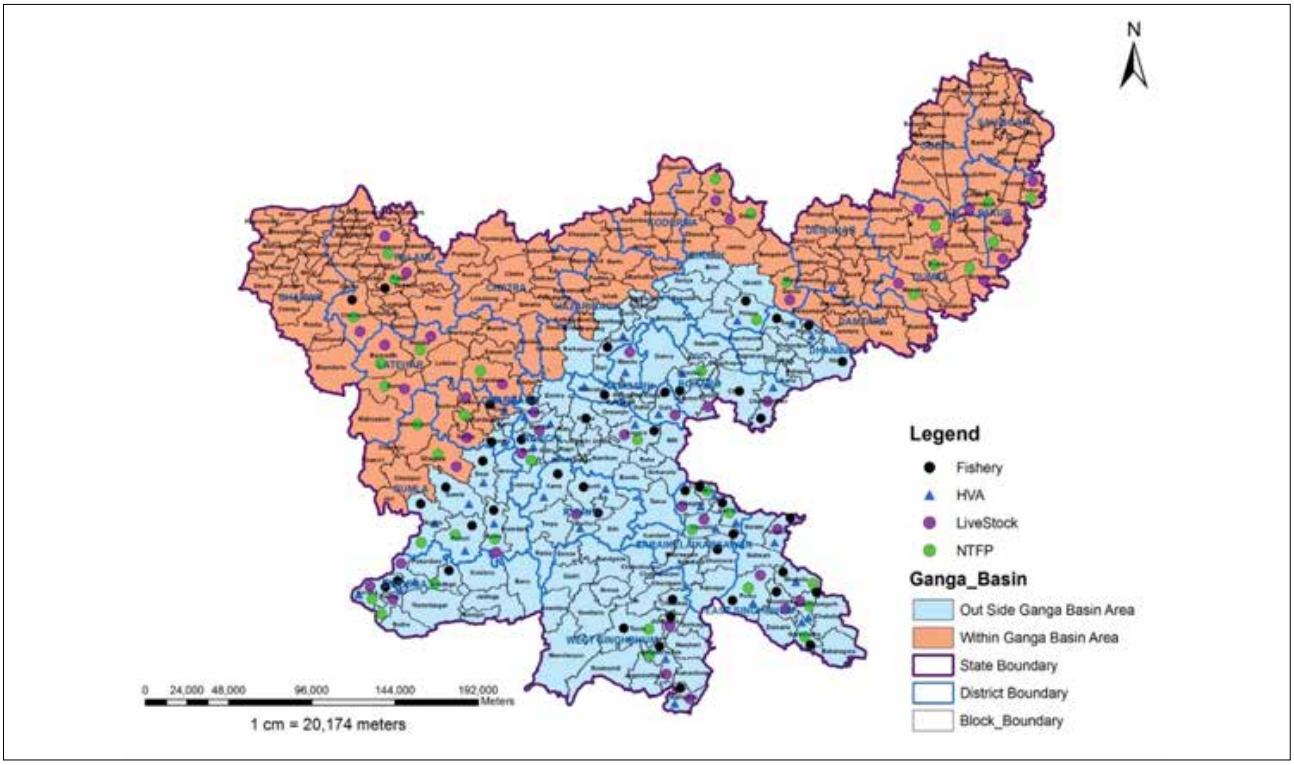
BIPIN BIHARI AND SMITA SHWETA



Composite map of revised JOHAR blocks. The 122 blocks in the state were ranked based on a set of criteria that included presence of maturecommunity institutions, intensity of production in selected sub-sectors, proximity to markets, and access to public infrastructure

climbing perch *(anabas/koi)*. The fisheries sector has significant potential in the form of ponds, tanks, reservoirs, farm ponds and rivers. Enhancing fish production can generate employment, improve nutrition and reduce poverty.

Fish culture provides considerable opportunities for improving the income and livelihood of the rural poor in Jharkhand.

JOHAR is establishing PGs at the village level. These informal groups bring together farmers to deal with mutual objectives like market access issues, in general, and production-related issued, in particular. The PGs undertake, broadly, the following functions:

- Aggregate the produce
- Generate collective demands for inputs and procurement
- Seek better technology services to enhance productivity
- Source finances, and leverage benefits of government schemes
- Access infrastructure facilities for collective actions

In the long term, it is expected that the production surplus from the PGs will be marketed through Producer Organizations (POs). These are formal institutions that provide effective agriculture extension services to farmers, develop processes and systems for collection, processing, value addition and marketing.

Fish culture provides considerable opportunities for improving the income and livelihood of the rural poor in Jharkhand. It is especially suitable for risk-averse, low-income households with access to a water body. There is potential for incremental increases in productivity and profitability, which can be made with relatively simple technical improvements. The turnover in fish culture is rapid, with a seasonal crop taking six to seven months for harvest; monthly crops are possible in seed nursing operations. These production systems are suitable for the seasonal tanks typical in the state. With relatively low investment and high returns, fish culture can strengthen

livelihood sources for the rural poor in Jharkhand.

Despite these opportunities, the fisheries sector in the state faces a number of challenges that constrain fishing and fish culture and, in turn, the development of the livelihoods of the rural poor. They include:

- Low fish productivity of seasonal water bodies
- Limited seed supply
- Large number of private tanks remaining unutilised for aquaculture
- Constraints on accessibility to formulated feed and supplemental agri-byproducts as pond feed inputs
- Weak extension support, especially for technology transfer to fish farmers
- Limited marketing channels and expensive harvesting arrangements
- Lack of access to credit for operational inputs to intensify production
- Lack of insurance support
- Risk-averse nature of poorer farmers and inexperience in entrepreneurship
- Need for appropriate pro-poor policy for enhancing access to, and use of, water bodies for fish production

To meet ambitious fishery growth targets and demand, there is a need to greatly increase the number of ponds being brought under culture and improve productivity from intensified culture. This requires a major boost to ongoing programmes to impact a broader range of potential fish farmers state-wide. The distributed nature of water bodies in the state offers considerable opportunities to increase rural income generation through improved fish production and more effective marketing of fish products in a relatively low-risk manner.

As part of JOHAR, the goal of the fishery sector sub-component is to increase the capacity of smaller-scale producers and empower them to engage in the production and marketing of agricultural commodities to increase household income and improve the resilience of their livelihoods.

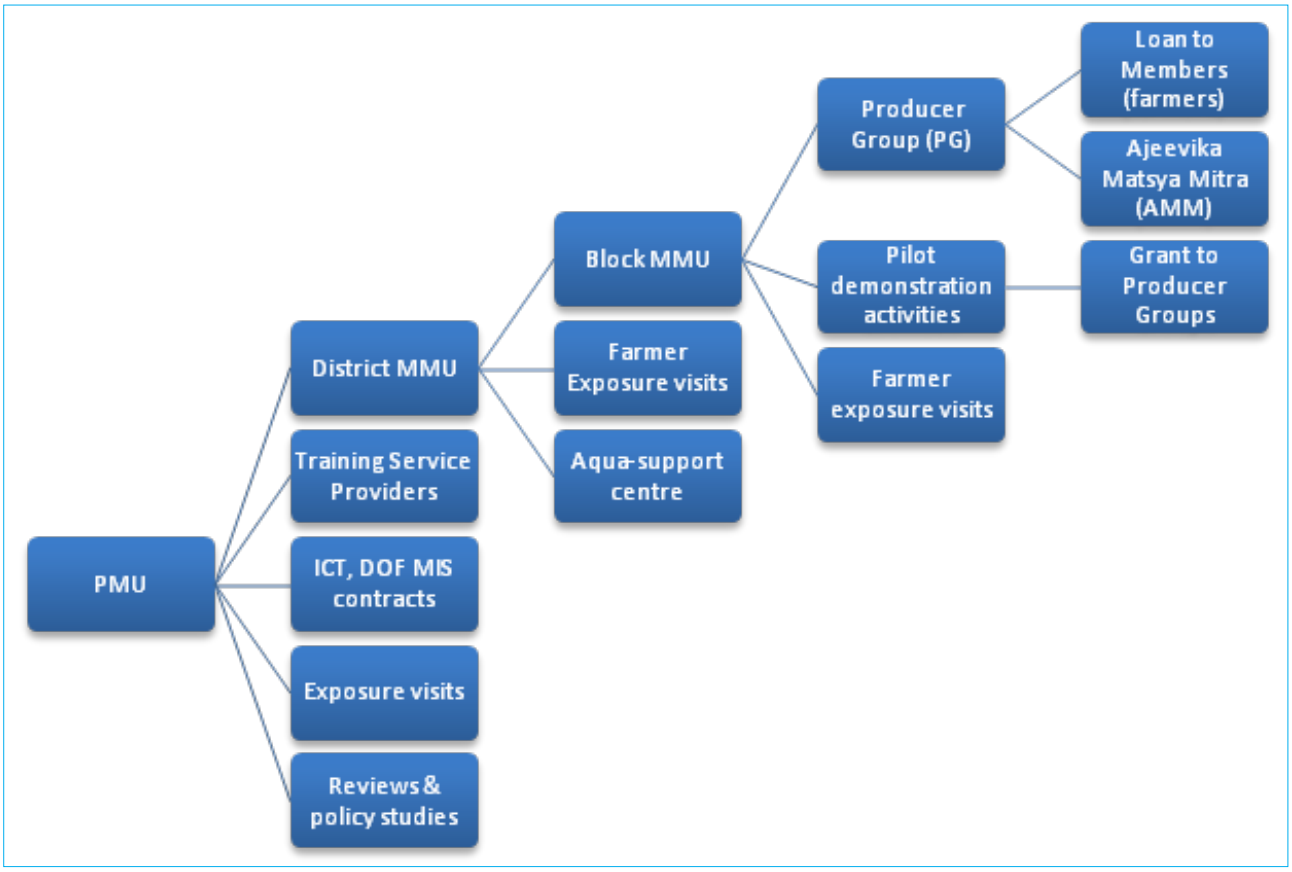
The approach of using PGs linked to savings SHGs as an entry point offers the opportunity to link credit provision to improved production techniques, thereby filling a gap that currently exists in access to rural credit.

The JOHAR objective is, therefore, to promote economic transformation of rural households by enhancing productivity and income generation from fish-production systems. This is sought to be achieved through:

- Strengthening or building robust, sustainable fishery producer groups (Farmer Producer Organisations);
- Introducing improved fish culture techniques and access to credit, which will give incremental increases in production over three crop cycles; and

Particulars	Unit	Unit Cost	Funding arrangement	JOHAR		BEN	
				Per acre	Half acre	Per acre	Half acre
Pond improvement (pond rehabilitation & maintenance)	acre	1250	BANK (63%), BEN (10%)	1125	562.5	125	62.5
Basic pond equipment (Plankton net, pH indicator, Sechhi disc)	farmer	1000	BANK (63%), BEN (10%)	900	900	100	100
Input cost for fish production (Manure, Feed, Seed)	acre	38000	BEN (35%), BANK (45.5%)	24700	12350	13300	6650
Total				26725	13812.5	13525	6812.5
Support for Harvesting & Marketing of produce	PG	20000					

Guidelines for disbursement of fisheries fund in PGs



Operational Structure

- Organising and co-ordinating with markets to improve producers' capacity to market their production so as to ultimately transition towards small and medium enterprises (SMEs).

The fisheries sub-component aims to strengthen the capacity of fish seed producers and bring new ponds and farmers into fish production. State-wide bottlenecks in availability of fish seed are also addressed through improving access to seed, development of farmer–based fry production and strengthening the state's spawn production capacity.

JOHAR targets women SHG members who already have existing ventures, or those who express an interest in starting fishery-related livelihood activities. All the direct beneficiaries of JOHAR are women. The project training and capacity building of women's groups will focus on productivity enhancement, sustainable access to credit, and the use of information communication technology (ICT) for monitoring, improvement in marketing and overall sector development, including policy reforms. Alongside empowering women's groups to enter or improve fish culture, the sub-component also supports the development of technical advisory capacity and enhanced accessibility to state fishery support programmes at district and block levels through improvement of the state Department of Fisheries (DOF) training curricula.

Among the challenges faced by the women PG members are: acquiring ownership of community ponds; theft; seasonality of water bodies; siting of ponds beyond the homestead; and disputes among the members.

Skill development

Aqua-support centres have been developed in district fisheries offices to impart training and upgrade the skills of the community-level fishery para-professionals ('Ajeevika Matsya Mitra' or AMM). The formation of

PGs also enables access to credit, services, training, knowledge and skill development provided by the DOF, other line departments and NGO partners.

The PGs:

- Enable women's groups to organise to access community water bodies and reservoirs for fish culture;
- Help build capacity to act as fry producing clusters to supply advanced fingerlings;
- Build capacity for stocking private and community ponds for improved fish production;
- Use private water bodies, community water bodies and ponds dug under the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA);
- Facilitate training of members in improved fish culture;
- Assist small producers to access seed for stocking and feeds;
- Act as a linkage to the feed supply chain and procurement clusters, eventually ordering from suppliers of agri-byproducts like oil cakes and rice bran from local SMEs; and
- Act as harvesting/marketing groups to take advantage of the increased production from pond and reservoir cage producers.

After one year of intensive organisation, JOHAR has formed 484 PGs, covering 6,000 households, and 3,500 women have been trained in fish culture at the village-level training programme. Increasingly, pen culture in larger water bodies will be explored as a way of enabling SHG women to access water bodies for fish culture. Models for small pond fish culture are also being developed to increase income from seasonal *dhobhas* (ditches) and small water bodies. The long-term target is to create 1,400 PGs covering up to 34,500 households.

The adoption of methods to improve fish production requires access to zero- or low-interest credit to improve fish ponds and procure inputs. The PGs act as the project vehicle for provision of loans to producers to cover the increased costs of the operational inputs required to improve productivity and increase incomes from fish production.

Ultimately, the JOHAR project, once fully implemented, will:

- Ensure that women are involved, for the first time, in fish farming;
- Utilize 30 per cent of the water bodies/*dobhas* now lying derelict;
- Involve landless and marginal farmers in fish farming, using community pond/reservoir pen culture;
- Double incomes;
- Establish an improved skill base amongst target farmers and fisheries para-professionals (AMMs);
- Strengthen the fishery information system of the DOF and JOHAR to provide post-project support to project beneficiaries for their existing schemes and institutional arrangements; and
- Make fish culture—currently an allied secondary agricultural activity of the farmers of Jharkhand—the primary activity as women's PGs become more confident and realise the potential of fish culture.

For more

https://www.downtoearth.org.in/news/governance/net-profit-52597
Jharkhand taps its dam reservoirs and ponds to boost fish production as well as livelihood

https://www.downtoearth.org.in/coverage/orphans-of-the-river-14068
Orphans of the river

A Stitch in Time

Cyclone Ockhi, which hit southern India late last year, brought out the need to empower communities to manage risks through locally owned and locally appropriate approaches

Historically, the western coast of India has always witnessed fewer cyclones than the eastern coast. While 58 per cent of the cyclones that developed over the Bay of Bengal crossed the east coast, only 25 per cent of the cyclones that developed over the Arabian Sea affected the west coast. A marked deviation from this status quo was observed on 30 November 2017, when Cyclone Ockhi killed 174 fishermen from the state of Kerala and 108 fishermen from the state of Tamil Nadu. The economic loss caused by Ockhi amounted to US$5.07 bn.

Official sources put the number of missing fishermen as 527—300 from Kerala, and 227 from the Kanyakumari district of Tamil Nadu. However, the estimates put forward by fishermen's groups and the Catholic Church is double the official number. Failure of both the state and the central governments to even come up with the exact number of fishermen and fishing boats lost at sea, has come under severe criticism. Even two months after Ockhi the disaster-management agencies were groping in the dark about the number of casualties.

A stitch in time can perhaps save not nine but millions of lives!

Despite stipulations in the Marine Fishing Regulation Act (1980), hundreds of fishing vessels still operate in Kerala waters without any registration or fishing licence. During exigencies such as cyclones or tsunamis, lack of knowledge of the actual numbers can prove fatal.

The harbour at Thoothukudi in Tamil Nadu implements a simple token system for fishing boats venturing into the sea. Details like the boat number, name and telephone number of the boatowner, and the number of fishermen on board, as well as the expected date of return are registered online before issuing a token. After reaching the shore, the fishermen return the token. Similar systems have been introduced in the East Godavari District of Andhra Pradesh and in Maharashtra.

At Thoothukudi, Tamil Nadu, the Fisheries Department has also arranged a checkpost to regulate the number of fishing boats venturing into the sea at a given point of time, which helps avoid overcrowding. These are measures that Kerala could have followed.

The Indian Meteorological Department (IMD) is the nodal agency for tracking, monitoring and issuing early warnings to all designated authorities. Notwithstanding the increasing tendency for cyclones in the Arabian sea, the Area Cyclone Warning Centres (ACWCs) and the Cyclone Warning Centres (CWCs) of IMD crowd only the eastern coast, leaving a visible gap on the western side. IMD has a detailed procedure for a four-stage warning, including a Pre-Cyclone Watch (issued 72 hours in advance), a Cyclone Alert (48 hours in advance), a Cyclone Warning (24 hours in advance, with high priority of telegrams twice a day) and a Post-Landfall Outlook (12 hrs in advance).

Timely advisories

Bulletins are also issued to the Public Relations Department (PRD) for distribution to the mass media and

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for immediate broadcast by the radio and television stations. IMD also has an automatic telephone answering service (No: 1800 180 1717) and a facility for registering one's mobile number for receiving cyclone alerts vis-a-vis short messaging system (SMS) service. The language of such official warnings, however, remains archaic and too technical for the common man to decipher. On the contrary, weather warnings issued by the Hong Kong Observatory, for instance, give separate warnings for the local public, avoiding scientific jargon.

While controversies abound about whether the IMD and the Indian National Centre for Ocean Information Services (INCOIS) had sent out timely advisories, the most important fact remains that even the officials at the State Emergency Operation Centre failed to grasp the gravity of the situation from the 'technical' bulletin.

Emergency Position Indicating Radio Beacons (EPIRBs), also known as Search and Rescue Beacons, developed by the Vikram Sarabhai Space Centre (VSSC) of the Indian Space Research Organisation (ISRO) at Thiruvananthapuram, and manufactured by Keltron at its Karakulam complex, Kerala, have been distributed to fishermen on the Kerala coast over the last few years as a means to safeguard their lives during emergencies at sea. ISRO is also designing and developing the first indigenous, low-cost global positioning system (GPS)-fitted EPIRBs, from which distress signals can be picked up by the search-and-rescue vessels. These will only cost INR3,000, compared to the price of INR50,000-60,000 a piece for those imported from the United States, the United Kingdom or France.

In the aftermath of Ockhi, ISRO has also developed navigational equipment based on India's regional satellite navigation system, called NAVIC, to warn fishermen about adverse weather conditions. Initially, 250 boats will reportedly be fitted with these equipments on a trial basis. The specialty of these equipments is that the information will be transmitted in the local vernacular language (Malayalam), up to a distance of 1,500 km from the coast.

While some of the fishermen, on a personal basis, use mobile phones that can operate up to 50 nautical miles (92.6 km), they complain that the wireless sets provided by the Fisheries Department work only up to 20 nautical miles (37.04 km). The major limitation of NAVIC devices is that they allow only receiving of information, with no provision for sending messages—they are fitted with only a receiver, not a transmitter.

Community radios can be established in cyclone-prone areas with the help of open universities such as the Indira Gandhi National University (IGNOU), NGOs and community-based organizations (CBOs), for timely dissemination of warnings. The first exclusive community radio initiative in India for fisherfolk, named Alakal, was initiated on 1 May 2006 in Thiruvananthapuram district of Kerala.

The problems resulting from corrosion of batteries and non-receipt of signals in transistors can be overcome by using battery-less, low-cost hand radios which can receive warning-broadcasts from All India Radio, the national station. Television and radio stations can also utilize the cell broadcast facility via the

K G THARA

A HAM Radio used in emergency communications is an immensely useful tool for cost-effective dissemination of information

GSM (Global System for Mobile communication) network operators, to broadcast emergency messages on a real-time basis.

Setting up of Village Information Centres (VICs), under the supervision of the state government, can provide information on cyclone warnings directly to the community and also empower the rural population. Around 50 such VICs are currently operational in the Cuddalore District of Tamil Nadu, where the dissemination is effected through very high frequency (VHF) wireless networks, integrated with a public address system (PAS).

The climate-integrated community-based early warning system implemented by the Adaptation Learning Programme (ALP) of Dakoro, Niger, is one of the best examples of integration of community-based adaptation for disaster risk reduction (DRR). This is a decentralized, participatory programme where volunteers are selected from a cluster of four or five villages for multi-level interventions at village, municipality, local, regional and national levels during different phases of a disaster.

The ham radio is an immensely useful tool for cost-effective dissemination of information, especially in times of natural disasters such as earthquakes, floods, cyclones or tsunamis (HAM is an acronym for Hertz-Armstrong-Marconi, from the first letters from the last names of three radio pioneers: Heinrich Rudolf Hertz, Edwin Armstrong and Guglielmo Marconi). While the conventional communication systems, like mobile and land phones, get destroyed or fail due to overloading, these equipments have stood the test of time by providing uninterrupted flow of information. A network of amateur radio licensees in Kerala can also serve as an alternative system, should the means of conventional communication fail.

Disaster risk reduction is best achieved by forming task forces at the community level. Apart from representatives from women's organizations, these teams should comprise retired personnel, youths from local NGOs, CBOs, residential organizations, and volunteer organizations such as the Civil Defence, Nehru Yuva Kendra Sangathan, the National Cadet Corps, the National Social Services, the Indian Red Cross Society, Bharat Scouts and Guides, and St. John Ambulance Brigade. They should work towards building up the capacity and resilience of vulnerable communities.

Quick Response Teams for first aid and search-and-rescue at the community level can also play a vital role in disseminating warnings and render help during the relief, rescue, rehabilitation and reconstruction phases. The recently formed Rapid Response and Rescue Force (RRRF) of the Kerala Police, even after rigorous training in various aspects of rescue and casualty management, remains severely underutilized.

A prompt, well-co-ordinated and effective response will not only minimize the casualties and damage to property, but also will facilitate early recovery. Apart from institutional arrangements, a set of procedures (SOP) clearly delineating the roles and responsibilities of each stakeholder agency is also required. Written documents on specific actions to be taken in relation to preparedness, early warning, response, relief and recovery phases, can considerably reduce the risk levels from any disaster. The initial confusion and chaos noticed in the early hours of the management of Cyclone Ockhi show that a SOP, in whatever form, was clearly missing.

Mitigation

As climate change will continue to exacerbate both the impact on, and the number of casualties of, among fishing communities, there is an urgent need to take disaster-mitigation efforts beyond the award of compensation to the victims. Disaster-risk insurance is both a cost-saving and risk-management strategy, to increase the resilience of individuals and communities to external shocks. A comprehensive, indemnity-based (factoring the actual loss) insurance policy for climate-

related disasters, is on the anvil in Kerala. It is proposed that families below the poverty line (BPL) are completely exempted from paying the premiums.

Notwithstanding the long-term benefits of non-engineered measures such as planting of mangroves along the coast, risk-reduction measures have traditionally leaned more on structural interventions such as construction of sea walls, cyclone shelters, cyclone-resistant buildings, road links, culverts, bridges, and so on. The creation of green-belt buffer zones, also known as shelter belts or bio-shields, can significantly reduce the loss of coastal habitats, and protect human lives and property from cyclones and tsunamis.

However, the mangrove forest area in Kerala has been reduced to 1,750 ha from a historically high level of 70,000 ha. An awareness drive on the ecological significance of conservation of mangrove forests will help reduce disaster risks along the coastline.

Climate change and consequent warming of the oceans pose multiple threats to the fisheries sector, the most glaring impact being the decline in the availability of marine resources. Kerala's annual catch of mackerel, for example, was 399,000 tonnes in 2012, which drastically dipped to 45,000 tonnes in 2016. The concept of 'alternative lvelihoods' or alternative income generating (AIG) activities has emerged from similar unsustainable exploitation of other marine resources and the increasing pressure on them by a burgeoning population.

While promoting both environment and natural resource (ENR)-based livelihood activities, such as agriculture and livestock, aquaculture, and bee-keeping, and non–ENR-based livelihood activities such as handicrafts, and carpentry, care should be taken not to confine women to gender-specific activities such as garment-making and cooking.

Despite significant advances in meteorology, hundreds of fishermen in Kerala still rely on the traditional wisdom handed down over generations for predicting weather and sea currents. During Cyclone Ockhi, Marianad village reported zero casualty, thanks to the premonition of some of the traditional fishermen. Documentation of such traditional wisdom will augment mitigation measures to help face future challenges.Various Bureau of India Standard (BIS) codes have been developed for the construction of cyclone-resistant structures, such as shelters, roads, bridges, canals and transmission towers, which are seldom followed. Strict compliance should be ensured.

Realizing the need for empowering the younger generation, the Government of India had introduced disaster management in the school curriculum, but it is confined to Central Board of Secondary Education (CBSE) schools. Since educating a student is a sure way to build up community resilience, the State Education Boards should also be encouraged to follow suit. Empowering the communities to manage their risks through locally owned and locally appropriate approaches was the most important theme which emerged in the 2017 Global Platform for Disaster Risk Reduction, at Cancun, Mexico, in May 2017. The rationale behind promoting community-based disaster risk management is that communities are the first responders to a disaster, and hence they should be given necessary training to mitigate and manage their risks.

During cyclones fishermen have often drowned for want of timely help, especially since rescue agencies took a long time to spot those affected, as the precise whereabouts of the victims were not known. Recruitment of educated people from the fishing community to the Coastal Police and Marine Enforcement Wing can address this issue and ensure better co-ordination during such rescue operations. Proper representation and inclusion of local community members in various disaster-management bodies is also needed.

New intiatives

Lack of proper training and inept handling of specialized rescue devices

IMD

The Cyclone Warning Centres (CWCs) of IMD crowd only the eastern coast, leaving a visible gap on the western side

had often led to false alarms being sent out to rescue agencies, leading to wastage of time and resources. Sensitisation and awareness of fishermen about rescue operations should, therefore, become an integral part of any disaster risk reduction initiative.

According to the Global Climate Risk Index (2018) released at the 23rd Conference of the Parties (COP23) of the United Nations Framework Convention on Climate Change (UNFCC), the Indian subcontinent is one of the most vulnerable countries to climate-related isks of rising sea levels, storms, floods, drought, heavy rainfall, landslides and heat waves. Kerala occupies a special place in the vulnerability atlas of India, owing to its geographical and geomorphological peculiarities. The coastal plains of Kerala have also earned the status of being among the most populated areas in the world, with a very high population density of 2,168 persons per sq km. (In 2012 the state's total population was 34.8 mn.) The most significant vulnerability factor of the state, apart from the dense settlements, is the low altitude of the coastal plains, rising just 3-6 m above the mean sea level, making the communities extremely vulnerable to the vagaries of sea-level rise and other disasters.

A stitch in time can perhaps save not nine but millions of lives!

For more

http://www.tn.gov.in/tsunami/index.html
Tamil Nadu State Disaster Management Agency (TNSDMA)

http://sdma.kerala.gov.in
Kerala State Disaster Management Authority (KNSDMA)

In the Eye of the Storm

In the wake of tropical cyclone Ockhi, the focus now should be on improving at-sea cyclone preparedness and search-and-rescue co-ordination to save precious lives

As a low-pressure system in the Bay of Bengal, near the southeast coast of Sri Lanka, intensified into a depression in the early hours of 29 November 2017, as per its well-established protocol, the Indian Meteorological Department (IMD) issued its first bulletin warning of gusty winds and heavy rainfall over south Kerala and south Tamil Nadu. The bulletin was dispatched to the senior-most levels of the central and state governments, including the control room of the National Disaster Management Authority and the chief secretaries of the states of Kerala and Tamil Nadu. Fifteen per cent of all depressions develop into cyclones, and the bulletins are meant to forewarn the government's disaster managers, the shipping industry and coastal communities.

Ultimately, any solution has to take into account fishers livelihood and working conditions. Fishworkers' safety has to become a priority now.

As the information reached the Kerala government, Alban Alphonse was preparing to go to sea for the day's fishing in Poonthura village, less than 10 km from the state capital, Thiruvananthapuram. Each day at least 600 fishermen from the village set out to fish at around 2 pm and return just after dawn the next day. Since they did not get any information from their state government warning them not to go out to sea, Alban and the others went fishing at the same time on that fateful November day.

The exact time when the bulletin was issued—1150 hrs IST—was crucial to the coastal villages in the region where the rough weather was expected. For fishermen along India's Arabian Sea coast, the October-December months are the busy period, and particularly so along the densely populated coasts of southern Kerala and Tamil Nadu. The post-monsoon Arabian Sea, where cyclones are relatively rare, is calm and the catch is plentiful. Fishing is as diverse as it is competitive in these parts. Shore seines dot the coasts of several villages; small non-motorized catamarans go out on short morning fishing trips near the shore; larger motorized plywood and fiberglass craft or *vallam*s go out farther—at least 20 nautical miles—staying out at sea for anywhere between half a day to five days. Larger mechanized vessels (15-18 m overall length or OAL), leave from the harbours in Kochi and Kollam, some of them long-liners voyaging 800 nautical miles in search of shark and tuna. Each group presents a different set of challenges of fishermen at sea, but these groups as a whole had been neglected in official disaster planning.

Early warning system

Thirty-seven-year-old Alban was accompanied by two other fishermen in a 30-ft-long plywood craft fitted with an outboard engine, the most common type of fishing vessel in the region. They navigated 19 nautical miles southwest of Poonthura and at sunset, they lowered anchor to start paying out the nets. "There were a few waves and some wind but this wasn't unusual in our work. But then it started to rain and it got foggy, and when we pulled in our nets at 3 the next morning, we noticed on our GPS (global positioning system) that the

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vallam had drifted another 12 miles." The current had been too strong for the anchor and had pulled them down deeper. They decided to return to the shore but the winds buffeting the boat made the progress very slow. Then, suddenly, the waves started to crash against the boat from every direction.

Contrary to the IMD's initial forecast, BOB 07—as the system was called—had rapidly strengthened into a cyclonic storm by the early morning of 30 November. The process took just 24 hours, as against the usual 72 hours or more. Meteorologists were calling it Ockhi—which means 'eye' in Bengali—and while its winds were between 45-65 kmph at the shore, Alban and other fishermen were caught in the cyclone's cloud bands, which covered a radius of over 200 km. A 10-ft wave finally capsized their vessel and threw the three men overboard. "Normally, we can withstand fairly strong winds, though a careless operator could cause the vessel to flip even against a slight breeze," said Alban, sitting in his house in Poonthura last month. "This time, there was no way to hold it steady even by riding with the wind."

When they noticed the change in weather, the families on shore had expected their men to return before their usual time. But when many did not return later that morning, the women rushed to the local church, a pillar for the communities on the coast in southern Kerala and Tamil Nadu. "Only when Father made frantic calls to the local administration did we find out that there was a cyclone coming," said Delby, who lost her 38-year-old husband in the cyclone. A month after the cyclone, the government informed the Lok Sabha (India's lower house of Parliament) that 100 people were confirmed dead and nearly 500 were still missing, all of them fishermen caught in Ockhi's devastating path. Over 260 fishermen were injured. Nearly 400 fishing vessels were either fully damaged or lost.

On that first day, 90 men had not returned to Poonthura. Several swam or floated to safety farther up north, even as far as Karnataka, or were rescued by other fishers, the Coast Guard and the Indian Navy. Alban was rescued with five other men by a navy helicopter on the afternoon of 1 December. They had stayed afloat holding on to their capsized boat for over 30 hours. By end December, seven dead bodies had been recovered but 29 men were still missing from the village. Poonthura's beaches are lined with loudspeakers for emergency announcements but these went unused on the 29th. "Bad weather warnings are rare in these parts but we did occasionally get them from the church during the monsoons. The Collector's office usually alerts the church," said Leon, Alban's boatowner and a retired fisherman. "If we had been informed, no one would have gone to sea that day."

The Kerala government has questioned the IMD's delay in issuing a cyclone warning, which came only at 8:30 am on 30 November, by which time hundreds of boats were already in the storm's path. "Normally, meteorologists get at least five to six days to track the progress of a cyclone from genesis to landfall," said S Sudevan, director of IMD's Thiruvanthapuram Met Centre. "But Ockhi intensified in just 24 hours, which is very rare. Even so, our very first bulletin warned fishermen not to venture into the

MANAS ROSHAN

Silveraj, 38, of Poonthura village in Kerala, India, died due to the cyclone on 30 November. His wife, Delbi, doesn't want their son to be a fisherman

Interview with Sahayam, Vizhinjam survivor

Vizhinjam in Thiruvananthapuram's Nayyattinkara taluk is a busy fishing village just a few kilometres from the bustling tourist hub of Kovalam. The village of about 20,000 people has over 5,000 active fishermen. Most fishermen in Thiruvananthapuram coastal villages like Poonthura and Vizhinjam use 6-8m long non-mechanized boats made of plywood or fiberglass fitted with outboard engines (usually two, of 25 hp and 9 hp). They are mostly single-day fishers but in each village the timing of departure and return varies, depending on the topography of the coastline and the composition of the catch in their traditional fishing zones. In Vizhinjam, the fishermen set out between 2-3 am every morning and return by 11 am. Vizhinjam has its own harbour which allows the fishermen to venture out at night and not depend on the tide.

In the aftermath of cyclone Ockhi, seven bodies of fishermen have been identified but 30 are still missing (20 from non-mechanised and 10 from mechanized boats operating in other districts.) A majority of those dead/missing were young—under 35 years.

Q: How far do your boats go to fish and is there a particular type of fish that dominates your catch?

Sahayam: We travel about 20 nautical miles to begin with, because there's no catch closer to the shore. Then depending on what the conditions are like, we even go up to 60 nautical miles. There isn't any one type of fish we look for. We bring home whatever we catch but get a lot of *choora* (tunnies).

Sahayam, a fisherman from Vizhinjam, held on to his capsized *vallam* (motorized country craft) for nearly two days before he was rescued by the navy near the Kollam coast, India

Q: What are your costs per trip and how much do you catch on a good day?

A: To fish within 25 nautical miles, the cost is about INR3,000. To go deeper, it can go up to INR4,000 to 5,000. On a good day we can get even INR10-20,000 worth of fish. On bad days, we might even make a loss.

Q: So, this last month that you haven't been working, how much have you had to borrow?

A: In a month we need about INR20,000: children's school fees, food expenses, etc.

Q: When did you go to sea on the day of the cyclone and what was the weather like?

A: On the morning of 30th November. I had my own boat, *Sajitha-Sajith*, and there were four of us that day on board. Two of us returned but the others were lost. The weather was perfectly fine when we left. We were five boats travelling together and we lowered anchor at about 25 nautical miles. But our catch was negligible and one of the boatmen said that the wind was getting stronger and that we should go ashore. So, we started at around 7 am from that spot and when we were about 9 miles out, the storm struck. We'd been moving for over two hours when the wind and the rain came. It was so stormy after that; we couldn't look at our GPSs and we lost our bearings. We couldn't even see the other boats near us.

The boats were filling up with water and finally a big wave threw two of the men into the sea. We'd managed to hold on till about noon. We couldn't do anything when the men first fell overboard. The wind was pulling the boat away and if we didn't hold on, we'd also fall out of the boat. Then 20 minutes later, another wave overturned our boat but before we were thrown, Jose (*the other fisherman who remained with Sahayam*) and I had tied ourselves to the boat. The wind and the waves were terrifying through that evening and night. But we held on to the rope and were finally rescued by a navy vessel on Friday

afternoon (*1st December*). Not that we expected to live; we were certain that we'd drown, because even the previous day we thought some ship or fishing vessel would rescue us but then when there was no pause in the storm, we lost hope. But at least our bodies wouldn't be lost if we tied ourselves to the boat. Those back home would know it's us looking at the name of the boat because the corpses are unrecognizable after a few days at sea.

Q: Did your family expect to see you again?

A: They had gone from worry to despair before they saw us but while there was the joy at seeing us alive, their cries only got louder—tears of joy and relief. Others, whose husbands or sons had been with us at sea, were still grieving but they were happy at least some of us had returned.

Q: While you were floating with your boat, did you encounter any ships passing by?

A: On the evening of the 30th a big ship passed very close to our boat. We waved with our shirts and called out but they didn't see us. We saw another ship just about two hours before the navy arrived. We waved to that one too but they didn't come to save us. Then, when the navy rescued us, the personnel told us that they wouldn't normally venture that far but had been alerted about our location by a ship.

Q: Did the navy personnel tell you what your location was when you were rescued?

A: Yes, they said that we were found 54 nautical miles west of the Kollam coast (over 90 miles north of Vizhinjam). We were on the navy vessel for four days; they took very good care of us. They moved us to a smaller vessel which dropped us at Cochin. They were told to extend their search for seven days so they themselves couldn't bring us back.

Q: The IMD's alerts said that the wind speed that day was about 45-55 kmph, which many say is fairly common. Are your boats threatened by such strong winds or were the conditions that day very different?

A: If we'd got a warning that day, we wouldn't have gone. We don't go fishing when we know that the sea is rough. One can tell as soon the boat leaves the shore, so we don't go very deep into the sea and come back soon. I've never see such big waves as we experienced that day. A wall of water would tower over you.

Q: Why is it that the fishermen continue to go to sea without life jackets despite there being a rule to carry safety equipment?

A: Certainly, life jackets would have saved several lives, but they're not something you can buy in the market around here. The fisheries department had distributed a few life jackets to some boat owners years ago but there are over 2,000 boats going from this harbour and the surrounding areas. That is around 5-6,000 men.

Q: What would be a better way to warn fishermen about cyclones when they are already at sea? Would you be able to afford satellite phones or distress signals?

A: If the government can provide them to us, we can. Even an expense of INR10,000 is a big amount for us to afford. There might be a few well-to-do boat owners who can afford satellite phones but the most effective way to warn us is through the church.

Q: Will you continue to go fishing after this or would you like to do something else?

A: All I know is fishing; I've been doing it for 15 years. I left school after class 5. The government says it will help us and compensate us for our losses but what do we do till the money arrives? I need to repay the bank loan on my boat. I asked the bank for an extension but they didn't allow it. Nowadays, we mostly stay home, come here to the harbour in the evenings and return at night to our families. The mood at home is also changing; they were very happy when we returned but how long can we live on debt? So, the conversations at home are also getting tense.

sea. The IMD has a well-established standard operating procedure (SOP)."

"We convened an emergency meeting on 30 November, as soon as we saw the word 'cyclone' in the sixth bulletin that morning. The rescue operations began soon after," said P Kurien, Prinicipal Secretary of Revenue and the Disaster Management State Relief Commissioner for Kerala. It is a fact that 45-65-kmph winds are common for the fishermen at sea, but contrary to what the Kerala government has said, the IMD bulletins are only issued in the case of a depression, along with a disclaimer about possible intensification. Next door, in Kanyakumari's fishing villages, the Tamil Nadu government used the churches on the coast to alert fishermen the previous day, a testament to the state's well-developed disaster management systems and infrastructure. "Our control room in Chennai got the IMD alert on 29 November and as per the SOP, we informed all coastal district collectors and fisheries directors through email, fax and text messages," said Rajendra Ratnoo, Tamil Nadu's Commissioner of Disaster Management. "One gazetted officer is posted on duty round the clock and during the October-December period, which is the cyclone season, it's an officer at the level of Deputy Collector," said Ratnoo, who claims to have personally informed the fisheries department at 1:30 pm on the 29th.

Despite the state's efforts, eight villages in Kanyakumari sustained the heaviest losses, with 24 dead and 237 still missing. This was because most fishermen of Thoothoor and its surrounding villages work on the mechanized vessels operating from Kochi. Their month-long fishing trips in search of shark and tuna completely cut them off from the government's warning systems and now their routes—west and northwest of the Kerala coast—put them directly in Ockhi's path. As Alban and other fishermen were tossed around and finally pushed north, the cyclone's real fury was headed towards the Lakshwadeep Islands, where gusting winds of up to 180 kmph were recorded, according to the IMD's preliminary report on the cyclone.

Selvaraj, a 35-year-old boatowner from Vallavilai in Kanyakumari district, had left Kochi harbour with 13 workers on board his 18-m boat on the night of 26 November. After navigating west, they were fishing to the south of Lakshwadeep Islands on 1 December when the cyclone struck. "In that area, the navy usually informs us if we're in a restricted area, through our wireless radios (Very High Frequency or VHF sets). They could have warned us similarly about the cyclone," said Selvaraj, sitting on the beach sand outside his village church. His boat safely reached Lakshwadeep's Kavaratti Island on the morning of the 3rd after he and his men had weathered the storm for over two days. "The boat was heavily damaged. It'll cost us about INR2-2.5 mn (1 USD=INR 64) to replace the nets, VHF sets, repair the boats, etc," he said, adding that they were lucky to be alive.

"All our boats carry two VHF radio sets. One is always tuned to channel 16 (156.8 MHz, a marine VHF radio frequency used internationally for distress calls) but we communicate using channel 65 because otherwise our conversations would clutter up the airwaves used by the ships and the navy," said Dickson, another experienced fisherman from Vallavilai. "We frequently contact passing ships when our drift-nets are in their paths, and most of them respond. Our cellphones are unreachable that far inside the sea and we don't have satellite phones. Why couldn't the ships have alerted us?".

Kurien, Kerala's disaster relief commissioner, said that this was done but that it was impossible to save everyone. "On 1 December, the Chief Secretary informed the shipping director general and many lives were saved by the ships," said Kurien.

Coastline

Remarkably, the physical coastline of the two states bears no signs of the devastation caused by Ockhi because almost all the loss of life occurred at

sea rather than on land. There is little reliable data on previous cyclones and the number of fishers lost at sea—a United Nations study on the 1996 Andhra Pradesh cyclone lists 600 casualties, though the number of dead on land was much higher. But meteorologists agree that the disproportionate number makes Ockhi unique and points to an overlooked facet of cyclones: the safety of fishermen at sea. "The IMD has specialized bulletins for sea conditions and fishermen warnings but landfall is the main concern", said Mrityunjay Mohapatra, a senior IMD scientist and head of the Regional Specialised Meteorological Centre (RSMC) of the World Meteorological Organization (WMO) in New Delhi. Perhaps the blind spot with regards to fishermen is because the efforts of most disaster-management programmes in the past have been on mitigating the damage caused by storm surges—unusually big waves caused by cyclonic winds, which account for 90 per cent of casualties during cyclones, according to the NDMA's cyclone management guidelines.

"The failure of the state was on two levels," said T Peter, Secretary of the National Fishworkers' Forum (NFF) in Thiruvananthapuram. "First, IMD's alert came too late and the message didn't reach the fishermen. The second is a bigger problem: once the situation was assessed, why were the search-and-rescue measures so badly managed?" Throughout the coastal villages of Thiruvananthapuram and Kanyakumari districts, distressed fisher families complained of inadequate response. "They could have taken the fishermen along with them sooner. We know where our men go to fish," said Benjamin Mammanus from Poonthura, who accompanied an Indian Navy vessel on 4 December. "With our help, they were able to find several large vessels but by then it was too late for the crew on smaller craft," he said.

The centre and the state agencies are deliberating sophisticated technological solutions for emergency warnings, like VHF and satellite radio sets, distress alert transmitters and the Indian Space Research Organization's 'NavIC' (similar to the GPS). These will be necessary to address the needs of Thoothoor's deep-sea fishermen. But closer to shore, the fishermen are now learning about simpler measures that had been overlooked: port warning systems, safety equipment like life jackets and buoys (mandatory according to the law but never enforced), and a registration system where all boats and crew lists are maintained on shore. "The fishermen will have to stop viewing sea-safety measures as a burden. The floatation devices could have saved several lives," said Peter (NFF).

The authorities admit that the dissemination of weather warnings to the last mile remains a challenge; but here, too, it has overlooked a cheap and effective solution: community radio. 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 managed to evacuate over 800,000 people from coastal villages, albeit with the help of accurate IMD predictions issued six days in advance. But the dissemination of the warning was helped by the media, particularly community radio stations like Radio Namaskar, a Konark-based coastal station which broadcasts content developed by, and for, the fishing community, in Odiya and Telugu. "FM radio technology is cheap and if the towers are on the coast, boats as far as 50 km in the sea can listen to our bulletins," said N A Ansari Shah, chairman of Radio Namaskar. "We don't only broadcast weather forecasts, but also songs, discussions, market prices and other practical information that is crucial to fisherfolk."

"Ultimately, any solution has to take into account fishers livelihood and working conditions," said Peter. "This problem cannot be solved with another welfare scheme or state relief package. Fishworkers' safety has to become a priority."

For more

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Growth Blues

Coastal degradation, socioeconomic inequality and the rise of purse-seine fishing in India pose a set of problems that often end in a zero-sum game for fisher groups

The Millennium Ecosystem Assessment (2005) provides testimony to the degradation of the world's natural environment. In the lush, deltaic landscape of the Netherlands, such degradation is not immediately evident, but figures on the immense loss of biodiversity taking place in the country testify to its occurrence. Thus, according to the Natural Capital Index, the Netherlands now boasts only 18 per cent of its original biodiversity, down from 30 per cent in 1950 and 55 per cent in 1900. The same is probably true for India. As far as 25 years ago, the environmental historians M Gadgil and R Guha argued in *This Fissured Land—An Ecological History of India* that "the country is living on borrowed time. It is eating, at an accelerating rate, into the capital stock of its renewable resources of soil, water, plant and animal life".

Government agencies in India are slowly acknowledging that inshore waters may be overcrowded and overfished, and that the scope for increasing catches in these regions is slim.

What is true for countries as a whole, is also true for coastal regions and for the resources on which capture fishers depend. The Millennium Ecosystem Assessment (*Ecosystems and Human Well-being: Synthesis*, 2005) makes the following assessment of global fisheries: "Over much of the world, the biomass of fish targeted in fisheries […] has been reduced by 90 per cent relative to levels prior to the onset of industrial fishing." The North Sea, which is one of the richest natural fishing grounds of the world, upon which fishers in the Netherlands rely, is emerging from a deep crisis. Major fish stocks that have been overfished for decades, are recovering slowly after very severe measures were taken. But this same marine region is suffering from land- and sea-based pollution, habitat destruction, and a variety of new economic activities gathered under the label of 'Blue Growth'. Fishermen themselves are becoming a threatened species.

Like the North Sea, the Indian coast has become a prime region for developmental activity, as is testified by the increasing number of ports and industrial areas. Marine pollution is a growing concern. Although the scientific evidence is still limited, the damming of rivers and cutting of mangroves are affecting the quality of inshore waters and spawning areas. Intense fishing activity is significantly reducing catches, and there is thus reason to believe that, certainly in inshore and offshore waters, overfishing is taking place. Government agencies in India are slowly acknowledging that inshore waters may be overcrowded and overfished, and that the scope for increasing catches in these regions is slim. In such waters, fishing seems to have largely become a zero-sum game: the gains of one fisher, or group of fishers, come at the expense of the catches/incomes of others. There are few new niches to exploit, and competition within existing niches has become more severe.

Inequality

So how does this relate to socioeconomic inequality? The first Blue Revolution instigated by Indian governments from the late 1950s

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resulted in the establishment of a modern fishery sector, next to a large, small-scale fishery. This modern fishery was based on trawling, and the assumption was that this fishery would complement the small-scale fisheries, which possessed limited geographical range, by exploiting new, offshore grounds. Instead, all over India, the trawl fishery has been in severe competition with small-scale fisheries. This resulted—with a peak in the 1970s and 1980s—in violent conflicts between the two sub-sectors and in the establishment of a national fisher movement and organizations like the National Fishworkers' Forum.

My colleague Derek Johnson and I have argued, for the states of Gujarat and Tamil Nadu, that the Blue Revolution has enlarged socioeconomic inequalities in the marine fisheries sector of India, separating a richer class of trawler owners from trawl workers as well as from the mass of small-scale fishers working along the coasts. The evidence: trawlers now bring in three-quarters of total fish catches, leaving only one-quarter for the small-scale fisheries—and this while the fishing grounds on which trawlers operate can easily be covered by small-scale fishers. It is no surprise that small-scale fishers are angry about trawling.

Scientists now recognize that trawling is in itself also contributing to environmental deterioration, through habitat destruction and indiscriminate bycatches. As one fisher in Tamil Nadu explained: "Trawling ploughs the sea bottom, levels it, leaving nothing. Trawlers take even the smallest fish!" With this new knowledge, there is reason, in hindsight, to question the choices made by Indian policymakers at the start of the Blue Revolution. If environmental and socioeconomic aspects are taken along, was it actually the best choice? It is interesting in this regard to note that Sri Lanka had a different developmental trajectory, choosing not to introduce trawling but rather to intensify other fishing methods. The different choices made by government authorities in India and Sri Lanka are now contributing to the Palk Bay fishing conflict, to which I shall return in a moment.

Socioeconomic inequality in fisheries is, therefore, not a direct result of environmental degradation, but an offshoot of the choices made in the fisheries development effort. This same development effort, however, has contributed, in important measure, to further degradation of the marine environment, and to reaching, and overreaching, the maximum sustainable yield (MSY). Just as in other parts of the world, like the

RAMYA / ICSF

"Trawling ploughs the sea bottom, levels it, leaving nothing. Trawlers take even the smallest fish!", says one fisherman

North Sea, there seems to be an imperative in India not only for conserving, but for restoration of, the marine habitat, and thereby for a rejuvenation of its fisheries.

Trawl fishers in India often resemble the 'roving bandits' described by Berkes et al. in their 2006 paper, *Globalisation, Roving Bandits and Marine Resources* 2006), as well as the 'biosphere people' of Gadgil and Guha. Not depending on any particular fishing grounds, trawl fishers move from one area to another, displacing local, small-scale fishers and causing them hardship. We have documented this process within Tamil Nadu (where big riots occurred in 1979 in Madras), as well as between Chennai trawl fishers and Andhra fishers. The latest manifestation of this same process can be seen in the Palk Bay, whereby Tamil Nadu trawl fishers are making extensive use of northern Sri Lankan fishing grounds and preventing local small-scale fishers from recovering their livelihoods. The benefits accruing to one party result in losses for the other.

The fisher *panchayat*s are, however, seriously divided, with some in favour of purse-seines while others are against.

The purse-seine fisheries I have been studying lately along the Coromandel coast of Tamil Nadu illustrate some of the trends and dilemmas mentioned above. Purse-seine fisher 'companies' target the migratory schools of small and large pelagics that seasonally travel up and down the Indian coast and have always also sustained the small-scale fisheries. Purse-seining is highly disputed, for two reasons: (i) fishers fear the absolute depletion of fish stocks, as these gears are so efficient; and (ii) fishers say that purse-seining results in some fishers gaining all, leaving nothing for others. For these reasons, purse-seining is prohibited by a large number of informal fisher *panchayat*s in Tamil Nadu.

What makes the case of purse-seining different from that of trawling, however, is that it is largely carried out by collectives of small-scale, village-based fishers. The members of these 'companies' pool capital and labour and are thereby able to compete with the trawling operations of harbour elites. Trawl owners dislike the purse-seining groups for a variety of reasons: (a) they compete with trawlers for the same schools of fish; (b) they compete for labour, which prefers to go purse-seining because the earnings are better; and (c) purse-seining catches cause fish prices to go down.

To recapitulate: purse-seining is taking place in a marine environment that is suffering from environmental degradation, and is pursued by small-scale fishers who see an unusual possibility here of making decent incomes. At the same time, some see purse-seining as contributing to further deterioration. In addition, not all small-scale fishers have the opportunity (money/labour) to participate in purse-seine fishing; in addition, many fisher *panchayat*s have prohibited the use of purse-seines in their waters. The fisher *panchayat*s are, however, seriously divided, with some in favour of purse-seines while others are against. Social struggle is, therefore, going on within the fisheries sector itself.

What does the government have to say about this matter? In response to fisher agitations, the government of Tamil Nadu prohibited the use of purse-seines in 2000, but does nothing to prevent them being used.

Environmental NGOs

This ambivalent attitude has contributed, for example, to the strange instance of the anchoring of a large fleet of purse-seine boats, for example, in Cuddalore town, which are not at all registered but go fishing nonetheless. Environmental NGOs have identified the problems of purse-seining in India and are

concerned, as one of their members said, that "purse-seining signals a race to the bottom." Scientists of the Central Marine Fisheries Research Institute (CMFRI) are investigating the state of the large schools of oil sardine that travel the Indian coast. They do not seem to have reached consensus on whether there is something to worry about.

I am convinced that the social struggles taking place in the coastal realm of India deserve more of our attention, not only for academic reasons, but for societal ones too. I view the crisis occurring in fisheries as part of an otherwise stagnating agricultural economy, and a problem of employment and social mobility. Fishers, even the better-educated ones of the newest generation, will not join the information technology sector, nor will they find ready employment in other professional fields. They are largely stuck in fishing.

The environmental problems of the coast are diminishing the size of their ecological niche, and defining their continuing position at the bottom of the larger Indian socioeconomic pyramid. At the same time, they are struggling for a piece of the pie that is generated within fisheries. This struggle is being exacerbated by institutional fragmentation, indecisiveness, and uncertainties of knowledge.

Fisheries is only one of the livelihood opportunities practised along the Indian coasts, albeit an important one. We, as social scientists, have a role to play in resolving the struggles that occur, if only to bring to the public attention that: social struggles over livelihoods and natural resources continue, also along the coast; these struggles take place over a diminishing ecospace, positing stronger against weaker social parties; unequal access and opportunity are core features of such struggles, and revolve around conceptions of 'fairness'; 'technological change' is a factor contributing to diminishing ecospace as well as to unequal opportunity, and restrictions on technology are urgently required; and the government needs to collaborate with user groups to define long-term coastal management plans that include reference to precautionary ecological principles as well as to the importance of livelihoods and sustenance of poorer citizens.

A concerted effort in facilitating an understanding of social dynamics in India's coastal zone is of tremendous importance. Social justice is one of the aspects deserving attention.

For more

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Boon or Doom?

While cage culture in inland open waters can help increase fish production in India, there is a need to be wary of hasty and arbitrary policymaking

Cage aquaculture, though relatively new to the inland aquaculture scenario of India, brings in new opportunities for optimizing fish production from reservoirs and lakes, and also developing new skills among fishers and entrepreneurs to enhance their earnings. Generally perceived as a boon for increasing production, this mode of production can as well turn out to be a harbinger of doom, if allowed to grow unchecked. This article stresses the importance of (a) following the existing guidelines on cage culture, (b) the need for developing norms for better environmental impact assessments, and (c) the importance of exercising caution while aggressively pursuing cage culture in inland open waters of India.

...culture of fish in enclosures such as cages and pens installed in open water bodies offer scope for increasing production...

Considering the ever-increasing and often conflicting cross-sectoral demands for water and land, there are limitations for growth in pond-based aquaculture. In this context, culture of fish in enclosures such as cages and pens installed in open water bodies offer scope for increasing production, obviating the need for more land-based fish farms. However, mindless proliferation of this activity for increased production can lead to some very serious environmental and social problems. The first and foremost is the high nutrient input that the water body receives in the form of unused feed and metabolic wastes of caged fishes. Equally important is the physical obstruction to the fishing activities of traditional fishers and the resultant conflicts. Exotic species, after escapement from cages, can play havoc with the ecosystem and its biodiversity. High input of feeds can lead to eutrophication and related damage to the ecosystem. Eutrophication upsets the nutrient cycles and the community metabolism of reservoirs, making them barren. It must be borne in mind that our reservoirs support fisheries on which the livelihoods of thousands depend.

After the recent introduction of pangas (*Pangasianodon hypophthalmus*), which is an air-breathing fish allowing high stocking density, 3-5 tonnes of fish are being produced from a small cage of 6m x 4m x 4m. Considering that at least 6 - 10 tonnes of feed go into the system per cage per production cycle, the staggering scale of artificial nutrient loading it can cause is mind boggling. A mad rush for cage culture in reservoirs has already started in the country and if continued unabated, the situation might go out of control, leading to a disaster, much greater in scale than the shrimp culture debacle of the 1990s.

Ecological disaster

Laguna de Bay is a living example of how uncontrolled growth of pen culture triggered off an ecological disaster in the Philippines. Cage culture is a relatively new area of fish production in India and its environmental impacts are not fully understood. There is a wealth of literature abroad on assessing the nutrient loading, which is directly

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related to the feed input and feed conversion rate (FCR). But these models are not directly applicable in India due to the different environmental regimes under which these have been developed, especially the variations in temperature and trophic status. Efforts are on to develop such models in India, but the results will not be available for a while.

Research institutes in India that develop cage-culture technologies often neglect studies on its environmental impact, although such studies are essential and complementary. Our research institutes should pay attention to assessing the carrying capacity of reservoirs and inform the government and policy-makers how to proceed with developing cage culture in the country. Hasty and arbitrary policymaking at the state level to allow cages in large numbers in reservoirs without assessing the environmental impacts is a matter of deep concern, especially in the backdrop of our bad experience with coastal aquaculture in the 1980s and 1990s when unregulated growth without addressing environmental concerns resulted in disastrous consequences to ecosystems. Following the guidelines of the Code of Conduct for Responsible Fisheries of the Food and Agriculture Organization of the United Nations (FAO-CCRF) for dealing with data-deficient systems, our policy towards environmental impact assessment (EIA) of cage culture should be based on a precautionary approach.

Recognizing the importance of cage culture in inland open waters, a National Level Committee was set up on 25 April 2016 to develop guidelines with a mandate to (a) assess the potential of this culture system to contribute to increased production, employment, income generation and other benefits, (b) assess the possible environmental and socioeconomic impact, (c) suggest precautions to be taken, and (d) suggest the modes of propagating and scaling up this technology to optimize benefits in a sustainable manner. The committee developed a set of guidelines that provide several recommendations covering many aspects on cage culture such as (1) the relevance and scope for cage culture in inland open waters, (2) definition of cage and cage culture, (3) cage size, shape and materials, (4) site selection, (5) cage maintenance, (6) species selection, (7) stocking density, (8) feed and feeding and FCR, (9) fish health monitoring, (10) safety measures, (11) market, post-harvest facilities and infrastructure, (12) environmental precautions and impact assessment, (13) carrying capacity, (14) ownership, (15) beneficiaries, (16) governance, (17) and (18) social relevance.

These guidelines are addressed to all stakeholders, including farmers, self-help groups (SHGs), co-operative societies, other community organizations, business process development facilitators (BDFs), farmer producer organizations (FPOs), Fisheries Departments of the Indian states, the Department of Animal Husbandry Dairying and Fisheries, Government of India, and its institutes, research organizations and environmentalists. But it is pertinent to note that at present, India does not have an umbrella agency that oversees/regulates freshwater aquaculture activities or implements guidelines/best management practices (BMPs). Equally glaring is the lack of a uniform policy across the country that governs freshwater

NFDB

Cage culture in Chandi Reservoir, India. Generally perceived as a boon for increasing production, this mode of production can as well turn out to be a harbinger of doom

aquaculture. Thus, there is no scope for these guidelines to be readily implemented at this stage. Nevertheless, these can still (a) guide the departments/agencies of the state and central governments in formulating development plans based on cage culture, (b) inform policies to be framed in future, and (c) guide farmers and entrepreneurs for practising responsible cage culture in the country.

The following are the major highlights of the guidelines:

- Due to ecological reasons, cage culture in rivers needs to be discouraged.
- Subject to other conditions, it can be practised in estuaries, lagoons, lakes and large/medium reservoirs.
- Cage culture shall be allowed in water bodies having a surface area 1,000 ha or more at FRL. (Exception to this can be made only in case of 'very deep abandoned mines', which are less than 1,000 ha in area, but too deep for practising culture-based fisheries, subject to all other conditions prescribed).
- Cage culture shall be allowed in reservoirs with an average depth of 10 m (average depth is calculated as: area in hectares divided by water holding capacity in m3).
- The cage site at the reservoir should have at least 10 m depth round the year.
- Cage culture should not be attempted in any water body having total phosphorus and total nitrogen levels in the water exceeding 0.02 mg/l and 1.2 mg/l, respectively.
- Environmental impact assessment is necessary before clearing cage-culture projects. This will be done/facilitated by recognized organizations, following the standard procedure.
- The state governments should demarcate, list and notify water bodies that are suitable for cage culture on the basis of its trophic characteristics and other criteria of site selection, and upload the list of water bodies and their suitability on geographic information system (GIS) platform with the help concerned institutions.
- It will be mandatory for the cage-culture operators to record the water quality parameters like dissolved oxygen, pH, CO2 and total alkalinity, inside and outside the cages, from day one of the operation, keeping in view the need for long-term environmental impact. Any increase in nutrients level away from the cage area should be taken as a warning.
- It will be mandatory for the cage-culture operators to collect data on the trophic status in and around the cages as well as the areas away from the cages periodically and report to the authorities to assess the impacts in terms of nutrient loading. Studies on other chemical and physical quality parameters of water and sediments also shall be collected as per the risk perception.
- NFDB and central organizations will build capacity at state governments to interpret such data and arrive at conclusion.
- *Pangasianodon hypophthalmus* and *Genetically Improved Farmed Tilapia* (GIFT tilapia) are allowed to be cultured, but all other exotic species (including illegally introduced fishes) are strictly prohibited for cage culture.
- As far as possible, use of antibiotics and chemicals should be avoided. However, in the event of it becoming necessary under exceptional circumstances, the use should be judicious and it must be clearly understood that only approved drugs/chemicals, permitted by government regulatory authorities at standard doses shall be used.

The carrying capacity of a water body to hold cages is the most vital input for decisionmaking in cage culture. But, unfortunately, we are not in a position to arrive at carrying capacity at decent precision levels due to paucity of data. Therefore, guidelines on carrying capacity have been based on a precautionary approach. Provisions of the FAO-CCRF clearly stipulate the need to follow

the 'precautionary approach' while dealing with data-deficient systems. Accordingly, taking into account the general trend of nutrients in Indian reservoirs and the possibility of nutrient loading from cage culture, the guidelines prescribe the following carrying capacity on a precautionary-approach basis (Table 1):

Table 1. Limits set for cage culture in reservoirs under the guidelines

Reservoir area (ha)	Maximum number of cages allowed (1 unit is 6m x 4m x 4m)
< 1000	Not allowed
1001 to 2000	500
2001 to 3000	1000
3001 to 4000	1500
4001 to 5000	1900
5001 to 10000	3000
>10000	5000

As standalone or in in batteries (of 6, 12, or 24 units) as required

Large-scale production through cage culture can adversely impact prices, leading to a glut in the market, which can act as a major disincentive to present and potential entrepreneurs. A few cases of glut have been reported, especially with regard to problems in marketing of *pangas*. With many newer species such as tilapia, seabass, cobia, etc, lined up for cage culture, a careful strategy involving marketing plans, value addition and market infrastructure should be evolved.

Unlike land-based aquaculture undertaken on private land, cage culture is practised in common-property resources. Therefore, the question "who owns the cages installed in reservoirs" needs an important consideration. While answering the question, the following facts need to be considered:

a. Almost all large and medium reservoirs in the country are owned by the government or government-controlled agencies, which are used by fishers as 'common-property resources' with 'free' or 'almost free' access.
b. Fish produced from the reservoirs is essentially a natural resource in the form of 'ecosystem goods and services', on which the traditional and local fish communities have the 'natural primary rights'.
c. The livelihoods of many poor people depend on catching fish from reservoirs.
d. Reservoir fishing is used sometimes as a means to rehabilitate people ousted from the dam projects.

Considering the above facts, it is essential to ensure that expansion of cage culture does not impair the livelihoods and income of fishers. Cage culture can adversely impact the interests of local fishers by denying them access to fishing grounds, obstructing their pathways, and by way of a decline in fish catch. Fish catch can be adversely affected in many ways such as by lowering the natural productivity, eutrophication, algal blooms or through the impact of exotic species. At the same time, it is equally important to utilize the additional fish production potential through cage culture. Considering the need to avoid conflicts, the best way to achieve the goal is to empower fishers to take up this activity collectively. Pursuing a purely revenue approach (as being followed by some of the state governments) by allowing individual investors and corporate houses to undertake cage culture will be against the spirit of inclusive growth and can create social tensions. Thus, the community (or a group of members of the community) should own the cages as a common property and they should be the beneficiaries of this technology.

Co-management principles

A strong governance platform based on co-management principles is essential for responsible cage-culture operations to be undertaken by the community. But the existing fishermen's co-operative societies have a poor track record of functioning responsibly to work as a group. This throws up a big challenge to the government on how to organize and empower the fisher communities and develop capacity among them to enable

NFDB

Preparation of a bamboo cage. Drafting hasty policies without delving deep into the areas such as ecosystem processes can cause irreversible damage to the sector and the ecosystem

them to take up cage culture. SHGs, co-operative societies or other such groups should be given licenses to undertake cage culture. Under any special circumstances, should a private entrepreneur or investor be brought to the scene, governments, through strong policies, should protect the interest of the local fishers and fisher communities, who have the primary rights to the natural resource. A Conflict Management Cell should be established to address complaints.

Cage culture in inland open waters is a fast-growing activity that could have many environmental and social impacts, which may not be predictable. But adequate precautions need to be taken. The ultimate goal should be increased fish production through environmentally sustainable and socially inclusive means.

The additional income generated from the reservoirs through the growth of cage culture should be shared by the fisher community rather than an investor walking away with all the benefits, while the fishers get only wages. Apart from an increase in fish production, a meaningful social impact should be in the form of generating additional income and improved standard of living for the fisher—the main stakeholder—who belongs to one of the weakest sections of society.

Considering India's rich and varied open-water resources like reservoirs, lakes and floodplain wetlands, enormous scope exists to increase production through enclosure aquaculture. Utilizing a modest fraction of their surface area, large and medium reservoirs can contribute a substantial quantity of fish to the total inland fish production. Although cage culture has not yet reached the desired commercial proportions capable of making any impact on the production figures, it is growing at a very fast pace, giving hopes and also causing some concern. The reservoir ecosystem is complex and so are its problems. Concerted efforts by scientists, government agencies and policy-makers and, above all, the community organizations and NGOs, will be required to optimize the benefits from reservoirs and to keep off undesirable paths by learning lessons from our past ecological mistakes, including those of other countries. Evolving simplistic solutions to problems and drafting hasty policies without delving deep into the areas such as ecosystem processes, socioeconomic milieus and governance regimes, will not only be useless, but can also cause irreversible damage to the sector and the ecosystem.

For more

nfdb.gov.in/PDF/GUIDELINES/Guidelines%20for%20Cage%20Culture%20in%20Inland%20Open%20Water%20Bodies%20of%20India.pdf

Guidelines for cage culture in inland open water bodies of India

Development Refugees

Fishworker representatives from seven states of India converged at Kolkata to discuss the creation of a National Platform for Small-scale Fish Workers (Inland)

For the 20 mn strong population of small-scale fishing communities working on inland fisheries in India, 20-21 September 2016 proved to be days of immense importance. Fishworker representatives from seven states converged at Kolkata and pledged to fight jointly to end the marginalization and deprivation of small-sale fishing communities and also to end the destruction of water bodies and fish resources.

India is gifted with vast and varied inland water bodies that bear rich fish resources. Rivers and canals, reservoirs, ponds and tanks, oxbow lakes, wetlands, backwaters and estuaries yield 6.14 mn tonnes of fish which is more than 64 per cent of the total fish production of the country. The sector sustains about 4 mn fishworkers and a total population of around 20 mn.

Still, the potential of inland fishery resources is far from fully utilized. It is estimated that less than 10 per cent of the country's natural potential is used for freshwater aquaculture and for brackish water aquaculture, the area under cultivation is just above 13 per cent of the potential area available. In the case of flood-plain wetlands, the present fish production of around 50,000 tonnes can be increased six-fold to 3,00,000 tonnes and in the case of reservoirs, the present yield of 93,000 tonnes can be enhanced by more than ten times to 9,83,000 tonnes.

These huge resources are under severe stress. Rivers are poisoned with heavy pollution loads. Diversion of water from rivers for industry and agriculture is killing their ecological flow. Wetlands, lakes and ponds are being encroached and filled up by industries and real estate projects. Poor watershed management in catchment areas is cutting down the sources of water for rivers, lakes and wetlands. Natural storm water drainage is intervened by construction of roads, railway tracks and buildings, thus subjecting large number of ponds to intermittent overflow. Run-off from chemical agriculture is destroying the fish resources of wetlands and paddy fields.

The first victims are the small-scale fishers and fish farmers whose livelihood is inseparably linked with the quality of the water bodies. These small-scale fishers and fish farmers are, by far, the largest primary stakeholders and natural custodians of our water bodies. Losing their sources of livelihood, they are being turned into development refugees and have to migrate to other occupations and areas in search of a living.

It is estimated that less than 10 per cent of the country's natural potential is used for freshwater aquaculture...

Most ironically, thousands of these small-scale and traditional fisher people, who have been struggling to protect their livelihood and the water bodies, are being driven out of the aquatic areas falling within protected areas like reserve forests, wildlife sanctuaries and reserves.

Inland water bodies

Utilization of vast potentials of inland fisheries, as well as the protection of the inland water bodies, are issues that need to be addressed.

This report is by ***Pradip Chatterjee*** *(pradipdisha@gmail.com), Chief Co-ordinator of Direct Initiative for Social and Health Action (DISHA), West Bengal, India*

These issues include river, watershed and water body management, together with the rights and entitlements of the small-scale fishers and fish farmers to sustainably use and protect the fish resources and their habitats. The issues and the ways and means to address them cut across state boundaries and are truly national in nature.

Thus there is a clear need for a National Policy on Inland Fisheries and a National Platform for Inland Fisheries Groups and Organizations to discuss issues of concern to the inland fishing and fish-farming communities, and take appropriate action.

In view of the above concerns, Dakshinbanga Matsyajibi Forum (DMF), an organization of small-scale fishworkers in West Bengal, decided to organize a series of meetings in collaboration with concerned groups over the coming years. The first such meeting was held in Kolkata on 20 and 21 September 2016, with the participation of groups from the states of Odisha, West Bengal, Assam, Manipur, Madhya Pradesh, Andhra Pradesh, Jharkhand, Bihar and Maharashtra. The NGOs DISHA and ActionAid actively collaborated in holding the meeting and the International Colletive in Support of Fishworkers (ICSF) facilitated the effort.

The meeting witnessed the agonies and desperations of small -scale fishing communities working in rivers, lakes, wetlands and ponds as their representatives, one by one, described how the rivers are polluted and dried up by townships, industries and chemical agriculture, how the lakes are shrinking, and how the ponds are being filled up and encroached. The fishing community representatives also narrated how, with the connivance of the government, subsistence fishers and fish farmers are being edged out from the sector by moneyed investors.

The meeting also witnessed the resolve and enthusiasm of the fishing community representatives to close their ranks and negotiate for better future.

Pradip Chatterjee welcomed all representatives of fishing communities, resource persons, government officials and other participants on behalf of Dakshinbanga Matsyajibi Forum (DMF). He was followed by Chittaranjan Mondal, Regional Manager of ActionAid, and Sasanka Dev, Secretary, DISHA, who wished the meeting all success.

Sebastian Mathew of ICSF presented the key note address. He indicated the non-consumptive use of water resources by the fishing communities and stressed the importance of human rights over the use of water. He narrated matters of state policy related to inland fisheries, commitments that our country bears to international conventions and also stressed the issues of governance.

Saptarshi Biswas, Deputy Director of Fisheries, Government of West Bengal, described the efforts of the government, along with their scopes and limitations. He stressed the need for fishing community organizations to emerge.

Archan Kumar Das, Principal Scientist, Central Inland Fisheries Research Institute (CIFRI), gave an overall picture of the inland fisheries and dwelt on its problems and prospects.

B K Mahapatra, Principal Scientist, Central Institute for Fisheries Education (CIFE), enlightened the participants with a short but significant discourse on the statutory directives on inland fisheries.

Fourteen different groups from seven states presented their respective situations, mentioning the problems they are facing and how they think they can overcome them. The groups hailed from Loktak Lake in Manipur; Madhubani in Bihar; Chandil Dam in Jharkhand; Chilika, Bhitarkanika, Mahanadi river basin and Brahmani river basin in Odisha; Godavari river basin in Andhra Pradesh; Bagri Dam and Tikamgarh in Madhya Pradesh; pond- and river-based groups in Hooghly and Howrah districts, Jangal Mahal fishers in Paschim Medinipur and mangrove

forest fishers in the Sundarbans of West Bengal.

Then the participants were regrouped, based on categories of water bodies like rivers, lakes, ponds and reservoirs they are attached with. The groups worked to identify the chief problems confronting fishworkers attached with each kind of water body, and explored how the problems could be dealt with. The groups also worked to indicate the government protections and schemes available to them. After the rigorous group work that continued for two hours, each group presented their findings to all the participants.

The group work and its presentations were followed by a panel discussion on policy elements for inland fisheries. The panellists were Sebastian Mathew, Nalini Nayak, Suman Singh, Mukut Roy Chaudhury, Neelkanth Mishra and Pradip Chatterjee.

It was reiterated that:

- the small-scale fishworkers are, by far, the largest primary (non-consumptive) stakeholders and natural custodians of our water bodies;
- the state policy on fisheries should aim at sustainable use of water and fish resources as well as the wellbeing of the small-scale fishing communities. It should not take enhancement of productivity or investment in the sector as its primary or overarching goal;
- the small-scale fishing communities have to be empowered with Tenure Rights that include sustainable access to, and use of, water and fish resources; Governance Rights to protect water and fish resources from pollution, encroachments and overfishing and destructive fishing; and Rights to finance, infrastructure, technology, market and social security. Further, there should be Residual Rights to access and utilize the resources for alternative livelihood generation.

The panellists also mentioned the need to connect with important fisheries hubs across the country and incorporate the issues of other categories of fisheries like sewage-fed fisheries or cold-water fisheries to develop a comprehensive policy recommendation. It was also decided that while efforts would be taken to connect with fishworker communities in different states that are still not represented, representatives hailing from different states would strive to build up networks with fishing communities in their respective states.

PRADIP CHATTERJEE

Participants at the workshop. The meeting witnessed the agonies and desperations of small-scale fishing communities working in rivers, lakes, wetlands and ponds

It was further decided that a draft position paper would be prepared and circulated in one month's time, and the next meeting of the alliance would take place in six months. The name of the alliance was decided to be the National Platform for Small-scale Fish Workers (Inland). To take the work forward, a ten-member Preparatory Committee was constituted with the following activists: 1. K. S. Deben (Manipur), 2. Suman Singh (Bihar), 3. O. P. Rawat (Madhya Pradesh), 4. Munna Barman (Madhya Pradesh), 5. Milan Das (West Bengal), 6. Sannyasi Pradhan (Odisha), 7. Amulya Kumar Nayak (Odisha), 8. Dharam Pal Minj (Jharkhand), 9. Debasis Pal (Andhra Pradesh), and 10. Pradip Chatterjee (Convener, West Bengal). To advise and facilitate the Preparatory Committee, an eight-member Advisory Committee was constituted with the following members: 1. Nalini Nayak, 2. Sebastian Mathew, 3. Mukut Roy Chaudhury, 4. Neelkanth Mishra, 5. Chittaranjan Mondal, 6. Soumen Ray, 7. Neeraj Verma, and 8. Viren Lobo.

For more

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Centre to Roll Out Policy to Support Small-scale, Inland Fishermen

Following Fish

Since the late 1980s, thousands of men from the coastal villages of Andhra Pradesh, India, have travelled to Gujarat to work as skippers and crew on board mechanized fishing boats

On clear nights, when the fish are aplenty in the nets and he can take a break from steering, S Apparao thinks of his little house in Srikakulam on the northern coast of the south Indian state of Andhra Pradesh. Two lamps, one in the cabin and another on the mast of his 15-m boat, Parshuram, light up a tiny circle of the sea as it rolls under him. The first time he'd been out to sea as a boy, fishing near Visakhapatnam in his home state, this gentle motion that now rocks him to sleep had nearly thrown him overboard; he'd been sick for several hours afterwards.

That day, he'd set out before dawn, and the sun had risen ahead of the boat. These days, he looks toward the land for the sunrise; on the small radio in the cabin, the voices of other fishermen in Marathi or Malayalam alert him to where he is on the Arabian Sea.

Today, Gujarat's boats account for a quarter of the country's marine fish catch and over 8,000 registered boats pass through the state's busiest harbour, Veraval, alone.

Since the late 1980s—when there were too many fishermen and too few fish in the water—thousands of men from Andhra Pradesh's coastal districts of Srikakulam, Vizianagaram and Visakhapatnam, have travelled to the busy fishing harbours of Gujarat, working as *tandels* (skippers) and *khalasis* (crewmen) on mechanized fishing boats owned by local *kharwa* merchants. Only a fraction of Gujaratis eat fish but in the 1960s the state's enterprising sea-faring castes had spotted the opportunity early and shifted from traditional maritime trade—which was losing out to modern shipping—and moved into fishing. Today, Gujarat's boats account for a quarter of the country's marine fish catch and over 8,000 registered boats pass through the state's busiest harbour, Veraval, alone.

Over the years, deep-sea fishermen from Andhra Pradesh have replaced those from Valsad and Kerala as workers on the boats. Though there is no official count, anecdotal estimates put the number of migrants at 25,000 every season. They earn up to three times as much in Gujarat as they do fishing in small traditional canoes back home. A *tandel* like Apparao, with over 10 years of experience, makes Rs 21,000 every month and a *khalasi* is paid about half that sum (one US$ was equal to Rs. 68 in December 2016).

The highlight, they said, is the steady salary, paid in a lumpsum at the start of the fishing season. "Fishing is a gamble," Apparao told me in July, standing outside his home in Srikurmam Machilesam village. "You don't know if you'll catch anything on a given day." Apparao himself only studied till the fifth grade but he said that most of the migrants over 40 had never gone to school. After nearly a decade in Gujarat, Apparao was able to rebuild his mud house with brick and cement, and aims to complete another floor for his son by next year.

Punishing work

In Gujarat, the money is steady but the work is punishing: an average fishing trip is nearly 20 days long and the men—nine to a cabin the length of a small car—have no steady work and rest hours. The hunt for a big catch takes them as far south as Karnataka and Kerala, which doesn't win them any friends among local fishermen.

This article is by ***Manas Roshan*** *(manas.roshan@gmail.com), independent researcher*

"We're in trouble if we ever run out of fuel in these areas," said M Sandiyya, a *khalasi* also from Machilesam. "The local fishermen don't allow us to dock our boats on shore and sometimes they even confiscate our catch."

Back at the Veraval harbour, the boats dock for just a day or two to restock fuel, ice and rations. During the eight months they spend in Gujarat, the men wake up every morning on a boat.

Veraval lies three hours south of Porbandar on Gujarat's 1,600-km-long coastline. On streets that smell of fish and damp wood, almost everybody is employed in the fishing industry, but the town is better known on Gujarat's cultural map for a few shabby hotels that house pilgrims to the Somnath temple 7 km away. Once every week, the Dwarka Express travels 52 hours and nearly 3,000 km from Puri—mostly ferrying migrant workers from Odisha and Andhra Pradesh to industrial centres in Gujarat—stopping at the Veraval railway station to drop off fishermen like Apparao. But in earlier times the port saw visitors from other places than Srikakulam. It's now forgotten history to most of its residents, but for a few old Muslim sailors, that its merchants traded in textiles, dates and—even earlier—in horses, from West Asia and the Arabian Peninsula.

A few old merchant buildings crumbling in the sea air—one houses the Customs Department—hint at this history. But the Gujarati business classes are not the nostalgic kind; there's little time for anything but work and the *aartis* at the famous temple next door. Most conversations begin with the salutation "Jai Somnath", even among the Andhra fishermen when they're in Veraval. The closest movie theatre is nearly two hours away in Junagadh. (Srikakulam has at least seven theatres, all packed through the day.) In most cabins on the boats, the tiny 10-inch television-cum-DVD-player is equipment as essential to the men as Garmin GPS systems or fish-finders.

Besides being the country's biggest fishing harbour, the town has a thriving boat-manufacturing industry, a large number of ice factories and over 100 fish-processing units, most of which export to Europe and China. One such

NIKHIL ROSHAN

Workers pack fish into crates to be unloaded from the fishing craft as it returns to the Veraval harbour, Gujarat, India. The boats dock for just a day or two to restock fuel, ice and rations. During the eight months they spend in Gujarat, the men wake up every morning on a boat

unit is managed by Kenny Thomas, whose company Jinny Marine is one of the larger exporters approved by the European Union (EU). Inside its sterilized factory, over 300 local women clean, sort and pack squid and shrimp into neat, impeccably labelled containers headed for supermarkets in Spain and Portugal. "Women are preferred because they can do this sort of work faster and more efficiently," said Thomas. Nimble hands, he explained with a shrug, for customers that wouldn't want any grazed calamari on their plates.

Thomas, though, is one of the responsible employers in a more regulated arm of the industry. Kenny's father, K M Thomas, arrived in Bharuch as a fisheries officer in 1963 and was instrumental in introducing mechanized fishing in the area. He later became a fisherman and went into the export business himself. Jinny Marine has fair working conditions and even hostels for its migrant workers; labour inspectors and EU norms ensure greater labour protection in the processing units than on the boats.

...over 300 local women clean, sort and pack squid and shrimp into neat, impeccably labelled containers headed for supermarkets in Spain and Portugal.

Srikakulam is a bustling coastal town nearly three hours northeast of Vishakhapatnam. There, I met Mylapalli Trinada Rao, who has tried to draw the government's attention to a darker side of the migrant's experience. Last year, Rao, a stocky, affable director of the state Fishermen Co-operative's Federation (APCOF), wrote to Prime Minister with a list of over 60 names, of fishermen from the district who had drowned in Gujarat, Goa and Odisha since 1990. The number may not seem alarming in a country where industrial accidents and farmer suicides are all too common, but Rao pointed out that not one body has been returned to the families, who have also not got the compensation promised by state laws. He didn't expect a reply from the Government but claimed that there's been no action from the Fisheries Departments of any state.

In the Srikakulam villages I visited, some of the men spoke a little Hindi and Gujarati but the women only Telugu, and they'd never talked to their husbands' employers in Veraval. Apparao remembered the time when one of his crewmen fell into the sea and was later found tangled in the nets. "It was too late when we brought him up. We packed the body with ice in the fish hold and turned back towards Veraval," he said. But in that instance, the *seth* sent the body back to the village with another *khalasi*.

Apparao's *seth*, Tulsibhai Gohel, is president of Veraval's boat owners association, the Kharva Sanyukta Machhimar Boat Association. It's the only grouping resembling a union but designed to service capital rather than labour. Gohel is a lean, light-eyed and respected president who, like several investors in the trade, owns about half a dozen boats. Apparao said his *seth* is a good man, one of the few who gives his crew a bonus every year and doesn't grudge when they return with a meagre catch.

When I met him in Veraval in July, Gohel was finishing with a meeting with local officials to launch a *Swachh Bharat* (clean India) drive at the boat jetty. Dressed in a formal shirt and derby leather shoes, he was driven in his Toyota Innova to a modest association office, where, seated on a faded cushion on the floor, he oversaw the settlement of a few minor disputes. There was no mention of the workers in the matters that came up for discussion. Later, I asked Gohel how he dealt with cases of men drowning at sea. "There are very few because we don't let the men carry alcohol on the boats," he assured me. "All the accidents happen at the harbour when the boats are back. The men sometimes drink at night and fall into the water between the parked boats."

Apparao agrees. (He stopped drinking a few years ago while on vacation in Srikakulam when he realized he was draining his savings.)

NIKHIL ROSHAN

Migrant and local fishers always work separately to avoid fights. Labour inspectors and EU norms ensure greater labour protection in the processing units than on the boats

But others in his village denied that the deaths were caused by drinking alone. "How many deaths can you have at the harbour?" asked Sandiyya. Marine fishing laws require all boats to be equipped with lifejackets, buoys and even portable toilets. Few boats in Veraval have lifejackets and for toilets the men sit precariously on the narrow bulwark, hold on to the rigging and point their backsides outward as the sea pitches the boat from side to side.

In Veraval, the sun-bleached marine police station sits on a deserted beach outside the town. Inside, a Constable, thumbed through a large register to find me the information on deaths at sea this year. There were two: a Bhagwan-bhai from a village in Valsad and Ramlu Badi of Dagalu in Srikakulam, as they appeared in the careless handwriting of a station officer. There was no other information; when I tried to find Dagalu in Srikakulam, I was told there's no such village.

One morning at the start of June, with the sun rising over Veraval *bundur*, the *Parashuram* set out on another long trip down the western coast, packed with over 7 tonnes of ice and enough ration for Apparao and his crew. This was the last trip of the season. The radio crackled with greetings of "Jai Somnath" between the other boats sailing out, and through his cabin window Apparao could see the giant temple on the edge of the coastline. They'd pass Mumbai in a day or two. The sea was a lot rougher because of the strong monsoon winds, and the men held on to the ropes. Normally, they could stand on their feet as the sea tossed the boat and still haul in the nets and sort the fish, but the men hadn't been home in eight months. No accidents on this last trip.

Apparao thought about the festivities in Machilesam the previous year. It had been his village's turn to host the *panchayat* for the feast of their guardian deity, Polamamba-mata. Most of the other tandels did nothing but eat and drink for the four months they were home. Not him; there were debts to settle and work that needed to be done on that first-floor bedroom. He felt the engine roaring under him as he turned the boat southward in the direction of the other boats. The screen of his fish-finder glowed with numbers and broad strokes of blue. Somewhere in there was that prize catch.

For more

icsf.net/en/occasional-papers/article/EN/160-a-study-of-migr.html?limitstart=0
A Study of Migrant Fishers from Andhra Pradesh in the Gujarat Marine Fishing Industry

Heading West

The difficult working conditions of migrant labourers in the fisheries of the Sindhudurg district of Maharashtra raise both social and human-rights issues that need to be solved

The sound of many voices harmonizing together in song filter across the courtyard of Shammi Kelaskar's house, near Vengurla in the Sindhudurg district of Maharashtra state, on the west coast of India. Shammi identifies himself as a fisherman, although he rarely goes fishing these days. The men singing folk songs in his yard are the real fishermen.

I meet them the next morning, sitting on a huge pile of red fishing nets, their fingers working at lightning speed to mend the nets, while they chat with each other in a language that seems extremely out of place. The fishermen speak Telugu, a language from the east coast of India. I wonder what they are doing in this remote part of the Konkan coast. "They have come here from the state of Andhra Pradesh", says Shammi. "I hire them to help with my purse-seine net". The fishers of Sindhudurg may be far removed from the bustling fish markets of Mumbai, yet individuals like Shammi need to employ a sizeable crew of 10-15 men to run their small purse-seine operations that supply sardines for export.

The migrant fishermen working on Shammi's net are not unique. During subsequent visits to the area, I have found that hiring migrant labour from Andhra Pradesh is a regular practice among purse-seine fishing boatowners in Sindhudurg. While migration is not unusual in marine fisheries, it is usually seen along the same coast, or at least within the bounds of recognition of fishing cultures or castes. To see such long-distance migration, to a region like Sindhudurg that is not well connected nor very well known for well-developed fisheries, is highly surprising.

Previous studies on migrant labour from Andhra Pradesh have focused on their contribution to fisheries in the state of Gujarat, particularly in the important fish-landing centres of Veraval and Porbandar. These studies have revealed the organized nature of this labour market, with a system of advance payment to the migrants, followed by a fixed monthly wage. In contrast, the migrant labour system in Sindhudurg is poorly organized, being much newer, and migrants often enter into direct verbal agreements with boatowners, rather than going through contractors.

...hiring migrant labour from Andhra Pradesh is a regular practice among purse-seine fishing boatowners in Sindhudurg.

Purse-seine operations in Sindhudurg are relatively recent, adapted by locals who had contact with fishermen from other states who use this fishing technology. A purse-seine boatowner from Sindhudurg says, "Purse-seines and mini purse-seines are new fishing gears in Maharashtra. We don't have a lot of experience using them. They have been using purse-seines in Andhra for a long time and so those fishermen are experienced with making and using these nets. That is why we prefer to hire crew members from Andhra". While this statement reveals one of the reasons for the migrants' presence in Sindhudurg, it is not the whole story.

Many Ghabhit fishermen, who make up the majority fishing caste in Sindhudurg district, have reservations

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about using the purse-seine. As in many other fishing villages across India, a big concern is that the use of mechanized fishing gear, like the purse seine, will threaten the livelihoods of artisanal fisherman, by hauling in disproportionately large fish catches. Therefore, many fishing villages in Sindhudurg have come together to ban the use of purse-seines. Not only do the village rules prevent village members from owning and operating purse-seines, the village members will also not tolerate purse-seine operations in their area, by outsiders. For migrant labourers in Sindhudurg's purse-seine fishery, this translates into a high degree of social ostracism. A migrant labourer from the Srikakulam district of Andhra Pradesh says, "We are usually not allowed to stay in the fishing villages during our time in Maharashtra. This means that we have to stay on board the fishing vessel for the entire fishing season [four months in his case, but it can extend to eight months for some migrants]. Because of this, we do not have regular access to fresh water for bathing and washing clothes. We are often not served by the shopkeepers within the fishing village, and have to walk further [to the larger marketplace in the town] to use these facilities." Such migrants are completely dependent on the boatowners, being unfamiliar with the language, local culture, customs, and so on.

Working conditions for migrant labour in fisheries are notorious and Sindhudurg is no exception.

Many of the migrants that I came across in Sindhudurg travel together in groups. These men are related or are from the same village and can therefore look out for, and support, one another. In each of these groups there are one or two people who speak Hindi or a smattering of Marathi, and serve as the spokesperson(s) for the group. It is up to this person to negotiate the terms of employment, wages, living conditions and so on. This inability to communicate well, along with the social ostracism that they face, means both an inability and impossibility of the migrants' participation in village activities in Sindhudurg. The songs I heard that evening at Shammi Kelaskar's house were a symptom of that social isolation. These men come prepared to create their own entertainment to pass the evenings, travelling with musical instruments and armed with the knowledge of folk songs.

Working conditions for migrant labour in fisheries are notorious and Sindhudurg is no exception. The Srikakulam fisherman whom I interviewed reported: "There have been times when I have spent up to 20 days on a fishing trip. During this time, I dare not bathe or wash clothes, because I would have to use sea water and thereafter my skin would be chafed by the salt that remains on the dry clothes." While first-aid kits are available on the vessels, there is no concept of health insurance. "If we fall sick, we have to take care of ourselves. We go to the government hospital for free treatment, but our wages for those days are cut. The [boat] owner does not pay for our treatment", said the migrant.

Payment is often in the form of a lump sum given at the end of the fishing season, which the migrants sometimes prefer because they have no place to store the money during the fishing season. This is because the migrants do not have bank accounts or access to safe storage in Sindhudurg. The payment is supposed to take the form of a daily wage plus a share of the profit, but since it is paid in a lump sum, the migrants often find it difficult to calculate how the final amount was arrived at. The migrants perspective is expressed thus: "The fishing is so variable...one day we may have a bumper catch and then we may not get anything for weeks. At the end the [boat] owner will say that he is running at a loss, and we can't say anything. We have to take whatever he gives us." This lump-sum

payment also means that if a migrant has to leave mid-season, he will have to forfeit his payment.

Given these difficult working conditions, it is hard to understand what drives the migrants to return to these fisheries year after year. In a study titled 'Inter-state migration of fishers from Srikakulam district', by Bhaskara Sarma and Venkatesh Salagrama report that among fishing communities there, working in mechanized fisheries is considered a respectable occupation, in comparison with participating in traditional or artisanal fisheries in Andhra Pradesh. These workers command higher rates of dowry and their lump-sum payments or advances are useful to clear loans or debts. Migrant labour is also related to lower rates of alcoholism. Being confined to the boat during the fishing season, the migrants have little access to alcohol. The wives of some of the migrant labourers say, "We prefer our husbands to work on the west coast, because the alternative would be to work on the trawlers of the Vishakapatnam harbour. At the gate of the harbour is a liquor shop, where most of the day's earnings are usually spent, before the men come home".

While there are clearly social and some health benefits to migration, the monetary and financial benefits to choosing to migrate are still difficult to quantify. Bhaskara Sarma and Venkatesh Salagrama judge the overall impact of migrant labour on the family income of the Srikakulam fishermen to be low, especially for the poorest families. While this is increasingly the case in the bigger fishing destinations, like Porbandar and Veraval, (Gujarat) where the fisheries are in decline, the problem is only exacerbated in destinations like Sindhudurg where migrant labour is not well organized. Many of the workers in Sindhudurg report having originally come looking for work in Goa's fisheries and upon not finding any, they wandered north into Sindhudurg. Now that news of this new destination for migrant labour has spread, fishermen from Vizianagaram district of Andhra Pradesh have also begun to migrate to Sindhudurg. This glut of labour availability has potentially worsened the bargaining position of the migrants. Migrants to Sindhudurg and Goa report lower wages and overall earnings than those who find work in the big fishing harbours of Veraval or Mumbai.

DIVYA KARNAD

Mini purse-seine boats are docked at a fishing jetty in Sindhudurg district, Maharashtra, India. The owners of such boats are the main employers of migrant labour

In Sindhudurg, the migrants' presence has translated into ensuring the persistence of the purse-seine fishery. Despite protests by local fishermen, the purse-seine has been retained due to the easy availability of experienced crew from Andhra Pradesh. The escalating conflict between purse-seine boatowners and local artisanal fishermen once again sees migrants caught in the crossfire. They are often the targets of physical altercations at sea over purse-seine usage in artisanal fishing areas. An artisanal fisherman even reported having held a couple of migrant crew members hostage for a day in order to demand compensation from the boatowner. The migrants' situation not only results in their own exploitation but also exacerbates conflicts between users of different types of fishing technology in Sindhudurg. As a case of 'neobondage', migrant labour in Sindhudurg's fisheries is both a social and a human-rights issue that needs to be solved.

For more

thehindubusinessline.com/news/national/maharashtra-govt-to-stop-new-licenses-to-purse-seining-type-of-fishing/article8203512.ece
Maharashtra Government Stops Purse Seine New Licences

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Inter-state Migration of Fishers from Srikakulam District, Andhra Pradesh

Linking Up

A workshop on enhancing the capacities of women fishworkers in India for the implementation of the SSF Guidelines led to clear and positive outcomes

Close to 60 women fishworkers from nine coastal states of India met over three days in November 2016 in Chennai, India, to learn about the Voluntary Guidelines for Securing Sustainable Small-scale Fisheries in the Context of Food Security and Poverty Eradication (SSF Guidelines) and how it was relevant in their contexts, to understand how existing laws, schemes and provisions are being and can be used, and to develop a holistic framework to life and livelihood in the small-scale fisheries, with a critique on the existing forms of fisheries development.

This national workshop on "Enhancing capacities of women fishworkers in India for the implementation of the SSF Guidelines" was planned as a follow-up to another workshop held in 2010, titled "Enhancing Women's Roles in Fisheries in India", organized by the International Collective in Support of Fishworkers (ICSF) Trust, which discussed and analyzed the role of women in fisheries, and reflected on issues facing women in fishing communities in India. At the 2010 workshop, ICSF, along with representatives of fishworker organizations and civil society representatives, adopted the Global "Shared Gender Agenda for Sustaining Life and Livelihoods in Fishing Communities" (http://wifworkshop.icsf.net/en/page/855-reports.html). The action plans highlighted in the Shared Gender Agenda were further used for including the gender equality and equity sections of the SSF Guidelines adopted by the Food and Agriculture Organization of the United Nations (FAO) in June 2014.

The Chennai workshop was, therefore, proposed as a follow-up to the 2010 workshop, keeping in mind the opportunities presented with the Tenure and SSF Guidelines, changes in the last half decade for women in fisheries in India, the challenges they face in the current context of development and their attempts to overcome these. The workshop also took into account the gendered components of the subregional, regional and national-level consultations/meetings that have been held on the SSF Guidelines in the past couple of years.

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Several months prior to the workshop, participants were sent questionnaires regarding the situation of women in small-scale fisheries in their areas, their organization profiles, successful campaigns undertaken as well as their expectations of the workshop. The responses received were collated and informed the workshop content. Material was also collected from state governments, particularly the Fisheries Departments, regarding the schemes they had for small-scale fishworkers, focusing on different aspects of the SSF Guidelines (housing, education, social protection, social security aspects, fish-processing industries, work-in-fishing sector, human rights, discrimination issues, and rural and urban livelihood aspects). Information on legal frameworks that are relevant to

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women in SSF in India, especially on social issues and within a human-rights-based approach was collected. All this material was compiled, translated into the various Indian languages used in the coastal states of India and distributed prior to the workshop.

These discussions drew on lessons and learnings from actions that women have initiated in their areas.

Participants at the workshop were given an overview of the situation of women in fisheries in India. Using national and state-level statistics and development indicators, it was clear that the situation in fishing communities was poor in terms of sex ratio as well access to health, education and housing. The myth that falls in fish catch were responsible for decreasing access of women to fish was dispelled, with national statistics showing how fish catches were actually increasing over the years in marine and inland fisheries and especially in aquaculture. The lack of access of women to fish was mainly the result of increasing exports, most often by large fish merchants from the same communities as the small-scale women vendors. Putting in perspective the weakening situation of women in small-scale fisheries, links were made to other marginalized and vulnerable sections of society, all of whom were facing threats to their lives and livelihoods with the heightening pressure on land and water resources through government policies favouring the powerful, the increasing privatization of resources, and the adverse affects of global warming and climate change.

Much of the workshop was devoted to discussing and highlighting the social dimensions of small-scale fisheries, with participants grouping together to discuss issues of health, education, violence, housing, water and sanitation, social security and human rights as well as access to resources, markets. These discussions drew on lessons and learnings from actions that women have initiated in their areas. The groups shared their experiences, with facilitators for each session then supplementing the inputs with legal provisions and schemes on those specific topics.

Deploring the lack of facilities in fish markets—like drainage systems, storage systems, infrastructure, drinking water, electrical power and toilets, lack of regulation in the markets, increasing distances to travel to access fish, as well as direct or subtle displacement from markets spaces—participants suggested ways to address these problems. The suggestions included price fixation, co-management, establishment of retail outlets, education of women fishworkers, strengthening of market linkages, lobbying for policy changes, participating actively in the formulation of city development plans, and demanding that customary rights be upheld. Various Acts and schemes could be used to address these issues such as The Street Vendors (Protection of Livelihood and Regulation of Street Vending) Act, 2014, which give street vendors the right against eviction; the Unorganized Workers Social Security Act, 2008, which protected rights of unorganized workers; schemes under NABARD, NFDB, NCDC and the Department of Animal Husbandry, Dairying and Fisheries (DADF), Ministry of Agriculture, which could be used for market development, including development of retail fish markets, assistance to artisanal fishermen, insulated box for ice holding, ice plant or cold storage, and fish outlets.

A focus on rights

At the workshop, the history of struggles to achieve human rights, the importance of cusomary rights in the Indian context, and the rights granted by the Indian constitution, were contextualized in terms of the SSF Guidelines. Gaps between the rights granted by the Indian constitution and what the SSF Guidelines proposed helped

participants identify areas in which further lobbying was necessary. Rights and opportunities presented by various Acts that could protect women and improve their situation included the Protection of Human Rights Act (1993), the National Food Security Act (2013), The Constitution (Seventy-Third Amendment) Act, 1992, and the Right to Information Act (2005).

Access to resources, the workshop participants noted, has been reducing for multiple reasons, with traditional lands and fishing rights taken away from communities, land diverted for industrial and other 'development' projects, urbanization processes divesting people of their traditional spaces for fisheries-related activities, establishment of National Parks and Sanctuaries limiting traditional rights of communities to resources, bureaucratic hurdles to get rights to these areas, mechanization of fishing, and lack of spaces for women in fisheries management discussions.

Demands to improve access to fish were made by various groups. These included giving women rights as first vendors, fishworkers determining the price for fish, banning foreign direct investment (FDI) in retail marketing and fish imports, levying higher taxes on large fishing vessels, the proceeds of which could be used for welfare schemes for, and implemented by, fisherwomen, and enacting a separate law where fishers have customary rights over fishing resources and coastal lands.

The 2002 and 2006 amendments to the Wildlife (Protection) Act, 1972, protected the basic occupational rights and livelihoods of communities traditionally living in National Parks and Sanctuaries, with opportunities for participation in discussions prior to notification of the areas as protected. The Biological Diversity Act of 2002, called for the conservation of resources and the equitable sharing of benefits arising out of the utilization of these resources. Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006, recognize the traditional rights to forest produce of tribals and forest dwellers who have been living there for generations.

Misuse of the Coastal Regulation Zone (CRZ) Notification, 2011, shrinking of spaces for fishing communities in development plans and lack of housing pattas (title deeds) given to coastal communities, were highlighted in terms of access to housing. Government schemes related to housing and funds are available under the National Housing Development Board, and states also have schemes but access often depended on political patronage, it was pointed out.

The various health problems faced by women vendors and those working in fish-processing units were largely due to the abysmal working conditions—lack of access to water and toilets, long hours in the sun, and poor access to healthcare facilities. Apart from suggestions to address these problems, several central and state schemes were discussed at the workshop, related to solid and biowaste management, health-insurance schemes, public-health schemes, and health-promotion schemes.

Violence against women, as participants at the workshop pointed out, starts from the womb with sex-selective abortion, and continues

ICSF

Participants at the workshop. The groups shared their experiences, with facilitators for each session then supplementing the inputs with legal provisions and schemes on those topics

against the girl-child into adulthood, with new forms of dowry and heightened consumerism correlated to expenses on larger boats and fishing gear, making the girl-child a burden on families. Increasing violence and lack of safety in the workplace and discrimination against women in society and caste *panchayats* were common across states.

Increasing violence and lack of safety in the workplace and discrimination against women in society and caste panchayats were common across states.

Opportunities to address these issues, apart from the campaigns launched by NGOs, presented themselves in the form of laws and mechanisms that protected women. These included the Protection of Women from Domestic Violence Act (2005), the Sexual Harassment of Women at the Workplace (Prevention, Prohibition and Redressal) Act, 2013, the Criminal Law (Amendment) Act, which has increased penalties for sexual violence, and the Protection of Children from Sexual Offences Act (2012). Schemes to provide women survivors of violence and women in difficult circumstances food, shelter, clothing, medical care, legal aid and short-stay facilities were discussed.

The Right of Children to Free and Compulsory Education Act, 2009 (RTE Act), was poorly implemented across states, and with increased mechanization of fisheries, young boys were in demand as labour, resulting in drop-out before completion of schooling. Problems with government schools, including lack of infrastructure, constant transfer of teachers, and the lack of affordability of quality private education, resulted in poor educational levels among the fishing communities. Suggestions for improvement included a ban on certain types of fishing craft and gear; free, compulsory and quality education upto the age of 18 years for all children; amendments made to the RTE Act and ensuring its implementation; stopping further privatization of education; and ensuring severe punishment to teachers involved in corporal punishment or sexual abuse.

It was also recommended that *panchayats* form—as they are supposed to—standing committees for education and allocate them funds appropriately. School management committees ought to function and professional guidance given to youth from fishing communities for vocations and employment. Quota systems whould also be made available for these youth in fisheries-related jobs. According to RTE Act, 25 per cent of seats have to be reserved for the poor and other categories, no donations are allowed, no child can be held back until completion of elementary education, and special training needs to be given to school dropouts. Schemes to promote education among poor and marginalized sections included *Sarva Shiksha Abhiyan* (education for all movement) and its components, the mid-day meal scheme, the more recent *Swacch Vidyalaya* (clean schools) Initiative scheme from 2014 which provides toilets to all the schools, reducing dropouts, especially of girl children. Apart from this, most states have schemes under the various departments (fisheries, SC/ST department, etc) for scholarships, loans, and cash awards that can be accessed by fishing communities.

Relief schemes

Social-protection schemes were available in most states for housing, water and sanitation, roads, electricity and saving-cum-relief, while very few states had schemes for life insurance and natural disasters, the workshop was told. Most states had group accident insurance schemes, but only Kerala had rehabilitation schemes for sea erosion, eviction for port development, old-age pension for allied workers and insurance for allied workers. Overall, credit support system and debt relief were very weak and only three states

had schemes for skill development training, with Odisha spending large sums on non-conventional sources of energy.

Recommendations were made for schemes that could be taken up like natural disaster compensation/sea erosion/loss of coastal space due to changes in coastal landforms, payment to displaced fishers to find alternative employment due to development, compensation against loss of livelihood against oil spill and environmental hazards like pollution. Specifically, in the post-harvest sector, it was suggested that identity cards be given to bona fide fish vendors; potable water at fish-landing centres, harbours and fish markets; better sanitation facilities; schemes to have clean non-conventional energy sources; mobile banking facility at fish markets and at fish-landing centres could be developed; and, as in Tamil Nadu, other states could ask for legislative or policy support for fishers involved in post harvest activities. NFDB's climate change fund could support schemes for protection from extreme weather events at fish markets. Due to seasonal fluctuations in the market and fishing bans, allowances could be given to women vendors, alongside support schemes related to occupational hazards, as well as support schemes for traditional fish processors, women headload workers, bicycle fish vendors, petty sellers and those involved in ancillary activities like basket weaving. Additionally, nutritional support schemes for the children are needed, as well as assistance to families of fishers arrested (as in Tamil Nadu); coverage of insurance to houses due to sea erosion or cyclones; better scholarships for studying at maritime universities; and support schemes like pension for widows.

The groups at the workshop discussed their understanding of what constituted small-scale fisheries. Emerging from the discussions were the six criteria that could be used to determine small-scale fisheries, namely area of fishing, distance from shore, depth, gear, craft and propulsion. It was clear that definitions would have to be area specific using a combination of criteria, and ideally codified, thus providing a list of contextual definitions of SSF at the national level.

Putting into perspective the various social issues raised by participants, links were made to the changes in fisheries practices and what was happening in the communities. Destruction of the fisheries and resources went hand in hand with destruction of social norms and values, abdicating all responsibility for future generations, it was pointed out. The relevance of what was happening in the fisheries to the changes in the social fabric were emphasized and participants were urged to reflect on what they wanted for the future and demand changes accordingly.

Presentations were made by participants with a history of organizing various types of organizations, who talked about how they dealt with issues faced by women in small-scale fisheries, as well as the challenges they faced within their structures, within their communities and at the political level. It was clear that patriarchal norms within the communities, the caste *panchayats*, fishworker organizations

ICSF

Field visits to various fish markets in Chennai helped participants observe situations that were different from their states, raising issues that they could discuss with each other

ICSF

Participants decided on their action plans for the future, which included surveying of numbers of women in small-scale fisheries in different roles. A clear outcome of the workshop was the need expressed by several groups for a national platform for women in small-scale fisheries

and the political system prevented them from voicing their concerns, leave alone actively participating in the fisheries management and in areas that affected their lives and livelihood. Despite this, successes had been achieved through protracted struggles, in cases where organizations were strong and united and had clearly defined perspectives and priorities. The importance of groups coming together, ideally linking to broader movements and trade unions, was clearly articulated.

Participants from several states decided on their action plans for the future, which included surveying and mapping their markets and numbers of women in small-scale fisheries in different roles; taking up social issues that they had learnt from the workshop through identification of schemes in their states and demanding their implementation, strengthening the membership base of their associations or organizations and disseminating information on laws and schemes relevant to them. A clear outcome of the workshop was the need expressed by several groups for a national platform for women in small-scale fisheries.

The diversity of languages posed a challenge at the workshop. That was overcome largely through ensuring that each group had a person familiar with English and the loal state language. Field visits to various fish markets in Chennai helped participants observe situations that were different from their states, raising issues that they could discuss with each other. Documentary films screened were eye-openers to the majority of the participants, most of whom were unfamiliar with issues in the National Parks and Sanctuaries. One was on the mangrove forests of Sunderbans in South 24 Parganas in West Bengal and the struggles of the local canoe fisherwomen; another was on women seaweed collectors in the Gulf of Mannar, Tamil Nadu.

For more

sites.google.com/view/trainingwomenicsf/home

Website of the Training Programme "Enhancing Capacities of Women Fishworkers in India for The Implementation of The SSF Guidelines"

Muddy Waters

As mud banks along the southwest coast of India dwindle, several concerns and societal implications have been articulated regarding this unique oceanographic phenomenon

Decades back, at the Smithsonian Air and Space Museum in Washington D.C, there used to be a regular show in wide screen on 'Mud Banks of Kerala'—an awe-inspiring event which was given equal importance to the launch of a space mission or an expedition to the rain forests of the Amazon! Mud banks (locally called *Chakara*) appear in the south Indian state of Kerala in the littoral zones of the Arabian Sea during the summer southwest monsoon and remain calm with exceptional biological production and represent a unique oceanographic phenomenon.

Mud banks (locally called *Chakara*) appear in the south Indian state of Kerala in the littoral zones of the Arabian Sea during the summer southwest monsoon

They are tranquil marine areas hugging the coast, which develop during the roughest monsoon period. They have a special feature of dampening high waves due to the huge quantities of mud in suspension close to the bottom.

The mud banks appear as an undisturbed sheet of water, when blustery conditions prevail along the outer periphery. Towards the end of a hot, humid summer season, every citizen in the region, perspiring and sweating, looks eagerly towards the sky for the onset of the monsoon rains. When strong winds and high waves make it impossible to go out into the sea, the entire fisherfolk pray for the appearance of mud banks. The southwest monsoon arrives in Kerala with all its fury by early June, with raging seas and heavy rainstorms. This is the time when the mud banks intermittently appear as patches of calm and turbid seas with copious fish stocks. The news spreads like wildfire and immediately transforms the entire coastline to a festive mood. Makeshift townships emerge with gatherings of thousands and thousands of people, when numerous canoes and nets are transported over land to the adjacent beaches.

The hub of life and bustle is unimaginable, with huge baskets lined up to be filled to the brim with shrimps and fishes, and hundreds of refrigerated trucks to carry them to different parts of the country. A single cast of net during these days can yield a bumper harvest of mackerel, prawns, sardines and other fish species. Seafood processors and exporters queue up to buy the bumper crop and cash in on the abundance, and the whole crop is purchased in auction onshore itself.

Thus, the mud banks of Kerala have provided bountiful living resources to the needy, and helped to enhance their livelihoods for centuries. The mud banks of Kerala differ from mud banks reported from other muddy coasts worldwide, as they do not form a regular relief-forming feature. The huge abundance of the fishery makes the Kerala mud banks iconic.

God's own country

With a narrow strip of lush green land bounded on the east by high hills laced with rivers and on the west by the Arabian Sea, Kerala is hailed as 'God's own country' by admiring tourists. Kerala lies along the southwest corner of the Indian

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peninsula, between 8° 18' and 12° 48' N and 74°52' and 77° 22' E. The coastline has been subjected to severe alterations over a geological timescale due to a variety of factors, including the changing weather and climate, particularly the Indian monsoon. The region receives about 300 cm of annual rainfall, as the 44 rivers and numerous creeks of Kerala remain connected with lakes, lagoons and channels. A major part of the rains flows through rivers and creeks to eventually reach the Arabian Sea.

This particular extent of 40,000 sq km of the continental shelf of Kerala is considered as the most productive zone in the Arabian Sea. Coastal upwelling enhances the biological activity, leading to high fish production in the region. Since time immemorial, fish and fisheries have played a crucial role in the economic growth of the country. Although Kerala has a coastline of only about one-tenth of the Indian coastline, the fish landing from the state has contributed more than one-fourth of the country's total marine fish production. The sustainable fish yield from the southwest coast is estimated to be between 0.8 - 1.2 mn tonnes per year, of which only about half is currently exploited. The coastal and nearshore waters are most important as they sustain a large population of traditional fishermen. The sector provides the source of income for hundreds of thousands of active fishermen and others engaged in allied activities. Therefore, a decline in the fishery potential can be a major concern to the state and the coastal community. The situation is precarious now, following a dwindling trend in the total fish landings, surprisingly due to the reduction in the appearance of mud banks along the southwest coast of India.

The mud banks and fishery are, in fact, interdependent, as when the former occurs, the latter should follow. To many residents, a good mud bank means a good fishery. Since the calmness of the sea and mud accumulation are not significant, all mud banks need not be productive. Therefore, the success or failure of mud banks is judged from the quantity of fish caught during the season. Studies have shown that the mud banks sustain a high fishery potential, since the pelagic fishes and prawns move from deeper waters to closer to shore during the southwest monsoon, following upwelling.

The general tendency of fish being to swim against the prevailing current (which is southerly), it is possible that they move in shoals northward and some of the fish, on passing through the mud bank area, are easily caught by the numerous canoes operating in, and outside, the mud banks. If so, it is also possible that a shoal of a particular composition, after its passing, is followed by another of entirely different composition. It is, therefore, likely that the monsoon catches from the mud bank area are from the moving shoals as they are caught from this region because fishing is possible only from this region.

Another argument is that upwelling causes the development of hypoxia over the shelf, which creates stress on the fishes and prawns, as they move either shoreward or to deeper waters. Such a condition occurs throughout the coast where upwelling is intense. During this migration, these shoals may also cross the mud bank zones.

P.K. DINESH KUMAR

Sheer monsoon fishery magic! Mud banks are tranquil marine areas hugging the coast, which develop during the roughest monsoon period

With the onset of the southwest monsoon, fishing activities come to a standstill, and operations are possible only at locations where calm zones prevail. The monsoon fishery enjoys legal protection from the government, which provides exclusive operational rights to traditional crafts and has banned large mechanized vessels from fishing during the season. During this time of idling and poverty, only the calm zones brought in by mud banks can support fishermen as centres of intense fishing activity. Almost the entire fish landings during the monsoon season take place at these mud bank sites.

History tells us that the ships of Vasco da Gama anchored in the open sea off Kozhikode (erstwhile Calicut) from 20 May to 26 August during the southwest monsoon of 1498. It was probably due to the mud banks prevalent in those regions, where the calm sea enabled the navigators a safe anchorage. Consequently, the big vessels could remain in the sea, and canoes and small boats were used to reach the shore during the monsoon season.

Documented records on the mud banks of Kerala are available from the 1840s. At least a dozen mud banks were known to have existed in the region for several centuries. Of these, some were sited either at, or near to, the outlets of rivers and lagoons. From the shore, the mud banks can be easily distinguished as zones with total absence of waves, while high swells break outside their periphery. In recent times, over 20 locations along the coast are found to have developed mud banks at some time or the other. Prominent mud banks documented in the 1980s have now vanished, and the remaining reported great characteristic changes in appearance and sustenance. Since 2010, mud banks have been isolated in appearance along the coast at only two or three locations, and concerns have been raised about the total disappearance.

Looking into the factors leading to the dwindling of the mud banks, we may have to consider the geographical features of the areas surrounding them (including the lagoons and rivers emptying into them) and the transformations that have taken place there. There have been significant changes in the land-use pattern in the hinterlands. These changes have dramatically altered the fertility, soil erosion, groundwater resources and surface water flow. There are about 15 built dams in the rivers of Kerala, where a large part of water is retained. The silt and clay brought from the catchment areas of these dams are completely settled inside the dams. Once, the entire watersheds and lagoons were spread from the south end to the north end of the state, to make the region a dense cover for mangroves. However, an explosive growth in the population and urbanization have adversely affected the ecological stability of mangroves. The formation of mud banks along the coast of Kerala and the seasonal windfall fishery associated with them are interesting. A phenomenon like this has not been reported from anywhere else. Therefore, the dwindling and the worst-case scenarios of the extinction risk associated with these very specialized ecosystems in this part of the world raise serious societal concerns about the future of the lifeline of this region. Therefore, the issues associated with the dwindling of mud banks need to be pushed to the centre of debate to facilitate an ecosystem- based approach to fisheries management. Serious environmental management strategies should be initiated immediately by involving researchers, economists, community people, fisherfolk and policy-makers.

For more

eprints.cmfri.org.in/7309/1/315-IJMS_1974.pdf
Mud Banks of Kerala: Their Formation and Characteristics

drs.nio.org/drs/handle/2264/4940
Mud Banks of Kerala: Mystery Yet to be Unrevealed

Tempered Down

On temperaments, communities and conflicts in the river fisheries of Bihar, amidst rigidly persistent caste and class discrimination

Social and institutional interactions impinge significantly on how resource declines are experienced by fisherfolk, as local scarcity of resources can aggravate and transform historically entrenched conflicts over fishing rights, access and ownership. Owing to conflicts emerged from historical relations, or institutional changes, or state-driven policies, a dichotomous 'fishing communities versus the rest of the world" framing of the problem is commonplace.

The primary assumption in this outlook is that the heterogeneity of socio-cultural practices within these fishing communities could, or should, be glossed over to focus on broader inequalities and injustices meted by the state and other institutions. But often this leads only to a coarse-resolution awareness of fishing conflicts and their potential outcomes for human livelihoods.

Fishing communities in Bihar, mostly landless and marginalized, eke out a difficult existence...

Often there is a need to look deeper at the micro-scale, at what goes on not just between, but also within, conflict-ridden fishing communities. This becomes particularly necessary for a nuanced understanding of fisheries systems situated within highly stratified and unequal societies, and threatened ecological settings.

The basin-level alteration of river-flow regimes by dams, barrages, engineering developments and pollution has contributed significantly to impoverished fisheries in terms of both quantity and quality in India's Gangetic basin. In the lower Gangetic floodplains of Bihar, rigidly persistent caste and class discrimination has formed the proverbial backdrop against which river fishery conflicts have been emerging, changing, and continuing. Importantly, fishing rights, access to fishing grounds, and ownership conflicts cannot still be separated from floodplain systems of land ownership (for example, freehold tenure, tenancy, etc.) and control of riparian productivity by powerful and influential landowning people, locally called the 'bosses'.

Fishing communities in Bihar, mostly landless and marginalized, eke out a difficult existence with no meaningful institutional structure to bind them together. The common district boundary of Bhagalpur in eastern Bihar, and a somewhat fluid political identity of being from the Nishad or Mallah castes are the only things that may be held as constant for these people. But otherwise nothing seems adequate to group them: the label of a homogeneous 'fishing community' risks undermining the complexity and diversity of fisherfolk that reside in the Barari, Kahalgaon, and Naugachhia towns of Bihar (See Map).

Diversity of fishing

Differences in geographic locations and ecological specificities of 'places' they fish in also correlate with a diversity of fishing practices and seasonal movement patterns. Owing to these divergences, their interactions with different state and non-state institutions influence the variability of ways through which their local fishing grounds are

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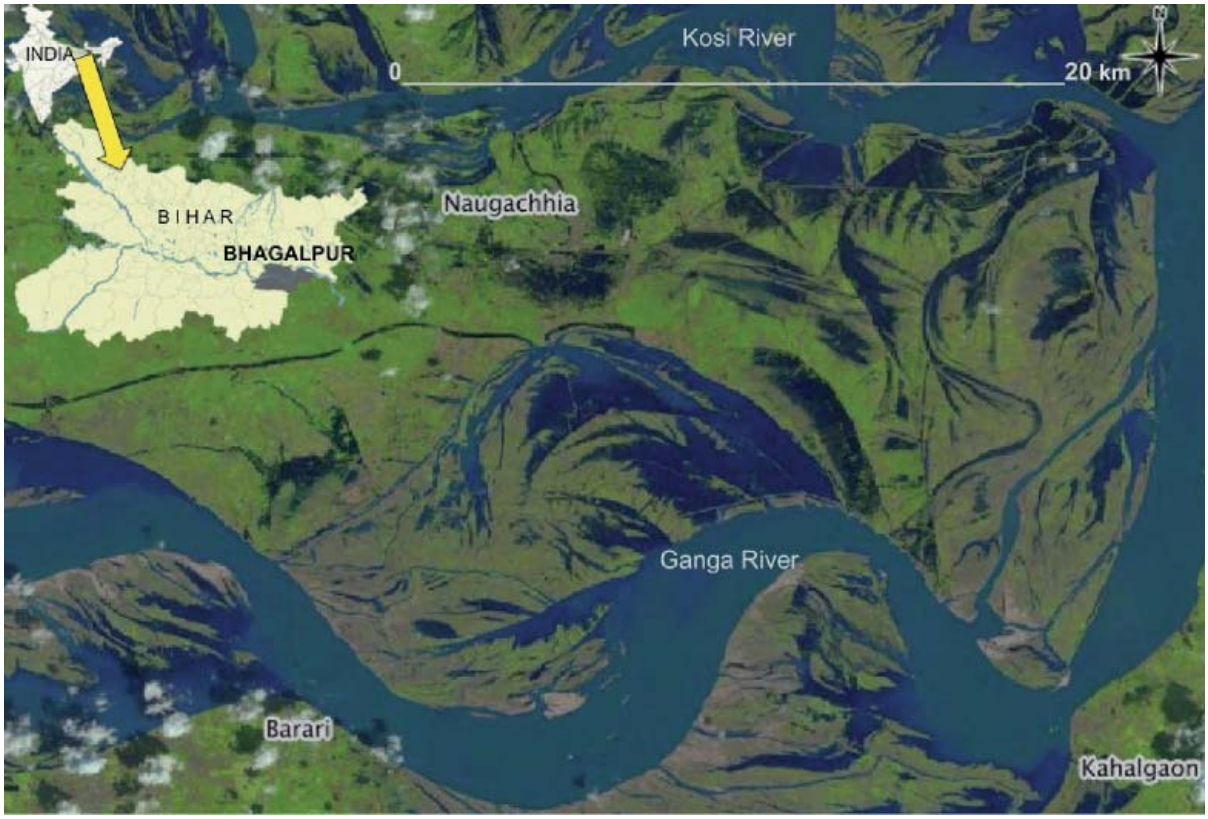
controlled. The settlements bear different 'temperaments', which also represent other fishing communities across the Gangetic floodplains, and which we attempt to sketch out, based on our long-term interactions, both formal and informal.

Table 1 compares the fishing practices, access to fishing grounds, movements, group associations and experiences of conflicts faced through interactions with fishers from the three settlements. We also describe their responses to resource declines and intergroup interactions, to dwell on the heterogeneous meanings of 'fishing community' for people, despite a common history.

The river fisheries of Bihar shifted from a private regime to an open-access regime in 1991, following the Ganga Mukti Andolan, a social movement that sprung up in the 1980s, demanding the overthrow of private control of rivers in Bihar called *Panidari* (water-lording). The fishers of Kagzi Tola in Kahalgaon were at the forefront of this movement and, in a sense, they represented the whole fishing community of Bhagalpur district. The Andolan did succeed as private control was overthrown in 1991 by the state, but it failed on account of actually creating alternative systems of property rights or community management of river fisheries, landing up fishers in a 'free-for-all' open-access situation. It also did not do enough to resolve issues of caste identity that underlay the floodplain-dwelling groups that participated in it.

Kahalgaon fishers travel far and wide, and always have to fish, despite the primary drive and weakness for hunting and eating the flesh of soft-shelled river turtles. This drive takes them to the floodplains of the Gandak River in western Bihar and the Ghaghra in Uttar Pradesh, where turtles are still in relatively better numbers than in the Ganga. Some fishers have even travelled to the Yamuna and Chambal, and some even to Goa to help capture and kill sea turtles. These long travels are accompanied by double-faced actions: often these fishers pay rent

Map: Map showing the Barari, Naugachhia and Kahalgaon towns with Mallah fishing settlements in the Bhagalpur district of Bihar, India



to local bosses and criminal gangs to fish (whose practices they hate so much) to gain access to fish and hunt in their territories. However, the same Kagzi Tola fishers do not take kindly to other fisherfolk coming into, and fishing around, the rocky islands at Kahat, their fishing territory.

The river is perhaps the deepest at this point anywhere on the Ganga, has complex habitats, a stable channel, eddies, and counter-currents where several fish species reside in good numbers. The strong guard of this productive fishery itself goes against their demand for 'exclusive rights for fishing castes'.

The Naugachhia fishers are the other extreme of Kahalgaon but because Naugachhia is not located on the riverbank, fishing in small bands in the Ganga and Kosi rivers (in other fishers' grounds) is what they practise. They go out to Bhagalpur or somewhere along the Kosi coast for several days, only to return home during festivities or illnesses. Used to being 'floating outsiders', friendliness is an essential survival strategy, and applies to everyone they meet:—other fishers, conservationists, and criminal gangs as well.

The mood in the Barari fishing settlement near Bhagalpur city is one of general agreement, irrespective of discussions. There is no surplus anger or warmth, but rather there is a patient, measured behaviour maintained in interactions. Though these fishers too regularly fish in the river, they are relatively distracted and indifferent. Threat is a routine part of life, without question. They regularly see the local bosses, partake with their fish catch when threatened, and report these incidents as if these were norms and hence acceptable, "*yeh to chalta hai* (this keeps happening)".

The Ganga at Bhagalpur is a busy river: there is the long Vikramshila bridge over which vehicles keep moving noisily; there are waterway-dredger vessels digging up the river every now and then; there is a highly polluted side-channel that takes the sewage and garbage from Bhagalpur city, and pilgrims, motorboats, crowded ghats and markets make up for the other elements.

Three settlements that once shared a common history of oppression and poverty show divergent temperaments as they confront their gravely insecure livelihoods in a rapidly degrading river and dangerous fishery setting. With a

Table 1. A comparison of the characteristics of three Mallah fishing settlements in the Bhagalpur district indicates a gradient of differences in fishing practices and preferences

Name of Settlement	Sub-caste	Range of Influence	Grouping patterns	Fishing effort & practices	Propensity to exit from fishery	Role in resistance	Tolerance for other fishers
KagziTola (Kahalgaon)	Banpar	Ganga River and some tributaries in Bihar, Bengal and eastern UP	Mixed groups, corporate groups, bands	Main river, localized around Kahalgaon but widespread fishing across the region	Low, shift to labour and exit known only during extreme years	Led	Low
Makkhatakiya (Naugachhia)	Nishad	Kosi, Ganga rivers	Bands	Inlets and side-channels with vegetation, ponds and floodplain wetlands	Moderate to High, shift to pond fisheries and wage labour	Supported	Usually, they are the 'other' fishers, High
Barari (Bhagalpur)	Gorhi (Mahaldar)	Barari area	Family groups	Main river, highly localized	High, many have shifted to local alternative occupations	Passive	High

NACHIKET KELKAR

Fishing in River Ganges, India. Fishing communities in Bihar, mostly landless and marginalized, eke out a difficult existence with no meaningful institutional structure to bind them together

continuing exodus, the number of fishers actively fishing today might be less than 30 per cent of the number 10-15 years ago. For those who remain, importantly, the socio-ecological setting and lived experience have, at least partly, shaped their variable attitudes. What is striking is that these differences severely limit their ability to reflect critically on the open-access cage they are stuck in.

In this context, the uniform application of fisheries policies, schemes and community-wide extension programmes might achieve heterogeneous outcomes. A closer look at how temperaments are formed, maintained and expressed in response to conflicts appears essential in planning sustained dialogue with communities living on the edge of declining riverine fisherie.

For more

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Hemmed In by Development

A study of five fishing villages in Goa, India, shows how development in the region increasingly marginalizes local communities and deprives them of sources of livelihood

Odxel, Cacra, Nauxi, Bambolim and Siridao are small fishing villages running from north to south along the western coast of Tiswadi *taluka* (an administrative district for taxation purposes) of the Indian state of Goa. They lie on the banks of the Zuari river, which, at 92 km in length, is the largest river in the state. (The port city of Vasco da Gama lies on the mouth of the Zuari river.) Panjim, the state capital, is just 5-10 km away, and the Goa University, part of which was built on land acquired from the local community, was set up in 1984.

The community was traditionally involved in farming and toddy tapping, with fishing being a supplementary source of income until the 1970s.

These villages have a total population of about 3,300 inhabitants. The villages are mainly inhabited by the Gauda community, classified as Scheduled Tribe. The community was traditionally involved in farming and toddy tapping, with fishing being a supplementary source of income until the 1970s. After this period, with the introduction of 'disco nets' (synthetic gillnets) and the consequent increase in income, the communities started identifying themselves as fishers, with fishing contributing to a larger proportion of their income as compared to previous years. Agricultural lands being taken over in subsequent years further sealed their 'identity' as fishers.

With the Zuari river on one side, the state's highest seat of learning on the other, the only tertiary care hospital in the state a few km away, and the capital city so close, it would seem that these communities are poised for success. Unfortunately, this prime location has, over the years, been a coveted resource for other groups as well, forcing these communities to fight for their traditional rights, with their livelihoods and survival increasingly under threat.

In the early 1980s—by which time fishing had become the main source of income for the community—the University started buying the agricultural and farm lands on which these communities traditionally grew crops—paddy, ragi, vegetables—for four months of the year. Apart from this, there were cashew plantations that provided the famed '*feni*' (local alcohol brew) of Goa. Taking advantage of the illiteracy of the Gaudas, the customary rights to these lands were gradually taken away by private owners, though the community continued cultivating the lands under lease agreements, without staking their claims as tenants.

Once the University started to acquire the lands, these owners sold some of their lands to the University. The University, spread over 427.49 acres, is built on what was earlier Cacra land, but is now called the Taleigao plateau. The University also got government land. The local people, not being registered as tenants, got no compensation but were promised jobs at the university instead.

Supplementary income

Today, several women from the fishing community supplement the family income by working as housemaids in the homes of the University staff. A few inhabitants have got jobs in the university. Following the

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acquisition of the land by the university, one source of livelihood of these communities was destroyed forever. (Siridao, though, has been an exception since for over a generation there has been migration from the village to the UK and France, courtesy the Portuguese passports that Goans can use to migrate to the European region. Several people have bought trawlers, and fishing away from the Zuari river.)

In 1997, one of the big mining families of Goa, bought huge tracts of land adjoining Cacra with plans to start a project worth over Rs300 crore. This project involved the building of a large ramp, which would have blocked the canoes from going out into the river. The fishing communities protested and the project was stalled. Later, in 2008, the mega project entered into a fresh controversy over watering of the landscaping, which villagers stated was part of the project and which came under a no-development zone. However, the land is still owned by the Timblos and the community lives in the constant fear that permissions could be given at any time for them to 'restart' their project. Sanjay Pereira, the *panch* (village head) of Cacra ward for the Santa Cruz *panchayat*, says this project, if passed, will destroy the livelihoods of the community by preventing them from fishing.

There are also large residential houses and hotels which have come up in the area, despite constant protests by the villagers at the *Gram Sabha* meetings and at the relevant government offices. The increasing pressure on land has made the community feel insecure. While the fishing communities are not too worried about losing the land on which their houses are built being taken away (since they have documentation that guarantees security of tenure and since they belong to the Scheduled Tribes), they are unable to renovate or expand in accordance with their needs. Sanjay Pereira explains his own situation; being one of four brothers, they wanted to build two extra rooms adjoining their house, as the family is expanding. Two years ago a case was filed against them alleging that the expansion violated Coastal Regulation Zone (CRZ) rules, even though the CRZ Notification of 2011 permits construction/reconstruction of dwelling units of traditional coastal communities, especially fisherfolk, within 100 to 200 m of the no-development buffer zone (NDZ).

Sanjay points out the permissions given for building bungalows and hotels that are even closer to the river banks and clearly in violation of CRZ rules. When complaints are made against these constructions, the authorities interpret the rules to show how these are within permissible limits. Recent developments may make it easier for the communities to renovate or expand their houses, with the Ministry for Environment, Forest and Climate Change (MoEFCC) planning to amend the CRZ Notification by reducing the NDZ to a mere 50 m, ostensibly in the interests of the traditional fishing communities. The latter are, however, strongly opposing this move, claiming that dilution of CRZ norms will pave the way for the hotel industry and building lobbies to capture even more of the coast than they already have. "This amendment is planned to protect and encourage the interest of the hotel mafia," Olencio Simoes, Secretary of the National Fishworkers' Forum (NFF) and the joint general secretary of Goenchea Ramponkaranchea Ekvott (GRE), alleged in a press statement.

Further, even if the communities have rights to the land, if they are unable to sustain livelihoods due to pressures from all sides, they will be forced to look for alternatives, possibly finally having to move out of the area.

As a direct result of the restrictions on expanding their houses, one of the big problems faced

JOHN KURIEN

A dugout canoe fisherman from a tribal community in Cacra, India, inspecting his fishing net

mainly by women and girls is the lack of toilets in the area. The homes are too small to allow construction of toilets, though about 20 per cent of houses in all these villages have managed to build these. The community has been requesting the government to build public toilets and has also identified three sites for these. Prior to elections, promises are made by candidates, but nothing is done once the elections are over. With men going out fishing early in the mornings, it is very difficult for women to find private spaces to relieve themselves. Girls tend to use the public toilets in schools.

Fishing is a family occupation and, unlike in the larger fishing vessels, no migrant labour is employed in these villages.

There are a total of about 70 canoes of 6 m length and about 100 canoes of 8 m length fitted with outboard motors (OBMs) owned by these five fishing villages. The smaller canoes are involved in hook-and-line fishing and make three-hour trips, while the larger canoes go out for about an hour-and-a-half and use gillnets.

Subsidies are available for the fishing communities—Rs.36,000 per year for petrol, Rs. 60,000 for five years for OBMs, Rs. 30,000 for five years for gillnets and Rs.60,000 for a new canoe if registered as a fisherman. Apart from these, the fishermen are entitled to insurance schemes, financial assistance for house renovation and interest subsidies on certain loans.

The fishing ban of two months in the year during the monsoon (1 June to 31 July) does not apply to these fishermen, as non-motorized canoes and motorized canoes fitted with up to 10HP OBMs and using gillnets are exempted from this ban. However, in any case, these communities do not fish much in this season, largely due to the weather.

Fishing is a family occupation and, unlike in the larger fishing vessels, no migrant labour is employed in these villages. Once men come in with the catch, the women transport it via public buses to Panjim where they sell the catch to wholesalers. This is because they do not have space to sit in the Panjim fish market, as the spaces are allotted to women from different villages of Goa. Still, the women from these communities prefer this system as they are able to negotiate with the wholesalers and they are assured of selling their entire catch. They say that even though the price is lower than what they would get in the open market selling directly to consumers, they are comfortable with this system. A few women also sell fish locally at the Taleigao market.

There have been tremendous changes in the fish catch over the years. The post-tsunami period saw a massive drop in mussels and a reduction in oysters which are collected by women. It is not clear whether this was the effect of the 2004 tsunami or a trend of increasing deoxygenation in waters during the period just after the monsoons. Environmental activists also claim that higher levels of ferrous matter and other pollutants in the river, such as sewage, affects the life cycle of the molluscs through the year.

Policy measures

According to the local fisherfolk, one of the biggest reasons for the reduction in catch is the operations of trawlers and mini purseiners which come in from Vasco (a fairly prosperous town on the other side of the Zuari river). These vessels regularly violate the Marine Fishing Regulation Act (MFRA) 1980 which reserves the area up to 2.6 nm (5 km) for traditional crafts. Despite this, they come as close as possible to the banks for fishing. They have the technology to locate large shoals of fish and do not care whether they are collecting eggs or young ones. Owners of these large vessels are usually aware that this is going to damage their own business in the long run, but in the absence of policy measures or their strict implementation to preserve and

replenish fish stocks, they do not want to be left out. They also have the options of moving to greener/bluer pastures and do not have the stakes in sustainable fishing that the local community has.

After a trawler or purseiner comes into the area, it takes about 10-15 days for the small boats to get a 'normal' catch, which is usually an average of 10 kg. During these 10-15 days they get about 2-3 kg, most of which are the less-prized and cheaper varieties of fish.

The women also say that the big vessels keep an eye on the wholesale market. When they notice a good sale, they identify the village from where the women have come and within a day, several trawlers and mini purseiners come to the area and catch as much as they possibly can.

The Department of Fisheries has a full-fledged modern state-of-the-art control room. One key function is to monitor fishing vessels entering Goa's territorial waters. The Department has also acquired a high-speed patrol vessel to curb illegal activities. Members of these fishing communities regularly contact the control room to inform them whenever there are trawlers or mini purseiners in the area. They even contact the Director of Fisheries on their mobile phones. However, neither the marine police nor the patrol boat, which is under the Department of Fisheries, respond in time. Though it should take about 15 minutes for either of these departments to respond, they take over an hour, giving enough time for the vessels to leave the area. Not that it matters if the latter get caught. The fine for violating the rules is a handsome Rs.100 (about US$1.5), hardly a deterrent for repeat offences. The mini purseiners earn anywhere between Rs 1-2 lakhs (about US$1,500 – 3,000) per day, while trawlers earn Rs. 20,000 (US$300) per day.

In response to the communities' demands that strict action against violators be taken, the Department of Fisheries says it cannot increase the fine and there are no notifications to that effect. It is clear that there is collusion between the large vessel owners and the government departments.

Aqua-sports, particularly aqua-sail boats, have become common in the area over the past two years, mainly with the setting up of a five-star hotel over 28 acres in 2011. The noise and disturbance created by these boats (which come close to the banks) have severely affected the spawning grounds and the amount of fish available. In Nauxi and Bambolim, in particular, there has been a substantial decrease in *shevto* (mullet), mackerel, sardines, crabs and silver-fish. Fishermen had even in previous years protested against aqua-sports in other areas of the state, including in neighbouring communities, but to no avail.

Permission for these boats has been given by three departments—Ports, Tourism and Fisheries. The fishing community spoke to the Fisheries Minister and the Director of the Department of Fisheries regarding their reduced catch due to the sailboats. However, the Department said that it has given permission since these are non-motorized boats and, as such, are unlikely to affect the catch. "Neither of them have any experience with fishing. If they did, they would realize how disturbance in the water affects the fish", says Sanjay Pereira.

The gillnets used by the small-scale fishermen are often damaged by the trawlers or the tourist boats, with no possibility of compensation for the fishermen. The sewage from the hotel is also often released into the river, destroying the fish. This was also brought to the notice of the Department but no action has been taken.

Dwindling Catches

Until about 10 years ago, women used to dry about 25 per cent of the catch. Some of this would be sold, the rest used for domestic consumption, especially in the monsoon period. With the dwindling catches and the reduced space in the community (where some people have sold their lands), women now buy dried fish

from other vendors in the market. This dried fish comes from other parts of the state or the neighbouring state of Karnataka.

Hemmed in and harried as they are by pressures from all sides, the fisherfolk find that the secure rights to their homesteads and continued access to fishing become increasingly irrelevant, with their very livelihoods threatened, their fishing areas exploited by other actors, and their spaces for even minimal expansion limited.

The communities have been trying hard to follow up on promises made and broken, becoming increasingly aware of their rights but not having enough resources against the might of the state and its cronies. Recently, they have sent an appeal to the Governor and the Vice Chancellor of the University asking why three of the temporary posts given to people in their villages and reserved for Scheduled Ttibes were given to people from faraway places in Goa once these posts became permanent.

The reason given to the three candidates was that they lacked experience. The communities demanded to know how these candidates were considered acceptable when the posts were temporary. The communities also strongly feel that it is their right to get jobs in the University since it is their lands on which the University has been built and they were promised jobs in the University as a kind of compensation.

Some people from the community of Nauxim have earned large sums of money from the sale of their land to hotels or private owners. However, this was also the result of their tenure rights being of uncertain status unlike in Cacra, resulting in some of them being cheated out of their lands or paid far lower than the market rates. The lack of security of their tenure did determine their bargaining capacity. All these people who have sold their lands no longer live in the villages and have moved to other areas. This is a pattern that may be repeated with other members of the community as well.

The 145-acre luxury coastal gated project, which came up instead of residences for which permissions were given is located near the Siridao-Bambolim bay, flouting CRZ and hill-cutting norms. Environmental organizations took the case to court and after seven years of struggle, the court declared some of the constructions illegal and fined the hotel Rs25 lakh. However, the illegal constructions have not been demolished, since the verdict was not specific enough.

The Gaudas have initiated the formation of an association which includes Other Backward Castes (OBCs). The Shri Shanta Durga Fishermen Association was established seven years ago and covers all of Tiswadi *taluka*. Apart from these five villages, it also includes inland waters in other parts of the *taluka*. Of the 160 members, 30 are women. The main issues taken up by the association are the problems they face due to the mini purseiners and water sports, and how to address these, and the issues regarding the proposed marinas on the Zuari river, which have been the centre of much controversy in recent years, with the government appearing determined to go ahead despite the opposition.

Livelihood protection

Many in these communities have been forced to look elsewhere for sources of income. Some have got government jobs, some are in the private sector or are self-employed. However, they see this as a lack of choice. The fishing community would want their children to continue in fishing if there is a possibility of conserving and responsibly managing the resource. Their struggle is to ensure that small-scale fisheries are protected and that there are stricter bans on letting other players (large vessels, tourism operations, and so on) into the area thereby affecting their livelihood and the environment. The increase in educational levels of the youth are enabling some of them to get jobs in the private sector. However, due to low salaries, they supplement their income with fishing. The communities

fear that if current trends continue with complete disregard for their traditional livelihoods, there will be no option for the coming generation but to look for alternative livelihood sources.

The concerns of the fishing community cannot be seen in isolation from what is going on across the state. The government, irrespective of which party is in power, has been selling land, water and mineral resources to the highest bidder with no thought for the environment or the local people who have lived off, and sustainably managed, these resources. The powerful and well-connected industrial, hotel and real-estate lobbies have the clout to get problems settled in their favour and do not shy away from the use of muscle power as in the famous case of Leading Hotels, which is involved in a very controversial effort to set up a massive golf course in Goa, in the teeth of opposition from locals and environmentalists. In another case, the Supreme Court ordered the demolition of a portion of a five-star resort at Dona Paula. In response, the government passed the Land Acquisition (Goa Amendment) Act, 2009, simply to validate and make legal an extended portion of the construction made by this hotel. The challenge to this amendment was dismissed by the Supreme Court in 2016, with the result that what was declared to be illegal has now become legal, to the immense benefit of the hotel. Ranged against the might of such powerful lobbies, local communities cannot fight the legal and other battles required to get their rights to prevail.

It is in this context that the fisherfolk are viewing many recent developments with trepidation. For example, the fishermen's organization Goencho Ramponkarancho Ekvott (Unity of Goan Fishermen) or GRE have been protesting the use of high-voltage light-emitting diode (LED) lights and bull trawling off the Goa coast, given that these practices are adversely affecting the livelihood of traditional fishermen. While the former was banned in May 2016 through a government circular (perhaps to silence the fishermen's protests which have been escalating), it is left to be seen how the ban is implemented.

There are proposals in the pipeline to set up two marinas in Goa ostensibly to boost high-end tourism—one in Nauxim, Bambolim and the other in Chicalim, Sancoale. Due to protests by the fishing communities as well as others and the lack of all clearances, these proposals are currently being held at bay. Apart from public protests, joined in by the Environment Minister, *gram sabha* resolutions have been passed against the marinas. Villagers of Nauxim had opposed the proposal on 5 December 2010 at a *gram sabha* of Curca-Telaulim-Bambolim *panchayat* on 30 January 2011. They alleged that the project is like a declaration of war against indigenous peoples and a threat to food security. Despite all the opposition, the Goa Investment Promotion Board has given in-principle approval to these marinas and once other clearances are obtained, it may be just a matter of time before they are launched. If these projects succeed in getting passed, while they will be advantageous for large fishing vessels, they will completely destroy small-scale fisheries in the state.

It is no wonder that the communities of Oxel, Cacra, Nauxim and Bambolim are worried. They have every reason to be. They foresee a time when, deprived of all livelihood options, they may have to sell out and move away, giving up their traditional livelihoods as well as their homes where they have dwelt all their lives—and with no visible viable alternatives in sight. Modernization and development have come at a high cost for these communities, and it is in this context that one needs to view their struggles and demands.

For more

crzgoa.org/mom/
Goa Coastal Zone Management Authority

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fisheries.goa.gov.in/
Directorate of Fisheries, Goa

A Casual Approach

By taking on board the concerns of a fishing community in Hazira, India, regarding the construction of a port, the National Green Tribunal has set an important precedent

In 2013, a fishermen's group in Hazira—the Hazira Machimar Samiti—and three affected fishermen had filed a petition against the Adanis, the project proponent of the port at Hazira, in Surat district in the south-western Indian state of Gujarat, as well as against the governmental bodies that granted environmental clearance to the project proponent. The case was filed in the National Green Tribunal (NGT) as, since 2010, cases relating to environment protection are exclusively dealt with by this tribunal for 'effective and expeditious' disposal of cases. The Tribunal has the powers of any other civil court in the country and can provide for relief and compensation for damages to person and property. The case was heard by the NGT's western zone bench in Pune and on 8 January 2016, the judgment was finally delivered.

The basic challenge that the petitioners put forth was on the environmental clearance given for the expansion of the port by the Ministry of Environment, Forest and Climate Change (MoEFCC)

There are about 80 families in the village of Hazira engaged in fishing using traditional boats. These boats sailed into sea through a creek, at the opening of which now sits the Hazira port. The fishermen fear that if the port is expanded anymore, they will lose access to this creek. The port was developed in phases since 2003 after it was granted environmental clearance, and the petitioners claimed that this had already caused massive environmental damage to the surroundings. They demanded restoration costs for the environmental damages caused by the project proponent.

The key issues that were considered by the court in this case were whether the 2013 environment clearance itself "suffered from any illegality, impropriety or irregularities" and whether there is an actual threat of restriction of access due to expansion. While unravelling answers to these questions, the court also looked into the extent of environmental destruction that was caused due to the whole project. What started as an issue of the fishermen's access to the sea led to questions of the project's compliance to environmental clearance conditions, the process followed by the government in giving clearances to the project and the environmental impacts of the project. A fine of Rs 25 crores (3.7 mn US$) was imposed on the project proponent to be used for restoration of the environment, and the environmental clearance that was given for the expansion of the project was set aside. The court also gave further orders to look into the compliance of forest-related conditions of the 2003 environment clearance.

Basic challenge

The basic challenge that the petitioners put forth was on the environmental clearance given for the expansion of the port by the Ministry of Environment, Forest and Climate Change (MoEFCC). The court, made it unambiguous that the question of legality of the environment clearance, the sole defendant is the MoEFCC. This is because while the project proponent put forth the necessary documents, the onus is on the Ministry to examine them carefully, ask for

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verifications and impose necessary conditions. As a central ministry that examines high-impact projects whose environmental impacts are usually multiple and widespread, the Ministry's performance is not only a question for rule of law but for the wellbeing of the environment and citizens.

For the environment and Coastal Regulation Zone (CRZ) clearance granted in 2013, the procedural path taken was traced back by the court. Since clearances are granted on the basis of recommendations from an Expert Appraisal Committee (EAC) that is constituted by the Central government, the minutes of these meetings were looked at by the court. While the recommendations given by the EAC are not binding on the Ministry, the Court assessed the time spent by the Committee on discussing and understanding the impacts of the project, and on whether facts had been verified by the Committee. The court, after appraising the minutes, remarked on the 'casual approach' taken by the EAC on recommending the grant of clearance.

The arguments made in the case clearly bring to light the fact that the MoEFCC had not considered various factors while granting clearance. The necessary permissions that are required while handling hazardous materials were neither taken by the company nor sought by the MoEFCC. The discussions regarding the project also ignored examining the possible impact of the effluent pipeline of the project on the marine life in the area.

It is almost as if a pre-decided approach was taken by the government regarding this expansion, and the procedures were touched upon merely as a matter of formality. The Ministry, which should have prioritized the protection of environmental resources and minimising of the impacts of such projects, had gone easy on a large-scale infrastructural project which is more than capable of bearing the monetary cost of environmental compliance.

Regarding the issue of access, maps submitted by the petitioners were superimposed with earlier maps to understand the landscape changes caused by the project. This showed clear evidence that the creek had narrowed since the project construction began. Though it was contended that no public consultation held to discuss the impacts of re-alignment of a railway line undertaken for the project and there were at least two critically endangered species in the area—the white back vultures and long-billed vultures, these issues were not dealt by the court in detail.

While the compliance of the environment clearance of 2003 per se was not considered by the court, it looked at the issue of compliance of conditions regarding compensatory afforestation of mangroves. The court considered the evidence provided by the petitioners in the form of maps and compared it with the clearance conditions. It also accepted the affidavit of the Deputy Conservator of the Forests, stating that the area once had mangroves in abundance while

NILESH VASAVA

Fisherfolk protesting against the port project at Hazira, Gujarat, India.
The fishermen fear that if the port is expanded anymore, they will lose their access to the creek

there was no mangrove vegetation now.

The 2003 clearance had imposed the condition that the mandatory compensatory afforestation for an area of 450 ha would be taken up the project proponent. In 2007 this got modified to 200 ha, through 'official communication' to the company. This bypassing of conditions by diluting it later on without giving any 'substantial reasons' for such changes makes the entire process of grant of conditional approvals seem like a redundant exercise.

Though the legality of the environmental clearance given in 2003 was beyond the scope of this case, it does come into light that there were substantial changes that were made to the layout of the port in 2007. An affidavit that was given by the respondent company itself reveals this. It was found that the company had proceeded with expansion work after 2007 in the absence of necessary environment and coastal regulation clearance.

It also became clear from the records available to the court through the Ministry's affidavit dated 5 March 2015 that the MoEFCC did not monitor the compliance of the project nor did it evaluate its performance while considering the environment clearance of 2013. This raises a pertinent question of the past performance of the companies being an indicator of their future performance. How could the approval of expansion of a project not be based on the existing project details? While looking at granting an 'environment clearance', should not one of the basic criteria be compliance with previous conditions? Deterrence to environmental violations can come about only when the non-compliance to environmental conditions has adverse consequences.

While a standalone petition asking for access to fishing would have resulted in limited remedies, bringing together all the elements that affect the community and the environment ensured that the remedies given were more encompassing. Also substantiating the issues alongwith reliable evidence strengthened the case. For example, the claims made by the fishermen on the restriction of access were supported by maps.

The hefty fine imposed by the court for restoration was due to the cumulative environmental impacts that have to be dealt with. A standalone petition asking for access to fishing would have resulted in limited remedies. Bringing together all the elements that affect the community and the environment ensured that the remedies given were more encompassing. It is also, however, important to show the relevance of each plea with respect to the remedy asked for, and ensure, as far as possible, that these claims are presented with reliable evidence. Claims made by the fishermen on the restriction of access were supported by maps. While the court did not examine in detail most conditions of the initial environmental clearance of 2003 that were raised, the destruction of mangroves was examined in detail.

Even though the case is now being heard at the apex court of the country due to an appeal, the judgment is an important precedent as the fishing community's voices were heard and the subject of environmental non-compliance by large projects and their consequences have been placed in the spotlight. Moreover, the project proponent has reportedly paid the fine amount of Rs 25 crore imposed by the National Green Tribunal, as per the apex court's orders. Large-scale land-use transformations usually leave certain sections of society more vulnerable to the effects of such changes, and their opinions are usually not heard, sometimes noted but mostly not accounted for. A robust and outcome-based environmental compliance and monitoring system can reduce or mitigate the impacts of land-use change. It needs to be built and upheld as a critical rule of law issue for these times.

For more

www.greentribunal.gov.in/
National Green Tribunal

A Huge Struggle

A recent workshop at New Delhi discussed capacity building for the implementation of the Voluntary Guidelines for Securing Sustainable Small-scale Fisheries (SSF Guidelines)

A national workshop on 'Capacity Building for the Implementation of the Voluntary Guidelines for Securing Sustainable Small-scale Fisheries (SSF Guidelines)' was held during 21—22 March 2016 at the India International Centre, New Delhi. While this was the first in a series of workshops supported by the International Fund for Agricultural Development (IFAD) to be organized in various countries and regions, for India it was the culmination of a series of workshops and consultations held across the country since early last year.

The national workshop was organized by the International Collective in Support of Fishworkers (ICSF), in collaboration with the World Forum of Fisher Peoples (WFFP) and the World Forum of Fish Harvesters and Fish Workers (WFF) to promote awareness about the SSF Guidelines and to mobilize support for their implementation. The workshop also aimed to highlight the small-scale fishery organizations' efforts at empowering the fishing communities and valorizing the subsector; and to discuss how Indian policies and legislation to protect the lives and livelihoods of small-scale fishers, fishworkers and fishing communities can benefit from the SSF Guidelines.

The New Delhi workshop was planned to coincide with the second anniversary of the disappearance of Malaysian Airlines flight MH370, which Chandrika Sharma, the former Executive Secretary of ICSF, was on board. At the workshop, representatives from WFFP, WFF and ICSF spoke about her support for the struggles of small-scale fishworkers the world over, and how we need to carry on the fight in her honour.

In the spirit of the SSF Guidelines, the workshop brought together a range of actors of relevance to the small-scale fisheries sector, in an attempt at developing a coherent intersectoral response. Nearly 96 participants attended the workshop. There were distinguished participants not only from marine and inland fishing communities across India, but also from a cross-section of ministries, departments and agencies, both at the Union and state level, dealing with human rights, rural development, decentralization and local governance, labour and employment, disaster preparedness, finance, tribal affairs, planning, marine and inland fisheries as well as representatives of CSOs/NGOs, research institutions, FAO, IFAD and BOBP-IGO. Panel discussions focusing on each component of the SSF Guidelines brought forth a range of information, opinions and experiences from different stakeholders. Group discussions on the second day helped concretize recommendations towards action plans based on what emerged from the panel discussions.

The workshop also aimed to highlight the small-scale fishery organizations' efforts at empowering the fishing communities and valorizing the subsector

Concerns raised

International small-scale fishworker forums, represented by their Indian members, raised their concerns plaguing the sector and what needed

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to be done to protect their rights and promote their interests. These included the importance of securing access to tenure rights to coastal and inland land and water bodies and protection of customary rights; the need for measures to ensure their social development including decent housing, sanitation facilities, potable water, education and health infrastructure; ways in which decent work could be ensured for workers; how the role of women in small-scale fisheries needed to be valorized, their participation strengthened and capacities built for value addition, leadership and marketing; and, the need to address the implications of climate change and natural disasters on small-scale fisheries. They discussed the importance of pensions for fisherpeople, safety at sea, insurance policies against disasters, protection of fishers across territorial waters and the exclusive economic zone, and compensation during fish ban periods. Issues concerning migrant workers on fishing boats were highlighted, the need for facilities, insurance covers and registration in the places where they work and that interdepartmental coordination between fisheries and labour is needed at the national and state levels. Suggestions were made regarding zoning, including reserving areas for traditional small-scale fishers, and for different gear groups to reduce inter-gear conflicts.

Participants at the workshop explained how the tenure rights of both men and women were weak and not guaranteed...

Participants at the workshop explained how the tenure rights of both men and women were weak and not guaranteed, and pointed to their poor access to health, housing, water and sanitation facilities, and how fishing communities were especially affected by natural and man-made disasters and developments in the coastal and inland areas, including the imminent threat to coastal communities due to sea level rise, global warming and acidification of oceans adversely impacting marine life.

The plethora of challenges women faced was highlighted by several speakers. Fisherwomen had low access to government finances, were not recognized as 'fishers' and were therefore unable to lease inland water bodies without protracted struggles. As workers, they often received less than the minimum wage, and their lack of collateral also left them at the mercy of middlemen and moneylenders. They lacked facilities at landing centres, including access to drinking water, leave alone water for cleaning fish. Among the many issues raised were—the lack of marketing facilities, exploitation of women in markets, lack of security as well as facilities for women who travel intra - and inter-state to sell fish, work displacement of women caused by factors such as male-friendly technology development which decreased their access to fish, loss of access rights to traditional fish drying areas, and poor access to education, health, entitlements and property. Also, it was pointed out that the high levels of alcoholism among men in fishing communities were the cause of great suffering for the women.

Participants at the workshop condemned the practice of giving value to trash fish in the form of fishmeal for poultry. They also spoke out against the government incentivising the export sector, adversely affecting the domestic market and food security. They also condemned the dumping of toxic waste in oceans, large-scale destruction of mangroves for 'development' projects, flattening of sand dunes for sand mining, and the lack of a system of punishments for violations of environmental laws.

Framework

The workshop participants felt that the SSF Guidelines now provide a framework to address these issues. Government representatives from a wide range of ministries and research

institutions as well as international agencies welcomed the SSF Guidelines and highlighted its importance in a country like India where 95 per cent of its fisherfolk are in the small-scale subsector. They recognized the threats to small-scale fisheries and said that though some aspects of the SSF Guidelines were reflected in the 2004 Comprehensive Marine Fishing Policy, the draft 2015 National Marine Fisheries Policy and the Marine Fishing Regulation Acts at the state level, some issues like disaster risk reduction and climate-change mitigation were new to the fisheries authorities. They spoke about the role they could play and how the SSF Guidelines could provide guidance for legislation, policies and research of relevance to fisheries and fishing communities.

Attention was drawn to how existing policies and legislation deal with life and livelihood issues of both men and women and how gaps in legal and policy instruments as well as the gap between the research conducted and the realities confronting the communities could be meaningfully addressed by implementing the SSF Guidelines. The roles that local bodies or *panchayats* can play in economic, infrastructure and social development and the importance of fisheries cooperatives were highlighted. As the National Human Rights Commission (NHRC) has started monitoring flagship social protection programmes of the government, fishing communities can bring to the notice of NHRC their particular vulnerabilities or poor access to these flagship programmes.

At the New Delhi workshop, data and information gaps were pointed out, and participants expressed the need for baseline documentation of traditional rights on inland and marine fisheries in order to protect traditional rights from getting extinguished. They also discussed data on landings, a data bank of migrant-sending and receiving states, an inland fishery survey, and the need for gender-disaggregated data to make the role of women in fisheries more visible. There was also a call for a National Data Acquisition Plan for Fisheries, with fishing licences accompanying a mandatory requirement of sharing catch data.

The workshop participants were given a glimpse of FAO's efforts towards implementation of the SSF Guidelines. There was recognition that the Indian Constitution and human-rights law place great value on the human rights principles reflected in the SSF Guidelines, but the reality is different and poltical will is needed to ensure that these principles are actually protected and promoted to ensure the human rights of small-scale fishing communities. It was acknowledged that the SSF Guidelines are unique in that they are developed within the framework of two main approaches—the human-rights-based approach as well as an ecosystem approach to fisheries—which, therefore, attempt to achieve better benefits for small-scale fisheries and fishworkers as well as sustainability of fishery resources. The participants of the workshop enumerated the positive steps taken, including key climate finance initiatives by the National Bank for Agriculture and Rural Devleopment (NABARD), which have helped to build resilience and to improve efficiency, IFAD's post-tsunami livelihood programme, the aquarian reforms in Kerala where fishing is restricted to fishing

ICSF

David Brown, Ujjaini Halim, M Illango and V Vivekanandan at a panel disscussion at the National Workshop on Capacity Building for the Implementation of the SSF Guidelines, New Delhi, India

communities, and NHRC's responses to safeguard the collective rights of communities.

What came across throughout the workshop was a concern about the future of small-scale fisheries, and how the sector has changed drastically over the years with changes in technology, depletion of fish stocks and exploitation of resources leading to a change in the livelihood patterns of SSF communities and their increasing vulnerabilities. SSF communities are the most vulnerable, exposed to the vagaries of nature, prone to the maximum number of natural calamities, and difficult to reach, both geographically and politically. Many communities have benefitted from advances in technology, but the SSF sector has actually worsened, while others, including trawl fisheries and tourism, are threatening the entitlements of SSF to coastal and marine resources.

At the New Delhi workshop, the importance of active participation of small-scale fishing communities in fisheries management, research, and in decision-making bodies as well as in community-based resource management systems for monitoring the implemention of the SSF Guidelines was underscored by both fishworker organizations and government representatives.

The timing of the workshop was appreciated as a new national legislation is taking shape for marine fisheries...

The New Delhi workshop helped to inform all the participants about the guiding principles of the SSF Guidelines, highlighting the small-scale fishery organizations' efforts at empowering the fishing communities and valorizing the subsector. The importance of SSF was recognized as a major contributor to poverty eradication and food security. Most importantly, the workshop provided a space for government representatives and small-scale fishworker organizations to freely engage with one another and exchange views and recommend action plans on how to take the concerns of small-scale fisheries on board.

Small-scale fishing community representatives were exposed to policies and schemes of various ministries and how they can be applied to their communities; they were also told about the gaps that needed to be filled. Ministry representatives, on the other hand, heard the voices and concerns of small-scale fishworkers, and were made aware of the SSF Guidelines and the role that they can play in its implementation, including the possibility of developing policies and measures or implementing existing ones that protect the interests of the subsector.

The SSF Guidelines, in fact, can give guidance on how various national and state schemes offered by many different ministries can be extended to small-scale fishing communities and how each level of government up to the *panchayat* level has a role to play. The need for a plurality of agencies to address the needs of the small-scale fisheries sector was recognized as was the need for a concerted response. The importance of a National Plan of Action for implementing the VGSSF was acknowledged, with the lead taken by the Department of Animal Husbandry, Dairying and Fisheries (DADF) under the Ministry of Agriculture and with the active involvement of FWOs and CSOs. Capacity building of the various departments responsible for dealing with SSF would be a necessary prerequisite. The government expressed willingness to develop indicators, with the participation of FWOs, to monitor the progress of the implementation of the SSF Guidelines and to measure the outcome. The timing of the workshop was appreciated as a new national legislation is taking shape for marine fisheries and the recommendations supporting SSF could still be incorporated in the new marine

ICSF

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fisheries policy. The need for a National Inland Fisheries Policy was felt if one wanted to adopt the SSF Guidelines in the inland context. It was hoped that the workshop would provide avenues for cooperation and collaboration between FWOs, the government, civil society and research institutions.

Much more needs to be done to understand the inland fisheries sector which is very complex in India. While it was felt that semi-intensive or intensive aquaculture was negatively impacting the SSF, some other participants at the workshop pointed to the mariculture advantage, where the gender issue can be addressed by giving more rights to women. These issues need to be looked into further. The lack of private sector participation is also a matter of concern, particularly as the SSF Guidelines include them as one of the stakeholders and because their interests could clash with the SSF sector.

The New Delhi workshop was just one step towards the implementation of the SSF Guidelines. The challenges ahead are huge in a country as diverse as India where even the definition of what constitutes a small-scale fishery is difficult. Moving from awareness and capacity building to actual implementation in terms of policy and legal changes with benefits reaching the small-scale fisheries sector is far from easy. Much more needs to be done to formulate ideas and action plans for implementation as well as to ensure that the multiple players work together for a coordinated response.

The federal system with its multi-layered governance structures can be a blessing and a challenge when it comes to converting the SSF Guidelines into practical measures for implementation. Action plans or interventions towards implementation need to be contextualised and developed at the national, state and local levels. Further, the SSF Guidelines place the responsibility for implementation on multiple stakeholders—government, civil society, private sector, fishworker organizations—leaving it to those with 'greater' stakes to push for its implementation. Though sustainability of lives, livelihoods and natural living resources are considered global and national priorities reflected in the Sustainable Development Goals and country plans, in reality, there is always a huge struggle to reflect these in action.

For more

sites.google.com/site/ssfguidelines/home/india-national-workshop-on-capacity-building-for-the-implementation-of-ssf-guidelines|

India National Workshop on Capacity-building for the Implementation of the Voluntary Guidelines for Securing Sustainable Small-scale Fisheries

In One Voice

A public hearing of women fishworkers in the south Indian state of Kerala was held in the capital, Thiruvananthapuram, on 16 February 2016

The women fishworkers in the Self-Employed Women's Association (SEWA) in Kerala, India, have, for several years now, been complaining that life is getting increasingly difficult for them. While some of their issues are being taken up by the union, they still complain of the difficulty of surviving amidst increasing competition of all kinds and how the growing numbers of male vendors and male domination in markets were making life a daily struggle. SEWA then undertook a more detailed study of the vendors, their access to fish, and the issues they faced in the market.

The study revealed that there have been significant changes in the sector over the past six to seven years, and these have had a tremendous bearing not only on the work of women in the fisheries but also on the quality of fish that is reaching the market. The findings of the study were discussed in depth with the women in February 2015. The women highlighted the two major problems as (i) growing male domination in fish vending and in the markets, and (ii) competition from poor-quality frozen fish that prevented fresh fish from fetching its rightful price.

While both the women who sell fresh fish and those who sell frozen fish were present at these discussions, they all seemed to understand that they are together victims of similar processes of change taking place in fishing itself. As the boats get bigger and more capital-intensive, landings have become more centralized. Fish is frozen during long voyages and dumped in harbours. This fish then travels back to the seashore for sale to women vendors in the fishing communities, as the catches in the small-scale fisheries sector have also been diminishing due to the large catches out at sea. The women who sell frozen fish said: "This is the only way we get fish for sale but we know it is not of good quality. Moreover, consumers do not have much money to buy, so they purchase this bad-quality fish".

In such discussions, women understood that this is the case with all food. Even vegetables today are of bad quality and so there are now organic shops where people can buy good-quality vegetables even if for a slightly higher price. Would they be willing to sit in separate markets so that consumers could have the choice to buy either fresh or frozen fish? Although they could not fathom this in the beginning, the women gradually began to understand and wondered how they could work towards such a process. They realized that they would have to reach a consensus among themselves and be willing to speak in one voice to convince the authorities and the consumers.

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Public hearing

Hence it was decided to organize a 'Public Hearing' to ensure better publicity for the issue, after which negotiations could be undertaken at different levels to move towards greater food safety and decent working conditions for women. But

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this would be a long struggle and would women be willing to give the time for it? Several women were willing to put in the effort for this. They agreed to come for regular meetings, develop arguments and then prepare their testimonies to be ably communicated to the jury.

While it is normally very difficult to get women to free themselves for such activities, a group of around 20 women kept coming for the meetings on a regular basis for around nine Sundays over five months. They had to first understand what a public hearing is. Then they had to understand the logic and connection between the issues they were going to communicate, and afterwards think of alternatives. They also had to choose who would speak on which topic, and prepare themselves accordingly.

SEWA managed to get together an interesting jury for the public hearing, comprising the chairman of the Famine-cum-Relief Fisheries Welfare Fund who is a retired High Court judge, the Director of Fisheries, the Commissioner of Food Safety, the Chief Executive Officer of Matsyafed (the state fisheries co-operative federation), the Chairman of the Fisheries Development Corporation, the Chairperson of the Head Load Workers Welfare Board, a senior woman scientist from the Central Institute of Fisheries Technology, and an activist on fisheries and coastal issues.

At the hearing, Sonia, the secretary of SEWA Kerala, introduced the reason for conducting the hearing. She said that there are over 50,000 women in small-scale fisheries, mainly in three coastal districts in Kerala—Thiruvananthapuram, Kollam and Kasargod—and they face numerous issues in earning their livelihood. The hearing would only raise issues of the women who directly engage in fish vending. Subsequently, the women began with their testimonies.

Philomi spoke about the traditional knowledge of the small-scale fishers and how they managed to bring back large catches without any so-called 'modern' equipment, and how the communities lived off these resources. She said that this is due to the knowledge accumulated over generations of both the fishers and the women who sell, salt and dry fish. This knowledge is the source of livelihood for thousands of coastal people and since it is based on the rhythms of nature, it is also sustainable. This knowledge should be protected.

Mercy, a young woman, spoke about the debt she had fallen into as her husband tried to keep abreast of the new methods of catching fish with outboard engines, global positioning system (GPS), larger nets and powerful lights. As new equipment is introduced every week, all the fishers think they have to buy it. Mercy said they had borrowed Rs 3 lakhs (US$ 4500) five years ago and now had a debt of Rs 10 lakhs (US$ 15000). Their entire catch seems to go to the companies who produce the technology and the oil to run the engines. They are left in debt as they ended up fishing not to sustain themselves but to sustain the companies. "Why does the government not control this", Mercy wondered.

Punitha, Carmel, Mary Varghese and Jaya then spoke of the problems they had in accessing fish. Punitha, who only procures fresh fish, spoke about the burden of travelling to different shores, starting in the wee hours of the morning, to get fresh fish after bearing the high transport costs. Carmel spoke about the competition at the Kollam harbor to buy fish at the auctions. Mary narrated how they are cheated on weights and quality by the wholesale merchants at the markets. Jaya spoke about the bad-quality frozen fish that comes to their seashore in insulated vans from distant harbours, and how they are cheated by the merchants again. They have no idea how old the fish is, but it is much cheaper than the locally caught fish, whose prices are thus driven down.

Reaching the market is another ordeal. Stella spoke about the problems she has had getting into

the state transport buses as they are not allowed to travel in them, and the bus conductors treat them very badly. She shared her painful experience of being literally thrown out of the bus with her container. Achamma spoke about the Matsyafed bus that takes them to the harbour at Kollam and brings them back to the market, which is a great service, but that there are only four such buses in the state. Kochu Thresia spoke about the costs of hiring private vehicles, which drains them of all their earnings. She demanded that Matsyafed provide a bus exclusively for the over 100 women vendors from her village.

Worse are the experiences of women in the market itself. Selvarani, Silvamma and Punitha spoke about the extortionist headload workers who demand large sums just to take out the fish baskets from the autorickshaws at the market and then demand festival allowances as well. There are other problems as well—high market taxes, lack of running water and toilets even in refurbished markets, lack of space for consumers, slippery tiled floors that dissuade consumers from venturing in, among others. They spoke about the poor drainage for water runoff. All the prime spots are occupied by male merchants who were earlier absent. Finally, Annamary, who had put up a big fight at the market where she sells fish, explained in detail how they, the members of SEWA, who had managed to get the *panchayat* to refurbish the market, were forced to sit out in the sun. When the *panchayat* finally did construct the market, the women were not allotted spaces to sit under the shelters—these were occupied by the men. This is because the municipal market is auctioned and the man who bid for it has been in control for decades. He makes the rules and treats the women with disrespect. He has now also become a big merchant of frozen fish himself and has engaged male vendors to sell the fish for him. These men do not pay any tax and they occupy the prime spots in the market. Shusheela and Merina, women from Kollam, had similar stories to tell.

Alphonsa and Vimala spoke about the fate of the women who sell dry fish. They explained that the only fish they get to dry these days comes from the vehicles that bring frozen fish. Since this fish is of bad quality, disguised with ammonia or formalin, it has no shelf life even when it is dried. Hence they have to dispose of it fast and the price they get is very low. Moreover, they have to go to distant markets to sell the fish, to areas where no other fish reach.

To wind up, Amala spoke about the living conditions of the fishing community. In many areas there is no access to potable water and women have to buy water. There are no drainage and sanitation facilities, and many areas are water-logged, posing a major health hazard. Several villages face threats of coastal erosion, and houses are damaged during the rains. This is caused by the stone retention walls that are being built all along the coast, which is no way to save the coast from erosion. Amala claimed that the sea receives all the pollution from inland sources and nobody cares about the lives of the people who live on the coast.

Sita, who compered the hearing, wound it up by saying that the policy for modernizing the fishery had led to these effects on people's work and food, and that the government, while only thinking of increasing the fish catch through modernizing, does not pay heed to these aspects. This has led to a greater masculinization of the fishery, and the women bear the brunt of it. Hence it is important for the local and state governments to find ways to solve these issues to ensure that the fisherwomen get their legitimate rights to a decent livelihood.

After listening attentively, the jury gave its responses, which are summarized below:

- Maintaining the quality of fish is an important aspect of food safety. The Department of Food Safety will train fisherwomen in aspects of quality management. Such experiments are presently

being undertaken in north Kerala and the same can be adopted in Thiruvananthapuram as well. This must eventually be conducted through the entire value chain.

- If and when women are trained, means of branding the high-quality fish can also be undertaken.
- Women-only markets selling only good-quality fish should be developed in other districts to facilitate the process of informing the consumers of good-quality fish, so that the small-scale fishers also get better prices.
- Markets are developed by the Fisheries Department/Fisheries Corporation and handed over to the Municipal Corporation or local bodies. In future, criteria will be developed when handing over markets to local bodies so that the rights of women vendors are safeguarded, and maintaining infrastructure of sanitation, lighting and waste disposal will be made mandatory.
- Discussions should be held between the women vendors and the headload workers through their representative organizations, in which the Headload Workers Welfare Board will proactively help, to see that charges are made only as per rules and to sort out other disputes and reduce the harassment of the women.
- As the market is their workplace, any harassment of women should be dealt with according to the Harassment at the Workplace Act.
- While Matsyafed still runs a few buses for women vendors at great cost, efforts will be made to introduce buses on routes that will be viable, particularly from the Adimalathura area towards Neyyatinkara.
- All women should actively participate in *gram sabhas* so that they can demand their rights from the local government and stand united against the marginalization and harassment they now face.
- More comprehensive data is required regarding women who work in different aspects of fisheries. The Fisheries Department should be able to find ways of collecting more authentic data so that planning and budgeting for this sector becomes more meaningful.
- Presently, there is a mismatch between the loan schemes of the various departments and the needs of the women. Efforts will be made to develop, in collaboration with SEWA, some creative participatory alternatives that can be of more beneficial to the women.
- All technical institutions should reach out more to women's groups to develop their capacities in financial management and quality control. Financial support through Corporate Social Responsibility (CSR) could also be sought for this.
- More attention should be given to the implementation of the Street Vendors Act so that the street vendors are not arbitrarily evicted and also to ensure that the various requirements of the Act—portable shelters, access to public toilets and water, garbage clearance—are also put in place, thereby serving both the vendors and the public.

For more

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Changes in the labour roles of women in the small-scale fishery in Kerala

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Kerala women fisherfolk raises voice about their woes in SEWA hearing

Lost Communities

The ancient institution of community village life in Goa, India, known as *comunidade* (Portuguese for 'community'), plays an important role in fisheries regulation

The tiny Indian state of Goa (area: 3,701 sq km; coastline: 131 km; east-west breadth: 60 km) has a strong fishing community located along the coast and in the estuarine backwater basins. Fisheries are a dominant sector in Goa's economy and, along with tourism, is a major source of revenue for the state.

The 1960 Census for Goa, Daman and Diu enumerated 4,891 persons as fishermen and the total population dependent on fisheries was estimated at 14,000, located in 14 villages in the coastal areas of Bardez, Goa and Salcete. Traditional country canoes called *rampons*, made of wooden planks and outriggers have been traditionally used by the local Goan fishermen.

The sui generis institution came into existence by its own volition, crafted by the first settlers much before the overlords or Rajas came on the scene.

Eventually, mechanized trawlers made inroads in Goa's fishing industry. The financially challenged traditional fishermen were unable to shift to mechanized trawler fishing and so there were prolonged confrontations between the mechanized and traditional sectors. In the early 1980s Mathany Saldanha, a school teacher from Cansaulim, Salcete, took up the cause of the traditional fishermen under the banner of 'Ramponkarancho Ekvot' and continued to fight for the cause of ramponkars (traditional fishermen on *rampons*) even as a Minister in the Goa cabinet—until his death in early 2012.

In 1957, the Portuguese government had brought four mechanized trawlers and purse-seiners into Goa. As there was no separate Fisheries Department then, they were handed over to the Board of External Trade (Junta de Comercio Externo) so that locals could be trained in operating them but the vessels were damaged during military action and were pilfered.

According to the Goa government's Economic Survey for 2009-10, the annual fish catch in 2008 was 88,771 tonnes in the marine sector and 3,078 tonnes in the inland sector (up from 84,394 tonnes and 4,397 tonnes, respectively, in 2004, but down from a high of 103,087 tonnes and 4,194 tonnes, respectively, in 2005. See Table.)

Table: Annual Fish Cath (in tonnes)

Year	Marine	Inland
2004	84394	4397
2005	103087	4194
2006	96326	4131
2007	91185	3070
2008	88771	3078

Since ancient times, an institution of organizing community village life called *comunidade* (from the Portuguese for 'community') has existed in Goa. Locally, it is called *gaunkary* or *gaunponn*. The sui generis institution came into existence by its own volition, crafted by the first settlers much before the overlords or Rajas came on the scene.

Resources pooled

The early settlers pooled their resources to found villages with defined boundaries and each installed

This article is by ***Hector Fernandes*** *(hectorquitula@gmail.com), former president of Comunidade Fraternal de Aldona, Goa*

with a presiding deity or *gram-dev*. The founding fathers of these villages were called Gaunkars, and the absolute ownership of the village came to be vested with the *comunidade*. The *comunidade*, which is the primary owner of the village, creates titles for land by grants of assignment to individuals.

The *comunidade*s are regulated by laws of custom and usage which were compiled for the first time in 1526 into a charter, and subsequently codified in 1904, 1933 and 1961. Land management is a duty of the *comunidade* and some lands are given on short- or long-term assignments, as escheat to the *comunidade*. Therefore, the *comunidade* villages are non-government villages or non-revenue villages.

Hence, to make a village a functional and economically viable unit, the founding fathers had a scheme. They invited the artisans of various trades, occupations or crafts to become village staff. They included temple priests, weavers, cobblers, ironsmiths and goldsmiths, washermen, carpenters, barbers, tailors, potters, doctors, fishermen and so on , as per the need of the village and the district. Necessary land for their habitation was earmarked and allotted to them for their homesteads as long as the person with his family stayed there and his children continued the trade. He was also allotted a parcel of field to cultivate rice for his own sustenance. The *comunidade* would pay remuneration for these services. This scheme was known as 'nomoxim' grants. When the head of the family died, he was replaced by another one with the reverted nomoxim conferred on the new incumbent. Besides these nomoxim grants, there were other usufructary assignments as well.

Fishermen, though they are not Gaunkars, are also included in the fabric of the *comunidade*s, under the profession of '*tari*' or *pescador* which in Portuguese means 'fisherman'. Fishermen are important for Goans, the majority of whom are fish-eaters. The fishermen community in Goa is a sub-caste of Hindus who converted to Christianity and continued the profession and they are called *'kharvi'* in Konkani .

Rui Gomes Pereira in his *Goa Vol.II: Gaunkari—the old village associations* records: "The corporation of the Passo de Ambarim (Ambarim wharf) was an institution of three *passo*s (wharves) of fishermen that existed at Naroa, Santetem and Ambarim. Its members had the duties of providing seamen to His Majesty's Navy and performing service therein. In return, they had the right to fish in the rivers within its jurisdiction. They used to pay the national treasury (the Foro) 25 *tangas brancas*. In the second half of the 19th century, the community of Chorao seized its properties. However, in the year 1861, the government restored to the members their properties with the old obligation of rendering service to the Portuguese Navy, which had been suspended."

The *comunidade*s used to maintain the river crossings that connected the roads on either side. Before the advent of mechanized ferry boats, rivers could be crossed only on dugout canoes, two of which were joined for greater stability and passenger capacity. These canoe ferries are known in Konkani as '*tar*' (hence, the term *tari* or for fishermen).

HENRIQUE FERNANDES

Hector Fernandes at Quitula Casan. 'Casans' or 'khajans' lie below the high-tide level and are protected by levees known as 'bunds" in the local Konkani language

Where *comunidades* exist, the ferry wharfs belong to them and the right to operate the canoe ferry for a year was auctioned by the *comunidade*. The ferry-man who won the right to operate the ferry could collect ferrying charges from travellers, except the Gaunkars who were to be ferried free in lieu of the auction money. The *taris* used to build huts near the wharves and stay there the whole year round, operating the ferries round the clock.

Apart from fishing in the rivers where the government has jurisdiction for issuing fishing rights, fishing is done in shallow tidal ponds and lakes where fishing rights are issued by the respective *comunidades* that own them. The *comunidades* have reclaimed the silted mud-flats to convert them into fertile fields by building levees or embankments locally called bunds. These vast tracks of low-lying fields called *casans* or *khajans* are below the high-tide level and are protected by the levees.

When these lands were reclaimed, the *comunidades* were actually creating what we today term 'special eco-fragile zones'. In the past, the brackish waters of the flood plains used to reach up to the hard-rock lateritic strata. Today, when there are breaches in the bunds, the water inundates the *casan* fields and makes the groundwater in the open-dug wells brackish and unpalatable. The reclamation of tidal mud-flats by construction of bunds has thus changed the ecological balance by preventing salt-water ingress into the groundwater.

The *casan* lands are not a mere stretch of flat, low-lying land but have an intricate system to take care of different natural events. Besides the levees or bunds, pathways were made so that even under situations of inundation, people could safely negotiate through the fields. There were also provisions for drainage to allow the runoff from hills and the upper reaches of the land to drain into the *poim* (a tidal brackishwater pond with an exit to the river) without causing undue flooding and water-logging of the fields, which would have caused rice crops to rot.

The *poims* are also used for harvesting fish which is plentiful throughout the year. The right for catching the fish lies with the *comunidade* or with the owner of the particular *poim* and field. The right to catch fish is auctioned in two parts—the right to catch fish at the sluice gate and the right to catch in the *poim*. A funnel-shaped net is set up near the doors of the sluice-gate during the outflow of water when the sluice gates are opened. The fish that is expelled with this outflow is caught in the net. In larger *poims*, fishing rights are also auctioned separately with the condition that Gaunkars can also fish for personal consumption. However, each *comunidade* has its own regulations and outsiders have now begun bidding at auctions and fishing in the *poims*.

The changes in the demographic profile of Goa started over a century ago when the locals started migrating to foreign countries for better jobs and the local vacuum was filled by in-migration from neighbouring villages and states. In December 1964 a new law was created, The Goa, Daman and Diu Agricultural Tenancy Act and in June 1965, this Act was insidiously made applicable to the *comunidades*, thereby passing all community lands into private hands. The functioning of the *comunidades* was crippled and they began to lose revenues. Today, vast tracts of *casan* fields of the *comunidades* are lying fallow and uncultivated as the past tenants have either died or moved away.

For more

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Shelter from the Storm

A decade after the Indian Ocean tsunami of 2004, there are several lessons to be learnt from interventions in shelter in the south Indian state of Tamil Nadu

India was one of the countries most affected by the Indian Ocean tsunami of 26 December 2004. The three Indian states of Tamil Nadu, Kerala and Andhra Pradesh and the two Union Territories of Andaman and Nicobar Islands and Puducherry were affected. Though the Andaman Islands were closer to the epicentre of the undersea earthquake, it was Tamil Nadu that suffered the highest fatalities and an enormous loss of property and infrastructure along the coast. With a 1000-km coastline and home to India's largest marine fishing community, the story of Tamil Nadu's recovery from the tsunami has great significance from many points of view. In particular, it is of great interest to all those concerned with disaster preparedness and management and with coastal and fisheries development and management.

With fishing hamlets located mostly within 500 m of the shoreline, the houses of fishermen in Tamil Nadu were damaged / destroyed by the tsunami, on an unprecedented scale. The damaged houses were assessed at over 53,000, with around 45,000 of them fully damaged and the remaining partially damaged. Teams from the Indian Institute of Technology (IIT) Roorkee's Department of Earthquake Engineering, which visited the coastal regions of Tamil Nadu, Puducherry and Kerala in the first week of January 2005, found little evidence of damages due to direct shaking while the damage due to the tsunami was extensive. Both masonry and concrete structures were damaged, though the level of damage varied and a direct correlation was found between run-up height and extent of damage.

With more than one million people affected, and considering the fear factor, the number of people who had to be immediately transferred to relief camps crossed 1,400,000 in the first couple of weeks. Although there were cyclone shelters in some of the affected villages, these were not sufficient and the people were moved to marriage halls, schools, colleges, hostels and premises of temples, mosques and churches. As this happened during the Christmas vacation, schools and colleges were available for the setting up of relief camps. However, they had to reopen and life had to move on. Pongal, which is an important festival in Tamil Nadu, was during the second week of January and the state government felt that the best gift it could offer was a feeling of normalcy to the affected people through shifting them from their relief camps to temporary shelters.

With a 1000-km coastline and home to India's largest marine fishing community, the story of Tamil Nadu's recovery from the tsunami has great significance from many points of view.

Temporary shelters

Due to the scale of support that was pouring in, there was great confidence that the temporary shelters would be required for less than a year. It was estimated that about 100,000 families would have to be provided temporary shelters while awaiting repairs or reconstruction. As the design and the structure, including the maximum permissible

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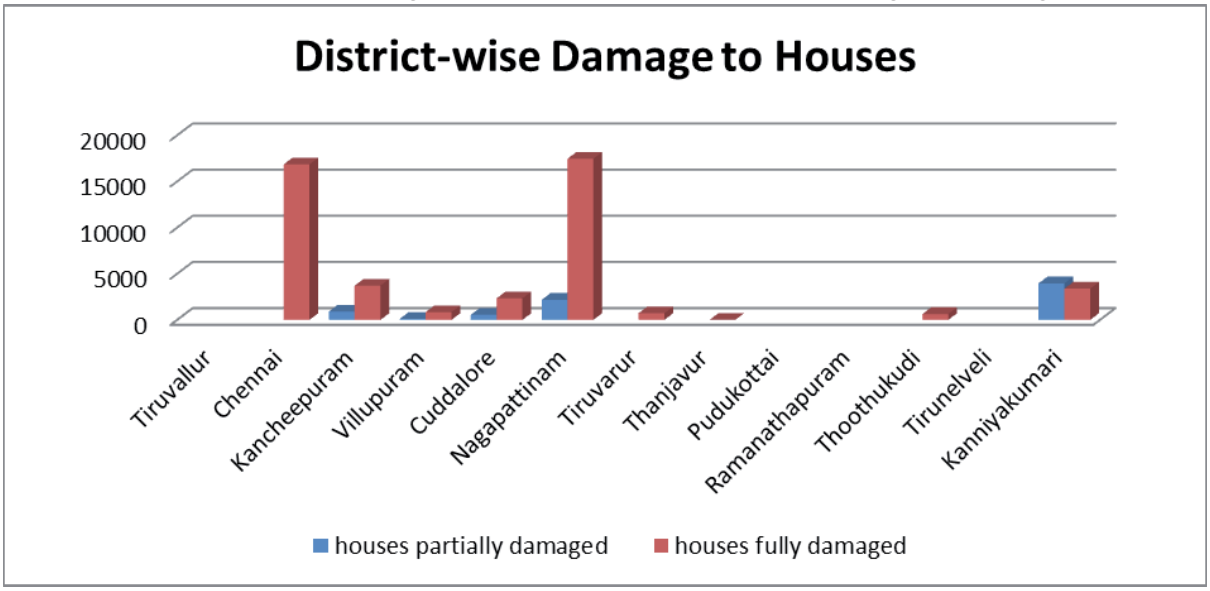
The district-wise damage to the houses due to the 2004 tsunami is given in the figure



Source: Tiding over Tsunami-I (GoTN 2005)

cost, was already stipulated by the state administration, the setting up of these temporary shelters did not take much time and the people were transferred to these new facilities well within the two weeks allotted. Common sanitation and water supply facilities were set up in the shelters provided and UNICEF trained youth volunteers to oversee the effective and hygienic utilization of these facilities.

However, these temporary shelters proved to be more of transit shelters as the time estimated to identify suitable sites and finish construction of permanent houses took much longer than estimated, resulting in cases where people had to stay in these shelters for two to four years. The bitumen sheets used as roofing proved hot and uncomfortable, and additional thatched roofing had to be provided. Heavy rains in 2005 also led to waterlogging of a number of sites requiring investments in redoing the flooring and roofs. All this raised the overall investment, which could have been reduced by better planning in the initial stages. However, the learnings from these have resulted in the formulation of guidelines for temporary shelters.

While the temporary shelters were being constructed, discussions were going on in parallel regarding permanent housing. Considering that the old houses were mostly of the thatched '*kutcha*' (rudimentary) type, new housing, rather than repairs, dominated the thinking. The policy for permanent shelters was clearly shaped by a number of influences. The first Government Order (GO), dated 13 January 2005, indicated the move towards a public-private partnership. The finalized policy was brought out in the GO No. 172 issued in April 2005. This allowed non-governmental organizations (NGOs) and corporate houses to build the housing units based on government specifications; the government would provide land and other infrastructure free of cost. The houses would be insured from multiple hazards for ten years and all houses would be given in joint ownership to husband and wife, ensuring that women have an equal right to a tsunami house.

Private assets

It is useful to look back at the events that led up to GO 172 to understand the influences that shaped it as they were largely over the location of the houses of fishermen. The World Bank had come forward to fund creation of private assets with one stipulation that the Coastal Regulation Zone (CRZ) norms be followed in construction of

habitations. According to the CRZ, new constructions would be permissible only beyond 500 m from the high-tide line (HTL). All districts affected had their own issues and problems when dealing with reconstruction of habitations. While Nagapattinam had to identify appropriate sites for 20,000 households in a terrain that was largely below mean sea level, Kanyakumari had to grapple with finding adequate spaces for relocation in a densely populated area, and all districts had to deal with the CRZ norms. Although life security was a major factor in deciding the sites for relocation, considering that more than 80 per cent of the people affected were working fisherfolk, their access to the sea and shore, for their livelihoods, was also a subject for heated debates during the first month after the tsunami. "To move or not to move" was taken up at all platforms right from the villages to the state level.

Though the first GO on permanent shelter would become obsolete soon, it served some important purposes. It sent out a clear signal to the affected community and the rest of the world that the Tamil Nadu government meant business. It also signalled its interest in exploring co-operation with NGOs and corporates. The fishing community, the main community affected by the tsunami, was re-assured by the GO. The uncertainties and deep vulnerabilities it might have felt were set at rest. This ensured good co-operation from the community for all relief and rehabilitation that followed, especially through the extensive time delays in some places. It also gave it the confidence to think beyond mere survival and start asserting its "rights" and expressing its "needs" more expansively.

Relocation of communities also had implications on the socioeconomic and cultural dynamics, which had to be respected. There were many NGOs willing to construct, but at different scales. Matching sites to communities as well as NGOs proved an exercise by itself and was handled in various ways: either through a direct one-to-one dialoguing between the administration and the respective NGOs, through direct assignment or through participatory processes like the one in Nagapattinam facilitated by the NGO Co-ordination and Resource Centre (NCRC). However, the underlying principles followed were that the communities should be maintained intact wherever possible: a letter from NCRC to the District Collector, Nagapattinam emphasized that "a hamlet/village that has its own clear-cut identity and traditional system of internal governance like a caste *panchayat* should be considered indivisible", and that every NGO, however big or small, should be given an opportunity for participating in the construction activities.

The implementation of the tsunami shelter programme was a huge affair that started in mid-2005 and ended around 2011—a period of over seven years and in two phases. In the first phase, 31,032 houses by NGOs and 22,257 by the government (largely in urban areas) in nine districts were taken up. Of these, by June 2008, 29,056 houses constructed by the NGOs and 7,204 houses constructed by the government had been handed over to beneficiaries. The houses completed by the government were only in the urban

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The building of the South Indian Federation of Fishermen Societies (SIFFS) at Nagapattinam, where some exceptional sites are being projected as models for others to emulate

areas (Chennai and Tiruvallur districts). They included 'NGO backed-out houses'. Later, with leftover funds, other vulnerable areas were identified and houses reconstructed for those inhabitants even if they had not been directly affected by the tsunami.

An analysis of the reconstruction efforts in Nagapattinam shows that 75 per cent of the construction was in relocated sites, with quite a large number of fishermen families (3,124) and all agricultural families, opting for or eligible (as in the case of agriculture-based families) for in-situ construction. The special care taken in assigning relocation sites ensured that 5,908 houses of the fishermen families were in safe sites identified within 500 m and an equal number well within a 1-km range. For the 1,073 families that had to be relocated beyond the 1-km range, it was with the explicit approval of the communities. The majority of the families who have been allotted sites beyond the 1-km range are from other communities, who have no imperative need for access to the seafront for their livelihoods.

An analysis of the reconstruction efforts in Nagapattinam shows that 75 per cent of the construction was in relocated sites...

A review of scattered reports and a whistlestop tour of affected areas revealed some answers regarding the current state of the tsunami houses. The occupancy rates are high, generally ranging from 80-100 per cent in settlements visited across the coast. The lower end of this spectrum is generally in sites that are a bit farther away from the sea.

Overall, the build quality as seen today, after five to eight years of construction, appears reasonably good. An important exception to this is the housing in Nagapattinam (Nagai), where there is considerable variation in quality. Given that over 20,000 houses were constructed in the district, this is a serious issue. The large scale of construction over a 190-km coastline, without a sound technical support system, has meant that the construction quality was not uniform. The low-lying nature of the Nagai coastal terrain, the poor soil quality that required strong foundations, and the lack of local construction expertise have all made achieving good quality of construction difficult in Nagapattinam. On the positive side, Nagapattinam also has some exceptional sites that are being projected as models for others to emulate, such as those by the South Indian Federation of Fishermen Societies (SIFFS) in Chinnangudi and Tarangambadi.

There is considerable variation in building upkeep and maintenance across the coast. The range is from houses that have been completely transformed through owner modifications to houses that are in a dilapidated condition. Most of investments for improvement have been in the following areas: addition of compound wall/fencing, doors/windows, kitchen/cooking area, thatched roof over yard/roof, replacement of flooring, internal additions/alterations and even addition of rooms.

Drinking water remains a problem in most settlements. Drinking water supply programmes had been implemented in most areas, but the actual availability of water is inadequate and water supply is erratic. Toilet usage is predictably low, with the exception of Kanyakumari where a culture of toilet use precedes the tsunami and there was a genuine demand for them.

Non-use reasons

Reasons quoted for non-use include lack of water for flushing and the low capacity of the leach pits that require regular removal of waste. Solid-waste management is also not satisfactory. Barring a few examples, most communities still dump all the waste in some nearby open space or burn it. Waste-water management is also weak in most

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Community centre at Nagapattinam. The large scale of construction without a sound technical support system has meant that the construction quality was not uniform

places, with the drainage system getting clogged and waste water overflowing.

Good access roads are generally available in all settlements, though the quality and maintenance of the inner roads is variable. Common amenities like schools, public distribution system outlets (ration shops), general shops, fish-mending halls, auction platforms, community halls and playgrounds are all available in most settlements. However, the community halls in many places are not used and playgrounds are often badly sited and not useable. For the overall upkeep and maintenance of the new settlements, many new organizations—village development committees—had been constituted but most seem to have faded away after the initial enthusiasm. There is clearly a local gap in terms of management of the new facilities.

When looking at community satisfaction, it is important to say that most communities feel positive about the changes that have taken place and think that the tsunami rehabilitation has been helpful in improving their lot. However, a detailed study needs to be carried out to evaluate the present status of shelter, especially damages. A consultation process with technocrats, bureaucrats, field implementers, NGOs and communities is required to understand the impacts on mass housing, especially in the coastal areas. Perhaps a major lacuna that requires to be addressed is the provision of clear guidelines and instructions to the beneficiary families on the periodic maintenance of housing as well as infrastructural facilities. Issues such as water, sanitation and solid waste disposal need special focus as do urban resettlement issues, especially when combined with the larger development process.

For more

www.trinet.in/
TRINet: The Resource and Information Network for the Coast

www.tn.gov.in/tsunami/
Tsunami Rehabilitation Programme: Government of Tamil Nadu, Revenue Administration, Disaster Management and Mitigation Department

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Government Orders – Tsunami

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Tamil Nadu: Ten Years after the Tsunami - Learning from intervention in shelter and fisheries livelihoods

Strength in Unity

Small-scale fishermen in the Indian Ocean region are joining forces to claim their legitimate rights over fish resources and push for sustainable and responsible fisheries development

Best known for their so-called individualism, small-scale fishers from the countries of the Indian Ocean Commission (IOC) have embarked since early 2014 on a process to join their forces, claim their legitimate rights over fish resources, and demand better recognition of their role for sustainable and responsible fisheries development within their marine basin.

Small-scale fishers from the Union of Comoros, Seychelles, Madagascar, Mauritius and Reunion Island have been witnessing the opportunistic exploitation of fish resources and the failure of fisheries governance, helplessly, for years now. In the last ocean to be exploited, long-distance fleets are gathering from all parts of the world. Some, governed by the diktat of globalization, are highly capitalistic in nature and on the lookout for highly valued pelagic species intended to be sold to sashimi markets or processed in fish-canning plants in Asia and the United States. Others, operating in a fairly dubious manner, are looking for promising stocks.

The keystone of this regional initiative is the question of how to balance the interests of industrial and small-scale fisheries while ensuring prosperity for the people of the Indian Ocean.

Beyond the choice of a particular economic model, or the promotion of a particular type of gear, it is the whole issue of fisheries governance that is at stake here. The sustainability potential shown by local fishers is in total contrast to the short-term vision that is driving foreign industrial fleets. Tomorrow, fishing companies which are opportunistically plundering the Indian Ocean will undoubtedly move towards new or recovering stocks, somewhere else on Earth. Because of their local nature, small-scale fishers will not be able to follow the same path. They will have no other choice than staying in the marine basin they depend on.

For those fishers in the Union of Comoros, Seychelles, Madagascar, Mauritius and Reunion Island and their families, living within a hundred kilometers of the coast, the southwest Indian Ocean is where their fortune or decline will take place.

Artisanal fisheries in small island developing States (SIDS) are an important contributor to food security. In Seychelles, for example, fish consumption exceeds 60 kg per inhabitant per year. The main protein intake also comes from fish.

Artisanal fisheries create direct and indirect jobs. They are estimated at about 550,000 within the five IOC member States. They provide fair revenue for fishers and their families. The keystone of this regional initiative is the question of how to balance the interests of industrial and small-scale fisheries while ensuring prosperity for the people of the Indian Ocean. Industrial operators can no longer be the only stakeholders around the table. Small-scale, artisanal fishers must take part in the decisionmaking, if they are to offer their children a chance to sustain the livelihoods they love and defend.

Important advocacy

Advocacy is one of the most important missions that the regional platform

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will have to undertake. The idea of setting up such an organization in the Indian Ocean region emerged from the necessity of making traditional fishers' voices heard. Strengthening fishers' rights as well as raising awareness of civil society, advocacy will become more and more accurate over time.

The limitation of the use of drifting fish aggregating devices (dFADs) by industrial factory boats in the Indian Ocean is the first fight small-scale fishermen want to win, supported by the Reunion Island Marine Fisheries and Aquaculture Committee (CRPMEM). Small-scale fishermen have already thought of different ways to address this issue: sustainability, profitability and the popularization of what a dFAD is, how it can be a useful tool and how it can be a destructive one too.

Among the Vezo people in Madagascar, fishing is a keystone of their identity. They are the only Malagasy people not to depend on lineage and territory: the ocean is their home (they are nomads). The secular and traditional knowledge of small-scale fishermen values nothing compared to capture declarations provided by the tuna fish industry. Historical catches are the basis on which fishing rights are calculated. Promoting boats' registration, issuance of professional cards, catches' declarations associated with skills empowerment and transfers when needed are at stake in the Indian Ocean.

Food security relies on small scale fisheries. This strong argument finds an international echo since the Voluntary Guidelines for Securing Sustainable Small-scale Fisheries in the context of Food Security and Poverty Eradication (SSF Guidelines) were adopted by the Food and Agriculture Organization of the United Nations (FAO) in 2014. The southeastern islands of the Indian Ocean consume almost 30 kg of fish per inhabitant per year, with a world record for Seychellois people who consume 65 kg. Fish is the first (Comoros, Seychelles) or the second source of protein after chicken

CHRISTEL GRIMAUD

The southeastern islands of the Indian Ocean consume almost 30 kg of fish per inhabitant per year, with a world record for Seychellois people who consume 65 kg

BRIAN O'RIORDAN / ICSF

Members of a fishing community at work in Madagascar.
Artisanal fisheries create direct and indirect jobs for fishers and their families

(Mauritius) and pork (Reunion Island and Madagascar). The regional platform follows two goals: on the one hand, putting the small-scale fisheries as a high-priority item in terms of food security within public policies and regional strategies, and, on the other, addressing fish consumers on the hygiene process needed for safe fish.

The diversity of situations obtaining in the Indian Ocean, associated with the provisions of the SSF Guidelines, has led the regional platform to ask itself what being an artisanal fisherman means. The various partnerships developed during this past year, especially with similar platforms like Low Impact Fishers of Europe (LIFE) for European small-scale fishermen, MedArtNet in the Mediterranean sea and Confédération Africaine des Organisations Professionnelles de la Pêche Artisanale or the African Confederation of Artisanal Fisheries Professional Organizations (CAOPA) in Africa, help us understand successful initiatives and develop a methodology for our actions.

A non-exclusionary definition of the small-scale fishery in the Indian Ocean is getting written, based on specificities like boat length, time spent at sea, maximum distance from the coast, ownership of the boat, etc.

Small-scale fishermen in the Indian Ocean live and fish at the very same place unlike foreign fishers. Resident fishermen depend on fishes for nutritional and income purposes. The very strong link they have with their territories, along with the use of traditional vessels such as *kwassa-kwassa* in Comoros, or dugout *Antanosy* pirogues in Madagascar, makes it impossible for them to go beyond 20 miles from the coast.

Small-scale fishermen in the Indian Ocean are experts on marine ecosystems. It is necessary to promote existing expertise. There should no longer be any development of inadequate infrastructure for small-scale fishermen. They should be encouraged to participate in project definition and planning.

For more

www.crpmem.re
Reunion Island Regional Committee for Sea Fisheries and Aquaculture

www.sciencedirect.com/science/article/pii/S0308597X12001510
The Effectiveness of Community-Based Governance of Small-scale Fisheries, Ngazidja Island, Comoros

A Just Victory

A recent landmark judgement by India's National Green Tribunal has awarded compensation to the traditional fishers of Mumbai for the loss of livelihoods caused by coastal development

In what is seen as a landmark judgement, the Western Zone Bench of the National Green Tribunal of India has criticized the Jawaharlal Nehru Port Trust (JNPT) for continuing to reclaim land in violation of the Coastal Regulation Zone (CRZ) Notification, and has ordered the City and Industrial Development Corporation (CIDCO), JNPT and the Oil and Natural Gas Corporation (ONGC) to pay US$15.3 mn to 1,630 fishermen families affected by JNPT's project of creating an additional berth at the port in Navi Mumbai.

In its ruling of 27 February 2015, the Tribunal labelled the case a "classic example of civil action brought by traditional fishermen" living in *koliwadas* (habitats of the Koli fishermen of Maharashtra), who were seeking compensation under Section 15 of the National Green Tribunal Act, 2010, for loss of livelihood due to project activities of the Respondents, as well as implementation of rehabilitation of their families, who are unsettled on account of the projects in question.

The claim for compensation and right for rehabilitation was based mainly on the fishermen's traditional right to catch fish from the sea area...

The principal Apellant, a fisherman named Ramdas Janardan Koli, on behalf of the Paramparik Macchimar Bachao Kruti Samiti, a fishers' organization, argued the case himself. He claimed that 1,630 families of traditional fishermen have been affected from four such traditional localities of fishermen due to development projects undertaken by the Respondents, particularly by CIDCO, JNPT, ONGC and the Navi Mumbai Special Economic Zone (NMSEZ).

The claim for compensation and right for rehabilitation was based mainly on the fishermen's traditional right to catch fish from areas in the sea that are being reclaimed for project activities. These impair regular tidal water exchanges, egress and ingress of fishermen's boats to the sea through the creek near the JNPT. They are thus deprived of daily earnings from their traditional rights of access to the resources of the sea.

The petition further alleged that the reclamation of land, and removal of mangroves in the area, has caused large-scale destruction of all surrounding mangrove forests, which has, in turn, substantially reduced or obliterated the breeding of fish and narrowed the navigational route of the traditional fishing craft, which has also added to the misery of the fishing communities.

Mangrove destruction

The Tribunal noted that all past activities of reclamation in Mumbai (formerly Bombay) have not only altered the urban topography of the area and could lie at the root of the present urban situation but have also contributed to the changes in the configuration, underwater topography and underwater circulation in the area's harbours and bays. This was followed by reclamation and destruction of mangroves alongside beaches and the seashore.

This is a summary of the ruling of the National Green Tribunal (Western Zone) Bench in Pune, on 27 February 2015, in response to Application No. 19/2013

The Tribunal stated: "We have no hesitation in holding that JNPT caused destruction of mangroves and degraded the environment in the area of the port by reclamation of land as well as contemplated effect on tidal exchanges and obstruction in natural water navigation routes available to the traditional fishermen."

While refraining from entering the thicket of government policy, in a situation like the present one, the Tribunal noted that the financial facet of the dispute relates to the 'social cause' of which the 'environmental cause' is the main component. "Social cause involves as to how in future the Applicants may sustain financial loss and their culture as fishermen would be obliterated due to degradation of environmental destruction by the acts of the contesting Respondents."

The rehabilitation programme envisaged for the traditional fishermen does not include relocation of their hamlets/localities in the nearby areas, which could be of identical use for earning a livelihood, the Tribunal noted.

The Tribunal Bench found it obvious that "there are specific species and functional groups that play critical roles in important ecosystem processes, and the loss of these species may have significant influences on the whole ecosystem."

"Primary and secondary productions are important mechanisms by which marine communities contribute to global processes. It has been estimated that half the primary production on earth is attributable to marine species. Without primary producers in surface waters, the oceans would quickly run out of food, but without planktonic and benthic organisms to facilitate nutrient cycling, the primary producers would quickly become nutrient-limited", it added.

Under international law, States have a clear duty to protect people within their jurisdiction from having their human rights breached by non-state actors, including companies. Apart from being bound by international customary law, India has ratified, and is, therefore, a State party to several international treaties that guarantee human rights, the Tribunal Bench elaborated.

When a government fails to protect human rights from abuse by non-state actors such as companies, it amounts to a violation of international law. However, the government's failure to protect rights does not absolve non-state actors from responsibility for their actions and their impact on human rights, it explained.

Section 20 of the National Green Tribunal (NGT) Act, 2010, makes it clear that the Tribunal shall consider the 'precautionary principle' and it mandates the Tribunal, while passing any order or decision, to apply the principle of sustainable development, the 'precautionary principle' and the 'polluter pays' principle. The precautionary principle requires anticipatory action to be taken to prevent harm, the Tribunal Bench noted.

In the final analysis, Justice V R Kingaonkar, Judicial Member, and Ajay A Deshpande, Expert Member, of the Tribunal Bench, came to the conclusion that JNPT degraded the environment by destroying mangroves. JNPT also began work at the site even prior to environmental clearance and conducted the environmental impact assessment (EIA) without proper resettlement and rehabilitation (R&R) programmes, or auditing of the risks

SHUDDHAWATI PEKE / ICSF

Boats at the Karanja fish landing area, Maharashtra, India.
The urban topography of Mumbai has been altered by reclamation

and benefits due to the implementation of the project.

The loss of ecology, livelihoods, homes, spawning grounds and fish species are significant issues that require due payment of compensation to the Applicants, though it is difficult to relocate them with adequate facilities, environment and culture, the Tribunal Bench noted.

ONGC, the Bench pointed out, also did not remove the outer covering of the pipeline, in order to restore the ecology and environment in the area. It appears that tidal exchanges of sea water are obstructed due to acts of the Respondents. In addition, JNPT, admittedly, has undertaken the work of narrowing the Nhava-Sheva creek, which will cause difficulty in re-routing the passage of the traditional boats of the Applicants. "Under these circumstances, it is manifest that their main source of living is being taken away. We are inclined to hold, therefore, that they are entitled to recover compensation as stated below," the Bench ruled.

The apportionment of compensation amount payable to the Applicants from CIDCO, JNPT and ONGC would be 10: 70:20 per cent, having regard to their contribution to the loss of mangroves, loss of spawning grounds, loss of livelihoods, etc.

...the Bench felt it is necessary to develop a system whereby such movement of the boats belonging to traditional fishermen or otherwise shall be regulated...

It is an admitted fact that the Nhava-Sheva creek is used by the traditional fishermen to navigate from the creek to the open sea and return. It is an admitted fact that with the development of the fourth terminal, the available width of the creek would be further reduced. "During the course of argument", the Bench pointed out, "we specifically enquired about any defined navigation routes/channels for such local fishermen's boats, in the context of such development, and whether such routes/channels have been appraised and approved by the competent authorities. It was informed that the Captain of the Ports has a mandate to regulate the movement of the boats in the port area.

While appreciating the concerns raised by the JNPT regarding safety and security while allowing such movement of ships/boats, the Bench felt it is necessary to develop a system whereby such movement of the boats belonging to traditional fishermen or otherwise shall be regulated by the competent authorities with necessary safety and security measures, including anti-collusion devices, GPS, separate registration, etc. Such a system will ameliorate conflicts of the local fishermen vis-a-vis commercial port activities, leading to sustainable development. "We, therefore direct JNPT to approach the competent authority and, if necessary, provide required support to implement such system," the Bench ordered.

Admitting that it is difficult to determine precisely the income derived by each fisherman and the total family income, the Bench said that any hypothetical exercise should have some rationale based on the normal period for which a family would lose earnings due to the activities of the Respondents in the case.

The Tribunal Bench held that ordinarily such a period will be at least of three years. The family may comprise four members, including two male and two women. All the four may be earning about Rs800 (US$ 13) per day even if pro rata income is considered at Rs200 per day (US$ 3). This is the normal income earned by any person of the lower income group, the Bench noted. Therefore, the yearly loss of income per family may be Rs2,92,000 (US$ 4662) Considering mere subsistence as one-third of this amount, the gross loss per family per year turns out to be Rs1,94,666 (US$ 3108) only.

Transition period

The Bench continued: "We may realistically assume that each of such family will need a period of about three years to switch over to some

other vocation to earn a livelihood. For example, some of them may be required to learn driving of transport vehicles, and get due experience and jobs in such businesses. The gap of three years is pragmatic, having regard to the sudden changeover in their daily source of earning. Therefore, the total loss for three years for 1,630 families is US$ 15,303,877.

The Bench ruled the Application in the following manner:

i) The Applicants do recover Rs95,19,20,000 (US$ 15,303,877), which shall be distributed equally to 1630 affected and identified fishermen's families as per the Collector's Report, named therein, to the extent of Rs5,84,000 (US$ 9834) per family within three months by the Respondent Nos.7, 8 and 9 (that is, CIDCO, JNPT and ONGC) respectively, as per their shares mentioned above.

In case, such amount is not paid within the above period, then it will carry interest at 12 per cent per annum till it is realized by the concerned fishermen's families.

The Respondent Nos.7, 8 and 9 shall pay Rs50 lakhs (US$ 80,385) and restoration cost for environmental damage, as per the above share which work, the Collector, Raigad, shall carry out under his supervision within eight months hereafter for activities of mangrove plantation, ensuring free passage of tidal currents, etc., in consultation with the Maharashtra Coastal Zone Management Authority (MCZMA).

The Respondent Nos.7, 8 and 9 shall pay costs of Rs5 lakhs (US$ 8038) as litigation costs to the Applicants and bear their own costs.

The Respondent Nos.7, 8 and 9 shall deposit the amount shown in above para (i) and (iii) in the office of Collector, Raigad within the stipulated period, otherwise the Collector shall realize the said amount, as if it is Land Revenue dues from them. A compliance report on this behalf be submitted by the Collector, within four months to this Tribunal.

The MCZMA shall submit the compliance of directions issued by them to the Respondents in two months, the Tribunal Bench ruled.

SHUDDHAWATI PEKE / ICSF

A scene from Karanja village of Uran, Raigad District, Maharashtra, India. It is necessary to develop a system to allow for the movement of boats belonging to traditional fishermen

The above orders were passed by Justice V R Kingaonkar and Ajay A Deshpande of the National Green Tribunal (Western Zone) Bench in Pune, on 27 February 2015, in response to Application No. 19/2013.

For more

indianexpress.com/article/cities/mumbai/ngt-orders-jnpt-ongc-to-pay-affected-fishermen-families-95-cr/#sthash.VVwI3Onp.dpuf

Pay Rs 95 cr to 1,630 Fishermen Families: NGT to Port Trust, CIDCO, ONGC

Neobondage

In the Srikakulam district of the south Indian state of Andhra Pradesh, migration of fishers has several impacts on the families of coastal villages

It is noon, but despite the scorching sun, Varada Lakshiamma is patiently waiting with her basket for the fishing boats to land in one of the remote coastal areas of the Bay of Bengal. She has to hurry to the neighbouring villages and towns to sell the fish. In the absence of public transport, she has to rely on auto-rickshaws. We spoke to her as she was busy buying fish at the auction. We learned that her husband is in Veraval in Gujarat and, like most of the husbands of fisherwomen of Srikakulam district, he has been going to Gujarat for the past 15 years.

Migration from these villages has been happening for the past 20 to 30 years. Normally, 'migration' refers to international movement of persons from country to country, usually in search of employment. In this case, the term migration is used because this district has already seen two waves of migration during which sizeable sections of the population moved mainly to Burma (Myanmar)—the first during the late 19th century and the second, during the Second World War. This third phase, which is actually an inter-state movement of persons, is still referred to as 'migration' in the literature.

More than 50 per cent of the men in the 30-40 age group have migrated, while 90 per cent of the men aged between 25 and 45 years have migrated. The majority have moved to Indian state of Gujarat (mainly Veraval and Porbandar) to work in big boats owned by *sait*s (as boatowners in the region are called), most of whom have a fleet of five to 10 boats, while some may own up to 20 boats. A few of the fishermen have moved to Mangalore, Karnataka, to work on such boats. The rest of the migrant workers go to Chennai, Hyderabad and Vishakapatnam as construction labourers.

In Gujarat, the moment the migrant fishermen take an advance from the *sait*, they are bound by an oral contract. The advance is used by the fisherman's family during his absence to run the household. Once in Gujarat, the fishermen will be on board the boats for 20 to 25 days at a stretch. They venture out as a group to help one another should any problem arise, like a storm or an accident or illness. They suffer the inhumane conditions on the boat only out of dire poverty. The saving grace is that there is plenty of food on the mechanized boats. The reasons for migrating are surprising. Sociologically, they can be categorized as 'push factors' (those that leave one with no choice but to move out of one's current—especially parental—home) and 'pull factors' (the lure of another home, country or region).

Migration from these villages has been happening for the past 20 to 30 years.

No infrastructure

Prime among the push factors is the lack of proper infrastructure to fish in the district. There is no fishing harbour, so the fishermen cannot venture out in mechanized boats. There is no cold storage facility or an ice factory in the vicinity. So even if the fishermen land good catches, the chances are high that their perishable goods will get spoiled before they reach the market.

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A second push factor is that the Srikakulam fishermen cannot compete with the large trawlers from Vishakapatnam and Ganjam. They believe that the operations of these trawlers have reduced fish stocks over the years, raising questions of right of access to the area's resource.

A third push factor is the rise in production costs over the years (especially for fibreglass boats and fishing gear) and the status quo in returns on their high investments; sometimes the returns have shrunk considerably, often leading to bankruptcy.

The primary pull factors for migration to Gujarat in search of jobs is the existence of a wage system. Irrespective of the catch, the fishermen are guaranteed a fixed pay. Sometimes, when the catch is good, they receive as bonus an additional, though often meagre, portion of the profit made by the *sait*. But when the catch is low, the *saits* pay whatever has been fixed as the salary. This opportunity of earning a decent, steady wage has remained the main attraction for fishermen's migration over the years.

The second pull factor is that the wage payments are made as a lump sum, which they end up spending productively, rather than drinking and gambling on a daily wage. They usually build houses with the money they earn or buy ornaments for their daughter's wedding. This is evident from the large number of half-finished houses that can be found in Badevanipeta village in the district. The fishermen continue construction on the building each year with the money they earn by migrating to Gujarat. In one family, on an average, at least three persons migrate and they pool their earnings to construct the house.

The third pull factor relates to the recent advances in information technology, which allows the fishermen to easily transfer money electronically and also communicate with their families. In the past, many fishermen were looted of the large sums of money they were physically carrying home.

Migration, however, has had several negative impacts, especially on health and hygiene. Boys start to migrate with their fathers at the age of 12 (in some cases at the age of 10) and the girls in the village are married off at the earliest. The resultant neglect of education affects their health and sanitary practices. With unclean surroundings, no proper drainage system, stagnant pools of water that are breeding grounds for mosquitoes and flies, and no toilets at home, little wonder that most of the villagers fall sick frequently.

The Day and Night Junction in Srikakulam town has approximately 50 hospitals. The area is awash with hospitals and pharmacies. There are no primary health centres in the villages. The villagers tend to go to a hospital even if they have a mild fever. The doctors, who are often endorsed by politicians, exploit the villagers' ignorance and make them spend large sums of money for each hospital visit.

Cases have also been reported of exploitation of fishermen by the boatowners. But complaints fall on deaf ears. No government wants to accept responsibility for the migrant fishermen. The Gujarat government says they do not come under its jurisdiction. The Andhra Pradesh government, for its part, retaliates by pointing out that the cases of alleged exploitation have occurred in another state.

The case of migration of fishermen from Srikakulam to Gujarat can be called a 'neobondage' system, akin to traditional bonded labour. The fishermen's labour and skills are exploited by the capitalists of another part of the country.

For more

www.academia.edu/10610681/Inter-state_migration_of_fishers_from_Srikakulam_district_Andhra_Pradesh

Inter-state Migration of Fishers from Srikakulam District, Andhra Pradesh

A Perfect Storm?

In the aftermath of Cyclone Hudhud, questions need to be raised about the role of urban planning in disaster-management preparedness

Looking back at Cyclone Hudhud a month after it had hit the coast of Visakhapatnam in the Bay of Bengal in the south Indian state of Andhra Pradesh, two things stand out. First, the cyclone was almost entirely composed of wind, with speeds crossing 200 kmph, while rainfall remained minimal. Even more importantly, there was no storm surge accompanying the cyclone's landfall (since it was a 'dry tropical cyclone'); had there been one, the consequences would have been unimaginably severe.

...a few cyclone warnings have turned out to be false alarms, but not before people were exposed to days of shrill proclamations from 'experts' warning of the 'mother-of-all-cyclones'.

The second striking characteristic about Hudhud can be summed up in one word—precision. There are two kinds of precision involved here. The first relates to the clinical precision and brutal swiftness with which the cyclone itself moved. Not only did it stick to its course, but it was also an example of pure 'shock-and-awe'. There was none of the usual indicators of an approaching storm—no days of cloudy skies, winds slowly gathering speed, rainfall moving from drizzles to torrents... Instead, the cyclone simply arrived at the precise moment it was scheduled to come, crossed the coast, did its damage and promptly petered out.

There was also a technological precision involved with Hudhud, a tribute to recent advances in meteorological science. Not only had the cyclone been spotted in the Bay of Bengal nearly a week before it could wreak its havoc, but its trajectory was also plotted to an astonishing degree of accuracy that the exact time and place of its landfall was widely known almost three days before it hit land.

Therein lies the irony: this degree of precision caught people by surprise and left them totally unprepared for Hudhud. Used as they were to the fallacies of meteorological predictions, weather forecasts were not taken at face value.

This is not to suggest that apathy ruled the day. Over the last few years, a few cyclone warnings have turned out to be false alarms, but not before people were exposed to days of shrill proclamations from 'experts' warning of the 'mother-of-all-cyclones'. When a cyclone did eventually pass without leaving a huge trail of death and devastation in its wake—as has been the case on the last few occasions—there was almost a palpable sense of disappointment.

The government's evacuation of all vulnerable people to higher grounds pre-Hudhud also created some new problems. Concerns were raised about the security of home and hearth, the abysmally poor conditions in the cyclone shelters and official apathy.

Warnings ignored

While the government's efforts, over the years, have helped reduce the death toll from natural disasters, its continuing emphasis on saving people to the exclusion of everything else has not earned it too many admirers. All this meant that people were not willing to take the warnings about Hudhud readily.

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A quick look at the damages left behind by Hudhud is also revelatory in interesting ways. Forty-six people lost their lives, which, though tragic, is a significantly small number compared to past instances; much of the credit for that should surely go to the energetic efforts of the government. The damage to infrastructure along the coast, especially electricity, was huge. While both private and public properties were badly hit, the losses to the latter (including the swanky Visakhapatnam airport) were more serious and shocking.

According to reports, 70 per cent of the electricity distribution system in Visakhapatnam was disrupted, while damages to public sector companies like Vizag Steel and Hindustan Petroleum were pegged at millions of rupees. The government claims to have restored electricity and other infrastructure in record time, but the point is had they been built, in the first place, with natural hazards in mind, much damage could have been avoided.

In the coastal villages, most thatched houses and semi-permanent dwellings were damaged. Interestingly, the traditional conical palmyra-thatched huts characteristic of the area proved to be more resilient to the winds than the other architectural constructions, despite being adjacent to the sea. Yet, ultimately, the ones most affected were the poorest who dwelled in thatched huts.

Cyclone Hudhud left the once extravagantly verdant landscape of Visakhapatnam bare and bereft of green. The barks of trees were stripped away, and whole plantations of cashew trees turned a ghostly brown. A month after the cyclone, though, some of the greenery is returning.

The extent of damage caused by Cyclone Hudhud to the fishing boats of the area was not really significant. The fisheries economy seems to have survived relatively unscathed: scarred, obviously, but not crippled. In several villages where damages were reported to be high, the fishers re-started fishing operations within weeks of the cyclone, notwithstanding the fact that the money promised for compensation—in the form of cash transfers into their bank accounts—was yet to be paid. The losses to the small-scale fish trade, mostly run by women, were significant but small. Most women were back in business soon after the fishing operations re-started.

Though the fisheries-related losses were low, the other losses were more significant. For instance, the destruction of cashew-nut plantations, which the fishers leased on an annual basis for a reasonable secondary source of income, robbed them of a rich source of livelihood.

The damages to fishing households were more severe. Dozens of families with young children were forced to shift to neighbouring houses. Many households lost cooking utensils, furniture and television sets, making day-to-day existence difficult. The supply of drinking water and electricity was affected—and has yet to be restored to pre-Hudhud levels.

Although the government and civil society organizations supplied rice, clothes and other essentials for a few weeks, their assistance was reportedly meagre and sporadic.

Yet, the cyclone-affected people managed remarkably well, mostly through a communal sharing of resources.

Cyclone Hudhud also revealed the shortcomings of the government's

RAGHU PRAKASH

The extent of damage caused by Cyclone Hudhud to the fishing boats of the area was not really great. The fisheries economy seems to have survived relatively unscathed

disaster-response strategies. The interest in saving lives during the cyclone was not always matched by a similar zeal to ensure that those who were rescued had access to the basic necessities to survive. While Visakhapatnam city received great attention, the rural areas were neglected.

There were also complaints about the tardiness in payment of compensation money. Added to this lacuna was the lack of clarity and transparency in decision-making process, which often led to conflicts.

The gulf that separates the urban and the rural is reflected in the levels of attention and support accorded to different areas.

To be sure, there are lessons to be learned from Cyclone Hudhud. There is a clear need to develop green belts along the beachfront to mitigate the effects of future cyclones.

It is also necessary to re-think the role of urban planning in coastal cities like Visakhapatnam. Should not the possibility of a cyclone be factored into the use of land and design of buildings in a sea-facing urban environment? The rural-urban divide needs to be addressed as well. As one observer remarked, had Hudhud struck the coast 30 km to either side of Visakhapatnam, there would not have been such an immense outpouring of sympathy and support.

The gulf that separates the urban and the rural is reflected in the levels of attention and support accorded to different areas. Even as intense efforts were being made to restore petrol pumps in Visakhapatnam, the women in neighbouring fishing villages could hardly access water for drinking, cooking, washing and bathing.

In the case of fishing communities, the confusion in determining the numbers of boats affected owes as much to a lack of registration as to cyclone-inflicted damage. Efforts to register all boats in the small-scale fisheries sector will be a very important preliminary step in enhancing access to future assistance.

For more

www.thehindu.com/news/cyclone-hudhud-live-updates/article6493368.ece
Cyclone Hudhud Makes Landfall: As it Happened

www.hudhud.ap.gov.in/HDRMS/UserInterface/Loginform.aspx
Hudhud Damage Assessment and Relief Monitoring System

No Clamming Up

The certification by the Marine Stewardship Council of the fishery for short-necked clams from the Ashtamudi estuary is a first for India

The Ashtamudi estuary is the second-largest estuarine system in the south Indian State of Kerala. It is a Ramsar site designated as a "wetland of importance". The commercially exploited bivalve species from the estuary are represented by short-neck clam (*Paphia malabarica*), yellow clam (*Meritrix meritrix*), black clam (*Villorita cyprinoides*) and blood clam (*Anadara granosa*).

It is estimated that around 20,000 tonnes of clams are exploited regularly for commercial purposes of which short-neck clams contribute 12,000 to 15,000 tonnes. The meat of the clams fetches Rs 100 million (US$ 1.6 mn) as foreign exchange for India. The landed value of the short-neck clam is Rs80-100 per kg (US$1.3 - 1.6), while its export value is around US$3.

Short-neck clams are harvested from an area of 60 – 80 ha in the Ashtamudi estuary by approximately 1,000 fishers—all male—while another 3,000 are involved in cleaning, processing and trading of the clams.

Before the MSC certification, there were six companies based in Kollam and Kochi that exported the clams, but this number is expected to increase post-certification. Before certification, the markets for the clams were Malaysia, Indonesia and Vietnam. Post-certification, exporters expect to see an expansion of the markets to Europe and Japan.

Fishers in the Ashtamudi estuary paddle dug-out canoes from nearby villages to the shellfish beds. Divers dislodge the clams from the seabed with their hands and feet; sometimes a team of two or three fishermen will employ a hand-dredge from the canoe.

On a good day, a fisherman can gather as much as 200 kg over a period of four to five hours. There is no mechanized gear involved in collecting the clams.

The short-neck clam fishery contributes a share of 90 per cent of clam exports from India. The clams grow in size to 30 mm in one year and 42 mm in three years. The peak spawning period is during December to February.

In terms of weight and calorific value, the clams are best during the pre monsoon months, between March and November.

Post-certification, exporters expect to see an expansion of the markets to Europe and Japan.

During the late 1980s and early 1990s there was an unexpected depletion in the clam resources, mainly due to overexploitation by indiscriminate fishing for the clam shells, which had a niche market.

Fishery band

A combined effort by the Central Marine Fisheries Research Institute (CMFRI), the district administration and clam pickers of the region put in place a management measure to regulate the fishery by using nets with mesh size of 30 mm and more and imposing a fishery ban from December to February, which is the peak breeding season of clams. Since then, for the past 20 years or so, the

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stocks of short-necked clams have revived.

The introduction of a closed season and mesh-size restrictions for nets, along with the stipulation of a minimum size of clams for export and a prohibition on mechanized fishing methods led to immediate gains, and the Ashtamudi estuary clam fishery has sustained landings of around 10,000 tonnes a year for the past decade.

The MSC pre-assessment for the short-neck clam fishery began in 2011, and was facilitated by the World Wide Fund for Nature (WWF). The certification addresses issues related to the sustainability of the resource, the environmental impacts of the fishery, and the laws and regulations governing the fishery.

The pre-assessment results indicated a need to monitor the environmental impact of the fishery, periodical stock assessment for subscribing harvest-control rules and a governing council for managing the resources sustainably.

Any resource assessment study would strengthen the scope of the fishery to move towards full certification. The costs for the pre-certification and certification were borne by WWF-US and Sustainable Legacy Fund, an organization dedicated to fisheries moving towards MSC certification.

The pre-assessment results indicated a need to monitor the environmental impact of the fishery...

The MSC assessment team considered the low-impact method of fishing in the Ashtamudi estuary and the extent of the seabed that is fished. Due to the fishing methods employed, clams in the deeper parts of the entrance to the estuary cannot be fished because the water is too deep or the tidal currents are too strong to allow diving or raking of clams.

The Ashtamudi Clam Governing council was constituted with the District Collector as Chairman and the Deputy Director of Fisheries as Convenor, with 10 clam fishers as members. The council has 20 members who meet once in every quarter of the year. While reviewing the clam fishery, the council will also address issues faced by the clam fishers and take decision in their meetings, including those related to the implementation of the mesh-size regulation and the minimum size of the clams that can be harvested. The council is responsible for fixing a minimum price for the meat of the clams. It also issues identity cards for fishers, and restricts new entrants into the fishery.

In order to monitor the impact of the fishery on the ecosystem, CMFRI has included in its annual research programme a project on management and monitoring of possible effects of the Ashtamudi short-clam fishery on habitats and ecosystems.

The project will be undertaken by the Molluscan Fisheries Department (MFD) and the Fishery Environment Management Division (FEMD) of CMFRI. Regular monitoring of the clam resources and stock assessments would be carried out before and after the fishery season, taking into account the self-imposed fishing holiday during the spawning period from December to February.

The project is also expected to prescribe a total allowable catch (TAC) for the fishery. The statistics of stock assessment and the maximum sustainable yield (MSY) determined by CMFRI are also presented to the council on a yearly basis, and are used to control entry into the fishery.

MSC's scoring system puts the Ashtamudi short-clam fishery in the best-practice category on 29 of the 31 performance indicators, with scores of greater than 80 out of 100. The fishery has conditions for improvements to maintain certification on two performance indicators related to recording information on bycatch.

Insufficient data

The Risk-based Framework (RBF) was used to assess some performance indicators where there was insufficient data to allow the

JUHAN SAMUEL / ANI

Short-neck clams are harvested from an area of 60 – 80 ha in the Ashtamudi estuary of Kerala, India, by approximately 1,000 fishers. This is the first fishery in India to be accorded certification by the Marine Stewardship Council

conventional assessment process to be used. The RBF was developed by the MSC to improve access to fisheries that are data-limited, and is often used for small-scale artisanal fisheries in the developing world.

The Ashtamudi short-clam fishery underwent MSC's full assessment in September 2014 and was certified in November 2014 as the first MSC-certified fishery in India and the second in South and Southeast Asia.

Over the years, there has been an increase in demand for clams in the local market, and prices have ruled high. The MSC label is now expected to increase purchase by buyers from Europe and Japan.

The Ashtamudi Clam Governing Council will bear the cost for re-certification, which will be minimal compared to the price realized by fishers for the certified clams.

It is planned to have qualified third-party auditors in India by the time of re-certification in 2019, which will considerably reduce audit costs.

Among the key management structures that helped the Ashtamudi short-neck clam fishery obtain MSC certification was the three-tier system of village, district and state councils, which helped in the implementation of the fishery-management regulations.

The MSC certification of the Ashtamudi short-neck clam fishery can prove to be an example for other similar small-scale fisheries around the world to get certified to ensure better prices and a more sustainable exploitation of the resource.

For more

www.msc.org/newsroom/news/indian-clam-fishery-pioneers-sustainability?fromsearch=1&isnewssearch=1&set_language=en&categories=fisheries-in-the-program
MSC

www.icsf.net/en/samudra/article/EN/58-3565-Get-Out-of-the-.html
Get Out of the Spotlight, *SAMUDRA Report* No. 58, March 2011

Guiding Small-scale Fisheries

A workshop organized by ICSF discussed how to take forward the implementation of the Small-scale Fisheries Guidelines recently adopted by FAO

Representatives of fishing communities, fishworker organizations (FWOs) and civil society organizations (CSOs) from all over the world congregated at Puducherry (formerly, Pondicherry, often abbreviated to Pondy), India, during 21 – 24 July 2014 for the workshop titled "Towards Socially Just and Sustainable Fisheries: ICSF Workshop on Implementing the FAO Voluntary Guidelines for Securing Sustainable Small-scale Fisheries in the Context of Food Security and Poverty Eradication (SSF Guidelines)".

The Pondy Workshop concluded with a plenary session of reflection and discussion on the potential role of CSOs in the implementation of the SSF Guidelines.

Organized by the International Collective in Support of Fishworkers (ICSF), the workshop, which was dedicated to Chandrika Sharma, was a first attempt at analyzing the SSF Guidelines, which were adopted at the 31st session of the Committee on Fisheries (COFI) of the Food and Agriculture Organization of the United Nations (FAO) in Rome, Italy, on 10 June 2014.

The introductory session of the workshop recapitulated the milestones on the road to the adoption of the SSF Guidelines. This was followed by a presentation on developing a transformative agenda to address social inequality through the SSF Guidelines. The workshop participants then split into two groups based on region and language. Participants from Asia and Brazil formed one group, while those from Europe, Latin America and Africa made up the other. In the group discussions, community representatives analyzed the implications of the Guidelines. At the feedback session that followed, participants heard from the FAO on its plans regarding the Guidelines. Participants were again divided into regional groups to discuss priorities and plans to take forward the SSF Guidelines. The Pondy Workshop concluded with a plenary session of reflection and discussion on the potential role of CSOs in the implementation of the SSF Guidelines.

The main thrust of the Pondy Workshop was on how to take forward the implementation of the SSF Guidelines at different levels (local, national, regional and international), the roles of fishing communities, CSOs, governments and FAO, and how these various stakeholders could work together to move towards a socially just and sustainable small-scale fisheries within a human-rights framework.

The workshop participants felt that the issues of social justice and sustainable fisheries are interdependent and inseparable. They urged stakeholders, especially the State, to recognize the intersectoral nature of the SSF Guidelines, which, as some participants observed, even FWOs often tend to ignore in their internal functioning.

Translation

Raising awareness about the SSF Guidelines, particularly through the media, was of paramount importance, workshop participants noted. The need to translate the SSF Guidelines into

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local languages was stressed. CSOs ought to go back to the communities who provided invaluable inputs at the national-level consultations that were held prior to the Technical Consultations in May 2013 and February 2014, to share information on progress at the global level since then.

Participants at the Pondy Workshop also expressed concern at the growing lobby of financially strong organizations in the fisheries sector, which view the SSF Guidelines from a narrow commercial and/or environmental perspective. These organizations, some participants felt, might not share the values of human rights, equity and sustainable development that small-scale fishworkers uphold. The Latin American delegates raised the issue of how free-market forces influence the political system. In some developing countries, small-scale fishers are being boxed in by unfair conservation norms in their traditional fishing grounds, and they are also being marginalized by the demands on coastal/ocean space for industrial and tourism-related development projects.

Representatives of FWOs from the developed countries pointed out that while the SSF Guidelines focus on the South, it must be remembered that there are indigenous, marginalized and vulnerable groups in the North as well. An exclusive South focus will give industrialized countries an excuse to not implement the SSF Guidelines.

The Pondy Workshop also pointed out the need to develop a transformative agenda that recognizes that social power relations are usually skewed, especially against women. Several issues of discrimination, violence, reduced access to resources, the absence of decision-making powers, inadequate representation of women's interests and a devaluation of their contribution to fisheries, poverty alleviation and food security were highlighted. It was pointed out that while the SSF Guidelines do refer to key issues of importance to women, such as protecting and securing their rights to tenure, social development, decent working conditions and freedom from violence, these references needed to be made more explicit through social analysis of gender relations, intersectionalities and context specificity. The need to be aware of social and gender inequality within CSOs and FWOs was highlighted, as was the need to document and share positive examples of bottom-up changes which could inspire others.

During the group discussions on the third day of the workshop, community representatives from the Netherlands, Costa Rica, Honduras, the Caribbean, West Africa, India, Brazil, Thailand and Indonesia highlighted some of their concerns, hopes and plans for the implementation of the SSF Guidelines. Among the important themes that emerged were the following:

Mobilization of small-scale fishers: In Brazil, fishing communities have worked towards proposing a draft law that calls on the State to recognize the rights of small-scale fishers, and to define small-scale fishers based on the community's own definition. In Indonesia, fishworker groups are working on a law for the protection of small-scale fisheries and they are now petitioning their government to adopt and implement the SSF Guidelines. In West Africa, artisanal fishers are

ICSF

The Pondy Workshop paid tribute to the memory of Chandrika Sharma, former Executive Secretary of ICSF, who went missing on the ill-fated Malaysia Airlines Flight MH370

demanding priority access to fishing grounds, resources and markets. National fisher organizations have also established joint working committees with neighbouring countries to resolve conflicts between fishers. In The Netherlands, the inland fishers' union has been working with the government to implement a decentralized eel management plan. The African Confederation of Professional Organizations for Artisanal Fishers (CAOPA) representative spoke of how the organization connects with other groups to communicate small-scale fisheries issues to the public through the media, and works with the European Union to ensure that fisheries agreements and development aid to fisheries are in line with the SSF Guidelines.

Several presentations pointed out fishers' concerns about their responsibilities to resources.

Capacity building: The Garifuna community in Honduras underscored the need to raise the capacity of fishing communities to deal with issues related to employment, livelihood opportunities and how the SSF Guidelines can protect resources. Participants from the Ivory Coast mentioned how women are active at all levels, from pre-financing of fishing trips to making sure that the fish reaches the table. Women have organized themselves into co-operatives that receive technical support from FAO on post-harvest processing. In The Netherlands, the union of inland fishers has been working with the State, researchers and NGOs to develop management and monitoring systems for the eel fisheries.

Development: Costa Rican participants talked of the growth in tourism projects and the difficulties of balancing the development needs of the country with the livelihood needs of the community. Questions were raised on whether such developments are an opportunity or a threat, and how the community's interests can be protected.

Climate change: Participants from the Caribbean region focused on climate change and the importance of an ecosystem approach to fisheries. In West Africa, it was pointed out, FAO is financing a project to assist fishing communities adapt to climate change. CAOPA, which consists of 14 national organizations from 14 African countries, is Chair of the steering committee of this project that covers Senegal, Gambia and Sierra Leone.

Women: Participants from West Africa spoke of the range and importance of women's work and their role in education, health and well-being. They pointed out how women are organized into co-operatives or associations that operate at all levels of the value chain.

Science and communities: The presentations from Thailand highlighted the role of scientists in development projects. It was noted that environment impact assessments are often biased and pro-industry. Communities in Thailand have begun to counter these assessments through community-led impact assessments that highlight marine and coastal biodiversity and ecosystem services that are important for local communities.

Access to fish: The presentations by the Indian and African delegates noted that fishermen prefer to sell their catch to those merchants with greater financial resources rather than to women fish vendors from local fishing communities. Women fish vendors of Mumbai, India, said they are denied the right of first offer of fish catch.

Responsibilities: Several presentations pointed out fishers' concerns about their responsibilities to resources. In Thailand and Indonesia, for instance, communities have taken up the regeneration of mangrove forests that were being destroyed by commercial interests.

Identity: Many presentations sought to deal with the issue of the

identity of a fisher. Brazilian fishers have proposed a draft law which calls on the State to accept the community's definition of a fisher. In The Netherlands, a recent law has defined small-scale fishers in such a manner that many inland fishers are denied official recognition.

The presentation by the FAO representative focused on how the FAO sees its role in the implementation of the SSF Guidelines. It noted the need to maintain the inclusive spirit that has thus far characterized the SSF Guidelines' development process and to mainstream them into policies and strategies across sectors and levels. The aim is to anchor the small-scale fisheries agenda to other international issues that FAO is involved in such as food security, ocean management and governance.

There were other topics that came up for discussion at the workshop, including the difficulties of defining vulnerable and marginalized groups, which vary from region to region and tend to be context-specific. One participant felt that 'marginalized' and 'vulnerable' are negative terms that stigmatize people and make them feel inferior.

On the last day of the workshop, participants met in groups split into the regions of Latin America, Europe, Canada and the Caribbean, Anglophone Africa, Francophone Africa and Asia. They discussed the road map in implementing the SSF Guidelines, guided by broad-based questions on implementation strategies and priorities, the role of CSOs in capacity building, how States can be motivated to implement the SSF Guidelines, and how vulnerable and marginal groups can be accommodated in the process.

At the concluding plenary session, the various groups summarized their discussions, from which the following common themes emerged:

- There is a need to recognize vulnerable and marginalized groups and indigenous peoples' rights, which might be in conflict with those of more mainstream small-scale fishers.
- The SSF Guidelines should be integrated in discussions at other international forums (like side events at international conferences) in order to promote them.
- The SSF Guidelines implementation process must be made inclusive and should be centered around fishing communities.
- Fisheries governance, land access and tenure arrangements must give priority to the interests of small-scale fisheries, in a participatory manner.
- Information on the SSF Guidelines must be shared at all levels, across different stakeholders. CSOs must go back to the local communities who were involved in the earlier consultations. This will help gain an understanding of how the SSF Guidelines can be implemented in the local context and will create bottom-up pressure on the State to implement them. Such information-sharing will also improve relations between communities and CSOs.
- Policies and legislation must be reviewed to ensure that the SSF Guidelines can be mainstreamed into official governance mechanisms.
- In order to aid capacity building, information must be made available to all groups. Training should be given to government officials and local communities on the SSF Guidelines. Examples of current practical challenges in the daily lives of artisanal fishers should be used to demonstrate how the provisions in the SSF Guidelines can be used to address these issues, which can then be used to lobby governments.
- The larger public must be informed of the SSF Guidelines so that the importance and need for proper

Information on the SSF Guidelines must be shared at all levels, across different stakeholders.

ICSF

The main thrust of the ICSF Pondy Workshop was on how to take forward the implementation of the SSF Guidelines adopted by the Food and Agriculture Organization of the United Nations (FAO)

implementation is understood, and there is public scrutiny and pressure on the State to ensure implementation. The SSF Guidelines should not be considered as a solely fisheries-department issue but should be integrated across sectors and departments, including those that deal with women's affairs, social welfare, rural development, labour, health, education and trade.

- The role of women in artisanal fisheries should be recognized, and they should be encouraged to participate in FWOs.
- While several of the issues raised by the SSF Guidelines already exist in the national legislation of many countries, the challenge lies in implementation.
- FAO was requested to bring out the final text of the SSF Guidelines as soon as possible so that they can be disseminated to the communities.
- A monitoring system, with key indicators, needs to be developed to map the progress in implementation of the SSF Guidelines. Such a system should be participatory and subject to adaptation and modification.
- Child labour, safety at sea, women's working and living conditions, gender equality, access to infrastructure and resources, and legitimate community governance institutions and organizations were the issues that were seen as important in the next stage of implementation of the SSF Guidelines.

While mapping out the long road to the adoption of the SSF Guidelines, the Pondy Workshop also highlighted the power of CSOs coming together as a united front for a common cause. Much remains to be done to ensure the SSF Guidelines are implemented effectively.

For more

igssf.icsf.net/
ICSF's Website on Small-scale Fisheries Guidelines

sites.google.com/site/smallscalefisheries/
CSO Website on Small-scale Fisheries Guidelines

Ocean's Bounty

The fishers of India's Gulf of Mannar are getting together to ensure sustainable management of the area's resources

The fishing community in the Gulf of Mannar (GOM), in the southern Indian State of Tamil Nadu, has been at odds with the government over access to marine resources after the declaration of about 560 sq km as the Gulf of Mannar (Marine) National Park in 1986 under the Wildlife Protection Act (WLPA) of 1972. As a result, entry into the National Park and use of any natural resource from the area is prohibited. However, strict implementation of regulations began only in 2000. The National Park lies off two districts (Ramanathapuram and Thoothukudi) where the density of fishing village is high.

The GOM fishing community has earlier called for more community involvement in decisionmaking, and has been engaged with the government agencies at different forums, such as the workshops organized by the International Collective in Support of Fishworkers (ICSF) in 2009 and 2012. However, there has not been much progress in working on community-led management systems until now. Resource management continues to be a government-led process.

With this in mind, the ICSF, with support from the Bay of Bengal Large Marine Ecosystem Project (BOBLME), organized training programmes at two locations (Pamban and Ramanathapuram) in the GOM in October 2013. The objectives were to enhance the capacity of the community, drawing on their traditional and experiential knowledge and institutions, to relate their knowledge systems with an ecosystem approach to fisheries; explore and propose ways of enhancing sustainable and equitable resource use, and the role that communities can play; and engage with the functionaries responsible for fisheries and the environment, towards developing a common vision and convergence in perspectives for achieving conservation and sustainable use of resources.

In the GOM, the ICSF has been working for several years with the Ramnad district Fishworker's Trade Union (RFTU), and People's Action for Development (PAD), a civil society organization, on resource management. The fishing community in the area, despite being scattered geographically, is politically and socially cohesive; the issues and problems were thus quite well-known to all the participants. The focus of the programme was on developing community-led proposals for resource management.

The fishing community in the area, despite being scattered geographically, is politically and socially cohesive.

Rich biodiversity

The GOM is a shallow bay with coral reefs and seagrass beds, and includes coastal waters and 21 uninhabited islands. The Gulf is a biodiversity-rich area and is estimated to have the largest dugong population in Indian waters. It is also home to sea turtles and sea cucumbers. The waters around the islands support several species of seaweed, some of which are collected by women from the fishing community and sold to

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local traders and thence to factories where agar is extracted.

There are about 125 fishing villages (31 villages in Thoothukudi District and 94 villages in Ramanathapuram District) and 35,000 active fishers (including women seaweed collectors) and some 4,500 divers in the GOM. The fishing community here, as in the other maritime States of India, is not homogenous; members belong to various castes. These communities have distinct social and cultural governance structures and traditional practices. Community institutions are mostly organized along caste, kinship or religious lines and play an important role in resolving conflicts, regulating and allocating resource use, enabling equitable access to resources and providing some form of social insurance. Besides the traditional organization of fishing communities, members are also organized into craft and gear groups.

Each group used the framework questions as a basis for their brainstorming sessions and discussions on various issues...

The two training programmes attracted 187 participants. They were divided into groups according to their livelihood activities. In the first location, the groups were fishers and seaweed collectors and in the second, sea cucumber divers, in addition to the other two categories.

Participants were provided with a set of framework questions on their desires for the area's resources; the kind of regulations required; how these can be communicated, monitored, evaluated, and complied with; and the type of dispute-resolution mechanism needed. At the outset, Robert Panipilla, an independent researcher who is currently preparing the first marine biodiversity register for the Kerala State Biodiversity Board, made a presentation on his research documenting the traditional knowledge of fishing communities in the south Indian State of Kerala. B Johnson, a fisheries scientist from the State-run Central Marine Fisheries Research Institute (CMFRI) spoke on the concept of an ecosystem approach to fisheries. A third presentation on sea cucumbers was made in Ramnad by P S Asha of the same institute.

Following the presentations, discussions within the three groups—fishers, sea cucumber and seaweed—began. The fisheries group consisted of those who do not collect/harvest seaweed or sea cucumbers. Each group used the framework questions as a basis for their brainstorming sessions and discussions on various issues like access to the islands, duration of the fishing ban, the kinds of fishing gear used, protection for endangered species, and the value of community regulations. Discussions culminated in each group presenting its management proposals. The resolutions/proposals from the communities were grouped under various subheads such as 'regulations', 'compliance', 'monitoring', 'conflict resolution' and 'review of plans'.

The fishers group had intense discussions on the variety of gear currently used and their impact on marine resources. There was a general acceptance that some gear, such as *kedai valai* (a set net, with no mesh size regulation, left overnight in the sea), adversely impact the marine ecosystem. There was a great deal of discussion on why such gear is used even though their negative impacts are widely known. One participant said that it was one thing to point fingers at the government but quite another to get the community to look inward for self-analysis; so many things are 'easy' to do, which is why *rettai madi* (pair trawl) and *surukku madi* (ring seine) are common. But do they actually help the community?

Self-enforcement

An outright ban on such gear is difficult as it would affect the community's livelihood. Therefore, it was agreed that, to start with, the use of such gear must be reduced in a

self-enforced manner (that is, by the community). The fishers group also listed the various bans imposed by the State and wondered whether they are required or not. The consensus was that some bans, like those related to accessing the islands and collecting sea cucumbers, need to be lifted.

The fishers group hastened to add that access to these resources must be regulated. The community has always protected the resources in and around the islands as the importance of these spaces is recognized. Non-fishery threats to the marine and coastal ecosystems, such as industrial pollution (in Thoothukudi district), were also highlighted, and the government was called upon to counter these.

The sea cucumber divers group wanted three species—*Holothuria atra*, *H. scabra* and *Bohadschia marmorata*—to be delisted from Schedule 1 of the WLPA, and some system of regulated collection (licensing) with government support, similar to *chank* collection was done in colonial times, be permitted. Under the WLPA, species can be listed in one of several Schedules, which provide a range of protection for the species. Schedule 1 species have the highest level of protection and include sea cucumbers. Sea cucumber does not have a local market in India, and is meant for export.

Seaweed collection, a livelihood opportunity introduced by the State that the women of the GOM have been following for a few decades, is not illegal but the islands where the seaweed grow are now off-limits. However, the women continue to collect seaweed, running the risk of encountering Forest Department patrols. The women seaweed collectors noted that, for the past five years, they have had in place several self-regulation measures; nonetheless, they admit to being amenable to discussing how they can ensure more sustainable collection of seaweed.

Over the years, the women said, the number of families collecting seaweed has increased, which is reason enough for regulation. The number of collection days has been reduced from 30 to 12 per month, allowing time for the seaweed to regenerate.

Sometimes the women miss a day or two in the designated 12 days because of illness or other family-related matters; yet, they do not compensate for such missed days. In addition, they do not use metal scrapers to collect seaweed. They use their hands.

The flipside of this is that the dead corals cut the women's hands, said a participant pointing to old scars on her fingers. So the women now tie rags around their fingers before collecting the seaweed.

The seaweed group also discussed at length the feasibility of setting up infrastructure for adding value to the seaweed by producing agar. A resource person detailed what this would entail—a shed, large containers for the seaweed, electricity, water and labour. After much discussion, the women decided that this was not a doable option as freshwater is a limiting factor.

All the groups highlighted the existing community regulations such as the ban on use of dynamite and poisons, and the initiative of the women of Chinnapalam village to collect seaweed only 12 days a month (instead of almost every day, as was the norm earlier). They also noted

VISHNU NARENDRAN / ICSF

Women seaweed collectors at ICSF-BOBLME training programme at Ramanathapuram, Tamil Nadu, India

N VENUGOPALAN / ICSF

Women seaweed collectors of Bharathi Nagar fishing village in Ramanathapuram, Tamil Nadu, India

that new regulations must come from within the community, particularly at the hamlet level (and not at the revenue village level) as the community's traditional governance systems can enforce these regulations effectively. For monitoring, implementation and evaluation of regulations, committees at various levels—hamlet, *panchayat*, district, etc.—need to be formed.

There was much debate on whether the union, the RFTU, should spearhead these moves. It was, however, decided that the union was not the appropriate platform as not everyone in the community are members. The hamlet and its traditional institutions would be ideal, participants felt. The groups noted that in case of inter-village problems, a dialogue would be entered into, and for larger issues, the State would be called on to intervene, if needed. For all the groups, a common complaint was the lack of access to the 21 islands. Records indicate that the community has been using the islands at least since the early 20th century. Participants shared memories and stories of families camping and fishing off the islands. Mention was also made of leases given to community members to harvest coconuts or other produce.

The groups decided that monitoring too would be done by designated persons within the village. However, for scientific inputs, they would approach researchers. It was felt, for instance, that it would be useful to monitor fish catches, for which research organizations could devise a simple protocol that the community can follow. The women seaweed collectors were also willing to discuss with scientists how to modify collection so as to ensure regeneration. Officials from the Forest and Fisheries Departments also attended the final session of the training programme and responded positively to the demands and management plans proposed by the community.

The GOM fishing community now plans to enter into a dialogue with the State, armed with the proposals for resource management and governance that were suggested at the training programmes. In preparation for discussions with the State, the community is currently holding intensive, village level discussions on the outcomes of the training programme so as to ensure that the proposals are truly community-led—namely, that all members of the community support the proposals and are aware of them.

For more

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The Sea around Us

In an innovative attempt, researchers in India have roped in traditional fishers to help them prepare a biodiversity register of the sea

The south Indian State of Kerala has about 38,828 sq km of land and 13,000 sq km of sea (up to 22 km) under its jurisdiction. As early as two centuries ago, studies have been done on the specific characteristics of this area and the natural resources in it.

Although minute details are available of the types of land in Kerala, that is not the case with the sea. There are many difficulties involved in doing a detailed study of the sea.

However, generations of traditional fishers, who earn their livelihood from the sea, know the environmental specificities of each nook and corner of the sea because of their work experience. This knowledge has been transferred down the generations not in any written form, but orally.

It is in this context that we should examine the call given by the United Nations (UN) to its member countries to take steps to collect and store information on the biodiversity of the sea, based on traditional knowledge.

Realizing the importance of this, the first step taken in India to

and biodiversity of the sea on the basis of the traditional knowledge of fishers was initiated in Kerala.

A sea area of around 440 sq km, along a 20-km-long coastline from Puthukurichy to Valiyathura in Thiruvananthapuram District, was chosen for the pilot study.

Protsahan, a community-based research initiative, undertook the work at the request of the Kerala State Biodiversity Board (KSBB).

The study had three major objectives:

- to prepare a register of the ecology and biodiversity of the sea based on fishers' traditional knowledge;
- to identify and prepare, with the help of fishers, location maps of the natural reefs in the seabed, which are the natural dwelling areas of marine living organisms, and enhance the sea's productivity; and
- to collect information on the living organisms in the area, classify them with the help of experts and prepare a register of them. Apart from these, information would also be collected on coastal vegetation, beach-based living organisms, shore-line changes, sea birds, estuaries, sea pollution and so on.

...the first step taken in India to study the ecological specificities and biodiversity of the sea on the basis of the traditional knowledge of fishers was initiated in Kerala.

The methodology of the study was to collect data directly by travelling together with traditional fishers to their specific working spots in the sea, while also interviewing them en route. The research team members, who are also from the coastal fishing community of the study area and could thus understand the many colloquial terms and local names that fishermen use to describe what they see, sought the active collaboration of skilled fishers with deep knowledge of the hidden artefacts of the sea. Oral documentation of the traditional knowledge related

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to the bio-ecosystem of the seabed was done.

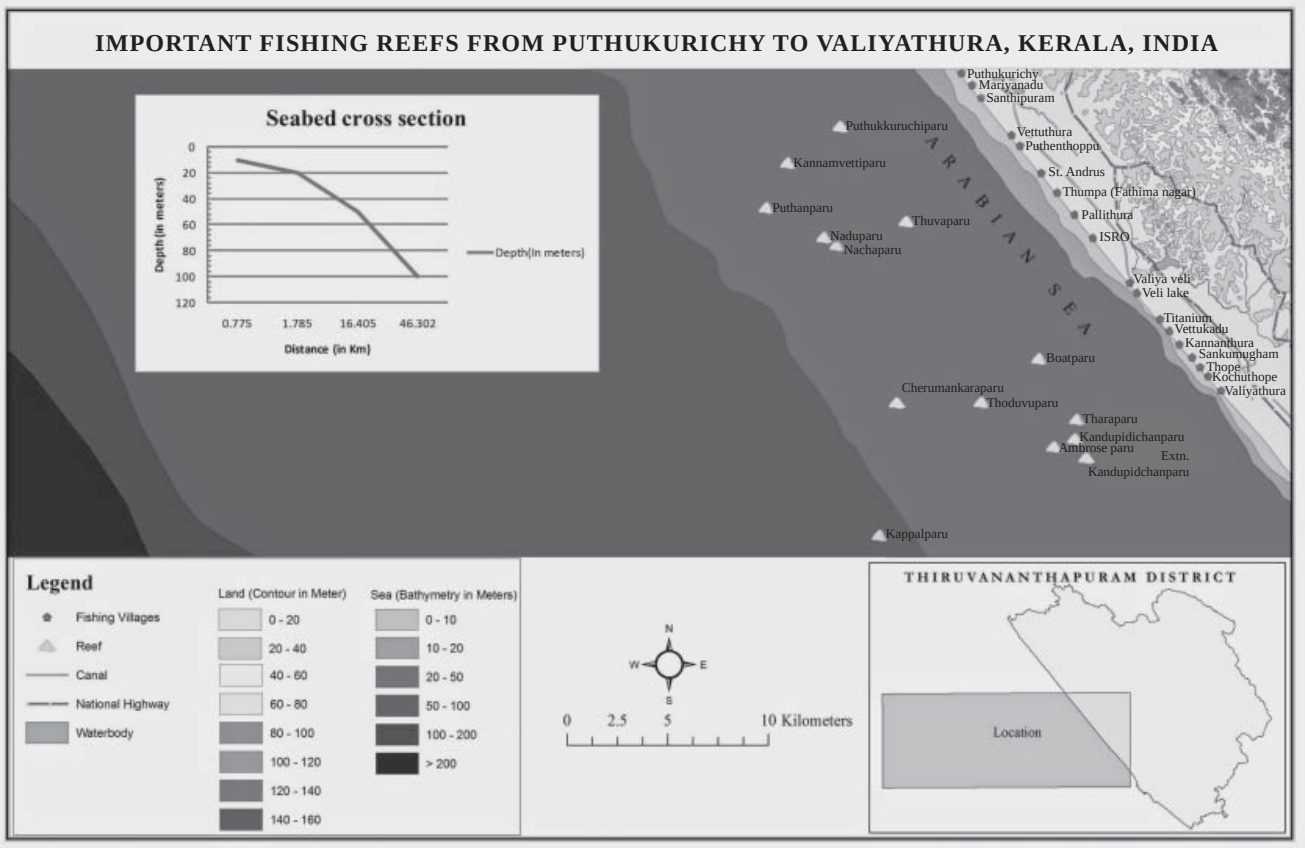
The study team undertook many sea voyages with fishers. Data was collected on the shoreline changes and the different species of fish caught in various seasons at different depths and areas. Data on beach creatures, vegetation and seabirds were also collected. The KSBB Chairman, Oommen V Oommen, the Head of the Department of Aquatic Biology of Kerala University, Biju Kumar, and Protsahan members also came along on some trips.

The study revealed the deep knowledge that traditional fishers have about the different ecosystems of the seabed area of the coast. For example, it was possible to classify, on the basis of specific features, the seabed into 'sandy seabed' (locally called *madakal*), 'clayish seabed' (*chenikal*), 'hard floor seabed' (*tharapparukal*) and 'high-surface areas' (*parukal*). The Marine Biodiversity Register (MBR) that resulted from the study also incorporated visual documentation, including paintings and pictures.

Perhaps the most interesting traditional knowledge of fishers in the area is their navigation skills that help them seek out the exact locations of various reefs without the aid of any sophisticated devices. This traditional knowledge is called *'kanicham'* (triangulation method). The study area, which has 13 important reefs with unique features, was documented using Global Positioning System (GPS). The results are so vivid that even a layman can understand the features of the hidden seabed and also locate them.

Floor reefs are flat, hard grounds in certain specific areas of the seabed that form the habitat of diverse vegetation and small living organisms as well as varieties of medium- and large-sized fish species. On the basis of the fishers' traditional knowledge of the sea, floor reefs can be considered an important habitat for many types of marine species.

During the period of the study, around 50 floor reefs were identified, of which 15 were studied in detail and used as specific locations for collection of materials. Twelve species of black corals and soft corals and 10 types of sea fans were identified.



An interview with Robert Panipilla

Can you tell us briefly about the hook-and-line fishers in Thiruvananthapuram District, in the context of your own parents' in-migration from Kanyakumari?

Most of the hook-and-line fishers in Thiruvananthapuram District (in Kerala State) had their origin in Kanyakumari District (in Tamil Nadu State), though before 1950 both Kanyakumari and Thiruvananthapuram were part of the erstwhile Travancore kingdom. There are two categories of hook-and-line fishers. One is the more skilled reef fishers who target large species like perches, sharks and rays in deeper waters with the help of large-sized hooks. The other targets small- and medium-sized varieties like horse mackerel, mackerel and squid, usually in inshore waters, with the help of small-sized hooks. My father came from Kanyakumari to Valiyathura, close to Thiruvananthapuram city, in the early 1950s. He was a skilled deep-sea hook-and-line fisherman. Even before him, some hook-and-line fishers had already come and settled inThiruvananthapuram.

My father was the first fisher in Valiyathura to introduce artificial baits. But he and his colleagues faced stiff opposition from other fishers, including those who had come from Kanyakumari earlier and were using only natural baits. The opposition was more out of jealousy, as my father and the new group of fishers were getting good catches. Some of the fishers even said that the use of unnatural methods was against the tenets of God. But good sense ultimately prevailed and others began using artificial baits.

The introduction of new innovative techniques in fishing invariably results in conflict and opposition. The introduction of nylon nets is a case in point. These days, though, the introduction of new techniques often leads to overfishing. This year, some fishers introduced use-and-throw baits, in the form of glass tubes with luminescent liquid inside, to attract and catch ribbon fish in deeper waters. Some old hook-and-line fishing methods (such as '*mattuchoonda*' i.e. Longline) have disappeared as the target species, like some varieties of sharks and rays, have been overfished and are more or less extinct.

Can you point out the landmark changes or developments among the hook-and-line fishers in terms of technology used?

First of all, the introduction of '*chillamaram*' (*Albizia* sp.) as the wood for *kettumarams* (catamarans) was a major change in the 1950s. It increased the size, capacity and life of the *kettumarams*. Then came the introduction of three-cornered sails for propulsion of fishing crafts. They helped to make use of multidirectional winds. The latest major change, which is a continuing one, is the introduction of artificial baits in hook-and-line fishing.

Can you describe the special traditional skills of hook-and-line fishers? There is a saying that a good hook-and-line fisherman has eyes on his fingertips. How far is this true?

It is not just one or two skills that these fishers possess. Most of them have a variety of complex skills, which include navigation and fishing techniques, as well as an understanding of the nature and characteristics of the sea and seabed. Most of the traditional fishers have a good understanding of the different types of winds, currents, waves, breaking of waves, fish shoals and so on. But the complex skills of the hook-and-line reef fishers is a class above these ordinary fishers. First of all, they have the skill to locate the reefs with ease and precision, even though today's fishers have started using GPS.

However, the skill of the hook-and-line fisherman to identify the particular fish that just got trapped on his line is something unique, which cannot be replaced with modern technology. These fishers can identify the exact species of fish caught by observing its reaction to the bait and the hook. They can almost feel the reaction on the tips of their fingers.

I will explain this with a recent experience. During one of our study trip voyages into the sea, Dr Oommen, the Chairman of KSBB, accompanied the fishers. After reaching a specific reef, the fishers started fishing with their hooks-and-line. After a few minutes, a fisherman announced that a medium-sized *kozhuva para* (*Carngoides gymonostathus*) has probably been caught by his hook. We could see him testing the line and paying it out in a particular manner. Dr Oommen asked him how he knew the fish caught was a *kozhuva para*? The fisher replied that he could sense it from the way the fish was struggling with the bait, which he could feel in his fingers. When the line was pulled up, the fish caught turned out to ba a *kozhuva para*. Though impressed, Dr Oommen doubted whether the fisherman could predict his next catch with equal accuracy. His next catch, the fisherman announced before reeling in his line, seemed to be a kalava (rock cod or grouper). He was spot on.

The fisherman explained that different fishes respond differently to the bait. Some come near it and spend time nuzzling against it or feeling it up before gulping it down, which is when they get caught. Some species are particularly greedy and swallow the bait immediately. The struggles put up by different species after taking the bait vary too. It is from these longtime observations and felt experiences that the fishers have learnt to predict the particular species of fish caught in their hooks, relying on the sensory feelings in their fingertips.

You had some experience in the introduction of new types of artificial reefs some decades ago. You also tried to involve some scientists and government institutions in that exercise. Can you share your experiences and insights about this?

A few decades ago, the traditional hook-and-line fishers tried on their own to create artificial reefs as fish aggregating devices (FADs). These were collectively made and managed by fishers' groups. Stems and leaves of coconut trees were largely used for the FADs. When I was working in an NGO in the late

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1980s, we interacted with these fishers and helped create larger and better structures of artificial reefs. Various types of triangular-shaped concrete models were tried which proved successful. Two scientists from the CMFRI centre at Vizhinjam collaborated in the effort. We also tried to assess the changes in and around these artificial reefs over the period, and the varieties of fish using these structures as their habitat. But we realized that the ability of the local scientists were limited, as many of them did not even know how to swim or dive. I remember some of them were so afraid of the sea that they forced us to take them back to the shore in the midst of a trip. Fortunately, we managed to get the help of two marine scientists from the United Kingdom (UK) who documented the changes over different time periods with the help of underwater cameras.

I think many of our marine scientists are interested only in land-based research inside laboratories. They do not wish to interact with the fishers and learn from them.

Providing artificial reefs is now part of the official programme of the Department of Fisheries in Kerala. However, implementation is poor because of the skewed attitude of officials towards the fishers.

What was your experience in preparing a biodiversity register of the marine environment of part of Thiruvananthapuram District?

For me, the work was not something totally new, but more or less a continuation of my longstanding involvement with fishers and fishing communities. Documenting the traditional knowledge of our small-scale fishers is a passion for me. I also realize that it may not be possible to do this a few years from now, as the situation on the ground is changing very quickly and we are in a transitional period. That is why I have been spending time, for a few years now, documenting the traditional knowledge and skills of our fishers. Hence, when Protsahan and KSBB asked me to prepare a biodiversity register as a pilot programme, I was really happy and jumped at the opportunity.

In the vast and complex world of sea fishing there are several opportunities to observe new things and gain fresh insights. This particular study helped me to learn more about the importance of '*tharapparukal*' (hard floor seabed) for the productivity of our seas. Earlier, my focus was only on the rocky reefs and their characteristics. I believe there's still a lot more to learn about our sea and the life in it, and I'm convinced that one can do it only with the help and involvement of our traditional fishers.

In this particular study, my colleague was a girl from the fishing community, who is also a college student pursuing a degree course in biotechnology. I am very glad to report that her involvement in the study was an enriching experience for her too. She got an opportunity to present a paper on fishers' traditional knowledge at the National Biodiversity Congress held in Kerala. From an ordinary student, she soon became an exemplary product of the college, whose authorities conferred on her an award for 'innovative initiative'.

—Robert Panipilla (robert_potsplants@yahoo.com) was interviewed by A J Vijayan (vijayanaj@hotmail.com) of Protsahan, Kerala, India

Nearly 100 molluscs, 30 to 35 crabs, mandy shrimps, star fishes, murray (locally called *vlanku*), eels, sea snakes, 30 *manthals* (*Crossorhombus azureus*), *kadanthal (Choridactylus multibarbus, Thysanichthys* sp., *Pterois russelli)* and *petha (Antinnariusnummifer* sp.*)* were also identified, apart from many common fishes. All these species were classified with the help of the Department of Aquatic Biology, University of Kerala.

Perhaps the most important outcome of the study was the identification of six new marine species (five of which were found for the first time in Kerala and one for the first time in India). About 15 species were submitted to the University of Kerala for further study and analysis. Apart from some endangered fishes, other rare species of fish, sea birds, sea snakes, beach crabs and soft corals were also identified.

On the whole, the study reconfirms the value of the traditional knowledge of fishers. Our traditional fishing communities, just like forest-dwelling tribals, are a rich storehouse of traditional knowledge acquired over eons and passed down through generations. They, and their precious knowledge, need to be preserved.

For more

http://keralabiodiversity.org
Kerala State Biodiversity Board (KSBB)

www.nbaindia.org
National Biodiversity Authority

A Dam Good Option

Small-scale fishing in the reservoir of the Dimbhe dam in Maharashtra, India, has been a boon for displaced families

In 2000, the Dimbhe dam in the Indian State of Maharashtra became operational, flooding 2,202 ha of tribal land and displacing 1,253 families. Eleven villages were submerged and 13 partially affected to irrigate 36,552 ha of land through the Right Bank and Left Bank canals and produce five mw of power. The remaining water is supplied to the Yedgaon dam. The families who have had to shift to the hill upstream have little livelihood options on the stony slopes. Twenty-five to 40 of the families took to fishing in the reservoir, using rubber tubes of truck tyres. But their meagre catch was inadequate for their own nutrition, let alone as a source of livelihood.

Enter the non-profit, Shashwat. The organization worked to help local communities develop small-scale fishing activities in the reservoir and improve agricultural production while conserving forests. Shashwat's holistic development plan for the area includes enabling communities to not only start small-scale livelihood activities such as fishing in the reservoir, but also enabling them to manage resources sustainably. Shashwat was awarded the Equator Prize as well as the prestigious Special Recognition Award for Freshwater Resource Management by the Equator Initiative of the United Nations Development Programme (UNDP) at the RIO+20 United Nations Conference on Sustainable Development at Rio de Janiero, Brazil, on 20 June 2012.

Shashwat helped the tribals of 19 villages living around the dam organize themselves and develop fishing in the reservoir. In 2003, with advice from fishers of the Bargi Dam Displaced and Affected People's Association, some 900 km away in the neighbouring State of Madhya Pradesh, the Dimbhe community formed an association, which was later registered as a co-operative society in 2006, with 157 members, including 15 women. Membership to the Dimbhe Jalashay Shramik Adivasi Machhimar Sahakari Society Maryadit was based on payment of a token fee. The co-operative has members from all 19 villages around the reservoir. Soon after the formation of the association, three boats made of galvanized iron sheets fixed over wooden frames were introduced in 2003. These were a hit. Today there are some 150 such boats plying the reservoir waters.

The families who have had to shift to the hill upstream have little livelihood options on the stony slopes.

Training programme

The next step was to get the State agencies on board. The revenue, fisheries, co-operation, irrigation, tribal and forest departments needed to be involved. The Tribal Development Department provided funds for the training-cum-production programme of making boats and purchasing fishing nets, while the Fisheries Department subsidized the boats made by the co-operative's members, and helped the women get trained in ornamental fish culture. The

*This article has been compiled by **Sumana Narayanan** (sumanarayanan@gmail.com), Programme Associate, ICSF, based on inputs from **Anand Kapoor** (anandk3001@gmail.com) of Shashwat*

Revenue Department pitched in by giving ration cards to access food subsides, and the Irrigation Department reduced its charges for draw-down irrigation permits, among others.

In the first two years of the dam's existence, the Irrigation Department emptied the dam twice, leading to the death of all the fish in the reservoir. Then, in 2003, the reservoir was given to a private contractor for fishing, for a period of five years. The contractor did not stock the reservoir adequately and when it was time to harvest the fish, he brought in fishers from outside the State. The Dimbhe tribals protested against that step. In addition, the private contractor, it was found, had violated contractual conditions. This led to the Fisheries Department cancelling his contract in June 2006.

...on the ground, experience has found that such small fingerlings have a survival rate of just 10-15 per cent once released into such a large reservoir (average area: 1,278 ha).

Following the protest against the private contractor, the Fisheries Department offered the co-operative the fishing contract. The co-operative, with difficulty, collected about two-thirds of the money required, from the entrance fee of Rs201 (1 US$ =Rs61.6) and the fee for extra shares (Rs800) collected from members.

The contract was valued at Rs157,360, which included a security deposit of Rs36,360. For the rest, with Shashwat's help, a zero-interest loan of Rs50,000 was secured. Once the contract was awarded, the co-operative tackled the problem of stocking the reservoir.

Using grants from the tribal development department and SWISSAID, the reservoir was stocked with 909,000 fingerlings. This first attempt by the co-operative at stocking the reservoir was, however, a long-drawn affair as the Fisheries Department took three years to supply all the fish seed.

In the first year, 2006-2007, the catch was 3,670 kg of *catla* (Indian carp) and 16,860 kg of *chela* (Indian glass barb) in 72 fishing days. The catch has seen ups and downs, including a low total catch of 6,625 kg in 2010. In 2012-2013, the catch had increased to 31,117 kg while the fishing days had gone up to 290 days.

Indian major carps form the bulk of the catch as a result of the aggressive stocking of these, as recommended by the Central Institute of Fisheries Education (CIFE). In 2007, the community also undertook cage culture of carps. CIFE again came to the aid of the co-operative, providing them with floating cages as well as the necessary technical advice and training. The contract required the co-operative to stock the reservoir with 900,000 fingerlings (25-35 mm in size) annually.

However, on the ground, experience has found that such small fingerlings have a survival rate of just 10-15 per cent once released into such a large reservoir (average area: 1,278 ha). The cage culture meant the co-operative could fulfil this condition, in spite of setbacks ranging from loss of fish seed to breakage of equipment and lack of training and proper equipment. Later, CIFE provided 16 more cages. Most of the stocking done in Dimbhe since then has been with advanced fingerlings of size 100-150 mm, which increases the survival rate to 85-90 per cent.

Self-help groups

The tribal women, having formed 32 self-help groups (SHGs), were looking for a means to enhance their livelihood. They approached CIFE which suggested ornamental fish culture. The women were trained in such culture and began to rear goldfish. The National Fisheries Development Board (NFDB) has recently sanctioned 16 cages for a two-year project through CIFE in which the women are given training in ornamental fish rearing. NFDB has also provided 32 cages for the fishers to rear fingerlings for stocking the reservoir.

By 2008, the women had formed a federation of 29 SHGs named Ghod Bubra Mahila Sangh.

Between 2009 and 2012, the community and Shashwat also tried their hand at pen culture but with mixed results. In 2009, Bendharwadi village was the site of this experiment where a four-m-high nylon net was tied across a depression in the fields at the reservoir's edge. The net was supported by bamboo and wooden poles. When the water level rose, and water entered the penned area, 33,000 fish seed were released. Unfortunately, that year the dam did not fill to capacity so the water level in the pen was just two to three feet. The water level then dipped further as water was released for irrigation, giving the fish seed hardly 21 days to grow. The slightly larger fish seed of up to 70 mm size were then released into the reservoir. In the next year, the dam water overtopped the pen at Savarli by about 30 cm for two to three days. The community has, thus, found that though pen culture is cheaper than cage culture, there is an element of uncertainty since the water levels are unpredictable.

The co-operative reserves 25 per cent of the catch sales for local vendors as a means to ensure the local community's nutrition needs are met. The rest is sold to the wholesale buyer who now comes to the dam site to buy the catch. Payment to the fishers is made weekly on Sundays. To ensure transparency, fishers from the villages share the responsibility of checking accounts, and someone is always present when financial transactions are made. The co-operative also has regulations on mesh size and closed seasons, which are zealously enforced. There have been cases of nets being confiscated and fines imposed on erring fishers. The members of the co-operative also made a resolution way back in 2003 not to use poisons or explosives for fishing.

In Maharashtra, the offset price for fishing lease of a reservoir is decided by the estimated annual fish production, the market rate of fish (Rs25/kg, according to the government), and a percentage of the total value of fish production (one per cent, as decided by the State). In 2005-06, the offset price for Dimbhe was fixed at Rs54,000. The next year it had jumped to Rs121,000. But this offset price of Rs121,000 was based on the highest earlier bid and not on the production level. Shashwat and the co-operative suggested that the offset price for Dimbhe be fixed according to the 2002 circular of the government, which would make it Rs54,000 annually, and that the formula be revised. They suggested that the price be based on the actual fish production in nearby, similarly sized reservoirs. After three years of multiple representations, the government, in 2009, resorted to old lease amounts but the formula revision was not taken up.

Thanks to CIFE, the co-operative took steps to improve the aquatic productivity of the dam. In 2006, CIFE conducted a preliminary survey of the dam and found that aquatic productivity was just 50 per cent. It noted that zooplanktons were scanty. In consultation with CIFE, Shashwat and the co-operative took up planting of the green manure crop, *taag/dhencha* in the draw-down land. As the water levels rose and the crop was submerged, they formed feed for

BUDHAJI DAMSE

Fishermen with their catch at Dimbhe reservoir in the Indian State of Maharashtra. They have resolved not to use poisons or explosives for fishing

TIFFANY FRANKE

Tribal women engaged in rearing ornamental fish in floating cages in the Dimbhe reservoir in Maharashtra, India

the carp. Later, when the water level dropped, farmers sowed wheat in this draw-down land. The farmers found their yield to be substantially higher than before the planting of *dhencha*. With NFDB support, *dhencha* planting was taken up in a larger area.

In spite of several setbacks, the community has persevered; in the rainy season of 2008, a pest attack caused teak trees around the reserviour to shed their leaves. The green leaves got washed down in the reservoir water with the rains, forming a sticky mass that glued the nets when deployed. Undoing this damage would take a few hours of hard scrubbing with detergent. In addition, in 2009 and 2012 the dam did not fill to capacity, reducing the water volume available for fish growth. In 2011, due to heavy rains, the five gates of the dam were opened for a day and a half. The next day, Shashwat reports that one could see people lined up downstream collecting the fish which had died from the 72-m fall down the spillway. Similarly, in August 2013, four to five truckloads of large fish were lost on the first day of opening the dam gates.

However, with the support of Shashwat and the government's fisheries and tribal development departments, and institutions like CIFE and NFDB, the community has overcome these problems. The catchment area being well-forested, and with hardly any chemical fertilizers being used, a high price for the fish caught in Dimbhe was expected. Yet this is not the case since the quantity of fish caught is not enough to justify a separate market and the co-operative does not have access to markets in the cities.

Unfortunately, the focus on carps has led to decline in 16 local species. These have also slowly lost their market value. In spite of these drawbacks, the fishers are looking forward to ensuring self-sufficiency in managing the fishery; in 2012-13, the co-operative recorded a profit. Some of its future plans include building an ice plant, acquiring another motor boat for transporting the catch, providing boats to less fortunate members, and raising working capital for the women's ornamental fish business. The ice plant has been approved by CIFE, which has also helped the co-operative to install a mini-hatchery from which the first fish seed of *rohu* was produced in August 2013.

For more

www.undp.org/content/india/en/home/presscenter/pressreleases/2013/05/10/shashwat-congratulated-for-winning-undps-prestigious-global-equator-prize/
Shashwat Congratulated for Winning UNDP's Prestigious Global Equator Prize

www.equatorinitiative.org/index.php?option=com_winners&view=winner_detail&id=137&Itemid=683
Shashwat: Building Sustainable Livelihoods for Tribal Communities

A Collective Voice

The National Tripartite Workshop on the ILO Work in Fishing Convention, No. 188 was held in Goa, India, during 8-9 February 2013

A National Tripartite Workshop on the International Labour Organization (ILO) Work in Fishing Convention, 2007 (No.188—hereafter, C.188) was held in Goa, India, during 8-9 February 2013, in collaboration with India's Ministry of Labour and Employment (MOLE) and the Department of Animal Husbandry, Dairying and Fisheries (DADF) of the Ministry of Agriculture The workshop was attended by representatives of federal and State governments, the Directorate General of Shipping, trade unions, organizations of vessel owners and employers, non-governmental organizations (NGOs), the media and the International Labour Office.

The workshop discussed the gaps between existing Indian legislation and C.188, and took inputs from governments of coastal States, social partners and other stakeholders regarding their views on ratifying C.188. Panudda Boonpala, Deputy Director, ILO Country Office, New Delhi, made introductory remarks. Speaking at the opening session, Anup C Pandey, Joint Secretary, MOLE, said the Goa meeting was a follow-up to the October 2010 and January 2011 consultations with stakeholders held in Kochi and Visakhapatnam. India will ratify C.188 only after ensuring that existing laws are in full conformity with the Convention, he said.

Brandt Wagner, Senior Maritime Specialist, Sectoral Activities Department of ILO, Geneva, introduced the provisions of C.188. Several questions were raised by participants concerning the Convention. These included: Would it be possible to have a higher minimum age for fishers engaged in certain types of hazardous fishing operations? How would the Convention deal with crew change at sea? How does the Convention help in repatriation of fishers if they are arrested and detained in the name of maritime boundary infringements?

It was observed that fishers migrating between States within India often do not benefit from social-security schemes in the State where they work if they originate from another State. The importance of adopting provisions for transferability of social-security schemes across States was highlighted in this context. Attention was also drawn to labour protection of fishers on board Indian-flagged fishing vessels under joint ventures that do not land their catches in Indian ports.

The importance of adopting provisions for transferability of social-security schemes across States was highlighted...

Since most provisions of C.188 were addressing the labour dimension of fishing, it was suggested by the majority of the participants at the workshop that MOLE, instead of the fisheries authority, should exercise effective jurisdiction in relation to the implementation of the work-in-fishing legislation at the national and State levels.

Standards

Coen Kompier, Senior Specialist, International Labour Standards,

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ILO Decent Work Team for South Asia, drew attention to the Child Labour (Prohibition and Regulation) Amendment Bill that was introduced in the Rajya Sabha, the Indian upper house of Parliament, on 4 December 2012. The bill was aimed at prohibiting the employment of children, up to the age of 18, in hazardous occupations and processes, including mechanized fishing.

Kompier also drew attention to new labour legislation that would have relevance to fishers and fishworkers, such as the legislation on employment agency, and the recent changes to the Rashtriya Swasthya Bima Yojana (the National Health Insurance Programme) to provide health-insurance coverage to even those above the poverty line. Labour legislation is becoming more and more progressive, and the Indian government intended to bring all informal workers within the ambit of the Unorganized Workers' Social Security Act, 2008, by 2021, he added.

...the Convention did recognize the need for flexibility with respect to its application to the differing situations of countries and to limited categories of fishers and fishing vessels...

R V Anuradha of Clarus Law Associates, a consultative legal firm, presented the results of the gap analysis between C.188 and Indian fisheries, shipping and labour legislation, which was prepared in consultation with MOLE and DADF, with ILO's technical and financial support. The existing legislation is fragmented, she said.

Significant gaps were identified and a new legislation was the best way forward, she recommended. Subsistence fishing and recreational fishing are not within the purview of C.188, she observed. Based on the discussion on fisheries subsidies at the World Trade Organization (WTO), and India's position during those negotiations, she held that 'subsistence fishing' could mean fishing for livelihood security through small-profit trade.

Brandt Wagner noted that in the preparatory work leading to the adoption of the Convention, when the term 'subsistence fishing' was defined and discussed, it referred to fish caught only for subsistence or for exchange with family and friends, which did not result in any economic gain. Therefore, 'subsistence fishing' should be considered rather narrowly. This said, the Convention did recognize the need for flexibility with respect to its application to the differing situations of countries and to limited categories of fishers and fishing vessels, and it provided for the possibility to make use of such flexibility following consultations at the national level.

If it was decided to exclude certain limited fishers or vessels from certain provisions of the Convention, it was also important to discuss how to provide such protection over time (the concept of 'progressive implementation') to such excluded fishers or vessels. The general aim of C.188 was to provide protection to the greatest number of fishers, and it should be recalled that it is so structured as to provide less stringent requirements for smaller vessels and those at sea for short periods.

R V Anuradha also cited examples of acts dealing with dock workers, miners, plantation labour, and motor transport workers, where the labour ministry, and not the respective sectoral ministries, took the initiative to protect workers in specific sectors.

The representative of the Directorate General of Shipping sought vessel- and voyage-neutral standards for Indian fishing vessels The Commissioner of Fisheries, Andhra Pradesh, said public hearings should be organized in fishing villages to discuss the need for a work-in-fishing legislation.

Certificates

The representative of the Directorate of Fisheries, Odisha, said seaworthiness certificates and life-saving and communication

equipment should be made mandatory for all sea-going vessels undertaking fishing. He sought to insure all fishers on board fishing vessels and to make 20 years as the minimum age for fishers and 60 years as their retirement age.

The majority of fishing vessels in Odisha are below 15 m length overall, he said. Fishers currently work 15 to 18 hours per day. Working hours should be brought down to under 10 hours per day, he said. Fishers frequently change their vessel of employment. Conditions of service of fishers should be covered by the new legislation.

It is important to have common minimum standards for all fishers and processing workers across the States, he said. He also pointed out how 60 per cent of Odisha seaboard is off-limits to fishing due to wildlife sanctuaries and national parks and turtle-protection programmes.

The Director of Fisheries, Kerala, said 'fishers', as envisaged in a work-in-fishing legislation, should also include wives of fishers and women workers in allied fishing activities.

The Director of Fisheries, Goa, said 95 per cent of workers in the Goan fishing sector originated from other States. Fishers are provided with life jackets, identity cards, and registration certificates. They are paid good salaries, provided with free food on board, and given incentives based on fish catch. There are cases of workers taking money in advance and not reporting for work, he said.

He added that the provisions of C.188, including accommodation standards and hours of work, should not be made mandatory for vessels below 20 m length. There should be discussions between organizations of boatowners and workers before ratifying C.188. Twenty per cent of the Goan fishing fleet is non-operational due to the nonviability of the sector, the Director of Fisheries, Goa said.

The representative of the Associated Chambers of Commerce and Industry of India (ASSOCHAM) said health and safety requirements of workers are important, and ASSOCHAM was in agreement with international labour standards. He sought adopting a national labour legislation before ratifying C.188, and establishing one nodal agency to deal with this legislation.

Y G K Murthy, President, Federation of Indian Fishery Industries (FIFI), said medical examination to work on board vessels as fishers was neither practical nor feasible. Accommodation, food and occupational safety should be as per national standards. It was impractical to adopt hours of work in fishing since fish had to be caught when it was available. Fishing could not be treated on par with land-based industry. Current provisions under the Merchant Shipping Act, 1958, would suffice to ensure safe navigation and communication of fishing vessels, Murthy added.

The certificate of inspection and registration of fishing vessels under this Act was adequate to ensure their seaworthiness. There was no need to adopt new provisions, he said. Fishers receive wages and shares as well as incentives for fishing. Fishers on board vessels never complain about their owners, Murthy said. The best available space on board the vessels was provided to fishers.

The boatowners were capable of ensuring decent work of fishers. C.188 was developed without any idea about Indian fishing vessels. Rather than promoting international law, existing national legislation should be implemented at the Central and State levels for vessels below 24 m length. The vessels already have to register under the Marine Products Export Development Authority Act, 1972, the Marine Fishing Regulation Act and the Merchant Shipping Act, 1958, Murthy added. C.188 is irrelevant, he argued, for vessels below 24 m length and it would do serious damage to the Indian fishing industry by making it operationally non-viable. Better catches can lead to better livelihoods, he said. The problems facing the sector had nothing to do with low wages but with low catches.

Thampan Thomas, Vice-President, Hind Mazdoor Sabha (HMS), said apprehensions of the employers

should be removed. The employers are yet to understand the importance of C.188, which was to bring a social change by safeguarding the interests of the working class in fishing. It was important to accept five mn fishers with rights as part of the labour movement in India. He sought an immediate ratification of C.188, without waiting to develop a national work-in-fishing legislation.

S P Tiwary of the Trade Union Co-ordination Committee (TUCC) said safety, health and the social security of fishers, as well as their food and accommodation, are important. All fishers, both marine and inland, should be covered by a fishing labour law. Tiwary sought a new piece of legislation with flexibility for both exclusion as well as inclusion. He said owners of fishing vessels and fishers have similar concerns. Both parties are seeking economic viability and generation of revenue from fishing.

The representative of the United Trade Union Congress (UTUC) said provisions for exclusion and progressive implementation should not be invoked, and sought broadening the scope of the work in-fishing legislation to include the inland fishing sector.

Hanumantha Rao, the representative of the Bhartiya Mazdoor Sangh (BMS), said local-language workshops should be held to further discuss C.188.

Josevimalraj of the Indian National Trade Union Congress (INTUC) sought training to improve deep-sea fishing skills, regulation of import of fish that adversely impacts the income of fishers, providing better safety and security for the fishing community in light of the killing of two Kerala fishermen in the Indian contiguous zone by Italian marines who mistook them for Somali pirates, and granting rights to fishing grounds to fishers. He sought a time frame from the Government of India for ratifying C.188.

Shankar Dasgupta of the All India United Trade Union Centre (AIUTUC) and Subbu Raman of the Labour Progressive Federation (LPF), supported a comprehensive national legislation for work in fishing that stipulated, among other things, minimum age and minimum wage for fishing, including all fishing vessels. Ratification of C.188 was of utmost importance, said Dasgupta.

Christopher Fonseca, General Secretary, All India Trade Union Congress (AITUC), Goa, welcomed C.188. It is a normative convention, he said. All fishers should be brought within the scope of the convention. He referred to the large number of migrant fishers in Goa from all over India. They should be brought within the scope of the migrant labour act. Everyone should back C.188, he said, which can help the fishing industry to be better organized in future.

Speaking on behalf of the National Fishworkers' Forum (NFF), Pradip Chatterjee said he recalled a series of consultations on C.188 that the NFF, in collaboration with the Centre for Education and Communication (CEC) and the International Collective in Support of Fishworkers (ICSF), had organized in 2008 in different parts of India. Indian small-scale fishers could be found from the estuarine waters of the Sundarbans to the exclusive economic zone (EEZ). Currently, there are few laws to protect workers in fishing in India, he said.

The coverage of social security of fishers is poor. NFF was keen to see C.188 ratified and a comprehensive national work-in-fishing legislation developed to promote decent work in fishing. The scope of such legislation should include all types of fishing vessels and allied activities in fishing. There is considerable scope for improving work agreements in fishing, as well as occupational safety and social security.

A national legislation should be enacted and implemented, he said. MOLE should take the lead to mother the Act in consultation with DAHDF, and labour departments at the State level through a participatory process. A set of rules also needs to be developed to operationalize the act, said Chatterjee.

Road map

Discussing the road map to ratifying C.188, Anup C Pandey, Joint

ASSOCIATION OF DEEP-SEA GOING ARTISANAL FISHERMEN (ADSGAF)

A shark fisherman in Thootoor, India. Sufficient flexibility has been offered by the ILO Work in Fishing Convention with regard to medical examination, crew list, work agreement, etc.

Secretary, MOLE, said the concerns of the employers should be effectively addressed. Tripartite consultations at the State level would be organized over the next six months in local languages. Whether or not ratifying C.188 would affect the viability of the fishing industry will be examined.

Who should be implementing a work-in-fishing legislation will be decided in consultation with the State governments. The consultations will be time-bound and not open-ended, he said. A cabinet note will be prepared at the end of all the consultations.

Summarizing the two-day workshop, Coen Kompier of ILO said the issue of jurisdiction was raised—whether or not it should be the fisheries authority or the labour or shipping authority that should be giving effect to the provisions of C.188. Several implementation gaps were identified. While workers' organizations were unanimously in favour of C.188, the employers were not in favour of ratification. The purpose of C.188 would be defeated if only large vessels were brought within its purview, said Kompier. There was sufficient flexibility offered by the Convention in regard to medical examination, crew list, work agreement, social security and minimum age. While national standards were sought for national vessels, international standards were sought for foreign fishing vessels in the Indian EEZ. It will be good to have one set of standards that would apply to both foreign and domestic vessels, he said. Fishers do not often complain even if they were victims of forced labour, he added.

There are two types of ratification of ILO Conventions, Kompier explained. While countries such as the Russian Federation, India and Brazil see ratification essentially as mandating legal requirements, many other ILO Member States see ratification as expressing an aspirational statement with the idea of conforming to the ratified Convention. ILO has no particular view on what ratification approach should be adopted. ILO stood for a collective voice and for collective agreement arrangements for fair competition. ILO cannot impose any sanctions, he said; it can only stimulate a dialogue to arrive at a consensus.

It would be better to move away from adopting a welfare approach in fishing towards a rights-based approach. Granting entitlements to workers and honouring them should be deemed more important than doling out benefits. Indian labour legislation is already moving in that direction, said Kompier, citing the example of the Unorganized Workers' Social Security Act, 2008.

As a way forward, it was proposed that ILO, in collaboration with relevant stakeholders, would bring out promotional material in local Indian languages. All organizations who wished to comment on aspects related to work in fishing would be afforded an opportunity to do so. States were requested to organize another tripartite consultative meeting to move towards developing a consensus on ratifying C.188. ILO would further liaise with the fisheries authorities, in collaboration with MOLE. The forthcoming Global Dialogue Forum for the promotion of C.188, from 15 to 17 May 2013 in Geneva, would be a possible opportunity to do so, it was hoped.

For more

www.ilo.org/global/industries-and-sectors/shipping-ports-fisheries-inland-waterways/lang--en/index.htm
Shipping, Ports, Fisheries and Inland Waterways Sector

labour.icsf.net
Comprehensive Standard of Work in the Fishing Sector

Ecological Sense

The issue of ecologically and biologically significant marine and coastal areas was a key focus at the recent COP11

The 11th meeting of the Conference of the Parties (COP11) to the Convention on Biological Diversity (CBD) was held during 8-19 October 2012, in Hyderabad, India. Over 10,000 people, including delegates from 173 countries, United Nations agencies, intergovernmental, non-governmental, indigenous and local community organizations, academia and the private sector, participated.

The high-level segment of COP11, held during 16-19 October, focused on four key issues: implementation of the Strategic Plan for Biodiversity 2011-2020; biodiversity for livelihoods and poverty reduction; coastal and marine biodiversity; and implementation of the Nagoya Protocol on Access to Genetic Resources and Benefit Sharing.

...the most important focus at COP11 was on how to meet the Aichi Targets by 2020 and how to raise the resources needed to do so.

Following on the Aichi Biodiversity Targets reached at COP10, held at Nagoya, Japan, the most important focus at COP11 was on how to meet the Aichi Targets by 2020 and how to raise the resources needed to do so. The negotiations on financial issues were perhaps the most contentious, as developing countries sought greater financial support. Consensus was eventually reached at the eleventh hour, with developed countries agreeing to double funding to support efforts in developing States towards meeting the Aichi Targets and the main goals of the Strategic Plan for Biodiversity 2011-2020.

COP11 adopted 33 decisions. Apart from agenda items related to the status of the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization (ABS), implementation of the Strategic Plan for Biodiversity 2011-2020, progress towards the Aichi Targets, and implementation of the Strategy for Resource Mobilization, other issues on the agenda included ecosystem restoration, review of the programme of work on island biodiversity, biological diversity of inland water ecosystems, protected areas, Article 8(j) on traditional knowledge, marine and coastal biodiversity, biodiversity and climate change, and biodiversity for poverty eradication and development.

Agenda Item 10 on marine and coastal biodiversity discussed ecologically and biologically significant marine and coastal areas (EBSAs); sustainable fisheries and the adverse impacts of human activities on marine and coastal biodiversity; marine spatial planning; and voluntary guidelines for the consideration of biodiversity in environmental impact assessments and strategic environmental assessments in marine and coastal areas. Most of the discussions revolved around the issue of EBSAs.

SBSTTA

Parties discussed how to take forward the summary reports prepared by the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) at its 16th meeting, setting out details of

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areas that meet the agreed criteria for EBSAs, based on scientific and technical evaluation of information from regional workshops that had been organized to facilitate the description of EBSAs. Parties debated whether to "endorse" the reports or to "take note of" them.

In the end, the compromise text proposed by the Chair, which avoided use of either term, was adopted. The Executive Secretary was requested to include the summary reports on the description of areas that meet the criteria for EBSAs in the repository, and to submit them to the United Nations General Assembly (UNGA) and particularly its Ad Hoc Open-ended Informal Working Group to Study Issues Relating to the Conservation and Sustainable Use of Marine Biological Diversity Beyond Areas of National Jurisdiction, as well as to Parties, other governments and relevant international organizations. However, the Russian Federation, Iceland and China pointed out that this was not in accordance with the procedure set out in Decision X/29, which required the reports to be endorsed before submission.

The final decision that was adopted was welcomed by many, including environmental groups. It was felt that while the wording of the decision may not have been strong enough, as many had hoped for a more widespread endorsement of the EBSAs described at regional workshops, there was still enough in it for pressure to be put on UNGA to develop a legal mechanism for defining the management and/or protection of these sites in the high seas.

Several aspects are worth flagging in the decision that was adopted. It has been highlighted that the identification of EBSAs and the selection of conservation and management measures is a matter for States and competent intergovernmental organizations, in accordance with international law. It has been further affirmed that the scientific description of areas meeting scientific criteria for EBSAs and other relevant criteria is an open

IISD / EARTH NEGOTIATIONS BULLETIN

Ryu Matsumoto, former Minister of Environment, Japan, and Hoshino Kazuaki, Representative of the Minister of Environment, Japan, hand over the gavel and COP Presidency to Jayanthi Natarajan, Minister of Environment and Forests, India

Box 1

World Forum of Fisher Peoples (WFFP) and International Collective in Support of Fishworkers (ICSF)

11th Conference of Parties to the CBD
8-19 October 2012

Statement
On Agenda Item 10: Marine and Coastal Biodiversity

Thank you, Chair,

The World Forum of Fisher Peoples (WFFP) and the International Collective in Support of Fishworkers (ICSF) would like to highlight the concerns of small-scale and artisanal fishers from different parts of the world on this agenda item.

The need to integrate the traditional knowledge of indigenous peoples and local communities and to ensure their full and effective participation in the implementation of the Convention is well recognized, including in the various decisions of the Conference of Parties to the CBD. However it is unfortunate that these foundational principles have not been taken into account in the various processes initiated for the description of Ecologically or Biologically Significant Marine and Coastal Areas (EBSAs).

We ask Parties to ensure that all work related to the description of EBSAs integrates the traditional, scientific, technical and technological knowledge of indigenous peoples and local communities, consistent with Article 8 (j) and 10 (c). We further request Parties to ensure that there is full and effective participation of indigenous peoples and local communities, particularly fishing communities, in future regional and national workshops on EBSAs.

In this context we welcome the recommendations from the study on Identifying specific elements for integrating the traditional, scientific, technical and technological knowledge of indigenous and local communities, and social and cultural criteria and other aspects for the application of scientific criteria for identification of EBSAs as well as the establishment and management of marine protected areas (UNEP/CBD/SBSTTA/16/INF/10).

We urge Parties to take note of recommendations of this study and to develop socio-cultural criteria for EBSAs to be used alongside the existing scientific criteria, particularly in areas with pre-existing human populations/ uses, recognizing that the eventual management of the identified areas will be dependent on social, economic and cultural factors. Such an approach, which also takes cognizance of existing rights of indigenous peoples and local communities and their systems of governance, will have benefits for both biodiversity and livelihoods.

and evolving process that should be continued to allow ongoing improvement and updating as improved scientific and technical information becomes available in each region.

The discussion also saw some Parties stressing the importance of traditional knowledge and the participation of indigenous peoples and local communities (IPLCs) in the EBSA process. The Philippines highlighted the importance of ensuring the participation of IPLCs in the EBSA process and in identifying conservation and

management measures. This was supported by Mexico and El Salvador. Morocco called for paying attention to traditional knowledge to be used to overcome the impediment of insufficient data and absence of information. Brazil called for indigenous peoples and local communities to be involved in developing appropriate management practices.

The International Indigenous Forum on Biodiversity (IIFB) emphasized the need to ensure full and effective participation of IPLCs in the programme of work on coastal and marine biodiversity, including in expert and regional workshops, and in the description, identification and management of EBSAs. IIFB further urged Parties to ensure that description of EBSAs is based on the traditional knowledge of indigenous peoples.

The World Forum of Fisher Peoples (WFFP) and the International Collective in Support of Fishworkers (ICSF), in their joint statement, welcomed the recommendations from the study on "Identifying specific elements for integrating the traditional, scientific, technical and technological knowledge of indigenous and local communities, and social and cultural criteria and other aspects for the application of scientific criteria for identification of EBSAs as well as the establishment and management of marine protected areas (MPAs)" (see Box 1). They called for the development of socio-cultural criteria for EBSAs that are to be used along with scientific criteria, particularly in areas with pre-existing human populations/uses.

In relation to IPLCs, the following directions in the decision (XI/17) adopted are important:

- Facilitate, as appropriate, the participation of indigenous and local communities in additional regional or sub-regional workshops for description of areas that meet the criteria for EBSAs for the remaining regions or sub-regions where Parties wish workshops to be held, and for the further description of the areas already described where new information becomes available.
- Further refine the EBSA training manual and modules, including through more consultation with Parties and indigenous and local communities, and develop training materials on the use of traditional knowledge.
- Make use of the best available scientific and technical knowledge, including relevant traditional knowledge, as the basis for the description of areas that meet the criteria for EBSAs.
- Make use of, as appropriate and relevant, additional social and

BONA BEDING

In deciding how to take forward the summary reports prepared by the SBSTTA on criteria for EBSAs, a compromise text proposed by the Chair was finally adopted at COP11

Box 2

Solving the Puzzle

A side event organized by ICSF and WFFP, titled "Solving the Puzzle: Social and Cultural Dimensions of Marine and Coastal Protected Areas, was held on 11 October 2012. It opened with the award-winning documentary directed by Rita Banerji, "Shifting Undercurrents—Seaweed Collectors of the Gulf of Mannar".

The film tracks the issues face by the seaweed collectors of the Mannar region due to the declaration of the area as a marine national park. Following the film screening, Lakshmi, a seaweed collector from Ramanathapuram district of Tamil Nadu, spoke eloquently about the problems they face. "The central government has handed over the area to the forest department for conservation, and have denied us permission to enter the area. But why will we ever destroy something that is the source of our livelihoods?", she wondered. Lakshmi pointed out another popular misconception: "Seaweeds do not grow on live corals; they only grow on dead ones. Moreover, we get injured if we go near live corals, and even our boats get damaged. We are not responsible for their decline." Lakshmi's statement puts paid to accusations that seaweed collectors are harming the biodiversity of the region.

Lakshmi's experience was echoed in the narratives of speakers from around the world. An exposition of an ICSF study on Costa Rica, Nicaragua, Panama and Honduras, shed light on the process, and social impact, of marine conservation in these four countries. Vivienne Solis Rivera, who conducted the study, said, "The cost of conservation has fallen on the shoulders of local communities, coastal fishers and indigenous peoples."

Riza Damanik of the Indonesia-based non-governmental organization (NGO) KIARA, which works among coastal communities, said: "The Indonesian government has set a target of bringing 20 mn ha of marine area under conservation by 2020. It has already covered 15 mn ha since 2009." Fishing communities in the country are regularly subject to harassment for entering national parks, he added. Damanik listed the names of 13 fishermen who have been shot dead by guards since 1980.

Donovan van der Heyden from South Africa painted a similar picture. He likened the present form of marine conservation to the apartheid regime and called it "the second wave of dispossession" that has displaced communities and robbed them of their livelihoods. The Director of Coastal Biodiversity Conservation in the South African government, Xola Mkefe, who attended the side event, clarified: "All new MPAs strictly involve consultation processes with the local communities. We have worked with organizations like Coastal Links to know what the reality on the ground is, as the government does not have field-level resources."

All speakers agreed that top-down marine conservation efforts have often led to displacement of communities, and, ironically enough, have had few conservation benefits. Solis said: "These State institutions and authorities lack the instruments to work with communities, and have sometimes chosen the wrong approach towards participation."

All speakers at the side event had positive stories of struggle to share. Van der Heyden from South Africa drew attention to an ongoing legal case that has established a community's customary rights over marine resources. Seaweed collector Lakshmi's mere presence at the side event was testimony to her belief in the power of protest, even as it was a call for support.

cultural information, developed with the full and effective participation of indigenous and local communities, in any subsequent step of selecting conservation and management measures, and include indigenous and local communities in the process, particularly in areas with human populations and pre-existing uses.

- Consider the use of the guidance on integration of traditional knowledge in the study prepared by the Secretariat, with the approval and involvement of the holders of such knowledge, in any future description of areas that meet the criteria for EBSAs and for the development of conservation and management measures, and to report on progress in this regard to COP12.

The above provisions are undoubtedly important for small-scale fisheries groups, given the existing shortcomings in the EBSA process. However, they do not appear strong enough as they do not call for the development of socio-cultural criteria for EBSAs to be used alongside the existing scientific criteria, particularly in areas with pre-existing human populations/uses.

As with the previous COP meets, COP11 too saw a plethora of side events. ICSF, in collaboration with other organizations, held one on the social dimensions of MPAs and another on traditional knowledge (see Boxes 2 and 3).

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View of the closing plenary in session, presided by COP11 President, Jayanthi Natarajan, Minister of Environment and Forests, India

Box 3

Traditional Knowledge

The side event on "Traditional Knowledge and Area-based Management Measures in Marine and Coastal Ecosystems" was organized by ICSF, the Indigenous Peoples' and Community Conserved Areas and Territories (ICCA) Consortium and the United Nations University.

The panelists at the session brought to the table an astounding variety of indigenous knowledge and practices. Grazia Borrini-Feyerabend of the ICCA Consortium shared the example of the Casamance region of Senegal, Africa. The indigenous Djola community considers the mangrove-rich estuarine ecosystem as a sacred grove and has set in place a system for its protection. No-take zones, as well as zones where fishing is permitted for sale in local markets, have been demarcated. As a result, fish stocks have increased, and species that were previously scarce have begun to reappear. Participants at the session pointed out the need to share such experiences widely.

Robert Panipilla from Kerala, India, spoke of the local fishers' rich knowledge of coastal and marine ecosystems. He described how their knowledge of undersea habitats has been used to map the intricate topography of the sea bottom. Such mappings, captured by artists, were on display at the side event. Panipilla said that the method used by local fishers to locate underwater reefs, known as *kanicham*, was akin to sophisticated global positioning systems (GPS). He also explained how local communities had co-operated to establish artifical reefs, in response to the degradation of reef areas by trawlers in the 1980s.

Bona Beding from the Lamalera community of Indonesia took the stage with a video about his village, which featured a local song as its soundtrack. The video captured the philosophy of the famous whalers of his community, who live as one with nature, taking only what is needed, and not abusing resources. As an example of this nature-sensitive philosophy, he pointed to how the villagers catch only male whales, not female ones, which are left to breed.

"The government needs to take into account what indigenous peoples are saying," said Jorge Andreve, a researcher from the indigenous Kuna peoples in Panama. The Kuna peoples believe that everything in nature is interconnected. Panama is a unique example of indigenous peoples governing their territories based on their traditional knowledge and community laws and rules. Western scientific knowledge is being used in conjunction with traditional knowledge to preserve land, coastal and marine ecological biodiversity, said Andreve.

Emphasizing the need to bring together traditional and scientific knowledge, panelist Ron Vave from the University of South Pacific, Fiji, provided information about locally managed marine areas (LMMAs) in the South Pacific, which empower local communities to manage natural resources. As with most other indigenous communities, the local populations of Fiji also have a spiritual connection with the environment. Turtles and sharks are considered as totem species, and local people have intimate knowledge about these and other species. There is need to build on local knowledge, culture and governance systems, Ron Vave concluded.

Anne McDonald of Sophia University, Japan, made a presentation on women *ama* free-divers in Japan, who are part of a matriarchal system. Women have traditionally governed their resources, passing down skills and knowledge from generation to generation. Over the years, advances in technology, such as the use of goggles, diving suits and oxygen tanks, have been carefully examined for their implications for resource health and exploitation, before being accepted or rejected. However, with climate-change-induced changes the *ama*s are struggling to cope. "This is where scientific knowledge needs to come in, when local communities are hitting the limits of traditional knowledge," said McDonald.

When the floor was thrown open to questions, many in the audience shared their frustration at the fact that traditional knowledge of IPLCs continues to be marginally recognized in CBD's programme of work on marine and coastal biodiversity, as in the EBSA process. Questions were also raised about the very local nature of traditional knowledge, and the fact that it is, at times, difficult to separate such indigenous knowledge from traditional beliefs and superstitions.

For more

www.cbd.int
Convention on Biological Diversity

mpa.icsf.net
Marine Protected Areas, and Local and Traditional Fishing Community Perspectives

www.cbdalliance.org
CBD NGO Alliance

Community Concerns

A recent workshop in New Delhi, India, discussed about how a balance may be achieved between conservation and fisheries-dependent livelihoods

A two-day workshop, titled "Fishery-dependent Livelihoods, Conservation and Sustainable Use of Biodiversity: The Case of Marine and Coastal Protected Areas in India", was held in New Delhi during 1-2 March 2012. The workshop was a follow-up to the one held in Chennai in 2009, which was titled "Social Dimensions of Marine Protected Area (MPA) Implementation in India: Do Fishing Communities Benefit?".

The 2009 Chennai workshop had discussed the findings of five case studies, of marine and coastal protected areas (MCPAs) in India, from a fishing-community perspective and had looked at the extent to which fishers are involved in MCPA governance. Legal and institutional issues, the workshop had concluded, were some of the obstacles to effective governance of MCPAs. The workshop had also called for better MCPA implementation that recognized community rights to participation in management as well as rights to the sustainable use of resources. The 2009 workshop had asked the government to consider fishing communities as allies, and recognize and support community-led initiatives for management and conservation.

The recent Delhi workshop attempted to review existing legal and institutional mechanisms for implementation and monitoring of MCPAs...

Keeping in mind the themes identified at the 2009 workshop, the recent Delhi workshop attempted to review existing legal and institutional mechanisms for implementation and monitoring of MCPAs, seeking coherence across agencies, discussing the impact of MCPAs from an environmental-justice and human-rights perspective, and making specific proposals for better conservation while securing the livelihoods of small-scale fishers. The Delhi workshop also served to underscore these issues in light of the upcoming Conference of Parties (COP) of the Convention on Biological Diversity (CBD), to be held at Hyderabad in October 2012.

Participants at the Delhi workshop comprised fishing-community representatives from five MCPAs—the Gulf of Mannar (Marine) National Park and Biosphere Reserve in Tamil Nadu, the Malvan (Marine) Wildlife Sanctuary in Maharashtra, the Gahirmatha (Marine) Wildlife Sanctuary in Odisha, the Sundarbans Tiger Reserve in West Bengal, and the Gulf of Kutch (Marine) National Park and Wildlife Sanctuary in Gujarat—several non-governmental organizations working on biodiversity conservation and on securing people's customary rights to natural resources, as well as government officials from the Central government's ministries of environment, forests, and agriculture, and from the five State governments' departments of environment, forest and fisheries.

Difficulties faced

The difficulties faced by fishers due to the implementation of MCPAs were briefly discussed. Fishwoker unions had been requested to hold regional

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meetings to agree upon not just what demands to present to the government, but also what measures the community feels it can take to contribute to better conservation and sustainable use of biodiversity.

Bharat Patel of Machimar Adhikar Sangharsh Sangathan (MASS) from Gujarat spoke of how the majority of violations in the Gulf of Kutch National Park and Wildlife Sanctuary are by industries but, at the end of the day, it is the fishing community which is affected by the pollution. He called for restriction and regulation of industries in the area and a study to analyze industries' impacts on the ecosystem. He also called for recognition of the traditional rights of fishers to fishing grounds, and urged a ban on trawlers and other destructive fishing methods. Patel hoped that fishers would be given the chance to actively participate in planning and implementation of protected areas.

Pradip Chatterjee from the National Fishworkers' Forum (NFF) spoke of the restrictions on fishing and the limited number of boat licence certificates (BLCs) issued for fishing in parts of the Sundarbans Tiger Reserve (STR). He spoke of the fact that innocent passage through the protected area is not recognized. He called for the implementation of the relevant provisions of the Forest Right Act and the 2006 amendment to the WLPA, to protect the rights of traditional fishing communities dependent on the forest areas for their livelihood needs. He also mentioned that community participation in protected area management is limited to eco-development committees (EDCs).

Speaking of the problems faced by thousands of fishers along the Odisha coast, Narayan Haldar of the Orissa Traditional Fish Worker's Union (OTFWU), said that though the turtle breeding season is only for a few months, fishing is banned in certain areas throughout the year. Haldar asked for the size of the Gahirmata (Marine) Wildlife Sanctuary to be reduced to facilitate access to fishing grounds.

From the Gulf of Mannar area, A. Palsamy of the Ramnad District Fishworkers' Trade Union (RFTU) spoke of the restrictions on seaweed collection, a traditional livelihood activity for several thousand women. The impact of industries and burgeoning tourism was mentioned. Palsamy also highlighted community initiatives to conserve resources, such as the ban on coral collection from the islands, a two-month holiday on seaweed collection, a ban on capture of juvenile fish and juvenile sea cucumbers (before the listing of sea cucumbers in Schedule 1 of the Wild Life (Protection) Act of 1972, WLPA). He called for the restoration of the right of access to traditional fishing grounds, a recognition of the rights of fishing communities to manage resources, and the development of a sustainable harvest plan for sea cucumbers.

Dilip Hari Ghare of Sindhudurg Schrajeevi Rampan Machhimar Utapada Co-operative Society from Maharashtra spoke of how communities remain unaware about the declaration of the Malvan sanctuary and its associated regulations. Ghare expressed concern over the uncontrolled mechanized fishing, especially by purse-seiners. He said unless there is better sharing of information on the sanctuary and involvement of the community in all decision-making processes, there will be resistance to conservation efforts.

ROHIT GUSAIN/ICSF

Chandrika Sharma of ICSF, Tarun Shridhar of MoA, Y S Yadava of BOBP-IGO, Hem Pande of MoEF and V Vivekanandan of ICSF at the inaugural session of the Delhi MPA workshop

In their presentations, community representatives repeatedly spoke of being excluded from decision making by the government. In his inaugural address, Hem Pande, Joint Secretary in the Ministry of Environment and Forests (MoEF), said that sustainable development has three pillars—economic, social and environmental. However, a focus confined to the first two was inadequate. The challenge for a country of India's size—which accounts for 2.5 per cent of the world's land mass and 18 per cent of the world's population, leading to great pressure on biodiversity—is to balance the requirements of all three pillars. The answer lies in people's participation in the management of biodiversity (or fisheries, in this case). Such a model, he said, might be a better one, despite the conflicts that are likely to arise.

In his keynote address, Tarun Shridhar, Joint Secretary, Department of Animal Husbandry, Dairying and Fisheries (DADF), Ministry of Agriculture (MoA), pointed out that though India is amongst the largest producers of fish in the world, there is not enough attention on fisheries; he called for all involved to work towards raising the profile of the sector, bringing fisheries to the attention of the political establishment.

The issue of who is responsible for depleting marine resources and how fish stocks are estimated came up.

Shridhar said that while, according to the Food and Agriculture Organization of the United Nations (FAO), 82 per cent of fisheries globally are fully exploited or depleting, recent stock assessments undertaken in India indicate that stocks here are not fished to potential.

This, he noted, provides the advantage of planning sustainable use of the resource instead of resorting to *post facto* measures. This led to some debate on the science behind fish-stock assessments, especially the suitability of the maximum sustainable yield (MSY) concept in a tropical-fisheries context.

Shridhar, noting that small-scale fishers are hard hit by conservation measures, underscored the need for dialogue between environment and fisheries policymakers. He also highlighted the need to strengthen laws governing fishing vessels in India's exclusive economic zone (EEZ).

The other focal point of the Delhi workshop was to explore spaces within the existing legislative framework to see how fishers' rights can be protected while promoting sustainable use of resources. Towards this end, several resource people spoke on different legislation, from the WLPA to the Panchayati Raj Act of 1992. With this in mind, ICSF had commissioned a legal analysis of the WLPA by two advocates, V Suresh and D Nagasaila, who have worked extensively on human-rights issues.

Nagasaila's presentation focused on the clauses in the WLPA that relate to fishing communities and their rights. She dwelt on how different clauses could possibly be used by a community to defend its rights to continue fishing within protected areas established under the WLPA. In the discussion that followed it was noted that restrictions on fishing in protected areas were not uniformly applied—while fishing was allowed in some of them, in others fishers faced severe restriction.

C R Bijoy of the Campaign for Survival and Dignity (CSD) wondered whether it was time to move from community participation to community control (of resources), and from management to governance.

Kanchi Kohli of Kalpavriksh spoke about the Environment (Protection) Act (EPA) of 1986. The coast is a fragile ecosystem supporting diverse livelihoods, yet it is seen as a wasteland, ideal for power plants and special economic zones (SEZs). Hence this is where there is maximum resistance from communities.

Ecologically sensitive areas

The EPA, enacted after the Bhopal tragedy, seeks, among other things, to regulate industries by demarcating

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69 participants at the workshop on "Fishery-dependent Livelihoods, Conservation and Sustainable Use of Biodiversity: The Case of Marine and Coastal Protected Areas in India"

ecologically sensitive areas (ESAs) and requiring environment impact assessments (EIA) for every infrastructure project, along with a social assessment. The EIA notification talks of public participation in the process and lays down a long list of requirements from the project proponents. More work is needed to ensure effective implementation, Kohli said.

She also spoke of the Biological Diversity Act (BDA) of 2002, which deals with conservation, sustainable use, and access and benefit sharing (ABS). The BDA regulates access to bioresources and traditional knowledge of communities. Some of the clauses in the act, such as the one restricting activities detrimental to biodiversity and the option to declare biodiversity heritage sites, must be harnessed, she felt.

Another new legal route, said Kohli, is the National Green Tribunal, which has replaced the National Environment Appellate Authority. Orders given under the EPA and the BDA can be challenged at the Tribunal, which also looks at compensation and damages. She concluded that when we talk of law and MCPAs, there is a disconnect between the intent of the law and its design. Conservation is retrofitted, while the main framework remains access.

An overview of the Coastal Regulation Zone (CRZ) Notification of 1991 was provided by Aarthi Sridhar of Dakshin Foundation. CRZ, under the EPA, is a zonation law, which has been poorly implemented. The MoEF reviewed the notification in 2008, but the resultant version was strongly opposed by fishing communities concerned about the rampant development of the coast and the shrinking spaces for their livelihood activities. After a protracted struggle, the government cleared the final 2011 version of the Notification, which mentions the customary rights of fishers. There is a provision for designation of critically vulnerable coastal areas (CVCAs). Whether this is positive for local communities will depend on its implementation.

Sebastian Mathew, Programme Adviser of ICSF, spoke of how all the State Marine Fishing Regulation Acts mention conserving resources, regulating fishing, and wildlife protection. Many of the State acts also prohibit certain fishing methods and gear deemed harmful to wildlife, such as the use of explosives and stake nets. He also highlighted how effective implementation of some of the existing provisions can contribute to conservation of fishery resources.

During the discussion sessions, K B Thampi, (Retired) Principal Chief Conservator of Forests (PCCF), Kerala, pointed out that several of the laws discussed do not have a clear institutional mechanism for their implementation. This hampers effective implementation, with departments working at cross purposes. He also pointed out that the progressive National Forest Policy was formulated in 1988 but was not followed by an act incorporating ideas expressed in the policy; instead, the Indian Forest Act of 1927 is still valid. J R Bhatt, director, MoEF, concurred that the acts are silent on forward-looking ideas introduced in policies.

Political economy

Shalini Bhutani, an independent researcher who works on agriculture and trade issues, stressed the need to locate all legislation in the context of

ROHIT GUSAIN/ICSF

Advocate Nagasaila, Deepak Apte of BNHS, V Vivekanandan of ICSF, B C Choudhury of WII, Ashish Kothari of Kalpavriksh and Shekhar Kumar Niraj of Govt. of Tamil Nadu at the close

the political economy. Implementation will be coloured by this political economy; we need to analyze, for example, how trade and trade policies are interacting with the environment laws.

J R Bhatt spoke of the difficulties faced by policymakers. He mentioned that there is a lot of pressure at the international stage to meet the obligations of multilateral agreements, which may be in contradiction with conservation or fishers' needs. He commented that conservation without sustainable use and equitable sharing will have no meaning.

Chandrika Sharma, Executive Secretary of ICSF, flagged the importance of having a co-ordination mechanism between government ministries and departments, particularly those dealing with fisheries and the environment. Y S Yadava of the Bay of Bengal Programme Inter-governmental Organization (BOBP-IGO) stressed that while such co-ordination is important at the central level, it is perhaps even more important at the state and local levels. Fisheries departments need to play a much greater role in fisheries management.

Sebastian Mathew of ICSF spoke of the need for fisheries departments to move towards greater conservation of marine-fishery resources, and protection of marine habitats. He also drew attention to the need to recognize the rights to fish in marine internal waters consistent with such rights in territorial waters.

Ashish Kothari of Kalpavriksh stressed on the need for participatory and equitable governance of protected areas. He highlighted the role of local communities in governance, not only in management. The implementation of protected-areas worldwide has led to conflicts because the livelihood rights of communities have been ignored, rendering conservation itself unsustainable. Protected-area governance should be gauged by its quality—whether basic human rights have been respected, he said.

Speakers at the workshop also provided examples of community-managed conservation areas from across the world. Kothari spoke of the Programme of Work on Protected Areas (PoWPA) under the CBD, which emphasizes the importance of governance, participation, equity and benefit sharing. He drew attention to the many examples of community-led conservation that have been documented through the Indigenous and Community Conserved Areas (ICCA) network, such as the Annapurna Conserved Area, Nepal, French Regionl National Parks, Galapagos National Park in Ecuador and the Kaa-iya del Gran Chaco National Park in Bolivia.

Ramya Rajagopalan, Consultant, ICSF, drew attention to successful community-led efforts for conservation of coastal and marine biodiversity from around the world. She spoke of traditional taboos on access, on irresponsible resource use, and spatio-temporal restrictions imposed by different communities.

Prakriti Srivastava, Deputy Inspector General (DIG), Wildlife, MoEF, spoke of the community-led turtle conservation that she had supported as the Divisional Forest Officer, Calicut (Kozhikode), Kerala.

Turtle nesting

With forest-department support, turtle-nesting numbers went up over the years, a plan for a resort was successfully fought, and other problems such as water scarcity were addressed. She said that when the

forest department associates with the community, it can benefit the community and conservation, and that when groups work in isolation, there is no progress.

V Vivekanandan, Member, ICSF, spoke about the self-governance systems prevalent among fishing communities across the coast. He mentioned some of the self-imposed restrictions observed by the fishers to manage resources and resolve conflicts, such as local bans on ring- and purse-seines. He emphasized that no management or conservation initiative can afford to ignore the self-governance institutions among fishing communities.

R K Patil of the NFF said that though as a fisherman he was a "killer of fish", he understood the importance of conservation. The NFF has, over the years, undertaken several campaigns and struggles seeking conservation of marine and coastal biodiversity. He reiterated that fishers are ready to work with the government to manage resources, but that the government has to recognize the rights of communities. He added that if communities are not part of the decisionmaking, they will have no choice but to oppose MCPAs, as they have done in Malvan.

The Delhi workshop saw a consensus on the need for better co-ordination and understanding among stakeholders. Speakers spoke of how underutilized legal options, such as conservation and community reserves, biodiversity heritage sites, and ESAs, which provide greater opportunities for community participation in conservation and management, including opportunities that enable them to regulate developmental activities detrimental to the coastal and marine ecosystem, must be explored. Several speakers also named the commercial fishing interests as contributors to depleting fish stocks.

Vishnu Bhat, Fisheries Development Commissioner, DADF, reiterated the need to spotlight fisheries. He pointed to the need to augment capacity at various levels for proper implementation of fisheries management.

J R Bhatt underscored the lack of capacity within the ministry when it came to the marine environment. He also concurred with Kothari that the protected-area system required a review. Tarun Shridhar, Joint Secretary, MoA, commented that whether fishing rights could be enshrined in separate legislation needs to be looked into. He also underscored the necessity for co-ordination between the MoA and MoEF through an appropriate institutional mechanism.

Commenting on the unimaginative alternative-livelihood programmes that often have no connection at all to traditional livelihoods pursued by the community, B C Choudhury of the Wildlife Institute of India (WII), said such programmes are about the three Ps—*papad*s, petticoats and pickles! WII, he said, had identified 350 marine and coastal high-biodiversity areas, which would benefit from conservation; but, he felt, the catch is in the name—protected area. He suggested calling them instead conservation areas. WII had recommended that 102 sites of the 350 should be designated for conservation. Many of these have traditional resource-management practices that need to be documented. He also called for a network of community-managed areas. He reiterated the need to re-evaluate our terrestrial approach to marine conservation.

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Deepak Apte, of the Bombay Natural History Society (BNHS), noted that in his experience small-scale fishing communities are supportive of conservation, if their access rights to sustainably use the resource are not jeopardized. The challenge is to

Matanhy Saldanha (1948–2012)

Matanhy Saldanha, Chairperson, National Fishworkers' Forum (NFF), India, died of a heart attack early morning, Wednesday, 21 March 2012, in Panaji, Goa.

As the founding Chairperson of the NFF in the late 1970s, he led many struggles of non-trawl fishers against bottom trawling. These struggles eventually led to the demarcation of maritime zones where trawling was prohibited, and to the implementation of a uniform seasonal monsoon fishery ban in India.

Matanhy was re-elected for another term, as Chairperson of NFF, in 2009. During his second tenure, in the face of indiscriminate industrialization of the coast, he fought tirelessly for the protection of India's coastal zone, and for the right of fishing communities to live peacefully along the coast and to fish in its nearshore waters. Matanhy's demise is a big loss to Goa and to the fishworker movement of India.

In the words of Pradip Chatterjee, Secretary, NFF: "A person of immaculate honesty and integrity, a great orator, a true friend and able leader of traditional fishing communities, a diehard fighter and a very sensitive and gentle person, Matanhy Saldanha will be remembered for years to come."

use provisions in environmental and fisheries legislation that allow for communities to participate equally in conservation and management. This will also go a long way in regulating the mad rush for 'development' along the coast.

Ashish Kothari, of Kalpavriksh, reiterating the need for legislation to protect the interests of the fishing community, along the lines of the Forest Rights Act of 2006, called on the MoEF to undertake a review of all MCPAs in India prior to COP11 of the CBD, especially to see if MCPA practices, including governance aspects, were consistent with CBD's PoWPA. Based on the review, the MoEF should take a series of steps to improve governance of MCPAs, he suggested.

For more

sites.google.com/site/2012mpaindiaworkshop
Delhi MPA Workshop Website

icsf.net/icsf2006/jspFiles/mpa/index.jsp
MPAs: Local and Traditional Fishing-community Perspectives

www.cbd.int
Convention on Biological Diversity