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SAMUDRA REPORT

THE TRIANNUAL JOURNAL OF THE INTERNATIONAL COLLECTIVE IN SUPPORT OF FISHWORKERS

COVID-19 Lockdown Measures in Indonesia, US, Nigeria

Indigenous Communities in the Amazon

Small Fish and Nutrition in Ghana

Closing the Gender Gap in Timor-Leste

An UNCLOS History

Justice for Small-scale Fisheries

Fisheries, Communities, Livelihoods

ICSF is an international **NGO** working on issues that concern fishworkers the world over. It is in status with the Economic and Social Council of the **UN** and is on **ILO**'s Special List of Non-governmental International Organizations. It also has Liaison Status with **FAO**.

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KYANA DIPANANDA / INDONESIA

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THE TRIANNUAL JOURNAL OF THE INTERNATIONAL COLLECTIVE IN SUPPORT OF FISHWORKERS

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SUJIT CHOUDHURY

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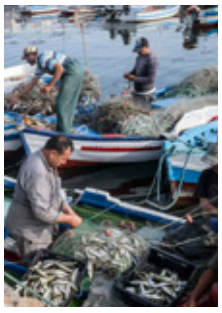
BACK COVER



Small-scale fishermen at work in the port of Zarzis, Tunisia
Photo by: FAO/Economoupolis

KYANA DIPANANDA

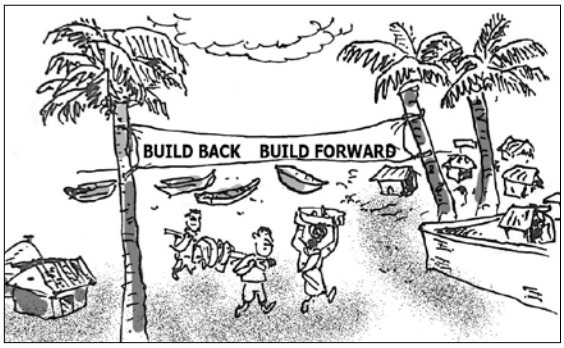
Preparing pindang (boiled) fish in bamboo baskets in Anom Market, Sumenep City, Indonesia

Build Back, Build Forward

By reminding us of the connection between food, health systems, sustainable development and human rights, the global COVID-19 pandemic offers an opportunity to build forward better

Even as we celebrate the contributions of small-scale fisheries to nutrition and food security within a rights-based framework, which is part of an ICSF campaign, we ought not to forget the context in which these are located. The global pandemic of the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), commonly referred to as COVID-19, has swung the spotlight to illness, wellness and immunity. Precisely therein lies the importance of fish as food in various contexts and for diverse actors along the marine and inland fisheries value chain.

The articles in this edition of SAMUDRA Report – from 10 countries in Africa, Asia, South America and Oceania – reflect on the worrying impacts on fisheries of COVID-19, which since its outbreak in December 2019, has infected over 31 mn people and killed nearly 1 mn (as of 22 September 2020) worldwide. The lockdowns and pandemic-control measures have disrupted food production and trade in the fisheries sector as well.



Initially, small-scale coastal and inland fishing communities in rural areas were largely spared by the virus. Brazil, however, is an exception. Indigenous Peoples bore the full assault of the pandemic, as the article (page 15) in this edition reveals. A total of 127 Indigenous tribes were affected as of September, with the virus infecting 22,489 people and killing 646 in the sparsely populated Amazonas region. While some subsistence fishing, gleaning and fish consumption remained less affected, commercial fishing operations were severely curtailed due to bottlenecks in the movement of fishers and fishing vessels and the supply of fishing inputs. Further, the closure of fish markets and restaurants, and reduced demand, depressed fishing activity, especially in the developed world.

The article on Nigeria (page 49) points out that shortages in the supply of fresh fish made landing prices unaffordable for women fish processors. Women also had to take on the additional burden of the household, as schools were closed and families were forced to stay indoors.

As the virus began to spread through local fishing communities, it exposed pre-existing vulnerabilities, such as poor access to healthcare and diagnostic facilities in remote areas. Sanitary measures such as hand washing and physical distancing have proved difficult to be practised in the congested living and working spaces of many fishing communities in the developing world (although some remote Indonesian fishing villages were able to impose community lockdowns to contain the virus – (page 4). Focused on containing the pandemic and on supporting overstretched medical infrastructure, most governments have thus far been reluctant on expanding social protection coverage, particularly in the developing world.

For many people in developing countries, fish is the main – often, the only – source of animal protein and micronutrients in their daily diet. Nearly half the supply of fish in the world comes from small-scale fisheries–a subsector that provides a whopping 90 per cent of employment in the marine fisheries sector. The impacts of the COVID-19 crisis highlight the importance of integrating the universal right to food with the specific rights of fishing communities to their lives and livelihoods – consistent with the recommendation of the UN Special Rapporteur on the right to food in 2012: establish an "explicit link between the right to food and the rights of those who produce it to fair access to resources such as fish and water."

As COVID-19 persists uncannily, there is a clear need for improved access of fishers, fishworkers and their families to healthcare and testing infrastructure. If severe pandemic control measures have to be reimposed, a judicious balance between disease prevention and human rights ought to be maintained. To tide over the period when those employed in the fisheries sector cannot work, social-protection measures should be inclusive of all fishery workers. These measures should be proportional to the sector's significant social and economic contributions.

As signs of a post-COVID-19 reset or recovery are yet to emerge, sustainable small-scale fisheries need to be supported to better contribute to local food security. Simultaneously, safe fishing and fish-marketing mechanisms should be identified or developed to facilitate the access of small-scale fishers and fishworkers to fishery resources and markets. Robust protocols and standards must be developed for the fisheries sector, considering that outbreaks of zoonotic diseases are expected to be more frequent in future.

The COVID-19 pandemic has been a significant setback to the global struggle against poverty and food insecurity. Yet it has reminded us how connected our food and our health systems are, as are sustainable development and human rights. Will COVID-19 be an opportunity not only to build back but also to build forward better?

Lack of Transparency

While small-scale fishers in Indonesia have not been hit by COVID-19 infections, the lockdown measures and economic policies have left them more vulnerable

The novel coronavirus (SARS-CoV-2) has forced changes across the world. After cases spread rapidly outside Wuhan, China since January 2020, the World Health Organization (WHO) declared COVID-19 as a global pandemic on 11 March 2020. As the number of confirmed cases of infection crossed 31 mn in September, with more than 1 mn deaths, the pandemic has spread to about 200 countries. The United States, Brazil, India and Russia have recorded the greatest numbers.

Indonesia's first COVID-19 case was confirmed on 2 March 2020, although epidemiologists had reportedly mentioned that the virus had entered Indonesia in late January. The WHO urged Indonesia, in a letter, to immediately take concrete steps to slow the spread of the virus and declare a national emergency. In early September, Indonesia ranked 23rd in the list of affected countries, with about 194,000 confirmed cases, and over 8,000 recorded deaths. The number of COVID-19 positive cases has increased since 16 June, when the COVID-19 Accelerated Handling Task Force of the National Disaster Management Authority (NDMA) confirmed 1,106 new cases in Indonesia. That figure was based on the Polymerase Chain Reaction (PCR) test of 339,309 people. At the time, 15,703 people had recovered and were declared free of COVID-19.

Although the food deficit announcement does not mention fisheries as a staple food, the pandemic has had a significant impact on Indonesia's fisheries sector.

These figures indicate that Indonesia is not testing up to the requirements, and that the country's COVID-19 testing capability is still very low. When the country had the capacity to test only 1,976 persons per million population, neighboring Malaysia had reached 20,391 people tested per million, and Singapore's testing capacity was 98,519 per million.

A large island nation, Indonesia faces several challenges in dealing with the COVID-19 pandemic. What makes it worse is the attitude of the authorities who deny the gravity of the threat. In fact, economic activities were the focus, rather than the handling of the pandemic. Since the first COVID-19 cases began to emerge, there has been a lack of transparency regarding the number of cases.

This can be gauged from the absence of government strategic actions and efforts to take necessary action. The NDMA established the status of 'Certain Emergency Situations' from 28 January to 28 February. On 31 March, President Joko Widodo (Jokowi) declared COVID-19 a 'Public Health Emergency'. Eventually, he declared it a National Disaster on 13 April.

Social restrictions

The Health Quarantine Law gives the government several options during a 'Public Health Emergency'. These include home quarantine, regional quarantine, hospital quarantine and large-scale social restrictions. The government opted for large-scale social restrictions (called PSBB) with a minimum of three forms of action: (i) closing schools and workplaces; (ii) restrictions on religious activities; and (iii) restrictions on activities in public places or facilities. These must also take into account meeting the basic needs of the population, such as healthcare, food and other daily requirements. Health quarantine actions can be carried out by the regional government with the approval of the Minister of Health. These include large-scale social restrictions or restrictions on

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AHMAD MARTHIN HADIWINATA

Besides being a fishing village, Pari Island, Jakarta, is also a community-based tourism spot, with small-scale fishers earning additional income as tour guides.

movement of people and goods to a certain province, district or city.

After establishing large-scale social restrictions in mid-April, the government issued several additional policy packages, including:

- Electricity cost relief: As a form of assistance to the community, the government waived the charge for electricity for the months of April, May and June.
- Prohibition of homecoming: The government formulated regulations for the festival of Id-ul-Fitri.
- Credit relief: A number of groups, such as online motorcycle taxi drivers, fishermen, and taxi drivers, were offered credit facilities for one year, starting 1 April.
- Budget allocation: To meet a number of needs in the midst of the COVID-19 outbreak, the central government issued a budget of Rp 405.1 trillion (US$ 24.5 bn) through the 2020 state budget. This policy has been established through a Government Regulation in Lieu of Law on Economic Stability during the Pandemic.

In the midst of an uncertain situation with a high rate of new infections, President Jokowi announced a food deficit in a number of areas. One reason for this is the inter-regional logistics distribution getting hampered by the restrictions. Although the food deficit announcement does not mention fisheries as a staple food, the pandemic has had a significant impact on Indonesia's fisheries sector.

In the midst of large-scale social restrictions imposed by each local government, in general, fishers have continued operations. In certain areas, the harvest season has begun. A majority of operators in Indonesian fisheries are in the small-scale subsector; the country has 523,903 small vessels under 10 gross tonnage (GT). The government still does not have comprehensive data on all workers in the small-scale fisheries sub-sector in the pre-harvest stage. The post-harvest operations include both men and women.

Since the announcement of restrictions, most fishers have experienced significant impacts, although the fish catches are not affected, in general. The availability of fisheries commodities–processed food products in the service sector such as restaurants, hotels and tourism–decreased significantly. The top fish

M. ROOSMAN

Fishing harbour in Indramayu, West Java. In the midst of large-scale social restrictions imposed by local governments, in general, fishers have continued operations.

commodities for export and import were also affected due to the trade restrictions imposed by several countries. This has a direct impact on how the fish catches are absorbed in the market. The market now finds it difficult to absorb the catches because of restrictions on many community activities, from fish auctions at the village level to the distribution of fish at the provincial and cross-provincial levels. Fishers, especially small-scale fishers, catch fish daily as their only source of income and livelihood.

Quarantine

Fishers in Pari Island, Kepulauan Seribu Regency in the Greater Capital of Jakarta Province face the same problem. Edy, a fisherman from Pari Island, said his income has decreased dramatically since COVID-19 began to spread in Indonesia. Fishermen of Pari Island also imposed a quarantine independently. Everyone is prohibited from traveling outside the island. Access to this community from outside also remained closed up to the time of writing. Only fishing activity is permitted. Besides being a fishing village, Pari Island is also a community-based tourism spot, with small-scale fishers earning additional income as tour guides. They were forced to close these tourism operations. “For approximately three months we did not travel out of the island. Income from fishing has decreased by 50-70 per cent. If there is tourism, there is extra money, but now there is no extra money because we have closed the tourism business,” Edy told a news reporter on 15 June.

The Jakarta provincial government was the first to implement concrete measures in response to the pandemic, with the governor on 25 February issuing instructions on increasing risk awareness. The Jakarta government also decided to provide various stimulants for meeting the basic needs in a month; one of them was a package of staple food. “For three months the government provided assistance in the form of 5 kg of rice. Residents still lack essential food, but try to survive by fishing every day to meet their food needs. At present, although the restrictions have been revoked, the residents have deliberately decided to close the area to outsiders,” Edy said.

In Tarakan City of North Kalimantan Province, a fisherman named Rustan has been feeling the heat of the pandemic. “Fishers’ incomes have decreased dramatically due to the many restrictions on activities. Fish can only

be sold in local markets, whereas the catches were always sold as an export commodity before the pandemic. The price of fish has dropped almost 90 per cent. Fishers have felt this since March. Moreover, the government's social assistance programme is not evenly distributed," Rustan was quoted as saying in a news report.

He said fishers have limited social activities and still use masks when going to sea. Yet about 10 fishermen contracted the virus in the area of Gowa in South Sulawesi. This, however, did not have anything to do with fishing activities but occurred during the religious festival of Tabligh Akbar.

Fishers face similar conditions in areas such as Karanghantu, Serang-Banten; Lamongan, East Java; Surabaya, East Java; Sumenep, East Java; and Indramayu, West Java. They can still engage in fishing activities even though they know the price of fish is low. The catch produced is used to meet daily needs and buy fuel. Fishers are also looking for alternatives. For example, in the Lamongan area of East Java, fishers go out to sea using loan capital from investors. The catches are sold to the investors as a form of instalment or return of capital. On Pari Island, Thousand Islands and Surabaya, fishers convert catches that are not sold into salted fish. This, in turn, is sold to a co-operative in Pari Island. In Surabaya salted fish is sold to collectors at low prices. "Fish that is not bought by collectors, we usually try to sell it around the house. They don't always buy it but, who knows, if someone wants to buy. We must be proactive to survive," said Serang Banten, a fisherman from Karanghantu. In Sumenep, East Java, fishers have reduced the number of workers on vessels to both cut costs and maintain physical distancing while fishing.

In general, the problems faced by fishermen include both declining fish prices and restrictions on social activities. Small-scale fishers who depend on daily income are forced to stay at sea even though they know the prices of fish have dropped dramatically. Others choose alternative jobs that are inadequate in meeting their daily needs.

The government's financial stimulants and aid packages are not accessible to all fishers. The lack of data on the small-scale fisheries sub-sector–from the national to the regional level–handicaps all efforts to help the fishers. They still find it difficult to access capital.

With the enforcement of physical distancing and social restrictions in Indonesia, fish markets, restaurants and hotels are experiencing a shortage of customers. The resulting decrease in fish demand and consumption has, in turn, reduced incomes in the fishing sector.

When certain regions restrict access to their territory, the problems for the fisheries sector are multiplied due to increasing transportation costs. At the same time, this unprecedented situation has resulted in innovative practices that could affect the way the sector functions in the future. It is unfortunate that the authorities are entrenched in business as usual, denying scientific advice and a data driven approach to policy making. This has led to chaos in addressing problems in the field, even as the number of people infected with the coronavirus increases.

The deficit in food availability was not addressed by the government with a specific strategy that encouraged small-scale food producers as important elements of the food-value chain.

Food-value chain

The deficit in food availability was not addressed by the government with a specific strategy that encouraged small-scale food producers as important elements of the food-value chain. Indonesia already has a legal instrument that could have played a key role in this: Law No 7 of 2016, concerning Protection and Empowerment of Fishermen, Fish Cultivators, and Salt Farmers. Among other things, it calls for ensuring the certainty of business for small-scale fisheries. In particular, it paves the way for creating conditions that produce favourable fish prices and encourage the development of fish commodity marketing systems through storage, transportation, distribution and promotion.

For more

http://extwprlegs1.fao.org/docs/pdf/ins159362.pdf
Law of the R.I. No. 7/2016 on the Protection and Empowerment of Fishermen, Fish Cultivators and Salt Farmers.

https://www.seafoodsource.com/news/supply-trade/indonesia-considers-allocating-usd-69-million-for-fisheries-aquaculture-amid-covid-19-pandemic
Indonesia considers allocating USD 69 million for fisheries, aquaculture amid COVID-19 pandemic

https://news.mongabay.com/2020/04/sinking-feeling-for-indonesian-fishers-as-covid-19-hits-seafood-sales/
Sinking feeling for Indonesian fishers as COVID-19 hits seafood sales

https://www.ilo.org/jakarta/info/public/pr/WCMS_748037/lang--en/index.htm
ILO teams up with trade unions to protect fishers from COVID-19 pandemic and human trafficking

Relief Misdirected

Small-scale fisheries are important for the food security of the United States. Yet relief measures during the COVID-19 pandemic favour industrial operators, and are unsustainable

When the global COVID-19 pandemic hit the US in March 2020, no one knew for certain what it would mean for the seafood industry, let alone small- to mid-scale fishing operations. With most restaurants, hotels and catering services forced to shut down or drastically curtail operations, and with the complete shutdown of schools and universities, the demand for seafood reduced by nearly 80 per cent. Alongside this, transportation restrictions to stem the tide of the virus broke the supply chains of fishing operations.

While large corporations and major seafood companies may be able to weather this storm financially, they proved not to be nimble enough to adjust to the changing times.

... many had already been selling directly to consumers using the Community Supported Fishery (CSF) model and other direct marketing arrangements.

Even though they were, and still are, struggling, small- to mid-scale fishing operations, however, proved best suited to shift business models quickly and begin direct sale to consumers. In fact, many had already been selling directly to consumers using the Community Supported Fishery (CSF) model and other direct marketing arrangements. With the pandemic, however, many had to ramp up their efforts in order to make up for the toll catalyzed by the loss of both the international and domestic restaurant markets. To be sure, the seafood industry, in general, is taking a major hit, but it is the small- to mid-scale fisheries, in particular, that were, and are, being impacted most severely.

At the same time, the need for food is as high as ever, with concern over food insecurity growing every day. Unfortunately, because 90 per cent of US seafood is imported, with export rates around 60 per cent, the current US seafood system has long made it extremely difficult for local and regional fishermen to reach local consumers. Local and regional fishers and businesses have long discussed a desire for more direct-to-consumer markets, which is why the CSF model has been put to so much use. This is also why networks formed to support direct marketing are so important. Yet local and regional fishing operators explain that more is needed, and that infrastructural support from the state and federal governments is necessary to make direct-to-consumer markets work on a broader scale. As such, almost as quickly as the global pandemic began to escalate, so did the organizing power of those most affected in the food industry. Fishing communities and businesses quickly reached out to organizations like the Northwest Atlantic Marine Alliance (NAMA) to explain that they wanted to be a resource during these times, resolute in their desire to work, to serve, and to feed communities in need.

Coalition of groups

To rise to the occasion, like-minded people and groups formed a coalition of fishing, farming, anti-hunger advocates, and foodworker organizations in March. It had two objectives: One, to take advantage of the opportunity presented by the US Congress' desire to pass economic stimulus bills by expressing their need for support and their desire to help feed people. Two, to be recognized as the essential workers that they actually are. In a collective statement to the government, NAMA, the National Family Farm Coalition (NFFC), WhyHunger, Farm Aid, HEAL Food Alliance, and the Institute for Agriculture Trade and Policy (IATP) demanded that the government ensure

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KELLY HARRELL

The crew at the Sitka Salmon Shares plant in Sitka, Alaska fillets halibut during the spring season. Many fishers and seafood workers have questioned the federal administration's priorities when it comes to solving the country's economic and food security crisis.

equitable access to food for all as well as support the people, not corporations, behind the production, procurement, and distribution of food–from both land and sea.

Specifically, the statement recommended that the US Congress consider six key points in its forthcoming stimulus packages:

- Focus on farmers, ranchers, fishers and foodworkers of colour who are disproportionately impacted by the inequities of the US food system;
- Ensure a fair and safe livelihood;
- Bolster local and regional food systems that are poised to feed communities;
- Enact reforms that build resilience;
- Protect small- and mid-sized operations from corporate mergers and acquisitions; and
- Ensure every person in the US has dignified access to healthy and nutritious food.

Coming from fishing, farming, and foodworker communities, these recommendations were broad but pointed, making it clear to the US government that proper support of local and regional food systems was the appropriate solution to the ongoing economic and food crisis.

On 27 March, through the Coronavirus Aid, Relief, and Economic Security Act (CARES), Congress responded with US$300 mn allocated for the seafood industry. Congress directed the Secretary of Commerce–and, through him, the National Oceanic and Atmospheric Administration (NOAA) – to distribute the financial assistance in the form of direct payments such as grants, as well as other forms of investments in the fishing industry and shellfish farms. Unsurprisingly, the federal government's response was insufficient as the stimulus package, while somewhat helpful financially, did not meet our coalition's recommendations. As such, the coalition grew, producing a letter addressed to the Secretary of Commerce, Secretary of the Treasury, Secretary of Agriculture, and Congress urging for increased federal support for fishing and farming communities in the US.

Taking an innovative approach due to social distancing measures, the coalition offered their recommendations virtually by way of a video message sent directly to the US Secretary of Commerce, Wilbur Ross. Signed by a diverse group of 238 organizations and individuals

representing 3 mn people from across the country, including 30,000 commercial fishers, the collective of fishermen, commercial fishing trade associations, seafood businesses, food and agriculture groups, environmental organizations, social justice advocates, and concerned citizens argued that as a renewable economic engine that generates 1.1 mn jobs, contributes over US$100 bn per year to the country's gross domestic product (GDP), and also provides the nation's population with nutritious protein, the seafood industry must be given its due attention.

Specifically, the letter asked for:

- Prioritization of independent fish harvesters and thousands of small- and mid-sized seafood businesses, including processors, aggregators, distributors, and other shore-based facilities;
- An additional US$1.5 bn in emergency funding, with at least 50 per cent allocated for small- and mid-sized fishing operations;

CSFs have been around for some time, but the pandemic is showing how these models run by local and regional fishers are essential for feeding people today ...

- Debt forgiveness measures or deferral, and that access to the Payroll Protection Program (PPP) is prioritized for captains and crew who fish, particularly young fishermen (whether or not they own fishing permits) and that PPP benefits are extended, as needed, for businesses that can demonstrate an inability to pay their workers or contractors because of COVID-19 emergency measures;
- Support for young fishermen;
- Investments in shoreside infrastructure;
- Access to testing, protective equipment and medical care;
- Eligibility for the United States Department of Agriculture (USDA)'s Coronavirus Food Assistance Program to allow for the fishing industry to operate on a level playing field with the agricultural sector; and
- Strengthen the local supply chains by calling for grant programmes for young fishermen to obtain first-time fishing and shellfish permits and funding for a seafood marketing programme within NOAA that includes advertising resources and additional support for direct-to-consumer markets.

Consumer values

This urgent, multifaceted suite of recommendations would enable fishing communities to adapt to the crisis brought on by COVID-19 and the havoc it has wreaked on the seafood supply chain.

As they waited for the government to do its part, local and regional fishing operations were busy adapting to these new circumstances as best they could. In almost all instances, fishers were, and are, looking for ways to put fewer miles on their fish, attempting to sell as locally as they can and reach consumers directly. Before the pandemic, this often meant developing relationships and selling directly to local restaurants as well as starting CSF or Restaurant Supported Fishery (RSF) programmes to sell more directly to local and regional communities. Of course, with the restaurant shutdowns that came with COVID-19, small- to mid-scale fishing operations have had to quickly shift their approach.

With the pandemic, the CSF model has increased in use and many CSFs and direct-to-consumer models have been selling out fast. The CSFs have become their own supply chain, catching, cleaning, packing, and then selling the catch directly to consumers, which has included at-home delivery. CSFs harvest and distribute their catch in a way that mirrors the social, economic and environmental values of a growing number of consumers. Furthermore, while finding a CSF may have been difficult in the past, some are finding ways to ease the burden. The Local Catch Network (LCN) is a "community-of-practice made up of fishermen, organizers, researchers and consumers from across North America committed to providing local, healthful, low-impact and economically sustainable seafood" by way of CSFs and other direct marketing strategies. The Local Catch Network has been building strength since it was established in 2012 to serve as a resource for CSFs and other values-based seafood businesses.

SHAREEN DAVIS

Members of the fishermen-led Chatham Harvesters Cooperative transition to direct-marketing and off-the-boat sales amidst the COVID-19 pandemic. In fact, many had already been selling directly to consumers using the Community Supported Fishery (CSF) model.

This year, LCN expanded its easy-to-use seafood finder that aids in connecting consumers to local harvesters. In other instances, there are efforts being made to establish supply relationships with local institutions, such as schools or hospitals, which could continue after this pandemic if local and regional fisheries are provided the infrastructural support they need now to stay afloat. CSFs have been around for some time, but the pandemic is showing how these models run by local and regional fishers are essential for feeding people today and, at the same time, signalling the blueprint for a more sustainable future. To make this shift more permanent, however, requires "immediate expansion of community-driven shoreside infrastructure", a demand laid out in the coalition's request to the US Congress.

Instead of listening to the fishers' recommendations, the White House issued an executive order effectively undercutting the solutions provided by the coalition. On 7 May, the Trump administration set into motion a plan to "increase America's competitiveness in the seafood industry and protect our seafood supply chain" by deregulating fisheries management and advancing industrial aquaculture by expediting its permit process and placing sole regulative control under NOAA. Not only does this place a greater emphasis on industrially farmed fish over local and regional operations, it removes the necessary checks and balances meant to ensure proper oversight.

The executive order heralds industrially farmed fish using the false narrative that factory fish farms are the way to feed the ever-growing need for more food. While the administration and aquaculture proponents claim themselves and their plan as the appropriate response, the community leaders and community-led organizations of the coalition have consistently pointed to the truth that lack of access has never been about a lack of food, and instead has always been a problem of distribution. To be sure, even before the pandemic, 37 mn people–including 11 mn children–struggled to find enough food, while four out of five US workers lived paycheck to paycheck.

Foodworkers themselves were twice as likely to be dependent on food stamps due to poverty-level wages. With the rhetoric of solidifying the country's food security, protecting

seafood industry jobs, and the promise of creating new jobs domestically, it seems easy to rally behind the administration's effort. Yet this rhetoric simply obscures the crux of the federal government's proposed solution to our ongoing food and economic crisis.

NAMA has argued that the executive order fails to provide a substantive solution and is actually "a dangerous set of measures that would deregulate the fishing industry, expedite the development of offshore factory fish farming, and promote seafood exports." By issuing nationwide permits for ocean aquaculture within 90 days, the government plan stands to rush environmental impact reviews, public health concerns, and economic impact on coastal communities and sweep these pressing issues under the rug. As it stands, the administration's plan flies in the face of many environmentalists' and public health officials' evidence that holding animals in captivity in high concentrations dangerously undermines marine ecosystems and increases the likelihood of breeding diseases and viruses such as COVID-19. The floating cages used to cultivate finfish not only spread pollution through high concentrations of fish excrement being pumped into open waters but escaped farmed fish also affect the fitness and spawn rates of wild populations. Furthermore, acquiring the necessary fishmeal used to feed farmed fish would disrupt wild ecosystems by breaking links in the food chain.

The regulations that have been put into place to safeguard wild fish populations and marine ecosystems are being systematically dismantled, which is deeply troubling to both environmentalist groups as well as local and regional fishers. In fact, all the barriers being broken down are those meant to ensure proper safety, public health, environmental protection, and independent fishing industry support. In effect, rather than strengthen our domestic seafood system like it claims, the government's measures do quite the opposite, failing to protect fisheries and build the infrastructure that fishing communities need right now. On top of that, the measures promise to increase the US reliance on international markets over domestic ones.

Many fishers and seafood workers have questioned the administration's priorities when it comes to solving the country's economic and food security crisis. The order only highlights this further with some, like NAMA, stating that the administration's plan begs the question: Who is actually benefiting? Without a doubt, the answer is globalized industrial fishing and aquaculture businesses pursuing profits, that would gladly be unconstrained by the public health and environmental measures for the protection of consumers and ecosystems.

In the fishing realm, deregulation is not new. For the past three decades, the catch share system has unravelled more robust fishing regulations in favour of corporate-friendly individual quota systems that have privatized the rights to fish and have given big companies the ability to buy control of fisheries to the detriment of ecosystems and independent fishermen who are best poised to adapt to changing markets and environments, while simultaneously putting seafood on everyone's table. Local and regional fishing operations know there is a better way, that industrial fish farms are not the answer because they only advance the corporate takeover and privatization of the world's oceans. The US government is attempting to further privatize the ocean under the cover of responding to the food and economic crisis of a global pandemic.

Sustainable solution

Instead, local and regional fishers say the White House should be pursuing a solution that equally sustains marine ecosystems, rural fishing communities, and the seafood system through:

- Community-based and ecosystem-based fisheries management;
- Diversified fleets and equitable access to fishing privileges;
- Limiting extractive industries such as mining and drilling that endanger both seafood supply and marine ecosystems;
- Transparent decision-making processes and accountable leadership; and
- Increasing access to regional and local seafood in all communities.

All these recommendations had been made in the spirit of a 'help us help you' mentality that speaks to local and regional seafood operations not only being given the capacity to aid the communities that need them right now, but also that they be provided the government-backed infrastructure

SHAREEN DAVIS

Community efforts like the Chatham Harvesters Cooperative have been building alternative seafood models for several years in order to provide more transparency and connection between the fish harvesters and their communities. These models have become increasingly vital.

that can feed the country well into the future.

For some, the methods being undertaken today would never have been considered prior to the pandemic, illustrating how the crisis has forced many to innovate in ways that may prove fruitful long after this crisis is over. For others, today's model simply expands on the practices already in place. But in all cases, local and regional fisheries are asking themselves: What will happen after COVID-19 is a thing of the past? Will the relationships cultivated before this crisis still exist? What will be the shape of the new supply chains? And, subsequently, how can the straight-to-consumer model become permanent? The feeling of "we just don't know for certain" remains, and fishers, harvesters, and seafood workers continue to work on the fly. But one thing is for sure: The US population is eating more seafood today and most of that is coming from CSFs and other direct sale operations. So a new way is already being cultivated. A commitment to tend to these new relationships is needed.

Currently, a primary way that local and regional fishers directly market their catch is through locally organized fish markets. One such example is the Tuna Harbor Dockside Market in San Diego, California. It has grown to 10 fishing families that sell local fish every Saturday. Part of the issue, of course, for local and regional fishing operations is educating their communities about the diversity of seafood available. The US is largely dominated by tuna, salmon, tilapia, trout and shrimp–the last four coming primarily from industrial aquaculture facilities. But local and regional fishers such as those in San Diego are using the weekend market to educate the consumers in their community about the fish that are local to the area and rotate seasonally.

Sometimes this goes beyond simply selling local catch and includes local chapters of the global grassroots organization Slow Food (and its international campaign Slow Fish) bringing in chefs to show local consumers how to break down and prepare the catch for fresh and appetising consumption. There are also instances of CSFs, members of the Local Catch Network, and Slow Fish members going into classrooms to teach the importance of ocean conservation efforts and to cultivate a diverse diet in younger seafood eaters.

This is, in part, because moving forward, local and regional fishers across the US have explained that diversifying our plates when it comes to seafood must be part of the solution for our food crisis. Diversification not only improves diets but also sustains the oceans, and increases demand for local fish, thus stimulating our economy without having to import from, or export, for processing abroad. These examples illustrate that access to nutritious food can have a positive impact by not only changing processes of distribution but by diversifying consumer demand. While challenges abound, the pandemic is providing an opportunity for us to change consumption, in particular around creating a more sustainable diet that revolves around seasonal catch.

Diversification not only improves diets but also sustains the oceans, and increases demand for local fish, thus stimulating our economy without having to import from, abroad.

Local and regional fishers are always seeking ways to shorten the supply chain and they look forward to the time after COVID-19. The task ahead is to make sure that the direct-to-consumer lines established since the pandemic can be made permanent. Making this a reality requires continued political pressure beyond the pandemic. That is, it is not just about highlighting how fishers, harvesters, producers and seafood workers are essential workers right now, but impressing upon local, state and federal governments that they and the values they represent need to be accounted for in the long run.

Uplifting communities

In part, this means continued political pressure on Congress to rethink legislative approval of industrial aquaculture, which only fails local and regional fishing communities. While it has become evident that much of the difficulties wrought, especially in terms of food insecurity, could have been minimized had the words of community leaders, community-led organizations and activists been heeded long before the crisis hit, it should be well understood that the global pandemic has only exacerbated existing inequities and systemic issues in our seafood system.

Today, as the US economy reels and communities continue experiencing difficulties accessing healthy food, it seems that state and federal governments are poised to repeat the mistake should they fail to listen to not only the needs of their constituents, but their constituents' recommendations. However, government mismanagement notwithstanding, local and regional fishers, harvesters and seafood workers across the US continue to work diligently and have made it clear that they can be a solution to our growing food crisis should they finally receive the infrastructural support they need.

Yes, there is an urgent crisis at hand, one that promises to have negative repercussions long into the future should we not take the time and care necessary to listen now. Local and regional fishers have the solution; it is now up to us to make sure that their words are heeded, that their practices are supported, and that their communities are uplifted.

For more

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An Amazonian Wrangle

Apart from exposing vulnerable indigenous communities to infection, COVID-19 threatens a programme that provides livelihood to the vulnerable and helps conserve freshwater fish species

Indigenous people and rural communities in Brazil's Amazon region have been dramatically hit by COVID-19. A note issued on 10 June by the Coordination of Indigenous Organizations of the Brazilian Amazon (COIAB), in response to the Brazilian government, said the actions of the official agencies in response to the pandemic are regrettable: "So far the responses of the National Indian Foundation (FUNAI) and of the Special Secretariat of Indigenous Health (SESAI) to the COVID-19 have been slow, uncoordinated and insufficient. COVID-19 has entered Indigenous Lands, and it is spreading fast. We're on the verge of chaos…Masking the reality won't solve the problem!"

COIAB has recorded the pandemic's impact in its newsletters, following tireless efforts and surveys by the indigenous people's movement. As on 5 September, 22,486 cases of COVID-19 were confirmed among indigenous people, along with 682 suspected cases and 646 deaths registered among 96 indigenous groups.

These results take into account the SESAI data plus the data from COIAB's surveys, not included in SESAI's official surveys, such as death certificates and information obtained directly from indigenous leaders, indigenous health workers and organizations in the COIAB network. The Articulation of Indigenous Peoples of Brazil (APIB) is a forum that includes COIAB. It has an independent monitoring system for COVID-19. Its data showed that in total, 127 indigenous groups are affected by COVID-19 in the Brazilian Amazon, including the Warao, a refugee indigenous people from Venezuela.

Apart from the pandemic, the political crisis also concerns the indigenous representatives. COIAB's address to the Brazilian government said: "We are struggling daily to survive not only COVID-19 but to survive the dismantling of indigenous policy, the lack of protection and demarcation measures in our territories, the rise of greed in our lands and lives, the murder of leaderships, and the anti-indigenous legislative agenda of the federal government. After resisting COVID-19, this is not the national 'normality' that we will accept!"

Indigenous groups

In Brazil, the officially recognized territories of traditional communities are composed of 'Indigenous Lands' inhabited by indigenous groups, the *'Quilombos'* for traditional communities of African descent, and 'Sustainable-use Protected areas' that can be territories of riverine peoples, for *caiçaras* (traditional coastal communities) and extractive workers. These territories are historically considered to be the largest and most protected areas in the Amazon. The guarantee of traditional tenure of their territories, health and education are basic conditions for these groups to live with dignity, food sovereignty, social security, collective well-being and autonomy.

We are struggling daily to survive not only COVID-19 but to survive the dismantling of indigenous policy, the lack of protection in our territories…

The external pressures to these territories in times of the pandemic present even greater threats and risks. Other than the environmental and social impacts of careless and illegal exploitation of natural resources, the invasions of these territories expose the indigenous, *quilombola* and riverine

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MARIZILDA CRUPPE / OPAN

The Paumari indigenous people of Brazil, travelling along the Tapauá´s river in their traditional boat, prepare a meal with the fish they catch for their subsistence.

communities to COVID-19. It makes the pathogen penetrate deep into villages and communities, even the ones far from urban centres. Such places face no inspection by official agencies. The condition of health services in such remote areas is precarious, with poor infrastructure and very few trained and qualified personnel. Then there is the huge distances and geographic spread of the Amazon to consider. The collective customs of social interaction in indigenous communities–the sharing of meals, of accommodation and rituals favourable to gatherings–make for ideal conditions for the rapid contamination of large numbers of people, affecting whole villages and communities.

It might appear that indigenous groups in voluntary isolation or limited contact are more protected against COVID-19, especially since their territories are certified by the government. The truth is the exact opposite. These groups are immersed in a deep lack of territorial security to address the ceaseless invasions of illegal mining, logging and drug trafficking. The level of alarm is much higher in the vicinity of the Solimoes river, known for the largest number of isolated indigenous groups in the whole world, and those who have been recently contacted.

In contrast to these territories in isolated areas, there are indigenous groups living in territories (certified or not) close to the cities. These groups are the most vulnerable ones, considering that there is generally more dependence on external products, and more social and commercial interaction with non-indigenous people. It is where a more significant flow of people entering and exiting the villages and towns can be seen, not often without conditions to apply the necessary individual prevention measures. Add to that the urban indigenous people who inhabit the towns of the interior of the Amazon, as well as the provincial capitals of Brazil–not often living in peripheral areas of the city in groups, communities or by themselves–generally facing strong social vulnerability.

Fishing, an age-old practice in the Amazon, portrays very clearly the complexity of COVID-19's impact. As an original source of livelihood in the Amazon region, fishing has

historically gained local commercial relevance, developing what is known today as small-scale fisheries (SSF), employing thousands of workers directly and indirectly, spread through the entire Amazon basin. Being a main source of livelihood in the Amazon, fishing provides food sovereignty and abundance for communities in their territories.

It also carries with it the risk of virus contamination in situations when the fishers have to expose themselves in the effort to sell the surplus production in the local market, something that happens frequently in indigenous and riverine communities that are closer to towns or other places. The flow of boats–from small canoes for short travel or big ships that undertake medium- and long-distance trips between municipalities–is the main conduit spreading COVID-19 in the Amazon. This has already reached remote areas. Of the 62 municipalities in the Amazonas state, only two have not registered confirmed cases of COVID-19 so far. Among them, only the capital, Manaus, has hospital beds with Intensive Care Units (ICUs).

The dangers of COVID-19 and of the environmental damages caused by invasions also surround the areas of community-based management of the fish species *pirarucu (Arapaima gigas,* among the largest freshwater fishes in the world) in the Amazonas. As a result of the engagement of local communities in partnership with non-governmental organizations (NGOs) and governments, the management of *pirarucu* has changed for the better the aggressive fishing practices that threatened its wild populations; the fish is commercially extinct in areas where fish management has not been applied.

Since the first initiative that undertook commercialization of managed fish 20 years ago, the community-based management of *pirarucu* has been recognized as an impressive economic activity, extremely effective to achieve biodiversity conservation and well-being of local communities. It is done in protected areas (Indigenous Lands, Extractive Reserves) or areas that have legally recognized fishing agreements. More than 5,000 people (indigenous and riverine) are directly involved in *pirarucu* management, protecting millions of hectares of forest, swamps and natural aquatic environments.

Quota control

They generate around 3,000 tonnes of managed *pirarucu* annually under a regime of quota authorization and control by the responsible government agencies. This activity makes direct contributions to the Sustainable Development Goals (SDGs), including poverty alleviation; achieving food security and food quality; safer and healthier environments; inclusion of women and youth in economic activities; sustainable economic growth; fairer income distribution; access to high-quality food; protection of local livelihoods; and attenuation of climate-change impacts.

In the face of the COVID-19 pandemic, however, fishers' groups and supporting organizations have tough challenges ahead, with the coming of the fishing season in the period between August and November. The territorial protection of the managed areas is sustained by a surveillance system that is operational throughout the year, with intensified monitoring in the flooding season, when invaders have easier access, and, in the lean season, when it is easier to fish. These surveillance and monitoring activities are carried out by fishers themselves, with no specific pay, and with inherent costs such as fuel for transport and food for the surveillance teams.

... community-based management of pirarucu has been recognized as an activity, extremely effective to achieve biodiversity conservation and well-being of communities.

On average, about 40-45 per cent of the costs of *pirarucu* management are incurred due to the maintenance this communal protection system. If the fishery management groups do not perform these tasks, there are bound to arise territorial invasions

aiming for the large stocks of *pirarucu* protected by the fishing communities. On the one hand, these invasions would result not only in the loss of fish illegally caught by invaders, but also in chasing away entire shoals of fish that flee to other areas, something that affects directly the fishing quotas of the management groups. This will translate into significant financial losses. On the other hand, to maintain this protection system, paid by the fishers themselves, it is absolutely necessary for them to perform the fishing of the authorized quota, so that a part of the financial resources arising from commercialization covers the surveillance costs.

Annually authorized *pirarucu* fishing requires a series of activities and operational procedures such as population counting, harvesting, processing and transportation to the purchaser, that can be either free markets, or large plants that will process the fish. These activities are conducted collectively. They involve planning workshops, team organization, infrastructure provisions for camps and expeditions to the managed lakes, fish capture, and transport and transit between communities to the closest municipality or to the final destination of the product.

Currently, indigenous and riverine communities, health workers and supporting organizations in Brazil are making collective efforts to provide attention and care...

Generally, representatives of the fishery management groups have to be present in all of these stages that are clearly adverse to the sanitary precautions currently being recommended to prevent the spread of COVID-19. Besides, the existing economic conditions present a severely affected market that cannot guarantee industry and market demand for managed fish, something that might affect the product prices, possibly bringing them down even lower than the values realized in 2019, which were already below reasonably profitable levels.

Currently, indigenous and riverine communities, health workers and supporting organizations in Brazil are making collective efforts to provide attention and care to community members who have fallen sick, and to prevent the spread of COVID-19 in the rural Amazonian communities. They aim to control and reduce as much as possible the serious impacts caused by this pandemic.

For more

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Unsung Heroes

Not only is fish an important part of nutrition in the Southern African Development Community (SADC), but it is also a major–and unrecognized–element of trade

Fish and fish products are a primary source of protein and essential nutrients in the human diet. Various fish and other aquatic species are available from both marine and fresh water in every country of the Southern African Development Community (SADC) region. These fish make a significant contribution to the nutrition and food security of people in southern Africa.

A major challenge to nutrition and food security is the increasing human population, particularly in developing countries, and the resultant increase in demand this will generate on already-stretched food resources. The global population is expected to grow by another 2 bn to reach 9.6 bn people by 2050, says FAO's 2015 State of Food Insecurity in the World report. More than half of this global population growth is expected to occur in Africa. Between 2015 and 2050, the populations of 28 African countries are projected to more than double. By 2100, the populations of five SADC countries are projected to increase by at least five-fold: Angola, Democratic Republic of Congo (DRC), Malawi, United Republic of Tanzania, and Zambia. During 2015-2050, half of the world's population growth is expected to be concentrated in nine countries, and two of these are SADC countries: the DRC and Tanzania.

The role of fisheries in food and nutritional security has not been well documented in the region for a range of reasons, including the difficulties in acquiring adequate and appropriate data and information.

The role of fish in food security can be placed in a situation in which all households have both physical and economic access to adequate amounts of fish for all members, and where households are not at risk of losing such access. The people who are most susceptible to food insecurity are those living in rural areas, including fishing and fish farming communities.

The value chain in small-scale fisheries is often driven by local circumstances. Fishing vessels form the base of the chain, with primary and secondary processing done in onshore processing facilities, where the finished products are directly exported to wholesalers or to retailers. Women are involved predominantly in post-harvest activities as fish processors in formal processing (employed in land-based units) and informal processing (including smoking and salting, among other things). Women have an important role in fish trade in countries like Angola and Mozambique and, in particular, it is reported that a number of women go to sea to fish or harvest intertidal resources for basic food consumption, livelihoods and income.

The value chain in small-scale fisheries is often driven by local circumstances. Fishing vessels form the base of the chain...

The role of small-scale fisheries in food security can be divided into five main contributions: (i) direct and (ii) indirect contributions to household food security; (iii) direct and (iv) indirect contributions to domestic markets (local and national levels); and (v) contributions to international (worldwide) food security.

Exports, imports

The fisheries sector in the region contributes an average of about 2 per cent to the SADC gross domestic product (GDP), with total average exports worth US$152 mn, and average imports of US$100 mn. The sector employs an average of 145,000 people; more than 1 mn people benefit indirectly from this. The per capita fish consumption in the region is 11

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Table 1: The contribution of fish to food and nutrition security in SADC by country

Country	Contribution of fish to food and nutrition security
Angola	Per capita fish consumption: 16 kg, i.e. 8 per cent of the total protein intake and 26 per cent of the total animal protein intake.
Botswana	Per capita fish consumption: 3 kg. Contribution of fish to total protein and total animal protein intake: 1 per cent and 3 per cent, respectively, both below the regional averages.
Democratic Republic of Congo	Per capita fish supply: 6 kg . Although contribution of fish to total protein is low at 6 per cent, fish constitutes 39 per cent of the total animal protein intake, amongst the highest in SADC.
Eswathini	Per capita fish consumption: 2 kg, about 1 per cent of the total protein intake and 3 per cent of the total animal protein intake, well below the regional, continental and world averages.
Lesotho	Data not available.
Madagascar	Per capita fish supply and consumption and the contribution of fish to protein intake are all below the regional average, estimated below 5 kg.
Malawi	Per capita fish consumption: 8 kg, which accounts for 28 per cent of the total protein intake.
Mauritius	Per capita fish consumption: 23 kg, which accounts for 8 per cent of the total protein intake and about 17 per cent of the total animal protein intake.
Mozambique	Per capita fish consumption: 9 kg, which makes up 40 per cent of the total animal protein intake and 5 per cent of the total protein intake.
Namibia	Per capita fish consumption: 12 kg, which constitutes 5 per cent of the total protein intake and 14 per cent of the total animal protein intake.
Seychelles	Per capita fish consumption: 59 kg , the highest in SADC. This constitutes 22 per cent of the total protein intake and 48 per cent of the total animal protein intake.
South Africa	Per capita fish consumption: 6 kg, which is below the regional, continental and global average. This constitutes 2 per cent of the total protein intake and 5 per cent of the total animal protein intake.
Tanzania	Per capita fish consumption: 6 kg, which constitutes 4 per cent of the total protein intake and 22 per cent of the total animal protein intake.
Zambia	Per capita fish consumption: 7 kg per person, constituting 4 per cent of the total protein intake and about 20 per cent of the total animal protein intake.
Zimbabwe	Per capita fish consumption: 3 kg person, constituting about 2 per cent of the total protein intake and 7 per cent of the total animal protein intake.

Source: The role of fisheries in food and nutrition security. Centre for the Coordination of Agricultural Research in Southern Africa (CCARDESA) (2016)

kg, which constitutes an average of 16 per cent of the total animal protein intake and 5 per cent of the total protein intake. This shows the significance of fisheries' contribution to nutrition and food security in the region.

Fish are a particularly important source of protein for several African countries–especially for poorer segments of the population–and, therefore, plays an important role in improving Africa's food security and nutrition status. In small island developing states (SIDS), such as the Seychelles and Mauritius, per capita fish supply is among the highest in the world. Although humans cannot live on fish alone, small quantities of fish in human diets can make a decisive difference to health, including the development of brain, bone and muscle tissue, prevention of blindness, preventing ailments like heart attacks and cancer, and mitigating the effects of HIV/AIDS. Fish are highly nutritious, rich in essential micronutrients, minerals, essential fatty acids and proteins, and represent an excellent supplement to nutritionally deficient cereal-based diets.

According to the Centre for Coordination of Agricultural Research and Development in Southern Africa (CCARDESA), fish can increase food and nutrition security in the SADC region. For instance, regular consumption of small fish species existing in the region plays a critical role in providing micronutrients, especially when consumed whole with bones, heads and internal organs, where the micronutrients are concentrated. These species include *arenque (Clupea harengus), dagaa (Rastrineobola argentea), kapenta (Limnothrissa miodon), matemba (Barbus paludinosus), sardines (Sardina pilchardus), usipa (Engraulicypris)* and

CHIKONDI M. PASANI

Women processors at Ngwalu Beach, Salima district, Malawi. There is a strong link between food security, good nutrition and gender. People's overall access to food relies, to a great extent, on the work of rural women.

utaka (Copadichromis). Hence, there is a need to devote more attention to fish in food policies due to its importance in the food basket, its unique nutritional properties, and its higher efficiency of production and low carbon footprint compared to other forms of animal production systems.

There is a strong link between food security, good nutrition and gender. People's overall access to food relies, to a great extent, on the work of rural women. The economies of SADC countries are largely agrarian, with agriculture playing a significant role in socioeconomic development. In the SADC region, women contribute more than 60 per cent of total food production and provide the largest labour force in the agriculture sector (fisheries being a sub-sector of the agricultural sector). In some member states, women perform more than 70 per cent of the work in agriculture.

Inter-regional fish trade plays a key role in the socioeconomic development of SADC countries. Women in small-scale fisheries play a key role and make major contributions in the regional fish trade. Women feature significantly in informal trade. It is estimated that 70 per cent of informal cross-border traders in the SADC region are women and 30-40 per cent of the trade within the SADC region comes from informal cross-border trade. Data on employment in the fisheries sector in SADC is available for a few countries and disaggregated data is available for only two nodes of the value chain, namely, fishers and processors.

Invisible women

Despite their important role in fisheries and fishing communities, women's contributions are often rendered invisible or seen as an extension of domestic work, resulting in their exclusion from the discourse around fisheries. A recent study found that women play an important role in the small-scale fish-value chains, and their involvement has differentiated outcomes at individual, household and community levels. In addition, engagement has brought more positive outcomes for women. Intra-household relations improved as a result of women participating in value-chain activities. A significant household-scale finding surfaced in both cases regarding gendered roles and relations in decisionmaking, including strategic decisions related to food and nutrition provisioning. Through their involvement in value-chain activities, women play an important role at the

household level, generating income used for food and nutrition.

The gender agenda to advance the interests of women at various levels is acquiring greater attention within organizations. In the small-scale fisheries sector, the mechanisms for co-ordination and organization of women include fish trade and processor associations. These groups are used as a means of engaging in policy dialogue. They offer platforms for trade partnerships and linkages and also exchanging relevant knowledge on fish processing, handling and packaging techniques. They promote an entrepreneurial culture among women. The SADC secretariat worked in partnership with the WorldFish Regional Office for Southern Africa, based in Zambia, in a project titled 'Improving Food Security and Reducing Poverty Through Intra-Regional Fish Trade' (called the Fish Trade project). Implemented between 2013 and 2017, it supported the development of 11 harmonized fish quality standards for the SADC region. These standards are helping to build capacities for trade among private sector associations, particularly women fish processors and traders, to make better use of expanding trade opportunities through competitive small and medium-scale enterprises.

Overcoming challenges

A number of women-led associations and networks in small-scale fisheries benefitted from this intervention. Of interest within the SADC region are Kafue Women Fish Processors' Association and Lotuno Enterprises Ltd. in Zambia, to mention just two. The groups were supported with storage facilities to prolong the shelf life of fish products, and educated with strategies to overcome challenges within the fish trade business and adopt hygienic ways of handling fish. The standards, especially for fish sausages and fish snacks, have helped the women processors' association to improve processing and to negotiate markets outside Zambia.

Specialists in fisheries debates have been concentrating predominantly on questions of biological sustainability and on the economic efficiency of fisheries, neglecting issues linked to its contribution to reducing hunger and malnutrition and to supporting livelihoods. Most regional non-fishery food security experts and decision makers seem unfamiliar with these facts and, therefore, unaware of fisheries' critical role now and in the future. Fish has so far been only marginally included in the regional debate. Many nutritional programmes are still neither aware of it nor are they recognizing and building on the potential of fish for the reduction of micronutrient deficiency.

According to the outcome of the 2013 SmartFish study, titled "Flavoring Fish into Food Security" by Kurien and LopezRios, this lack of integration of fisheries in the food security policy scenario is attributed to the low participation, if any, of national fishery officers in the design of policies. Fish deserves more attention in food policies than it currently receives, given its importance in the food basket, its unique nutritional properties, its higher efficiency of production and lower carbon footprint compared to other forms of animal production systems. Some of the challenges that need addressing include making fish more affordable for the poor, improving the environmental sustainability of the sector, access to fish and fish-related employment, resolving the tensions between small-scale and commercial producers, and climate change.

Despite women's significant contributions in small-scale fisheries and their role in food security, they face a number of challenges. These include the lack of storage infrastructure, from the landing beach to the borders; harassment by customs officials at the borders; confiscation of fish due to lack of proper documentation for those involved in fish exports; and lack of an enabling environment for fish processors and traders to sell fish across borders, especially to access formal markets within the region. These need to be addressed as a priority.

For more

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Small Fish, Big Solution

Access to affordable small fish is key to achieving zero hunger and improved nutrition in Ghana's poor urban households, a new study shows

Small fish are indeed the backbone of Ghana's animal protein supply in the poor urban neighbourhoods of Accra (such as Nima, Chorkor, Ga Mashie and James Town) and Tamale (such as Sagnarigu, Kukoo, Sakasaka and Salamba). This is the conclusion of a recent research project called Fish4Food. The academic team behind the project drew from the University of Amsterdam (UoA), the University of Ghana (UoG) and the Kwame Kwame Nkrumah University of Science and Technology (KNUST). Until recently, this critical aspect was largely overlooked. The research findings demonstrate that despite the high appeal of large-sized fish–not to mention the increasingly popular farmed fish like tilapia and catfish–the urban poor prefer smaller pelagics like anchovies, herrings and mackerels.

Fish size and nutritional value aside, fish is inseparable from Ghanaian cuisine. Nearly a third of the average urban household income spent on food goes into fish. With such a big appetite for fish, it is of little wonder that Ghanaians consume an estimated 25 kg of fish per capita per year; this is higher than Africa's average of 10.5 kg and the global average of 20.3 kg. Beyond the raw figures, the study provides a larger picture of fish for food and what the high consumption of fish means to the already declining fisheries and, more crucially, for its capacity to feed the urban poor.

Even before the advent of modern science, indigenous communities in Ghana were nutrient-savvy. The expert cook knew the right type of fish and ingredients to combine in the precise order and at the exact moment, not only for dietary value but also to capture the delicate elements of regional and ethnic taste. Staple food such as *akple* with *abobi tadzi, etsew* with *Fante-Fante,* and *banku* with *shitorlo* are rich sources of protein and omega-3 fatty acids. For centuries, households have appreciated the health benefits of these staples and their recipes have hardly changed.

Household size

It was from the analysis of survey data from 300 low-income households in Accra and Tamale that the Fish4Food project found that fish is relatively affordable and accounts for a big chunk of the food budget of poor urban households. Besides price, the researchers found that other factors like location, availability, taste, fish size and religion influence the type of fish consumed.

With such a big appetite for fish, it is of little wonder that Ghanaians consume an estimated 25 kg of fish per capita per year; this is higher than Africa's average of 10.5 kg...

What makes a household spend more or less on fish? The study offers a number of insightful answers, including household income and household size. "The rich spend a smaller amount of their budget on fish while the poor allocate a larger share," says the study. As the poor get richer, the proportion of income they allocate to fish declines. An increase in income frees up part of the budget to be spent on other protein sources like beef, goat and chicken.

The study shows the influence of household size: "An increase in household size leads to a decreasing probability of the household allocating income to fish consumption. A household with larger size needs

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more fish and, hence, it becomes more expensive to acquire large quantities of fish. Therefore, large-sized families spend less on fish and switch to cheaper alternatives such as imported chicken and eggs."

Regardless of how household income and size influence the purchasing decision, fish consumption is not likely to decrease any time soon. And as the population expands, demand for fish is expected to rise. Naturally, the sustainability of the fishery resources becomes an increasingly pressing concern.

To satisfy an ever-increasing demand for fish, Ghana draws about 450,000 tonnes of fish from marine and inland waters, as also from fish farms. The country imports an additional 450,000 tonnes. An estimated 2.6 mn Ghanaians are dependent for their livelihood on fisheries and value chains related to them. Given the large number of actors and communities dependent on the fish value chain, the sector is pivotal to employment, poverty reduction and food security. The great demand for fish also puts tremendous pressure on the fishery resources. In recent times, the landings have been declining; this is further aggravated by a growing annual fish deficit of about 50 per cent that is filled up largely through imports.

Any significant increase in the fish import bill bodes ill for low-income earners because a steep rise in price will put a strain on their ability to buy fish. Considering that fish provides up to about 60 per cent of the national average animal protein intake, any disturbance in the fragile food security mix–availability, stability, utilization and access–has serious repercussions on the nutritional health of the urban poor.

Successive governments have developed policies to address the challenges plaguing the fisheries sector. Much emphasis has been placed on legislations such as the Fisheries Law (Act 625) in 2002 and Fisheries Regulations in 2010. More recent efforts include the vessel monitoring system, marine patrols, fisher watchdog groups and closed seasons. Yet, despite modest achievements, the overall scorecard is not encouraging. Marine fish stocks continue to decline. Why?

PETER LINFORD ADJEI

Plastic waste at a landing site in Teshie, Ghana. Plastic fragments and chemical pollutants such as mercury and dichlorodiphenyl trichloroethane (DDT) can be ingested by fish and passed up the food chain to consumers.

The Ministry of Fisheries and Aquaculture Development (MoFAD) identifies overfishing and overcapacity of fishing vessels as some of the obstacles to the recovery of the fish stocks. While fishers cannot be criminally charged for overfishing, there is ample evidence of illegal, unreported and unregulated (IUU) fishing in the sector, verging on criminal activities.

Informal sector

While the fisheries infractions include the use of light, explosives and violations of mesh size, a more destructive form of IUU is trans-shipment of fish at sea. Called as *'saiko'* in the local parlance, trans-shipment of fish involves the sale or exchange of by-catch fish between trawling vessels and artisanal fishers or collectors at sea, for money or goods. Just how much *saiko* is affecting the local fisheries is yet to be ascertained. But this much is certain: the use of brute force by trawling vessels is taking so much of juvenile fish from the sea that the fish are barely able to reproduce their numbers and grow to maturity.

In addition to the problems of *saiko* is pollution, particularly from plastics. Plastic fragments and chemical pollutants such as mercury and dichlorodiphenyl trichloroethane (DDT) can be ingested by fish and passed up the food chain to consumers. The serious concerns expressed by stakeholders and the renewed attention by MoFAD to sanitize the fishing sector are very important since the security of fishers' livelihood and Ghana's main animal protein supply is at stake.

Ghana has a working fish-value chain supported by a strong informal sector, networks of relationship and improved telecommunication infrastructure such as the mobile phone and mobile phone banking. Among its recommendations, the Fish4Food study advocates the enhancement of the value chains of small pelagic fish, through improvement in packaging, storage and transportation. If adopted, the researchers are convinced this will make fish safer, fresher and more affordable for low-income households, contributing significantly towards achieving SDG2: ending hunger and malnutrition.

PETER LINFORD ADJEI

A fishmonger preparing fish for processing. An estimated 2.6 mn Ghanaians are dependent for their livelihood on fisheries and value chains related to them, and the sector is pivotal to poverty reduction and food security.

Nevertheless, without consultations to promote free, prior and informed consent (FPIC) of small-scale fishworkers and industry and the regulatory bodies, achieving zero hunger will remain elusive, as evidenced by previous ineffective attempts. In this respect, the FAO Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication (SSF Guidelines) provide a framework to address the inherent challenges of artisanal fisheries in a more organized, all-inclusive and dignified manner, guided by such principles as human rights and dignity, non-discrimination, transparency and accountability. The real strength of the SSF Guidelines, however, lies not in merely mapping out obstacles but also guiding amendments and/or inspiring new or supplementary legislative and regulatory provisions.

For more

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Dried, Tried, Tasted

At the core of the unique flavours and tastes of the East Java cuisine of Indonesia is the traditional artisanal fish processing technique of *pindang*

Sumenep Regency is located at the eastern end of the Madura Islands in Indonesia's East Java province. It is known for its large fishery and marine potential. Several types of fishing gear exist in Madura, mainly the *payang*, a type of seine net, very common and essential among fishermen. The *payang* resembles a trawl net. By design, it has wings and a 'cod end' on the upper part of the net, supported by floats, and weights that secure the lower end. The second type of gear, introduced by the Indonesian government in Madura in 1976 to promote efficiency, is the purse seine. The purse seine fishery is characterized by high productivity and a larger scale, compared with the *payang* seine.

The fish-processing practices have been sustained for decades through the local knowledge of the Madurese community.

Besides these two types of gear, the gillnet fishery has also played an essential part in the Madurese fishing community. Artisanal fishers used to operate gillnets around the island, where it is classified into three types: drift, shrimp, and set gillnets. Most of the artisanal fishers use the *bagan*, a fixed engine gear operated during a fishing season. The net is lowered using a roller. When a large number of fish have been gathered, the net is lifted; this process is repeated until sufficient catches are obtained.

Most of Sumenep's marine products are utilized for food. They can be classified into fresh fish and artisanal processed fish–dried, salted, boiled and smoked. There are also frozen fish, canned fish and fishmeal, which require significant capital investment. Fish is an everyday food for the Sumenep community and is always present, in one form or another, in every kitchen as a source of staple protein.

Several local artisanal methods are used in processing fish as a part of post-harvest activities. These are linked to the limited cold storage facility in the local fish supply chain in rural Sumenep. The fish-processing practices have been sustained for decades through the local knowledge of the Madurese community. Take the case of a woman trader who sells various food items, travelling to eight different villages on a motorcycle each day from dawn to noon. She never sells fresh fish due to its perishability. In tropical conditions, fresh fish is particularly difficult to preserve, not only due to climatic and environmental conditions, which contribute to fish spoilage within a few hours, but also because of the lack of adequate equipment for refrigeration. To ply her trade in such conditions, she uses methods specific to each of the processed fish products she sells.

Traditional techniques

Five forms of fish products are in high demand in the local market here. First is the famous *pindang* fish. The term refers to the cooking process under which the ingredients are boiled in salt together with certain spices. In Sumenep, the *pindang* fish is usually cooked with salt only. However, as *pindang* is common not only in Sumenep, there are different ways of boiling the fish throughout other parts of Indonesia. These techniques are traditional in the communities of Java and Sumatra, where various preserved types of *pindang* are available in traditional markets. Some of the people might use shallot skins, guava leaves,

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KYANA DIPANANDA

A smoked-fish seller at the Gapura Market, Gapura District, Sumenep Regency. Several artisanal methods are used in processing fish due to limited cold storage in the local fish supply chain in rural Sumenep.

teak leaves, tea, or other spices common in Southeast Asia. This gives the gravy a yellowish to brown colour; it also helps the fish last longer compared to plainly boiled fish.

In Sumenep's local market, it is common to find women vendors selling *pindang* from their baskets. They are usually skipjack tuna or mackerel in various sizes. The centres for making *pindang* are scattered throughout Sumenep, some in the northern areas such as Pasongsongan, Slopeng, Ambunten or Dungkek. The processing centres have begun to shift to the proximity of traditional markets, for example, the *pindang*-making stall located in Pasar Anom in downtown Sumenep. Most *pindang* traders are looking for means of cutting down the production and distribution cost.

The mothers in rural areas of Sumenep are the outstanding patrons of *pindang*. One reason they like the boiled fish is the familiarity – the taste produced by boiling with salt leaves a distinctive flavour. It also makes it easy to cook, usually deep-fried or cooked with a little sauce. The most famous *pidang* recipe is the *palappa koneng*. In Madurese *palappa* means spices and *koneng* means yellow. *Sothis* means yellow spices. The boiled fish is cooked with various spices, including garlic, onion, candlenut, turmeric, chillis, tamarind, pepper, ginger, salt and sugar. *Pindang* is then boiled with all the spices that have been mashed together. The seasoned fish is then deep-fried just before it is served. Without a refrigerator or access to a chiller, the women rely on spices to preserve the fish.

Fish paste

The second product high in demand is the fish paste called *petis*. It is made by processing by-products, usually from boiled fish, mussels, or shrimp. These are heated until the liquid broth thickens into a sauce. In Sumenep, *petis* comes from the soup left over from the boiled *pindang*. *Petis* comes in various types and flavours. The Madurese *petis* made in Sumenep has a unique character. It tends to be salty and looks bright, with a brownish-red colour. Many Madura *petis* are produced in Pasean, Pasongsongan and Ambunten, the main locations for *pindang*-making centres.

Petis is often served with chilli sauce, which also accompanies rice, fried fish, and fried tofu or vegetables like chopped cucumber or sprouts. *Petis* is usually sold in the traditional markets or by mobile traders who visit the villages. For small-bag sizes, *petis* are sold at low and affordable prices. The locals believe that *petis* has given Sumenep's food a distinct identity that sets it apart from among other East Javanese foods.

The third fish product high in demand is smoked fish. Besides boiling, smoking is another artisanal technique to process fish in Sumenep. The fresh fish is smoked immediately on arrival. The processing activity is usually handled by women; they work together to smoke the fish by burning corn cobs and coconut fibre. The hot smoke produced by the combination of corn cobs and coconut fibre lends the fish a distinctive aroma. The heat from the smoke gives the fresh fish a shiny black colour. The smoking cooks the fish slowly so that it lasts longer without need of refrigeration.

... thanks to its long shelf life, dried fish is the staple food during times of hardship, when other kinds of fish are too expensive.

Two other forms of processed fish are popular: sun-dried fish and salted fish. Both rely on a similar drying technique, with sea salt being added in the latter case. Most of the workers are women; they manage various kinds of jobs from cleaning and drying the fish, adding salt, to packaging the fish to sell in bulk. The women fish workers mostly work in pathetic conditions in the processing units and get low wages.

The selling price of dried fish depends on the size and the quality of fish. In Sumenep and its surrounding rural areas, dried fish is available at affordable prices. Those with deeper pockets usually don't prefer it.

Export demand

The dried fish industry in Sumenep is well-known in East Java, and the products made on the island are sent out to many places in Indonesia. The most expensive ones are readied for export, while the cheaper ones are usually sold in the local markets. Since dried fish has more bones than meat, the more well-off consumers tend to shun it.

For more

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Indonesia's Aquaculture & Fisheries Sector

Strong Women, Strong Nation

Innovative research in the Southeast Asian island nation of Timor-Leste has obtained data to help close the gender gap and provide food security for the local community

In October 2018, Leocaldia de Araujo, a fisherwoman from a village of 300 people at the northern tip of Timor-Leste's Atauro Island, stepped quietly but confidently on to a stage in the capital, Dili. She was representing women fishers and fishworkers at the National Fisher Forum, the largest fisheries-focused gathering in Timor-Leste since independence. Her presence in front of a predominantly male crowd represented the start of a change taking place in Timor-Leste and its fisheries. She referred to herself and her community as an example of *ami povu ki'ik* (the poor and marginalized) that need to be heard.

"We understand the need to manage marine resources," de Araujo said. "They provide us with food and income, and we are an important part of this chain. We can help to manage them for our families and for the next generation to come."

Timor-Leste is a half-island nation at the eastern end of the Indonesian archipelago. It gained independence from Indonesia in 1999. More than 80 per cent of the population lives in rural areas, relying on agriculture; about 60 per cent of the population is deprived of food security; and 50 per cent of the children here are malnourished due to poor dietary diversity. The country's fishing fleet is small and almost entirely artisanal, comprising paddle canoes and small motor boats that target reef and nearshore pelagic fish stocks with gillnets and hand lines.

A local saying was coined to capture the contribution of women in the long and costly journey to independence from Portuguese colonization and Indonesian invasion: *Feto forte, nasaun forte*, meaning 'strong women, strong nation'. Yet, the norms that shape Timorese societal interactions contradict this sentiment, representing barriers to gender equality. Fisheries are no different. Globally, the small-scale fisheries sector conjures images of men in boats. This is being gradually dismantled as more inclusive systems of fisheries governance come into force. The FAO Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication (the SSF Guidelines) highlights that gender equality is an essential dimension of effective fisheries governance. In doing so, the SSF Guidelines reinforce that fisheries actors and programmes at all scales need to recognize women as equal contributors to small-scale fisheries and drivers of local economies through their engagement in all nodes of the sector's value chains. This relies on overcoming gender data gaps in fisheries as well as addressing gender barriers at all scales.

SSF Guidelines reinforce that fisheries actors and programmes at all scales need to recognize women as equal contributors to small-scale fisheries value chains.

Trust and acceptance

Inclusive governance implies that decision-making does not merely give all stakeholders the opportunity to participate, but rather recognizes that resource users–of all genders–are the end-point at which success or failure is measured. The legitimacy of rules and regulations in fisheries management is directly related to the trust and acceptance in the process of all resource users, from all gender and socioeconomic groups.

Fisheries in Timor-Leste have, until recently, focused exclusively on 'men on boats'. However, new research is

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J. DOS REIS LOPES / WORLDFISH

Women processing sardines for local fish-based products. Fishing provides both a direct source of nutritious food and an income for various members of the household through diverse means of processing.

helping to close the gap on gender data . The research is highlighting the extensive engagement of women and their contributions to the country's fisheries, and the distributive flows of aquatic foods to households and within social networks. In contrast to the national census data showing five per cent of coastal households were engaged in fishing, new research that includes the activities of women and subsistence fisheries suggests this could be as high as 80 per cent of households in many poor coastal areas.

This evidence underscores the need for greater gender equality in data, as well as delivering better on gender in policy and programmes. Moreover, the improved gender data is driving a new appreciation of the critical connection between coastal fisheries and rural food security, especially in times of shock. This has brought a new political will and momentum to the Timor-Leste fisheries sector. It is being used to push for broader development goals.

Five examples illustrate the important types of fishing that the women of Timor-Leste practise. These can be compared to the sector stereotype of offshore fishing by men on boats. As critical as these are, they are often overlooked in sector reporting, policy and programme development.

In Atauro Island, traditional spearfishing with handmade wooden goggles and a Hawaiian sling has been used for over a century by small groups of women targeting reef fish and collecting clams and shells in the fringing reef habitats. These are the 'mermaids' of Timor-Leste, the female divers or *Wawata Topu* who, for four generations, have been striving to catch their living from the sea. The knowledge and skill of spearfishing has been passed down from generation to generation. Aquatic foods are integral to the diet here, just as fishing is to the culture. Fishing provides both a direct source of nutritious food and an income for various members of the household through different means of processing.

The second example is that of women heavily engaged in cultivating seaweed throughout the year in coastal villages, where the conditions are suitable. They spend hours exposed to the sun while wading along the lines of seaweed, tied to ropes lying parallel to the shore. Their task is to clean up debris and algae that catch on the lines

and to tie up the ropes to protect them from strong currents. The seaweed *(Kappaphycus* and *Eucheuma* spp.*)* is harvested regularly, almost weekly, then preserved in bags or baskets made of dried palm leaves or laid out in the sun to dry. Every Saturday it is transported by boat or local motorbike rickshaw *(tiga roda)* along the rough road to the local market *(basar)*. The women traders who cannot afford to pay for transport have to walk for hours along the coastal cliffs with their products on their heads or shoulders. The seaweeds sold locally are mostly fresh and uncooked (unprocessed), for use in a local recipe called *budutasi*; it comprises seaweed mixed with local ingredients such as lemon juice, chilli pepper, garlic and tamarind. The export market value for dried seaweed is very low, but represents an important source of income for these isolated communities where cash crops are scarce.

Gleaning is the third example, one of the most popular fishing activities in Timor-Leste. Women and children catch and collect molluscs, crabs, seaweed, fish and octopi found in the intertidal zones, mangroves and other shallow habitats at low tide. A recently published article, titled "Contribution of women's fisheries substantial, but overlooked, in Timor-Leste," highlighted that while gleaners are not landing large catches, they usually come home with something. Traditionally, male fishers, on the other hand, spend much longer at sea and have lower catch rates. The impact of continual gleaning activities on reefs near communities are likely to be substantial, but crucially, the gleaners actively surveying these resources on a daily basis have detailed and unmatched knowledge of their dynamic ecology across space and time.

Women and children

As such, it makes sense that their potential contribution to management of these resources be recognized in the formal structures of governance. One way this can occur is through co-management, where stewardship of resources is a collaboration between communities and government or other institutions. Recent research evaluated the fit of co-management for Timorese fisheries. There are some very positive indications that it can provide a mechanism for inclusive governance by building on the local practice of setting local laws around the ritual practice of *tara bandu*, which prohibits nominated activities under threat of spiritual and material sanctions.

The fisheries sector and its value chains in Timor-Leste are predominantly informal. As such, there is little recognition that many of the traders at the village level are women. Women are active as traders, buying and selling fresh and dried aquatic foods, making and selling local traditional dishes, and making crafts and ornaments from shells (like necklaces and rings from molluscs, bivalves and gastropods). Barbecued fish is the most common accompaniment for *Katupa*, an iconic local preparation of rice wrapped into woven coconut leaves and cooked with fresh coconut oil. Fish and *katupa* stands line the main roads through small villages in Timor-Leste. They represent an important node in the value chain between fishers and consumers.

Women fish, grow seaweed, trade, manage households and raise children in Timor-Leste.

In Beacou, a small village near the western border of Timor-Leste's north coast, a women's group has developed fish-based products as a social enterprise aimed at improving nutrition through improved access to fish. This is especially important for lactating women and children under two years of age; it ensures a child's diet is diverse enough to provide sufficient micronutrients for development. The fish powder is a combination of fish, *marungi* leaves *(Moringa oleifera),* dried shrimp, roasted sesame seeds and spices. Another product from the group is preserved sardines in jars. These products have begun to be bought and distributed by local supermarkets in the capital, Dili, since 2019.

To track the progress of countries in achieving the UN Sustainable Development Goals and the objectives of the SSF Guidelines, a first step is an evidence-based understanding of

J. DOS REIS LOPES / WORLDFISH

Timorese girls gleaning along the shore. Women and children catch and collect molluscs, crabs, seaweed, fish and octopi found in the intertidal zones, mangroves and other shallow habitats at low tide.

how all genders, not only men, engage in, and contribute to, the fisheries sector and its outcomes, activities and contributions. The extensive and critical contributions of fisheries activities where women predominate have been overlooked in national data and evidence for policy and programme development to date.

This highlights the need for gender-integrated instruments in national fisheries monitoring and management. Women fish, grow seaweed, trade, manage households and raise children in Timor-Leste. But gender dynamics and barriers, including constraining norms, continue to drive gender data gaps. Moreover, these power asymmetries and imbalances produce inequalities in governance in the sector from local to national scales.

The work of WorldFish and partners, with fishers like Leocaldia, shows that there is an opportunity to use data and participatory research to highlight these gender barriers and gaps, using evidence and innovative approaches to transform the sector towards one that is inclusive and promotes the improved well-being of all fishers and fishworkers. *Feto forte, nasaun forte* are words to stand behind as we set our sights on achieving the Sustainable Development Goals. It should be a call to action across all sectors in Timor-Leste, including fisheries.

For more

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Timor-Leste National Nutrition Strategy 2014- 2019

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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SUJIT CHOUDHURY

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

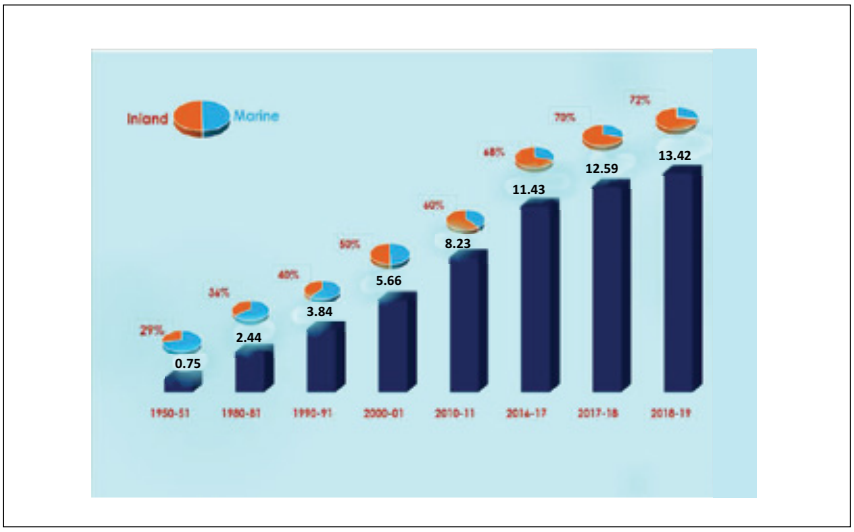


Fig. 2. Small scale fisheries in India

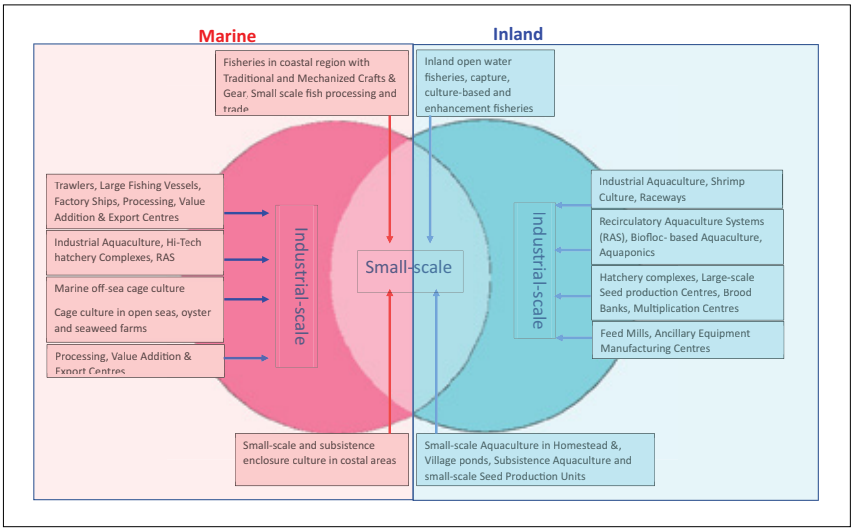
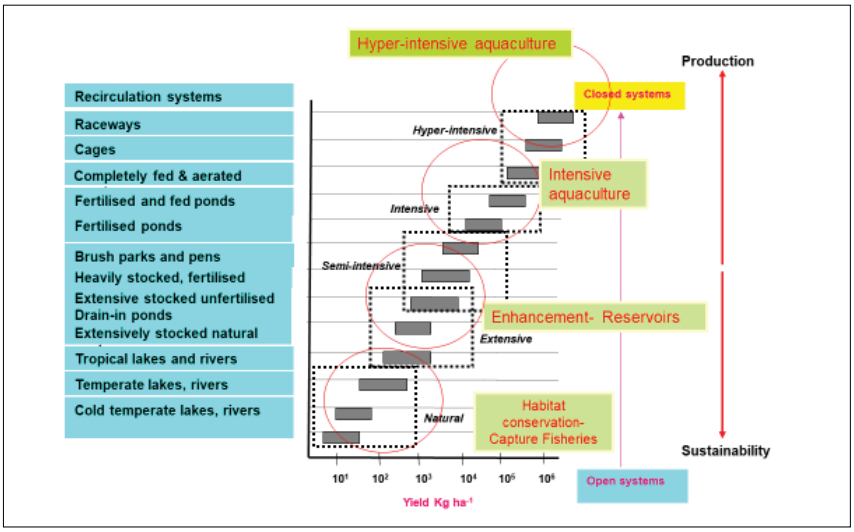


Fig. 3 Inland fish production systems and their sustainability (Modified from Welcomme and Bartley, 1998)



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
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 by Nachiket Kelkar

https://www.icsf.net/images/samudra/pdf/english/issue_81/4399_art_Sam_81_art16_FishCulture_%20JOHAR_Bipin_Bihari.pdf
India: Welcome, JOHAR

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

JOERI SCHOLTENS

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

Fish as Food

The international democratic process has come a long way in realizing the role of fish in the right to food and nutrition–and yet, a map of the road ahead needs to be laid out

Even though the last century has seen great socioeconomic advances and improvement in human well-being worldwide, much work remains to be done to realize the ultimate goal of the Food and Agriculture Organization of the United Nations (FAO) to contribute to a "world free from hunger and malnutrition, where food and agriculture contribute to improving the living standards of all, especially the poorest and marginalized in an economically, socially and environmentally sustainable manner".

The 2030 Agenda for Sustainable Development, through its 'sustainable development goals' (SDGs), has reinforced FAO's mission and calls on the world to eliminate hunger and malnutrition. The 17 SDGs and their targets are all interrelated and hence it is important to look at them holistically. They cover a wide range of issues from food security and nutrition to the sustainable use of natural resources. For instance, SDG 2 is 'zero hunger'; its target recalls the importance of the progressive realization of the human right to adequate food. The SDG 14 of 'life below water' recognizes the importance of access to fisheries and related resources and support for small-scale fishers, specifically through target 14b regarding "access for small-scale artisanal fishers to marine resources and markets". The SDGs are grounded in the norms of human rights and seek to "realize human rights for all"

The human right to food is fulfilled when people alone, or in a community, have access to adequate food or means for its procurement. The ability of people to feed themselves from natural resources is an important element of this right. Naturally, fish and aquatic resources have a direct impact on the right to adequate food, not only for people who depend on aquatic resources for food and livelihoods but also to satisfy the nutritional needs of vulnerable populations near and far from fisheries resources.

Inclusion of fish in the diet contributes to good physical and cognitive development and aids the fight against multiple burdens like malnutrition, undernutrition, micronutrient deficiencies, overnutrition and related health issues such as non-communicable diseases. Fish is a rich source of nutrients, including omega-3 fatty acids such as eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA); vitamins B12, D and A; minerals such as calcium, iron, zinc and iodine; it is also an important, and often more accessible, source of animal protein. Fish is one of the only natural sources of iodine, which helps regulate thyroid function and reduces risk of diseases like goitre. Fish is recognized by the High-Level Panel of Experts (HLPE) as a unique source of heart-healthy long chain polyunsaturated fatty acids (LC-PUFAs) associated with cognitive development, prevention of cardiovascular diseases and the reduction in cholesterol levels.

The human right to food is fulfilled when people alone, or in a community, have access to adequate food or means for its procurement.

Affordable nutrition

These important nutrients are often more available and accessible to nutritionally vulnerable populations through consumption of small pelagic species such as anchovy or sardine, which are often more affordable, traditionally consumed whole–

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CARSTEN TEN BRINK

The family sorts fish in Nigeria. Fish can be processed into desirable and affordable nutrient-dense fish products, which can contribute greatly to recommended nutrient intakes (RNIs) for nutritionally vulnerable groups.

with bones, viscera and eyes–and can provide more micronutrients in comparison to fillet only and boost the absorption of minerals such as iron and zinc from plant-source foods. Provided they are preserved properly, nutrients in fish and fish products can reach communities situated near and far from water bodies. In addition, fish can be processed into desirable and affordable nutrient-dense fish products, which can contribute greatly to recommended nutrient intakes (RNIs) for nutritionally vulnerable groups such as pregnant and lactating women and infants and young children, even when consumed in small quantities.

The 2020 State of World Fisheries and Aquaculture (SOFIA) report of FAO estimates that in 2018, global fish production reached 179 mn tonnes. More than 87 per cent of this – 156 mn tonnes – was used for human consumption; this gives an annual average of 20.5 kg per capita. Global food fish consumption has increased at an average annual rate of 3.1 per cent from 1961 to 2017, a rate almost twice that of the annual world population growth rate of 1.6 per cent for the same period. It is higher than that of all other animal protein sources. In several communities in developing countries, fish is the main or only source of animal protein and micronutrients, accounting for as much as 70 per cent of dietary animal protein in some coastal and island countries.

However, it is important that aquatic resources are sustainably exploited and managed to provide food security and nutrition and poverty alleviation, now and in the future. To aid this, the FAO supported the development of relevant instruments such as the Voluntary Guidelines to Support the Progressive Realisation of the Right to Adequate Food in the Context of National Food Security (called the Right to Food Guidelines) and the Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication (called the SSF Guidelines) in support of small-scale fisheries and their communities, to ensure that their right to food is protected, respected and fulfilled, and that they are empowered with the adequate tools to meet the livelihood and nutritional needs of small-scale fisherfolk–as well as the nutritional needs of the

other communities–while at the same time protecting the sustainability of resources.

The human right to food is recognized in article 11 of the International Covenant on Economic, Social and Cultural Rights, under which countries have a legal obligation to guarantee economic and physical access to adequate quantity and quality of food for everyone. States must comply with the obligations to respect, protect and fulfil this right for all people, including marginalized fishing communities. It also entails that participation, accountability and access to effective remedies are ensured at all levels and stages in the implementation of the progressive realization of the right to food.

The UN Expert Mechanism on the Right to Food has documented that fish is an important part of the right to food and ensuring food security, nutrition and livelihoods. The former UN Special Rapporteur, Oliver De Schutter, described, in his 2012 report, the "explicit link between the right to food and the rights of those who produce it to fair access to resources such as fish and water". In addition, he envisaged two notions of the right to food: "adequate food" and "freedom from hunger", highlighting the importance of fish as a source of protein and of micronutrients, especially for impoverished people.

De Schutter's report brought much research to the forefront on the importance of fish consumption not only in the fight against hunger, but also in tackling hidden hunger or micronutrient deficiencies, especially through consumption of smaller fish accessible to those living in poverty; these are rich in vitamins and minerals, particularly when consumed whole. In addition, the seasonality of fish in rural communities is often different from crops, which means that fish can provide diversified livelihoods and reduce vulnerabilities to seasonal food shortages.

The recognition of fish as food in the international human-rights context by the special procedures of the UN Human Rights Council marked a significant advance in acknowledging and raising awareness of the importance of fish for the subsistence of the poorest rural fishing communities. At the same time, it supports the work carried out by FAO, the Committee on World Food Security (CFS) and COFI in this regard and in the promotion of inclusive and participatory mechanisms for states to adopt legal and policy frameworks and national food strategies, where the voices of the poor and marginalized are heard and with clear mechanisms and process for their protection and compliance.

In 2014, the CFS requested the HLPE to conduct a study on the role of sustainable fisheries, including small-scale fisheries, and aquaculture for food security and nutrition. The HLPE report states that fish was only marginally included in food-security debates, and, despite much recognition of the nutritional importance of fish, it is not mentioned frequently in the food-security and food-systems discourse. The food-security debate previously focused on the availability and access of staple foods and has primarily focused on terrestrial food systems, while the nutritional value of fish and other aquatic foods was either not addressed or has been kept separate; the 'green' and the 'blue' are often separated. Similarly, prior to the 2014 HLPE report, FAO's work on fish and fisheries was conducted mainly from a resource-management perspective and not from a food-security and nutrition perspective.

The recognition of fish as food in the international human-rights context by the special procedures of the UN Human Rights Council marked a significant advance...

SSF Guidelines

The same year of the 2014 HLPE report, the SSF Guidelines were endorsed by COFI. They support the visibility, recognition and enhancement of the role of small-scale fisheries to food security and nutrition, contributing towards the eradication of hunger and poverty, ultimately helping in the realization of the right to food and other human rights.

The HLPE report and the SSF Guidelines are milestones

in recognizing fish as a critical source of food. The HLPE made recommendations to Member States and to FAO to integrate fish into national food-security and nutritional policies and programmes. These recommendations also highlighted the importance of small-scale production and the integration of fish in nutrition policies, linking it through public-procurement programmes for small-scale producers.

Building on the HLPE report recommendations and on the SSF Guidelines, FAO has undertaken research activities, developed technical papers, led programmes at national levels in collaboration with national governments, and has informed policy work to draw attention to the nutritional importance of fish. It is worthwhile to sample some examples of the work that FAO has carried out and is currently supporting in these contexts.

There is growing evidence that the inclusion of fish during the first 1,000 days of life–from conception to the child's second birthday–has positive growth outcomes in terms of cognitive and physical development, both in linear growth as well as in situations of acute malnutrition. This period is especially important for good maternal nutrition during pregnancy and lactation, and good infant-feeding practices, starting with the introduction of complementary foods after the first six months of the child's life.

Fish has much to contribute to optimal nutrition through food-based approaches targeting the first 1,000 days, due to its unique nutrient profile.

The synergistic implementation of both the SSF Guidelines and the Right to Food Guidelines can advance and support the promotion of the nutritional importance of fish during the first 1,000 days of life. For instance, the SSF Guidelines have a primary objective "to enhance the contribution of fisheries to food security and nutrition and support the realization to the right to adequate food", while the Right to Food Guidelines provide states that –while taking into account, dietary and eating habits of different cultures–methods should be established to promote food safety and positive nutritional intake, with special emphasis on the nutritional needs of boys and girls, infants and pregnant women.

Fish has much to contribute to optimal nutrition through food-based approaches targeting the first 1,000 days, due to its unique nutrient profile. A recent study has indicated an increase in fatty acid composition of breast milk when mothers consumed fish, linked to positive cognitive development outcomes such as higher intelligence quotient (IQ) scores later in life. Beyond exclusive breastfeeding, the WHO/UNICEF Global Strategy for Infant and Young Child Feeding recommends that low-cost home-based complementary foods prepared with locally available ingredients are introduced to children at six months of age. Recent studies, particularly in Bangladesh and Cambodia, have demonstrated high acceptability of age-appropriate fish-based products for children 6-23 months of age, with evidence of these products providing many of the necessary micronutrients.

School meals are increasingly seen as a unique opportunity to improve food and nutrition for children in several countries suffering from malnutrition. The FAO, together with local partners and national governments, supported three countries–Angola, Honduras and Peru–in incorporating fish into national school feeding programmes. Activities included inclusion of fish in national school feeding policies and strategies and proposals for the public procurement scheme to include the products of small-scale fisheries, offering fisherfolk a regular market and contributing to the community's socioeconomic development.

Pilot activities

The project carried out pilot activities to evaluate culturally acceptable and age-appropriate fish products developed for school children that were incorporated into school feeding programmes, with results demonstrating high acceptability of meals containing fish, among school children. Despite initial successes in acceptability, there are

many barriers to overcome before fish becomes a natural part of school meals in many countries, including the high cost of fish products, perishability, beliefs that children do not like fish, and a lack of political will.

The Right to Food Guidelines encourage states to involve all stakeholders in "the design, implementation, management, monitoring and evaluation programmes to increase the production and consumption of healthy and nutritious foods, especially those that are rich in micronutrients" and adds that states should monitor the "food security situation of vulnerable groups, especially women, children and the elderly, and their nutritional status, including the prevalence of micronutrient deficiencies". The SSF Guidelines, meanwhile, call on states and other actors to establish coherent policies where food security and nutrition are favoured, promoting the consumption of fish and fishery products within consumer education programmes in order to increase awareness of the nutritional benefits of eating fish.

A study was carried out to analyze fish consumption in the Brazilian Amazon by the Commission for Small-Scale and Artisanal Fisheries and Aquaculture of Latin America and the Caribbean (COPPESAALC, previously Commission of Inland Fisheries in Latin America). The importance of fish consumption in the Amazon region was highlighted throughout this study, revealing fish as the main source of animal protein and that fish consumption was much greater than what is reported by official statistics, which do not consider catches for domestic consumption. However, in other indigenous communities located in the highlands or in areas far from the river basins, low rates of fish consumption were found with clear consequences for levels of malnutrition and other health issues. In the years leading up to the study, it was noted that fish consumption was declining due to the availability of industrialized or processed food products in the diets of Amazon communities, leading to a loss of cultural values and dietary traditions.

Another great concern was the high concentration of mercury – beyond the safe limits for human consumption – in local fish. This is linked to mining operations near the communities. It has been widely documented how illegal mining and the low standards of operation of some mining concessions are causing systematic violations of human rights in the communities nearby the operations, including the right to food and the right to health, as in the case of the indigenous communities in the Brazilian Amazon region. Therefore, a joint effort by the government, nutritionists and environmentalists is needed to establish sustainable and safe measures for mines that are the source of the mercury.

In relation to indigenous peoples, both the Right to Food Guidelines and the SSF Guidelines have the human-rights principle of non-discrimination as one of the overarching principles for implementation. In addition, the Right to Food Guidelines provide that states should give special attention to indigenous peoples and should take steps to ensure that vulnerable groups have access to opportunities and economic resources.

The recognition of the nutritional importance of fish in programmes and strategies is necessary endeavour for achieving the SDGs by 2030.

Fish consumption

As noted in the case study for communities in the Amazon, official statistics for fish consumption are often under-accounted; this is due to poor recognition of the importance of small-scale fisheries to food security and nutrition. The 'Illuminating Hidden Harvests' study, a partnership between researchers, policymakers and practitioners from FAO, WorldFish, Duke University and national and local partners, has conducted case studies in over 50 countries globally besides undertaking a number of thematic studies to assess the social, environmental, economic and governance contributions of small-scale fisheries, including their contribution to food and nutrition.

Specific analyses include the nutritional quality and food safety of fish across value chains as well as the role of fish from small-scale fisheries for the health and nutrition of women and young children. The results from these studies are expected to be published at the end of this year.

The above examples highlight the important role that fish and small-scale fisheries play in food security, nutrition and livelihoods, particularly for vulnerable groups throughout human life–from the first 1000 days to school age and into adulthood. These examples also highlight the importance of linking participatory research, policy and practice for evidence-based decision making and programming. This is a conclusion from the FAO International Symposium on Fisheries Sustainability to drive sustainable development outcomes in ensuring food security, nutrition and livelihoods. To strengthen these linkages, FAO has partnered with prominent universities researching the role of fish–particularly small pelagic fish–for nutrition and food security to raise awareness and highlight the latest research in this field.

Recognizing the potential for fish and fish products to ameliorate nutrition issues in small-scale fishing communities as well as surrounding communities, the importance of the post-harvest sector in ensuring safe fish products to consumers, and the role of women in the fisheries post-harvest sector, the FAO has started a new project named "Empowering Women in Small-Scale Fisheries for Sustainable Food Systems', funded by the Norwegian Agency for Development Cooperation (NORAD). It is set to run between 2020-2024 in five Sub-Saharan African countries: Ghana, Malawi, Sierra Leone, Uganda and Tanzania. In the future it will be expanded to include Asian countries. The project will work in the framework of the SSF Guidelines and the Norwegian Government's Action Plan on Sustainable Food Systems to empower women and women's organizations, improve post-harvest fish handling, processing, preservation, and storage and value addition, with the aim to increase consumption of safe, nutrient-dense fish and fish products, particularly for children.

Despite the progress made by the various programmes and projects, much remains to be done within the international human-rights context in the work of FAO, CFS and their partners.

Human-rights context

Despite the progress made by the various programmes and projects, much remains to be done within the international human-rights context in the work of FAO, CFS and their partners. Those at the national and community levels also need to do their bit to contribute to the progressive realization of the right to food for millions around the globe and to build sustainable and equitable food systems. The recognition of the nutritional importance of fish in programmes and strategies and the promotion and protection of small-scale producers is an important and necessary endeavour for the realization of the right to food, and achieving the SDGs by 2030.

For more

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A Heavy Blow

More than the COVID-19 pandemic itself, the lockdowns to prevent its spread have harder hit Nigeria's unorganized small-scale fishers

The COVID-19 pandemic has fundamentally struck all facets of life in affected countries and the small-scale fisheries (SSF) of Nigeria are no exception. The pandemic has hit the country's small fishers both directly and indirectly. Small operators are the bulk of Nigeria's fisheries sector. They account for 70 per cent of the domestic fish production, and sustain the livelihoods of millions of people in one way or another; the dependence on local fish species for economic and food security is evidently large. SSF provides an accessible, cheap and rich source of protein and essential micronutrients to the rural population. Their impact on social, economic and cultural spheres is immense.

Yet many fishing communities face social, economic, and political marginalization. The reasons are not far to seek. The contribution of SSF to the gross domestic product (GDP) is obscured by poor environmental, social and economic data on the sector. As a consequence, policymakers seldom understand the SSF sector and its worth is grossly under-valued in the national economy.

Nigeria's informal economy, as in most developing countries, has reeled under COVID-19. While the low number of infection cases and deaths relative to developed countries is cause for some relief, the stark reality of fragile healthcare systems raises grave concerns over capacities to deal with the a steep increase in infections. To curb the looming pandemic, the Nigerian government announced a two-week lockdown from 30 March; it eventually stretched to five weeks in Abuja, the administrative centre, Lagos, the economic centre, and the adjoining Ogun State. These states had the highest incidence of COVID-19 in the country and were most vulnerable to localized infection.

Other emergency steps included the closing of airports for international and domestic flights, and a ban on inter-state movement, social association, and non-essential economic and leisure activities. Several states adopted partial to full lockdowns. As a sequel to the emergency measures, fish and fish products were included in the list of essential commodities. Movement of food and agriculture produce, including that from fisheries, was allowed. Markets of essential commodities were permitted to operate for a few hours on specific days of the week.

The most dire impact on the food security and livelihoods on fishing communities, however, is not from the pandemic itself but from the total lockdown. Its effects on the sustenance and well-being of vulnerable households and local economies dependent on local fisheries are far-reaching. The existing social and economic inequalities are under imminent risk of widening, increasing marginalization of the vulnerable.

SSF provides an accessible, cheap and rich source of protein and essential micronutrients to the rural population.

Helpless situation

Pa Moses Y Ashade, a prominent fisherman from Badagry in Lagos, shed light on the seemingly helpless situation of the sector. The septuagenarian has decades of experience of fishing in brackish waters, traversing the sea often beyond the Nigerian shore; besides he

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KAFAYAT FAKOYA

Construction of a planked canoe at Ikosi-Agbowa fishing community, Lagos. Small-scale fishers and fish processors continue to operate during the pandemic but their incomes and profits have declined because of the loss of customers.

is a former treasurer of the Lagos State Fishermen Co-operative Society. He expressed his disappointment with the "lack of recognition of the sector and the preference for organized aquaculture and industrial fisheries". He noted the SSF "plays an integral role in the nation's food system by providing access to affordable fish to the ordinary people, at affordable prices that the organized players cannot offer".

Fishers and fisheries-based co-operatives lack organizational capacities, he said. The absence of strong leadership to steer an apex organization of SSF at the national level has rendered the sector voiceless, devoid of the power to lobby for helpful policies. Referring to the presence of a federation platform that includes fish farmers, fishermen and other stakeholders, Pa Moses held that the contribution of the SSF sector is yet to be recognized.

Temi, a university graduate, saw opportunity in the smoked fish-supply chain. He assists his mother, Madam Ganiat Olorode, a middle-aged fish trader and processor in the Ikosi-Agbowa lagoon community in Lagos. She owns not fewer than five fishing canoes, and has four permanent fishermen and contract fishermen working for her. Sharing his experience, Temi said the global pandemic has affected fishing communities in unprecedented ways. "The lockdowns and social-distancing protocols dealt a heavy blow to the communities, as both supplies of fish chain and inputs were disrupted. Supplies of netting materials and spare parts were badly affected and there were spikes in their prices," he said.

Small-scale fishers and fish processors continue to operate but their income and profits have declined because of the loss of clientele. "Only a few fishermen are inclined to fish, leaving the women, who are more into processing, a limited supply of fish to smoke/dry and sell," Temi said. The lockdown and movement restrictions also prevented clients from patronising fish vendors. Both fishers and processors lack capacity for long-term storage, and depend on fish traders from distant locations. "The only sets of clients accessible to fishing communities are women in their immediate neighbourhood or proximal communities," Temi said. In

urban markets, traders bought fish at relatively high prices from fishers at landing sites. Some fish sales such as the sale of crayfish and silver catfish was particularly high at the onset of the lockdown due to the season.

Women in the SSF value chain multi-task and are the pillars of their households. The pandemic has threatened their emotional, economic and physical well-being. They rely mostly on social capital to access fish as processors or traders. In the hierarchical female-centric fish supply chains, women like Madam Ganiat do not feel the pinch, unlike other categories of fish traders down the ladder. The conventional fish traders depend on road transportation, which is inadequate and does not optimally service the needs of the populace. During the lockdown, there were fewer fleets of commercial vehicles and these operated below carrying capacities due to the government directives of maintaining 2 m of social distance. This drove up the transportation fares, adding to the overall prices of fish. Transporters and fish traders, particularly those plying inter-state, were often harassed by overzealous enforcement agents.

At the home front, the women faced a double burden as care-givers and wives; children not going to school meant the minors needed more attention. Women worried more about food insecurity while still facing headlong numerous household chores. While access to fish was not a serious issue, access to other staple foodstuffs posed a challenge due to low purchasing power; the exceptions were fishing households engaged in agricultural activities to augment food access, directly or indirectly.

Hand to mouth

The worst affected are the fish vendors down the ladder. Prior to the pandemic, these women and their households lived on a meagre income, and were unlikely to have savings of any type, living hand to mouth. They are the most vulnerable and frequently face domestic violence.

In response to the economic hardship, the Federal Government rolled out some relief measures. Against the backdrop of an estimated 90 mn indigent Nigerians, it is perceived that only a fragment would benefit from the distribution of food packages and cash transfers. Many people in the informal sector lack bank accounts and other requirements to access targeted credit facility for vulnerable households. Furthermore, the Emergency Economic Stimulus Bill lacks a provision for individuals/employees in the informal sector. Even if implemented properly, it will exclude small-scale fishers because most are not captured in the taxpayers scheme; this implies livelihood losses in the event of a prolonged pandemic.

At the state level, some part-time fishers benefitted from soft loans during the planting season, coinciding with COVID-19, for crops like cassava and plantain. Although targeted at residents to prevent panic-buying and to provide access to food supplies during the restriction period, the temporary markets set up provided alternative avenues for fishers and farmers to sell their produce. Co-operatives could at best only provide thrift savings for members. At the onset of the lockdowns, they were also mandated to issue identity cards to members to allow unhindered movement of their goods.

Women worried more about food insecurity while still facing headlong numerous household chores.

Pa Ashade and Temi insist the sector needs more government support at all levels. Pa Ashade said both men and women in SSF are have suffered particularly due to the pandemic. With nostalgia, he identified the 1980s as the most memorable years for the SSF, the period during which the Federal Government implemented several projects with technical assistance from the United Nations Development Programme (UNDP) and the Food and Agriculture Organization of the United Nations (FAO). These helped upgrade rural fisheries and improve the living conditions of fishers. The state government of Lagos provided support to men and women in the sector.

KAFAYAT FAKOYA

A fish processor's kitchen in Ikosi-Agbowa fishing community, Lagos. Both fishers and processors lack capacity for long-term storage, and depend on fish traders from distant locations.

Temi is optimistic about the fishing business picking up after the pandemic. He would like to see the Federal Government address challenges of empowerment with modern fishing equipment, access to finance, and linkage to the international market for the sector. He sought greater involvement and a proactive approach from fishing organizations to protect the interest of members and the market against unforeseen drawbacks.

As the lockdowns gradually ease up, the return to normalcy will be slow because the pandemic is persistent. The fate of SSF in the post-pandemic era depends on current coping mechanisms. One can only hope that the resilience of men and women in the sector will pull them through this turbulent period.

For more

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30 by 30

Renewed calls for marine conservation must not bulldoze the democratic route that has allowed small island nations to improve fisheries and incomes without damaging the marine ecology

I wanted to share some concerns regarding the danger that threatens to disrupt the management of the Pacific Islands' signature fisheries and main independent source of income. There have been renewed calls for 30 per cent marine protected areas (MPAs) that sound suspiciously over-simplistic. Community-conserved areas come at many scales and the Pacific Islands' chances of ensuring a multinational indigenous conserved area are threatened.

The Pacific Islands are made up of 14 nations governed since their independence by indigenous inhabitants whose stewardship extends to an area of ocean that is 300 times larger than their land mass. Straddling these remote stretches of ocean, life has always depended on intimate traditional knowledge and rights systems over coastal areas. These rights systems have also formally extended to the exclusive economic zones (EEZs) of island countries since the 1982 United Nations Convention on the Law of the Sea (UNCLOS) and independence.

One of the major ocean resources are the migratory tuna; over half the world's stocks swim through the contiguous EEZs of the island countries. Until 2010 the island countries were ruthlessly exploited by distant-water fishing states in a system condoned by major developed nations. This saw less than 10 per cent of the value remaining in the islands.

Rich fishing grounds

In coastal areas, Pacific Island communities have been able to demonstrate to the world that building on local rights over inshore waters and using combinations of traditional and modern approaches is a solid basis for coastal fisheries management. Thousands of communities are practising this already to a greater or lesser extent. Nearly a thousand have actually been recorded as doing so and there is no real reason that most of the Pacific Islands communities will not be doing this in the future, if they are not already. The key ingredients for this are recognizing local rights, empowering communities to build on local needs and strengths, and not prescribing what they should do from the outside. Conservation and management of these community 'owned' areas can be achieved but if a generalization can be made, then 100 per cent of the area needs to be appropriately managed; targeting 30 per cent seems inequitable and does not make ecological or management sense. (What about all the other communities?)

In a true revolution that mirrors the traditional inshore experiences, the island nations through which most of the tuna swim have been able to build on the existing rights regime afforded by UNCLOS, choosing management methods that meet their objectives. These are not necessarily those promoted by the 'experts'. They have also pooled their combined EEZs to set up a shared system of management that covers all the tuna that swim through their countries. The tool used is the Vessel Day Scheme, an effort-control method used by the community of countries known as the Parties to the Nauru Agreement (PNA).

The Pacific Islands are made up of 14 nations governed since their independence by indigenous inhabitants whose stewardship extends to an area of ocean that is 300 times larger than their land mass.

The system is akin to a cartel and allows island countries to set rules and prices to which fishing companies have to accede if they wish to use some of the world's richest fishing grounds. The system is so effective that in fewer than 10 years benefit from access fees alone have increased by a factor of five to around 25 per cent of the value of the fish. Importantly, the system has also allowed countries to close fishing in

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FRANCISCO BLAHA

Off loading tuna at the Mua-i-walu wharf in Fiji. Threats in the EEZs from industrial fishing can most effectively be dealt with through strict fishing regulation and full observer coverage.

parts of the high seas as a condition of access. This is important as regulations are weaker in the high seas and the benefits do not accrue to the island nations. Thus far, the sustainability of the four major stocks of tuna is stable, according to scientists.

The system is the best method of managing these tuna stocks so far. Quotas have failed as elsewhere and MPAs would not be a method of choice for such highly migratory species. A key concern is to further restrict, or prohibit altogether, fishing in the high seas where the regime is less strict and not very accountable to the island nations. So considerable efforts are made to ensure that fishing remains attractive in the EEZs. Ideally, the ongoing negotiations on the high seas could strongly restrict fishing there or even declare the high seas a 100 per cent MPA.

Threats in the EEZs to tuna and other migratory species from industrial fishing can largely and most effectively be dealt with through strict fishing regulation and full observer coverage. Apart for some small areas of specific interest (sea mounts) the major threats to these large expanses of ocean are also transboundary, such as the impacts of global climate change or pollution. Large MPAs in these cash-strapped countries do not generally make sense compared to other management options and the need to focus on the vitally important and biodiverse inshore areas that local people depend on for daily livelihoods.

Worse still, removing significant proportions–30 per cent or more–of the EEZs from the shared 'community' management system reduces the incentive of fishers to engage with the PNA community as it shrinks the resource that the island nations have to offer. This increases the likelihood that effort will shift to less controlled areas in the high seas where only rich corporations/nations will benefit, ultimately breaking the PNA system.

It is very disappointing to observe that conservation organizations and others have not commissioned public studies to either verify or rebut these concerns before promoting an approach that disproportionately affects island nations. Sure, simplistic panaceas make better campaigns. But the potential for harnessing solidarity and joining forces on the major issues facing the ocean are undermined by the lack of discussion or sensitivity to the smallest nations' desire to figure out sustainability for themselves and, in the process, become less dependent on external 'benefactors'.

I look forward to discussion on this and would ask for moderation in supporting calls for 30 per cent of the oceans to be made MPAs–the same goes for 30 per cent of local areas–until these issues are addressed.

For more

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The other side of large-scale, no-take, marine protected areas in the Pacific Ocean

Many a Slip

The 1960 UN Conference on the Law of the Sea failed to reach agreement on the breadth of the territorial sea and fishing limits, with India, Chile and Ecuador playing decisive roles

The road to the 1982 United Nations Convention on the Law of the Sea (UNCLOS) was littered with failed treaty-making conferences. In 1930, a League of Nations conference broke up without a decision over territorial waters. In 1958, a UN conference failed to agree on the breadth of the territorial sea and associated fishing limits. In 1960, a follow-up UN conference to decide these two outstanding questions collapsed.

At the 1960 conference, a joint United States-Canada plan emerged as the front-runner, calling for a universal six-nautical-mile territorial sea plus a non-exclusive six-mile fishing zone, with a 10-year phase-out of 'historic fishing rights' for states fishing in other state's waters over the previous five years. This plan, backed by the maritime powers—who sought to maximize their own naval, merchant and fishing fleets' global reach by minimizing others' claims to territorial seas and fishing zones—also won the support of the West European nations, the former British dominions, and moderates elsewhere. But could it gain the required two-thirds of the vote?

At the time, Asia-Pacific states played a pivotal role in the coastal states' campaign for greater control over their coastal waters. Many from the region questioned the universalist claims made on behalf of the law of the sea and found them to be wanting. Indeed, Indian ministers challenged the idea that the law of the sea was international law at all.

In the run-up to the conference, Defence Minister Krishna Menon noted that the maritime powers' claims to 'historic fishing rights' in other states' coastal waters simply perpetuated the exploitative practices of colonialism. And Law Minister, Ashoke Sen, and others observed that the powers habitually treated the high seas as private property, closing off swathes of ocean when it suited them. They cited the example of the Americans declaring danger zones in the Pacific for the Bikini Atoll nuclear tests and the Eastern Mediterranean during the Syria-Turkey crisis.

At the conference, the Asia-Pacific states pursued a dual strategy when agitating for greater control over their own coastal waters. The Indian delegation argued that coastal states should be empowered to control the movement of foreign warships through the territorial sea and the contiguous zone, while delegations from the Pacific-seaboard Latin American states pressed for recognition of exclusive fishing zones and preferential fishing rights in the high seas. Together, these campaigns offered a compelling alternative to the minimal package offered by the US-Canada plan.

The Asia-Pacific states played a pivotal role in the coastal states' campaign for greater control over their coastal waters.

Territorial sea

Ashoke Sen, leading the Indian delegation, pushed Western delegations to accept an amendment that required the authorization of warships in the territorial sea and contiguous zone. He stressed that he was under strict instructions from Prime Minister Jawaharlal Nehru to extract concessions on this issue. The Western delegates cobbled together a counter-proposal offering prior notification,

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but not prior authorization, of warships. Nehru's Cabinet turned this down. The Americans were concerned by this, and one State Department official, speaking to the Canadian ambassador in Washington, wondered whether it might be necessary to bring 'strong pressure' to bear on India. (The Canadian responded that 'strong-arm tactics' would likely stiffen the Indian resolve.)

Meanwhile, a different kind of pressure was applied, with President Dwight Eisenhower and two prime ministers, John Diefenbaker and Harold Macmillan, sending personal messages to Nehru to persuade him to drop the idea of authorization and support the US-Canada plan. Macmillan informed him that India's attitude would be "highly important for the success or failure of the Conference", and that its breakdown would prompt unilateral action that "could give rise to dangerous friction". Yet he offered nothing more than that which had already been rejected by India—namely, prior notification but not prior authorization. A few days later, Nehru sent an equally unyielding reply back to Macmillan: "As you know, there is conflict of opinion between some of the great maritime powers and the smaller countries who, from past experience, are rather apprehensive of any interference with their freedom and independence. In regard to one matter particularly there has been strong feeling among those countries which, I feel, is justified. This is in regard to foreign warships coming within coastal waters without prior authorization. We have given a great deal of thought to this matter and we feel that the proper course would be for such authority or permission to be obtained from the coast State. Even normal courtesy would demand this."

For many delegates, the unregulated presence of other states' long-distance fishing fleets in their offshore waters was unacceptable.

The plan's sponsors had played their final card and had been unceremoniously rebuked. There was no middle ground on authorization of the passage of warships: if the West did not give way, the Indian delegation would vote against the US-Canada plan. This threatened to damage the prospects of the conference reaching a decision.

Fishing rights

While India was holding out against the West over warships, other states were chipping away at the 'historic fishing rights' component of the US-Canada plan. For many delegates, the unregulated presence of other states' long-distance fishing fleets in their offshore waters was unacceptable. While Iceland's clashes with British trawlers under Royal Navy protection dominated the headlines in the Northern hemisphere, the Asia-Pacific states pushed back too. In the mid-1950s, for example, the Peruvians impounded Onassis fleet whalers and US tuna clippers operating within 200 miles of their coastline. And the South Koreans arrested, and occasionally destroyed, Japanese trawlers and trollers that ventured across the 190-mile 'Rhee Line'.

As the conference progressed, the opposition to the US-Canada plan gathered pace, prompting the plan's sponsors to offer sweeteners to coastal states concerned about foreign fishing. The US and Canadian delegations drafted an amendment to their own plan—submitted by Brazil, Cuba and Uruguay—offering states limited preferential fishing rights in the high seas, subject to compulsory dispute settlement. And the US delegation leader, Arthur Dean, offered some South and Central American states one-on-one deals that would cancel American claims to historic fishing rights in their coastal waters in exchange for votes supporting—or at least abstaining on—the US-Canada plan. After fixing these deals, Dean expected Ecuador and El Salvador to abstain, and Argentina, Guatemala and Chile to vote for the plan. This would have been just enough to secure the two-thirds majority required for treaty

signature. But there's many a slip 'twixt the cup and the lip – and slip things did.

In the final hours before the voting in plenary was due to take place, the Chilean and Ecuadoran governments instructed their delegates to vote against the US-Canada plan. Then there was another twist. The Brazil-Cuba-Uruguay amendment sailed through the plenary with a comfortable two-thirds majority, but opposition to it had been brewing in Japan, home to one of the world's largest long-distance fishing fleets, on grounds of both preferential fishing rights and compulsory dispute settlement. As a consequence, Tokyo instructed its delegation to abstain rather than vote for the US-Canada plan if amended by the Brazil-Cuba-Uruguay proposal.

In the event, the US-Canada plan secured 54 votes for, 28 against, with five abstentions; Lebanon was absent from the chamber. It, therefore failed by a single vote to win a two-thirds majority, and the conference collapsed.

In the following days, the Western delegation leaders cabled their capitals, laying most of the blame for the outcome on three states: India, Chile and Ecuador. The New Zealand delegation leader Robert Quentin-Baxter summed up the factors that had led to the breakdown. India, he wrote, was the biggest contributor because its opposition to the US-Canada plan "gave heart" to those campaigning for wider territorial seas, encouraging some to shift their positions, and emboldening others to hold out for better deals.

And the Americans' concessions had not prevented Chile's move from support to opposition, or Ecuador from pressing "new private demands against United States to which latter could not agree", prompting its switch from abstention to opposition. Meanwhile, Japan, reacting against the offer of preferential fishing rights, shifted from support to abstention. All told, these developments were enough to deny the maritime powers their treaty.

Confidence crisis

The Western states saw the failure of the 1960 conference as a significant problem. Indeed, it triggered a crisis of confidence in the practice of treaty-making itself. If they were unable to command sufficient votes for their positions on the law of the sea, how could they ensure that their interests were represented in other general multilateral treaties? At the next UN conference on the law of the sea of 1973-82, they therefore attempted to reassert their control over the process by persuading the conference to move away from voting, and towards agreement by consensus and an all-in package deal.

In the event, the US-Canada plan failed by a single vote to win a two-thirds majority. The conference collapsed.

For more

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The Law and the Sea

Splitting Hairs

There is no reason to wait for consensus on what is justice before we do something about injustice in small-scale fisheries

With the Blue Economy/Blue Growth now spreading around the world, I believe the issue of social justice for small-scale fisheries is an important and increasingly urgent issue, also for social research. We now have the Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication (SSF Guidelines), a landmark achievement when member-states of the Food and Agriculture Organization of the United Nations (FAO) endorsed them in June 2014. I believe that if states do nothing to implement the guidelines, the Blue Economy will come at a loss to small-scale fisheries. Then the many injustices they have faced for so long will only exacerbate.

"A just society is one that allows all of its members access to the widest possible range of fundamental goods"

The justice question has been with us since humans started to form groups and communities. It never went away– and most likely never will. Up through history people have been thinking hard and long about what is justice and who deserves it. One cannot, and should not, in my opinion, discuss the Blue Justice concept without visiting this ancient old philosophical discourse. Because it is very much alive today.

A short essay is not the place to go into any depth of this discourse. Let me instead offer some ideas, based on some more recent contributions, on how we could approach the Blue Justice issue as a research topic. It is not sufficient to be morally concerned about justice for small-scale fisheries. We also need to know what we are talking about and how we should acquire more knowledge. For that, we will benefit from an analytical framework that is broad enough to help guide us in capturing the many complexities, dimensions and dilemmas of Blue Justice.

Blue Justice

People familiar with TBTI's publications know that we have been drawing extensively on a so-called 'interactive governance theory' to direct our research, as originally developed by Professor Jan Kooiman of The Netherlands. With other TBTI colleagues, I worked with him for many years. Since he passed away, we have continued to apply and elaborate on his theory. Thus, we believe that Blue Justice – both as a concept and as a phenomenon – can be assessed through the lens he left us. In his 2003 book *Governing as Governance,* he explored what he termed the "orders" of governance: the meta-(third), second, and first order. Let me say something here about research questions related to Blue Justice, from the different governance-orders perspective.

Starting on the top, the third (meta-) governance order emphasizes how images, values and norms within a particular social system convert into justice principles in a small-scale fisheries governance context. Think of the 'guiding principles' in the SSF Guidelines. They derive from human-rights standards, which are all about justice. However, national governments may have a different idea of justice than that of the SSF Guidelines. Similarly, the justice principles of the government may be discordant with those of the small-scale fisheries community. We cannot know if such disparities exist unless we have checked them empirically, which we should because it will affect governance processes and outcomes.

Take, for instance, the famous 'Difference Principle' of the philosopher John Rawls, which says: "Social and economic inequalities are to satisfy two conditions: first, they are to be attached to offices and positions open to all under conditions of fair equality

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of opportunity; and second, they are to be to the greatest benefit of the least advantaged members of society."

You will recognize the Difference Principle in the renowned French economist Thomas Piketty's definition of social justice, which could also work for small-scale fisheries in the Blue Economy. It reads as follows:

"A just society is one that allows all of its members access to the widest possible range of fundamental goods" and "organizes socioeconomic relations, property rights, and the distribution of income and wealth in such a way as to allow its least advantaged members to enjoy the highest possible life condition."

The Difference Principle is also recognizable in several SSF Guidelines articles, for instance in 5.7: "...States should, where appropriate, grant preferential access of small-scale fisheries to fish in waters under national jurisdiction, with a view to achieving equitable outcomes for different groups of people, in particular vulnerable groups."

Does the governance system under investigation honour this principle? If not why, if yes how? At the second governance order, the focus is on institutions (like laws/rules) and the organizations that have the role to ensure that rules are just, for instance, with regard to representation of small-scale fisheries. Do existing access rules discriminate against small-scale fishers? Do small-scale fishers have equitable rights of access to the decision-making process where rules that affect them are established, which Rawls say they should? This is about what is called 'procedural justice.'

With two Swedish colleagues, I am currently working on a chapter where we demonstrate that in the Swedish fisheries governance system, small-scale fisheries fall outside the advisory and decision-making system. Instead, this system is primarily working in the interest of the large-scale fisheries sector. In the Swedish fisheries, injustice is not so much at the third order as at the second governance order, in Kooiman's terminology.

We would also look for justice gaps at the second-governance order, that is, not only at what's there but also at what's not. Multiple governance institutions may work side-by-side and in competition with one another: some are of the government, others of the community; some may be informal, some customary and others more recent. Justice must also be assessed within customary institutions, for instance, with regard to their inclusiveness. They might, for instance, discriminate against women, and thereby be unjust as a whole.

Commenting on Rawls' theory of justice, including his Difference Principle, Amartya Sen, in his book *The Idea of Justice,* argues that there is more to social justice than justice principles and just institutions. We need, he holds, to investigate how justice plays out in the daily life of people, in the freedoms they actually have, the capabilities they possess, and the choices they have or do not have, and in the choices they make. Institutions guide and steer, but do not necessarily determine, interactions, at least not to the full. They do not guarantee justice. Therefore, justice is also an issue at the first governance order (in Kooiman's scheme); that is in the daily experience of small-scale fisheries people.

Institutions set limitations, but often also provide opportunities for irregular behaviour that negatively affects small-scale fisheries. Governments are supposed to be ruled, and to rule, by law. But sometimes they abuse their authority. Some people at the receiving end do not always follow existing rules, especially those imposed on them. They are often involved in strategic games for power and resources, and they often succeed to bend the rules in their particular interest.

In an ideal world, there would be consistency between the orders; justice principles at the third (meta-) governance order would determine the design of institutions at the second order, and in the next instance the governance interactions at the first order. Yet, we know that in practice, this 'ain't necessarily so.'

Authority abused

Here is Thomas Piketty again: "... it is wise to be wary of abstract and general principles of social justice and to concentrate instead on the way in which those principles are embodied in specific societies and concrete policies and institutions."

The gap between governance orders is not always easy to reveal or close. Thus, the dissonance between meta-order principles, second-order rules, and first-order interactions may persist. We must, therefore, try to understand why this is so. What are the

bottlenecks? Why does the status quo remain? Despite the consensus, the SSF Guidelines' justice principles may fail to trickle down to lower orders, where business as usual prevails. The old wine just gets a new bottle.

The values, norms and justice principles that guide people's daily social interactions may not trickle up and contribute to institutional and normative change in the way small-scale fisheries are governed. Thereby, the justice gap persists, especially if it has powerful supporters whose interest is to conceal it. "Justice comes to mirror too closely prevailing institutions and practices, rather than serving to assess them critically," writes David Miller in his book *Principles of Justice*.

The values, norms and justice principles that guide people's daily social interactions may not trickle up and contribute to institutional and normative change...

The Blue Economy will test how serious FAO member states were when they endorsed the SSF Guidelines. States committed themselves to respect and enhance a series of justice principles, like the Difference Principle. Will they also do so in the Blue Economy?

There is, of course, nothing wrong as such with concepts like Blue Economy and Blue Growth. They are neutral, hard to reject, and could apply everywhere. We always had a Blue Economy! The problem starts when things are put into these concepts–if they do not include small-scale fisheries in reality, which they tend to leave out. Then, small-scale fishers have a reason to be wary. The gap between talk and practice is certainly an issue for inspection and criticism because of the hypocrisy it involves.

Small-scale fishers and other marine stakeholders, including governments, do not all need to agree what these ideal justice principles are, or what they should be, before they act to correct the gaps. Even if they do not have the conceptual sophistication of a professional philosopher, they will still know injustice when they see it. The SSF Guidelines give them a lot to go by. Again, following Piketty, third (meta-order) justice principles are not sufficient to secure justice, but they are a yardstick for the evaluation of processes and outcomes, and may well provide a basis for litigation if gaps persist.

However, institutions alone are not sufficient either, says Amartya Sen. They are necessary but not enough. Therefore, to secure Blue Justice, we cannot stop with the formation of just institutions at the second-governance order. We must also continue to the first order. That is where the final justice litmus test must take place, since justice is "ultimately connected with the way people's lives go, and not merely with the nature or the institutions surrounding them", in Sen's words.

Theory of justice

We do not have to wait for conceptual clarification and institutional perfection. We probably never will, but we should always try. In the meantime, we can still do more to reveal and correct the injustices that are apparent now and in the Blue Economy. Amartya Sen underscores this point: "If a theory of justice is to guide reasoned choice of policies, strategies or institutions, then the identification of fully just social arrangements is neither necessary nor sufficient."

For more

https://sk.sagepub.com/books/governing-as-governance
Governing the Governance

https://www.hup.harvard.edu/catalog.php?isbn=9780674007147
Principles of Social Justice

https://www.hup.harvard.edu/catalog.php?isbn=9780674980822
Capital and Ideology

https://www.hup.harvard.edu/catalog.php?isbn=9780674000780.
A Theory of Justice

https://www.cambridge.org/core/journals/utilitas/article/amartya-sen-the-idea-of-justice-london-allen-lane-2009-pp-xxviii-468/1E52B5D37FEBD063DD9EF6206F877E53
The Idea of Justice

Hope, Despair, Courage

An award-winning film, made on a tight budget, captures in powerful images the complexities of small-scale fishers and fish processors in West Africa

I'm in search of happiness. That's how a young Guinean surprises us in the smoky atmosphere of a sardinella smoking oven in Casamance, Senegal, in a sequence from the film *Poisson d'or, poisson africain*. Thomas Grand and his friend Moussa Diop show us the price to pay for trying to make a living on this bustling beach. They give us a scalpel-sharp analysis of the complex realities of a temporary community that brings together, for six months of the year, men, women and children from all over West Africa, around the exploitation of fish.

The filmmakers deserve all the more merit because they made this film almost on a voluntary basis with a paltry budget. The film was released to the general public in 2018 at the Pêcheurs du Monde Film Festival in Lorient, France. Since then, it has seen extraordinary success, winning awards at some 20 festivals around the world, in France, India, Japan, Mexico, the United States and several African countries.

Through the film, spectators discover the extraordinary vitality of a landing site in Kafountine, Casamance. Ten years ago, this site had little activity. Now there are thousands of fishermen, porters, and women fish smokers who occupy dozens of hectares on the coast. If this film moves us, it is thanks to the power of the images and the weight of the testimonies of these men and women from all over West Africa.

From the outset, the film immerses us in the harsh reality of seine fishing on a large 20-m *pirogue*. Fishermen punctuate their efforts with songs that are both political manifestos and testimonies to their humour. They denounce the industrial trawlers that can be seen in the distance: "It is because of them that we must sail ever further." "Everyone accuses us when we don't destroy the sea." They also recall what the images show: "Net fishing requires strength."

The scenes of the landing of sardinella and skates are striking and unforgettable. Dozens of carriers of old fish boxes, recovered from the French auctions, with water up to their shoulders gather around the canoes and fill their 40-kg boxes, carried on their heads. When the swell is strong, they risk an accident and "when you have an accident, nobody here can treat you". They can also lose the contents of their boxes and others grab these fish with their nets. They then run in single file with their crate on their head for hundreds of metres to feed the tables and ovens where the sardinella will be smoked.

From the outset, the film immerses us in the harsh reality of seine fishing on a large 20-m pirogue.

Human beings

A carrier can carry eight to 10 cases during the day to earn 2,500-3,500 CFA francs, or € 4-5. Among these hundreds of carriers are university graduates. The majority are foreigners, mostly Guineans: "We went out on an adventure to look for work." The porters complain of the lack of consideration on the part of the fishermen: "Here, they do not consider human beings, they only consider their fish." "Before considering money or fish, you have to consider people." "The owner of the pirogue doesn't even look at you." "The only rule is to believe in yourself and

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work very hard." Thus, in six months, a bearer can earn 500,000-600,000 CFA francs (US$ 900-1000). "The carriers suffer a lot here, they don't have leaders to defend their interests or to make their demands." On the other hand, "when fishermen need something, they claim it publicly." For the carriers, "all workers must be treated equally and the rights of each must be respected."

The film then plunges us into the smoky world of the ovens. Hundreds of ovens stand next to huge piles of wood and drying tables as far as the eye can see. In this world, men and women work several hours a day to earn a little money, as much as the porters. However, some women entrepreneurs may own several ovens that employ several dozen people and earn a little more. A Guinean woman, owner of two ovens, managed to save and invest: "I arrived with 10,000 CFA francs. That's how I was able to earn 200,000 CFA francs."

The film ends with the return to the sea of young fishermen, proud and enthusiastic, who confide to the camera.

These women, most of them Guinean, send money to their families: "When our husbands do not have money, we cover the family expenses in their place." Amidst the ovens and smoke, children and babies accompany their mothers. Many complain about the deterioration of their health. A young Guinean complains: "When you stay four to five hours in the smoke, your eyes hurt." He is treated with Doliprane and he remains at work in spite of everything: "In a word, I am in search of happiness."

This processing activity provides cheap fish to the whole of West Africa. Burkinabe, Ivorians, Malians, Liberians, Guineans and Senegalese live side by side near the ovens and load huge 400-kg bales of fish. They sing "Lift, man of courage" to stimulate one another and co-ordinate their physical efforts. But it is not only fish that contributes to feeding the people of West Africa. The waste from smoking after the hulling of smoked fish is carefully recovered and processed to provide feed for poultry farming.

The administration representatives recognize that smoking must be modernized. This is necessary to protect the health of all those who are exposed to smoke on a daily basis. In addition, smoking consumes a lot of wood, often illegally cut, to the great displeasure of the villagers of Casamance who live off the forest. "It is the price of wood that scares many traders", they say. It has almost tripled in a few years and threatens the profitability of processing.

Risks involved

Women and traders clearly perceive the risks of developing fishmeal plants: "If an export factory were to set up here, it will be terrible for us because we will no longer have fish to trim. It is as if people wanted to kill us. They take what we should consume, throwing toxic waste into the sea that kills us even more. How can we Africans survive? It announces our death." While the fishermen who deliver these plants have their share of responsibility, the state is also responsible for an inconsistent policy:

THOMAS GRAND AND MOUSSA DIOP

A scene from the film, Golden Fish, African Fish, showing a fish smoking area in Casamance, Senegal. Modernizing fish processing is necessary to protect the health of all those who are exposed to smoke on a daily basis.

"The capture of juveniles is prohibited while the plants are allowed to buy and process them."

A few months after the film's shooting, in 2018, two plants were built by Chinese operators – one in Abéné, in the heart of a marine protected area, the other in Kafountine, on the processing site occupied by women; 1,000 of them were evicted and displaced. The Abéné plant was shut down following the mobilization of the inhabitants, outraged by the odours and waste from the plant. Representatives of fishermen's organizations are opposed to the development of the factories. But they are struggling to convince some fishermen, particularly those in Saint Louis, who find income-generating opportunities by delivering to the factories in Gambia.

The film ends with the return to the sea of young fishermen, proud and enthusiastic, who confide to the camera. They are aware that they are at the base of Senegal's wealth, and they know that this represents for them the possibility of social promotion if they can acquire a canoe. "Fishermen are noble because they wear new sea clothes. It is time we respect the fishermen." They know that their health is at stake. "The fisherman ages very quickly and suddenly loses his strength because this job is too hard." However, they conclude: "No wealth can turn us away from the sea."

The film is devoid of comments from the directors who allow the raw words of the fishermen and all the actors in the sector tell the story. This is what makes it so strong, while the montage makes it possible to grasp the full complexity of a community concerned for its future. It has every reason to be concerned, as the film shows. It also challenges notions on the evolution of our fish consumption, where aquaculture production now exceeds the landings from fishing. We know who pays the price.

For more

https://caopa.org/wp-content/uploads/2019/08/Rapport-JMO-2019.pdf
75 Senegalese boats deliver to two Chinese factories in Gambia

http://sipanews.org/african-fishers-task-gambian-govt-on-fishmeal-plants/
African Fishers Task Gambian Government on Fishmeal Plants

https://www.youtube.com/watch?v=Ueg3ovQQCW4
Golden Fish, African Fish

https://www.pecheursdumonde.org/
Festival international de films - Lorient: Pêcheurs du Monde

COVID-19

Disaster looms for indigenous Amazon tribes as COVID-19 cases multiply

With the coronavirus spreading into remote territories across the Brazilian Amazon, indigenous leaders and rights officials are pleading with the government to adopt urgent measures to head off a catastrophe.

According to figures compiled by the Articulation of Indigenous Peoples of Brazil (APIB), the country's principal indigenous federation, deaths from COVID-19 in indigenous communities have risen from 46 on May 1 to 262 on June 9. Together with numbers tallied by state health departments around the country, APIB's statistics show that 9.1 percent of indigenous people who contract the disease are dying, nearly double the 5.2 percent rate among the general Brazilian population. The growing number of cases and the government's sluggish response have prompted allegations of incompetence and disarray in official efforts to protect vulnerable tribal populations from contagion.

The 33,000-square-mile Javari Valley Indigenous Territory hosts the world's largest number of indigenous communities living in extreme isolation, sometimes referred to as "uncontacted tribes." FUNAI has confirmed the presence of nine such groups in the reserve totaling perhaps 1,000 to 1,500 people; there may be as many as nine more groups, according to FUNAI field agents.

Tracking death and infection rates from the coronavirus among indigenous people in Brazil can be a challenge–and a source of contention. SESAI tracks only cases inside demarcated indigenous territories. Its numbers don't reflect coronavirus infections in indigenous people living in cities or villages not specifically designated as indigenous lands.

Source: https://www.nationalgeographic.com/history/2020/06/disaster-looms-indigenous-amazon-tribes-covid-19-cases-multiply/

FOOD SECURITY

When the Indian Ocean's ancient climate patterns return

About 19,000-21,000 years ago, ice-sheets covered North America and Eurasia, and sea-levels were much lower, with Adam's Bridge exposed so that the Indian subcontinent and Sri Lanka were contiguous. This period, the peak of ice age conditions, is called the Last Glacial Maximum. Researchers analysed simulations of this past climate and predicted that the ongoing climate change could reawaken an ancient climate pattern of the Indian Ocean.

They find that this could be similar to the El Niño phenomenon of the Pacific Ocean bringing more frequent and devastating floods and drought to several densely-populated countries around the Indian Ocean region. If current warming trends continue, this new Indian Ocean El Niño could emerge as early as 2050. The results were published in Science Advances.

By studying microscopic zooplankton called foraminifera, the team had published a paper in 2019 which first found evidence from the past of an Indian Ocean El Niño. Foraminifera build a calcium carbonate shell, and studying these can tell us about the properties of the water in which they lived. The team measured multiple individual shells of foraminifera from ocean sediment cores and was able to reconstruct the sea surface temperature conditions of the past.

"In the previous paper, we argued for the existence of an 'Indian Ocean El Niño' during the Last Glacial Maximum. We suggest that the Indian Ocean has the capacity to harbour much larger climate variability than observed during the last few decades or a century," writes co-author Kaustubh Thirumalai, from the Department of Geosciences at the University of Arizona in an email to The Hindu

Source: https://www.thehindu.com/sci-tech/science/when-the-indian-oceans-ancient-climate-patterns-return/article31934556.ece#:~:text=They%20find%20that%20this%20could,emerge%20as%20early%20as%202050

ORGANIZATIONAL PROFILE

Association for the Promotion and Empowerment of Actors in Artisanal Maritime Fishing, Mbour Sénégal

The Association for the Promotion and Empowerment of Actors in Artisanal Maritime Fishing (APRAPAM) was created in 2010 by a group of artisanal fishing professionals (fishermen, fish wholesalers, women processors) and citizens and technicians specializing in various fields related to fishing, independent of any commitment with the administration.

The association was created following the observation that, despite its economic, social and cultural importance in Senegal, artisanal fishing remains a poor relative in public policies and development. In this respect, the support programmes or projects for the sector which are initiated by the State or by NGOs from the North or the South do not put the professional actors, men and women, in the artisanal fisheries sector at the centre of their action. To help remedy this situation, the association was constituted to help the men and women of artisanal fisheries improve their living conditions in line with the Millennium Development Goals (MDGs), and to make them aware of the imperative of sustainable management of fisheries and aquaculture resources, and the promotion of good governance and gender equity in professional organizations.

The mission that APRAPAM has set itself, in relationship with all the actors in the sector, is to work with decision makers and national and international institutions to define and implement fisheries policies that promote a sustainable development dynamic for artisanal fisheries, centred on the well-being of artisanal fishing communities. APRAPAM promotes capacity building of professional organizations through the empowerment of their leaders, for example through the promotion of dialogue and synergies between professionals to resolve conflicts.

Every year since 2010, APRAPAM has organized a forum to inform, raise awareness and build the capacity of artisanal fisheries professional actors to promote sustainable artisanal fisheries. The chosen themes focus on current events in the sector, and have examined issues such as co-management, financing of artisanal fisheries, participatory monitoring in fisheries, the role of research, the challenges of exploiting small pelagic resources for food security (including the challenges of fishmeal production), transparency in fisheries management in Senegal, etc.

APRAPAM draws up three-year action plans to define the strategic axes and priority actions to be implemented. The 2021-2023 Plan, anchored as always in the promotion of the sustainable development of small-scale fisheries by involving all stakeholders, places particular emphasis on taking account of the gender aspect in fisheries policies and decision-making processes.

Website : https://www.aprapam.org/
Email: contact@aprapam.org
By: Gaoussou Gueye, Président

Fish Utilization and Processing

Fisheries and aquaculture production is highly diversified in terms of species, processing and product forms destined for food or non-food uses. As fish is a highly perishable food, particular care is required at harvesting and all along the supply chain in order to preserve fish quality and nutritional attributes, and to avoid contamination, loss and waste.

In this context, many countries employ preservation and packaging to optimize the utilization of fish, increase shelf life and diversify products. Moreover, improved utilization of fisheries and aquaculture production reduces loss and waste, and can help reduce the pressure on the fisheries resources and foster the sustainability of the sector. In recent decades, the fish sector has become more complex and dynamic, with developments driven by high demand from the retail industry, species diversification, outsourcing of processing, and stronger supply linkages between producers, processors and retailers. Expansion of supermarket chains and large retailers worldwide has increased their role as key players in influencing market access requirements and standards.

Moreover, expansion in the global marketing, trade and consumption of fish products in recent decades (see the sections Fish consumption, p. 65, and Fish trade and products, p. 73) has been accompanied by a significant development in food quality and safety standards, improved nutritional attributes and loss reduction. To meet these food safety and quality standards and ensure consumer protection, stringent hygiene measures have been adopted at the national, regional and international levels, based on the Codex Code of Practice for Fish and Fishery Products (Codex Alimentarius Commission, 2016) and its guidance to countries on practical aspects of implementing good hygiene practices and the Hazard Analysis Critical Control Point (HACCP) food safety management system.

Products, utilization and trends In 2018, about 88 percent (or over 156 million tonnes) 9 of the 179 million tonnes of total fish production was utilized for direct human consumption (Figure 23), while the remaining 12 percent (or about 22 million tonnes) was used for non-food purposes. Of the latter, 80 percent (about 18 million tonnes) was reduced to fishmeal and fish oil, while the rest (4 million tonnes) was largely utilized as ornamental fish, for culture (e.g. fry, fingerlings or small adults for ongrowing), as bait, in pharmaceutical uses, for pet food, or as raw material for direct feeding in aquaculture and for the raising of livestock and fur animals.

The proportion of fish used for direct human consumption has increased significantly from 67 percent in the 1960s. In 2018, live, fresh or chilled fish still represented the largest share of fish utilized for direct human consumption (44 percent), and was often the most preferred and highly priced form of fish. It was followed by frozen (35 percent), prepared and preserved fish (11 percent) and cured (10 percent). Freezing represents the main method of preserving fish for food, accounting for 62 percent of all processed fish for human consumption (i.e. excluding live, fresh or chilled fish).

These general data mask major differences. Fish utilization and processing methods differ significantly across continents, regions, countries and even within countries. The share of fish utilized for reduction into fishmeal and fish oil is highest in Latin America, followed by Asia and Europe. In Africa, the proportion of cured fish is higher than the world average. About two-thirds of the fish production used for human consumption is used in frozen and prepared and preserved forms in Europe and North America. In Asia, a large amount of production is sold live or fresh to consumers.

Major improvements in processing as well as in refrigeration, ice-making and transportation have enabled distribution of fish over long distances, across borders and in a greater variety of product forms. In more developed economies, fish processing has diversified particularly into high-value-added products, such as ready-to-eat meals. In developed countries, the share of frozen fish for human consumption rose from 27 percent in the 1960s, to 43 percent in the 1980s, to a record high of 58 percent in 2018, while the share of cured forms declined from 25 percent in the 1960s to 12 percent in 2018. In many developing countries, fish processing has been evolving from traditional methods to more advanced value-adding processes, depending on the commodity and market value. Overall, in developing countries, growth has been seen in the share of production destined for human consumption in frozen form (from 3 percent in the 1960s to 8 percent in the 1980s and 31 percent in 2018) and in prepared or preserved form (from 4 percent in the 1960s to 9 percent in 2018). Fish preserved by salting, fermentation, drying and smoking – particularly customary in Africa and Asia – declined from 29 percent in the 1960s to 10 percent of all fish destined for human consumption in developing countries in 2018.

However, in developing countries, fish continues to be mostly utilized in live or fresh form, soon after landing or harvesting from aquaculture, even as that share declined from 62 percent in the 1960s to 51 percent in 2018. Fish commercialized in live form is principally appreciated in East and Southeast Asia and in niche markets in other countries, mainly among immigrant Asian communities.

In China and some Southeast Asian countries, live fish have been traded and handled for more than 3 000 years, and in many cases practices for their commercialization continue to be based on tradition and are not formally regulated. Yet, marketing and transportation of live fish can be challenging, as they are often subject to stringent health regulations, quality standards and animal welfare requirements (notably in Europe and North America). However, commercialization of live fish has continued to grow in recent years thanks to improved logistics and technological developments.

Nutritional attributes of fish can vary according to the way in which fish are processed and prepared. Heating (by sterilization, pasteurization, hot smoking or cooking) reduces the amount of thermolabile nutrients, although their concentration can increase by cooking, which reduces the relative moisture content of foods, thereby increasing concentration of some nutrients. Several chemicals, either natural (e.g. some smoke constituents) or artificially added (e.g. anti-oxidants), can reduce the impact of heating or other processes on the nutritional quality of fish. Refrigeration and freezing have the least impact on the nutritional attributes of fish.

Source: SOFIA 2020 http://www.fao.org/3/ca9229en/ca9229en.pdf

INFOLOG: NEW RESOURCES AT ICSF

Publications

2020 Blue Economy Report: Blue sectors contribute to the recovery and pave way for EU Green Deal

https://ec.europa.eu/maritimeaffairs/sites/maritimeaffairs/files/2020_06_blueeconomy-2020-ld_final.pdf

The EU Blue Economy Report 2020", providing an overview of the performance of the EU economic sectors related to oceans and the coastal environment.

Food security and nutrition: building a global narrative towards 2030. A report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security

http://www.fao.org/fileadmin/user_upload/hlpe/2020._Global_Narrative/HLPE_2020._FSN__building_a_Global_Narrative_towards_2030.pdf

This report articulates a global narrative that builds on what we know about the current situation with respect to FSN concepts,

Small Nets in a Sea of Change

https://vimeo.com/371511703

Directed by Charles Menzies, Rachel Donkersloot and working in collaboration with local small-scale salmon and lobster fishermen in the north west of Ireland.

The call for supporting Covid-19 impacted fisherwomen in Indonesia

https://www.youtube.com/watch?v=SszmRJ44hGU

This short video tells the impacts of Covid-19 to fishers and fisher women, the initiatives of Indonesian fisher women sisterhood (Persaudaraan Perempuan Nelayan Indonesia) to cope with problems and a call for additional supports.

Safety at sea for small-scale fishers in the Caribbean

http://www.fao.org/documents/card/en/c/ca8626en

This manual on safety at sea for small-scale fishers in the Caribbean aims to contribute to a culture of safety awareness among fisherfolk.

Infographics video on SSF Guidelines: Value chains, post-harvest and trade

https://www.youtube.com/watch?v=gYZJAVTJC70&feature=youtu.be

This short, animated video gives insights into value chains, post-harvest and trade in small-scale fisheries in small-scale fisheries.

Infographics video on SSF Guidelines: Disaster risk and climate change

https://www.youtube.com/watch?v=mkMqnbodhV8&feature=youtu.be

This short, animated video addresses the impacts of disasters and climate change on small-scale fisheries.

Infographics video on SSF Guidelines: Governance of tenure and resource management

https://www.youtube.com/watch?v=uOQ8F4LVyho&feature=youtu.be

This short, animated video gives insights into governance of tenure and resource management in small-scale fisheries.

Infographics video on SSF Guidelines: Social development, employment and decent work

https://www.youtube.com/watch?v=R2kditb6-y4&feature=youtu.be

This video gives insights into issues of social development, employment and decent work in small-scale fisheries.

FLASHBACK

Food First?

Fish is at one and the same time both a source of food and income. This is a quintessential characteristic which should be borne in mind while discussing the issue of food security. In fishing communities, on the one hand, there are large numbers who depend primarily on fishing for a livelihood. For them, it is the income from the sale of fish that lets them pay for the bare necessities of life. On the other hand, there are those who rely on farming, fishing or mere gathering from the bush, in order to exist. For the people of such communities, fish is less a source of income than a source of subsistence–often a vital means of partially meeting their daily nutritional requirements of protein.

From the point of view of consumers, in several developing countries there exist underprivileged classes like agricultural labourers, plantation and mine workers, who bank on fish as a source of cheap protein. This demand for fish is met mostly by domestic or regional trade. In contrast, there are fairly prosperous consumers in developed countries whose culture, habits and dietary preferences, more than anything else, determine the demand for fish. The requirements for this large market are satisfied mostly from imports.

Augmenting supply per se means little to poorer consumers at the household level, unless the increase in supply should translate into better incomes for poorer fishworkers. Furthermore, concentrating only on the supply side, without in any way restraining demand, could be ultimately counterproductive. This is because the market is the worst enemy of good resource management. The market mechanism invariably proves efficient enough to absorb large quantities of fish and can thus subvert any management measure, however worthwhile.

For certain species of fish, it may be difficult to dissuade the fishworker from responding to market signals. This is particularly true in the case of shrimp, tuna and cephalopods– species that enjoy strong demand in international markets. This fact underscores how important–and difficult –it is to delineate a lucid policy on fisheries and food security. In countries of the South, different policy matrices can be constructed, depending on whose food security is on the agenda. Thus it is important to develop a judicious programme for fishing communities that spells out regional priorities, based on social and economic considerations. Simultaneously, such a programme should also address the consumption requirements of local consumers. The over-riding objective–necessarily double-headed and thus somewhat contradictory–should be the welfare of both fishworkers and underprivileged consumers. Clearly, this is a difficult goal. But it will never be reached if two vital aspects are forgotten: better management and allocation of fishery stocks, and greater protection of fish habitats.

– from SAMUDRA Report No. 14, March 1996

ANNOUNCEMENTS

MEETINGS

Twenty-fourth meeting of the Subsidiary Body on Scientific, Technical and Technological Advice, 2 - 7 November 2020, Canada

https://www.cbd.int/meetings/SBSTTA-24

Technical meeting on the future of work in aquaculture in the context of the rural economy, 23 - 27 November 2020, Geneva, Switzerland

https://www.ilo.org/sector/activities/sectoral-meetings/WCMS_726160/lang--en/index.htm#banner

The meeting will discuss issues relating to the future of work in the aquaculture sector as well as to the promotion of decent work in the rural economy, with the aim of adopting conclusions, including recommendations for future action.

WEBSITES

Covid-19 : Sustainable Fisheries Partnership

https://www.sustainablefish.org/COVID-19

During this pandemic, SFP is committed to supporting the seafood industry in protecting fishers and workers throughout the seafood supply chain. With an immediate goal of protecting worker safety, we have compiled the following set of international resources.

Fish-COV: ICSF's website addressing the impact of the COVID-19 pandemic on fisheries and fishing communities

https://covid.icsf.net/

ICSF has been tracking the impacts of the COVID-19 outbreak on fisheries through our daily news alerts. In addition, ICSF will gather information on specific sectoral issues at national, regional and international levels, on three parameters – impact, relief and recovery.

WorldFish Response to Coronavirus

https://www.worldfishcenter.org/pages/covid-19/

As the COVID-19 pandemic continues to spread globally, many countries are putting in place unprecedented lockdown measures.

J. DOS REIS LOPES - WORLDFISH

Endquote

World without GDP

Imagine there's no GDP
It's hard but we must try
Not just goods and services
We need to ponder why
Imagine we count happiness, even for a year

Imagine there's no poverty
Wealth not in hands of few
More schooling, health and housing
Gender equity too
Imagine all the people, living happily

You may say I'm a dreamer
But I'm not the only one
There's Stiglitz, Sen and Daly
Let's run with what they've done

Imagine social equity
Oh! Can't you take that call
No need for greed or hunger
A sisterhood of all
Imagine all the people, sharing all the world

You may say I'm a dreamer
But I'm not the only soul
I'm sure that more will join us
Till we realize our goal
(Inspired by John Lennon, nudged by Eddie Allison)

– John Kurien