

GAF8: Shaping the future

Packed with meaningful discussions and exciting events, the 8th Global Conference on Gender in Aquaculture & Fisheries (GAF8) was a clarion call for gender justice for sustainable aquaculture and fisheries

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In November, 2022, the city of Kochi in the southern Indian state of Kerala, marked a milestone in the history of gender and fisheries when it played host to the 8th Global Conference on Gender in Aquaculture & Fisheries- Shaping the Future: Gender Justice for Sustainable Aquaculture and Fisheries (GAF8).

Organised by Gender in Aquaculture & Fisheries Section of the Asian Fisheries Society (GAFS of the AFS) in collaboration with the ICAR-Central Institute of Fisheries Technology (ICAR-CIFT), Kochi and the Society of Fisheries Technologists (India) (SOFTI), Kochi, GAF8 took place in Kochi during 21-23 November 2022. Several national and international institutions and organisations supported the historic event. These include ACIAR (Australian Centre for International Agricultural Research), the Food and Agriculture Organization of the United Nations (FAO), National Fisheries Development Board (NFDB), the Bay of Bengal Programme (BoBP), the Fisheries Research Institutes of ICAR, the Pacific Community (SPC), the International Collective in Support of Fishworkers (ICSF), the Asian Fisheries Social Science Research Network (AFSSRN) of the AFS; and projects like Dried Fish Matters (University of Manitoba, Canada), the Indian Ocean Collaboratory on Small Scale Fisheries (Social Science Research Council, USA), and the Illuminating Hidden Harvests (FAO, Duke University & WorldFish). From modest beginnings in a workshop in 1990 on 'Women in Fisheries in India', GAFS has evolved into a major global platform for discussing and debating various dimensions of women's work in fisheries and aquaculture.

Decades of concerted efforts by stakeholders in the fisheries and aquaculture sectors have highlighted key gaps in mainstreaming gender equity and equality. Though gender equality is a key Sustainable Development Goal – SDG 5 solely focuses on gender equality – the absence of sensitive, responsive, inclusive and interdisciplinary approaches typifies the dominant perspectives on gender issues in aquaculture and fisheries. The problem gets

compounded by poor quality, non-disaggregated data at different levels, from local to national and global. Policies on gender equality in fisheries are often weakly implemented and supported. Never has the need for knowledge sharing been stronger than today when the sector increasingly faces unprecedented and unpredictable scenarios such as climate change impacts, pandemics and economic shocks.

The present issue of Yemaya is a Special Issue on GAF8. It carries the gist of the discussions that took place over the three days of the conference in which 79 papers were presented on six thematic areas and which attracted 198 delegates from 26 countries. The sessions covered the following themes:

- Women's voice and agency: Individual collectives, associations, platforms, institutions
- Women's work in aquaculture and fisheries: Human rights, labour rights, occupational safety and health, exploitation, conflict
- Pandemics, disasters and shocks: Impacts on livelihood, occupations, habitat, resources, life
- Gender justice & institutional roles: Policy regime, roles of civil society, academia and other formal and informal institutions at local, national and global levels
- Understanding women's rights: Tenure, resources, institutions, inputs, foods, nutrition
- Women achievers: Success stories of women entrepreneurs in aquaculture and fisheries

The discussions led to common ground, such as the need for new approaches to document and analyse gender issues in aquaculture and fisheries, including human rights, intersectionality, and transformative, participatory, and gendered value chain approaches. The emphasis was on including social, political, cultural, and economic dimensions as well as their interactions, and on context-specificity and responsiveness. Participants also agreed that standardized tools and methodologies are needed for generating



Floating market in Banjarmasin, Indonesia, in early morning showing women participation in productive role. Participants also agreed that standardized tools and methodologies are needed for generating gender-based data in aquaculture and fisheries to inform policy and planning

gender-based data in aquaculture and fisheries to inform policy and planning. More specific recommendations are provided in the last section.

Besides the six thematic sessions summarized below, ten Special Sessions on projects, initiatives, narratives and stories from different parts of the world were presented in panel discussions, paper presentations, video and photo presentations and storytelling sessions. One of these, the Special Session on ‘Women in fisheries: Shared experiences’ organised by ICSE, was covered in the report “Building Solidarities” in Yemaya Issue 66. Forthcoming issues of Yemaya will include the outcomes of the Special Sessions.

Thematic Session: Women’s voice and agency: Individual collectives, associations, platforms, institutions

Women occupy widely varied roles in fisheries and aquaculture. They use their own agency, sometimes with support from societal institutions, to articulate their views and needs in numerous and diverse ways.

A study by Sajesh V K, Pe Jeyya Jeyanthi and Rejula K demonstrated the key role played by institutions and systems in building capacities, providing access to productive

resources and creating a gender-empowering environment. The focus of the study was the fisheries extension system in Kerala, India, which, through agencies like the Society for Assistance to Fisherwomen (SAF), the Kerala State Co-operative Federation for Fisheries Development Ltd. (MATSYAFED) as well as through NGOs, provide women in fisheries a variety of schemes and programmes. Examples include the *Theeramaithri* scheme, run by SAF, and the *Theeranaipunya* scheme, run jointly by ICAR-Central Marine Fisheries Research Institute and SAF. The researchers found that women in the fisheries sector commonly face the challenges of poor access to inputs, information, infrastructure, trainings, credit, subsidies and other services, and suggested the need for inclusive extension approaches in fisheries including ergonomics, health, and nutrition. They found that coordination between organizations in the sector is limited and needs to be improved while grass roots organizations and neighbourhood groups and NGOs could be strengthened and better used in extension work. As the role of extension is evolving and becoming more evidence-based, participatory data has become more valid and important in extension research.

Decades of concerted efforts by stakeholders in the fisheries and aquaculture sectors have highlighted key gaps in mainstreaming gender equity and equality

Ria Fritiana, Onesya Damayanti and Rizani Ahmad presented the findings of their study carried out in Lampung, Indonesia - a major global producer and exporter of crab. The study dwelt on women in the blue swimming crab fishery (BSC) who are involved more in BSC pre- and post-production activities rather than fishing. Women have knowledge about BSC size, quality and bycatch products. However, they get fewer opportunities than do men to broaden their understanding of management matters and express their opinions in meetings and public forums. A priority need for women in BSC is capacity development in areas such as finance, landing sites protocol, and processing of BSC byproducts. The BSC fishery itself faces several issues including overfishing in

Lampung, management of used nets and waste crab shells, bycatch from fishing that causes silting in the area, the issue of micro plastics, and occupational health along the value chain. People have poor awareness about management policies such as BSC mesh size regulations. The continued efforts by implementing agencies for the integration of gender aspects into BSC management have led to changes in the system and now women's group are becoming part of BSC Management committees in Indonesia. A forum of women, *Perempuan Nelayan Rajungan Bersatu Sungai Burung*, was established in Sungai Burung Village in Tulang Bawang District as a focal point to accelerate the activity of women's groups, and receives formal support from the village government.



At the fish landing site, women intermediary collects fishery products from fishers, and redistributes them to different destinations in Cambodia. Women played a crucial role in aggregating and redistributing fish, but this is neglected in documentation and reporting, making it impossible to develop policies that address their needs

M.U Rekha, T.T Ajith Kumar and Kuldeep K Lal documented the life of women subsistence fishers in Lakshadweep, India, engaged in an initiative by ICAR-NBFGFR (National Bureau of Fish Genetic Resources) to encourage community ornamental shrimp rearing as an additional income generating activity. The breeding and seed production of shrimps was standardized by the Bureau, and the objective of the activity was to increase family income through women-oriented activities. Where access to export markets is limited, this model may promote employment generation for people using native resources.

An analysis of gender issues in fishers' organizations in Thailand by Malasri Khumsri and Kyoko Kusakabe, using the examples of three fisheries groups in Rayong Province, found that women's participation improved the sustainability of such organizations. External support, the study found, is a result of a strong group, and not the other way round, with risks and shocks creating the impetus for group formation. Fisheries groups were stronger when the members' main income came from fisheries itself. For effective community groups, diversity in group membership is essential, with rules

playing an important part in keeping the group in order. The sharing of leadership positions, so that the maximum number of members could gain experience in managing committees and in understanding why the rules were needed, were found to be important for the sustainability of organizations.

The impact of construction of a steam power plant on fishers in Roban village, Batang Regency, Indonesia, and, in the context, the adaptation by local women, were explored by Arisanti Ayu Wardhani and Indah Susilowati. The establishment of the thermal plant in a fishery resource-rich area resulted in a loss in fish catch and income, and an increase in the cost of fishing. To tackle the problem, the government extended support to help the women open restaurants and start mangrove cultivation. Participants concluded that fisheries are a highly unstable choice of employment, and therefore, alternative means of employment are crucial. The study concluded that women can play an important role in economic adaptability in turning even disasters into blessings.

Priorities for addressing gender equality and youth empowerment in the rural development work of the Centre on Integrated

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Through empowering disabled women, a sustainable, resilient and inclusive communities can be developed

Rural Development for Asia and the Pacific (CIRDAP) were presented by Usharani Boruah. The presentation revealed that CIRDAP now annually observes the International Day of Rural Women. It aims to strengthen capacity on gender, youth and rural development through training, workshops, webinars and exposure visits.

A team of researchers – Jariya Sornkliang, Malasri Khumsri, Wanna Thawinwan, Tamolwan Raweng, Suphalak Ruaylap, Narakorn Somwanthana Ratana Tiaye and Krit Phusirimongkolet – discussed the roles and background of women leaders in successful fisheries and aquaculture management in two groups in Buriram and Rayong Provinces, Thailand. In these two groups, women were accepted as leaders in the fishers' groups in Thailand because of their education and family background. Each group carries out a variety of activities to help local people economically. The comparative analysis revealed that increased participation of women and a strong group leader were key to the success of a group.

From Kerala, India, a study presented by Neethu Mol Jacob, Vijaykiran V and A Suresh, documented the activities of SAF, MATSYAFED and State fisheries Departments in promoting fisheries cooperatives, including livelihood improvement through initiatives such as seafood restaurant chains, sewing units, joint liability groups, and refrigerated mobile fish vending kiosks. The study found that many women had not taken advantage of these opportunities. It also found that dependency on private money lenders has decreased as governmental schemes offer loans with marginal interest. The study recommended that the Government should support the advocacy and networking efforts of organizations of women fishworkers, and address sectoral complexities, especially in the face of competition from industry, trade and tourism.

The opportunities for people with disabilities in fisheries and aquaculture are rarely discussed and addressed. Rakhi Barua (Bangladesh) documented and presented the role of the Centre for Disability in Development (CDD) and CIRDAP in promoting women with disabilities. She presented a welcome and powerful voice throughout GAF8, asking questions of other speakers and joining in debates on enlarging the space and opportunities for those with disabilities. She stressed that the general challenges faced by women with disabilities were reduced income, lack of access to government aid, unpaid care burdens, and multiple layers of discrimination due to general and social norms. CDD and CIRDAP focused

on supporting organizations of disabled people such as women's self-help groups, building economic opportunities and capacity through financial literacy, business skills, entrepreneurship, and educating rural disabled on nutrition and foods. Shared activities and care from men are promoted as this allows women to become more engaged in community activities, including in representing disabled people and becoming more politically active. Inclusive social action must be a priority when administering gender transformative social accountability tools. Through empowering disabled women, a sustainable, resilient and inclusive communities can be developed.

Thematic Session: Women's work in aquaculture and fisheries: Human rights, labour rights, occupational safety and health, exploitation, conflict

Documentation of the roles and activities of women in aquaculture and fisheries is the largest area of enquiry, forming the bulk of information generated in the domain. Such documentation is important for deepening the understanding of the sector and for comparative analyses across regions. The many commonalities in the situation of fisherwomen in different parts of the world can help evolve better solutions.

The subsector that women predominate is postharvest, which involves activities that start immediately after harvest or once the fish is landed. The presentations in this thematic session revealed that women's work in postharvest as well as in other value chain activities are marked by gender-based differences.

Fisherwomen's work along six coastal villages of the three provinces in Cambodia, Trapeang Ropov and Trapeang Sangkae of Kampot, Angkaol and Ou Krasar of Kep, and Preaek Pras and Chrolong villages of Preah Sihanouk, indicates that women played a crucial role in aggregating and redistributing fish, but this is neglected in documentation and reporting, making it impossible to develop policies that address their needs. As the presentation by Leakhena Chin, Tsutom Miyata, Hiroshi Saito and Satoshi Ishikawa revealed, although women's participation in fishing in offshore waters is limited, multiple roles on land contribute significantly to the economics of fishing as well as welfare of households.

Several studies on women's work were shared from South Asia, particularly from the host country, India. Vijaykiran V, Neethu Mol Jacob and A. Suresh examined four different areas in Kerala, India and found women's involvement to be higher in fish marketing, curing/drying and peeling. A study of women's work in Malpe Harbor in the Udipi District of



Fish processing group in Namxouang reservoir, Lao PDR. The processing group helped to promote women's empowerment, contributing much-needed incomes to households and communities

Karnataka, India, presented by Swathi Lekshmi P.S. and Amrutha Prakash also found women's involvement in post-harvest/secondary sector activities to be significantly higher than men's, but also revealed that women are disadvantaged in terms of income and social status, with limited access to information and services, markets, social protection, decision making and leadership positions. These findings were corroborated by a study from Ramanathapuram in the state of Tamil Nadu in India, presented by Ganeshkumar, K. Shivaji Argade Neha Qureshi and B. Johnson, which found that men dominated family headship, house ownership, boat ownership and decision making. Further, the study found significant gender-based differences in social participation, drudgery, decision making, participation in fishing activities and gender empowerment.

A number of studies from India showed that women dominate fish vending in several states in the country. The state of Kerala was the focus of a study by A. Suresh, S. Ashaletha and K. Rejula. The state of Maharashtra was explored in three different studies: one, by Jeyya Jeyanthi Pe, Sajesh V K. and Nikita Gopal; the second, by

Shubham Soni, Arpita Sharma, Martin Xavier, Nidhi Katre, Gitashree Thengal, Mehul Patel, Anurag Singh and Swadesh Prakash; and the third, by Rehana Raj, Greeshma S.S., Priyanka Nakhawa, Nikita Gopal and Asha K.K. The state of Goa was the focus of a study by Shweta Chavan, Bharat M. Yadav, M. M. Shirdhnakar, K. J. Chaudhari and S. S. Gangan.

Women from traditional fishing communities, like the Kolis in Maharashtra, dominate fish vending in India. In Goa, around 48 percent of fish vendors are women. In Kerala, women fish vendors have to deal not only with persistent infrastructural problems like lack of sanitation and non-existent or poor access to public transport, but also emerging issues like increasing competition from men especially in mobile vending and digital marketing, which necessitate new approaches to marketing which the women are ill-equipped to exploit. Increasing pollution and improper waste disposal options are major challenges. Markets are developed in areas that are difficult for women to access and use, underlining the need for greater stakeholder engagement in urban planning. Ipsita Biswas's study of women fish



Maneesha, teenager from the Katkari tribe crabbing to feed her family Karanja creek rocky shore, Raigad, Maharashtra, India. The main challenges contributing to poor incomes from fishing were poor infrastructure, lack of ice, limited local market facility, and poor transportation

vendors in the land-locked Muzaffarpur district in Bihar, India, found that the women faced several constraints, including a lack of financial independence, poor infrastructure facilities, and poor work recognition.

Another widespread postharvest activity for women is fish processing. This includes small-scale activities like the drying, smoking, curing and pickling of fish as well as the factory-based production of processed fish and seafood. Across these subsectors, there are significant gender-based differences that disadvantage women workers.

In Bangladesh, A. K. M. Nowsad Alam and Al Shahriar found that even in districts like Cox's Bazar where women predominate fish drying work, there are gender-based differences in access to training in fish drying as well as food safety and hygiene, and further, that women receive lower wages, up to 30 to 32 percent less, compared to male workers for the same work. In Alibaug in Maharashtra, India, women singlehandedly carry out various dry fish value chain processes such as fish procurement, sorting, cleaning, drying, packaging, retail and wholesale selling; they are forced to work in unhygienic conditions without access to potable water, and also shoulder the burden of domestic responsibilities.

Women form the backbone of the seafood processing sector. Madhusudana Rao, B. Viji, Pankamma, Ahamed Basha, K. and Jesmi Debbarma found that in shrimp processing in

Andhra Pradesh, India, 63 percent of workers were women and that this number rose to almost 80 percent at floor level. However, relatively fewer women were employed as quality managers, and none as plant managers, indicating that women's work continues to be concentrated in lower waged employment.

Other forms of vulnerability for women in postharvest have also been documented. Carmen Pedroza-Gutiérrez's study found that women workers, referred to as *gavioter*as in Yucatan, Mexico, were paid a share of daily catch of the fish in exchange for their work on boats at landing centres. This mode of payment however posed an inherent risk as reduced catches meant reduced shares and income. Over time, with increased competition among *gavioter*as for work, accidents in the race to get into the boats, and the sexual harassment of women are reported. Notwithstanding these challenges, the work offers women income, flexible working hours and access to food in the context of widespread poverty, and constitutes an important link in the fish value chain.

While women's presence in postharvest is significant, they are involved in other fishery sectors as well. There is increasing evidence of women's role and contribution in harvest activities particularly in small-scale fisheries.

A photo essay by Priyanka Nakhawa, Ananthan, P.S., Ajay Nakhawa, L. N. Murthy, K.K Asha and Shivaji Argade showed the involvement of women in fish harvest activities

Women workers, referred to as *gavioter*as in Yucatan, Mexico, were paid a share of daily catch of the fish in exchange for their work on boats at landing centres

in the shores and creeks along the Raigarh and Thane districts of Maharashtra, India. Women fishers could be seen gleaning oysters at night as well as gill netting. The photographs also showed that the women faced challenges in terms of lack of tools and safety equipment, landing places and marketing, and enjoyed little or no support from their own communities.

Fishing as a collective family activity was documented by K.M Sandhya. K.K Prajith and M.P Remesan in an island community in Vembanad estuary, Kerala, India, which engages all the community's women, either directly or

indirectly. About 20 percent of the women in the village carry out fishing using traditional wooden canoes. They work without assistance from male family members, and in fact, may also assist the men. A major challenge to the availability of fish and fishery-based incomes in the estuary is the growing pollution of local water bodies.

In inland fish farming in Ernakulam district, Kerala, India, V. Geethalakshmi, V. Chandrasekar, Nikita Gopal and A.A. Zynudheen found that women's role, though largely supportive, is crucial in the farming of catfish, tilapia, sea bass,

Postharvest processing work, which engages predominantly women is associated with a range of occupational health hazards

crab and pearl spot and includes the sorting of fingerlings, stocking, feeding, and fish harvest.

The thematic session on women's work also included case studies covering the seaweed sector: wild seaweed harvesting in India and seaweed farming in Africa. Wild seaweed harvesting in the Gulf of Mannar and Palk Bay region was explored from a gender perspective by M.S Ahila, Neha W. Qureshi, P.S Ananthan, Shivaji Argade and B Johnson, who found a lack of gender-disaggregated data on employment, incomes and wages in the wild seaweed value chain. Women collected wild seaweed stocks and were engaged in the postharvest and processing segments. About 57 percent of the seaweed harvesters were women, and for 61 percent of the women, this was their primary source of income. All the seaweed agents were men who paid women less than men for the same work. A traditional, often an inherited occupation, wild seaweed harvesting is done using minimal protective gear, which causes injuries. Harvesting is regulated by government policy and restricted to twelve days a month, and conflicts with law enforcers are commonly reported.

A case study presented by Cecile Brugere, Flower E. Msuya, Narriman Jiddawi and Tulika Bansal on seaweed farming in Zanzibar showed a high degree of gender-based inequity in terms of participation and benefit in post-harvest aspects as well as agency, voice and institutions in the production and post-harvest domains. A combination of inclusive business models, innovative governance procedures, social provisioning and targeted capacity building was proposed to be an effective strategy to ensure equity and empowerment of women in seaweed value chain. Some actionable points include value chain contracting, collective action, social enterprise, economic empowerment, benefit sharing, cooperative management, corporate social responsibility, with subtractive equity and agency, intersectionality and integrated knowledge systems being the major underpinnings of such a strategy.

Sun Ae Li's presentation on women divers in South Korea demonstrated that their work has not only become somewhat of a historic relic but also increasingly more difficult, plagued by management and access issues with the growth of competitive industries like tourism.

The various types of harvest and postharvest work that women do also present significant occupational health hazards. Several studies presented in the thematic session on women's work offered testimony to the fact that the occupational hazards that women face have not received the serious attention and policy

action that they deserve, reflecting the general disregard for women's work in the sector.

Documenting occupational health issues in the harvest sector, T Bhuvaneswari, R Jayakumar, R Subburaj, R Geetha, T.N Vinay, M Kailasam and K.P Jithendran described how coastal fisherwomen in Kottakadu village in the Chengalpattu district of Tamil Nadu, India, whose livelihood is oyster collection, suffer skin cuts and abrasions in their hands and feet; eye irritation; colds; skin burn; musculoskeletal weakness and can even lose their lives due to workplace accidents. They reported that, as an alternative livelihood option, skills training was being provided by ICAR-Central Institute of Brackishwater Aquaculture (CIBA) in Chennai, Tamil Nadu, on the scientific rearing of Asian seabass (*Lates calcarifer*) in low-cost pens and cages.

Postharvest processing work, which engages predominantly women is associated with a range of occupational health hazards. In the context of fish smoking, an important women-centric activity in many African nations, a social intervention was carried out in Lagos in western Africa where biomass briquettes and modernized drum kilns were introduced for smoking fish in order to reduce both the high levels of harmful polycyclic aromatic hydrocarbons (PAHs) in smoked fish as well as the depletion of forests for firewood. The study team, consisting of Kafayat A. Fakoya, Kafayat O.Ajelara, Ayojesutomi Abiodun-Solanke and Shehu L. Akintola, used participatory action research methods under the Gendered Design in Science, Technology, Engineering, Arts and Mathematics (STEAM) programme in a study that was innovative, reliant on local knowledge and gender responsive. Community outreach on biomass briquettes and the prototype drum kiln, attempted though peer to peer learning and social networking, found several takers as it was adaptable to existing traditional and local settings.

Another postharvest sector activity, fish vending, too involves significant occupational risks. Women sitting for long hours to sell fish develop musculoskeletal disorders, as a study from Puri and Ganjam districts, Odisha, India by Suchismita Prusty, Arpita Sharma and Vinod Kumar Yadav found. The study used the Ovako Work Posture Analysis System (OWAS) to categorize work postures adopted for cleaning, drying and selling. Fresh fish retailers were involved in the collection of fish from landing centres, sorting the fish, commuting to the fish market, and cleaning and selling the fish, while dry fish retailers collected fish from landing centres/wholesalers, sorted it, commuted to fish

markets, cleaned, salted, dried and sold fish. The study found that fresh fish vendors worked about 13 hours in all.

Industrial fish and seafood processing carries significant occupational health risks. Krishna A.S and Nikita Gopal found that women workers in the seafood processing sector in Kerala, India, report ill health due to exposure to cold, chemicals and organic seafood matter in the work place. Their job tasks are long and repetitive, leading to musculoskeletal disorders such as cervical, dorsal, and lumbar issues, slipped discs and so on. Work place injuries due to the slippery environment, and occupational allergic reactions, including respiratory and dermatological issues, are also noted. Though regular medical check-ups are part of the industrial protocol, they need to be implemented rigorously.

Migrant women workers in industrial seafood processing represent another at-risk population in terms of occupational health. A study by Sokha Eng documented the life experiences of women migrants in the fisheries in Thailand, examining their working conditions and the strategies they use to resist exploitation, including the use of migrant networks. The migrant workers hailed from Myanmar and Cambodia and worked as laborers in the Thai fisheries. The study found that these workers worked in hazardous working conditions, received low incomes, and faced employment immobility, violence and intimidation. The female migrant workers were involved in fish processing, including picking, sorting and gutting, and faced challenges like

irregular, informal, and piece rate work as well as inconsistent payment. Only a fraction of the women workers had work permits that were tied to their husband's employers. Their pattern of work was highly irregular, ranging from four to ten days a month. Their wages were meagre, and sometimes delivered not in cash but in kind, in the form of a portion of fish. Often, they were forced to take up other forms of poorly paid work, such as crushing dried fish, to support themselves. However, such types of additional work were technically illegal, since the migrant work permit was meant for only certain types of work in the fisheries.

In a study conducted in a fishing village in Kerala, India, a research team consisting of Sajna V.H., Sethulakshmi C.S., Sreejith S. Kumar, Madhu V.R., Sandhya K.M., Rejula K, Bethan O'Leary, Deepayan Bhowmik, Paul Kemp, Bindi Shah and Nikita Gopal, found that female labour was moving away from the fisheries sector. The reasons for this were the educational and economic progress of the fishing community, changes in the perspective of social status, lack of interest, lower wages, drudgery, lack of financial assistance and inadequate technical assistance.

A study by Tulika Bansal, which explored human rights issues in fisheries and aquaculture in several parts of the world, revealed discrimination, including towards pregnant workers, lack of family-friendly policies, the prevalence of gender-based violence including harassment, verbal and physical violence and rape, gender wage gaps and unequal access to higher levels of work, such as in middle

SANDHYA K.M.



Gillnet fishing by inland fisherwomen at Valanthakad fishing village, Vembanad lake, Kerala, India. A major challenge to the availability of fish and fishery-based incomes in the estuary is the growing pollution of local water bodies



Tarusila Veibi, a fisherwoman and welfare worker from Fiji. An enabling environment is critical for gender justice, and institutions have a crucial role to play in creating an environment where women, particularly, poor and marginalized women, are safe and can hope to thrive

management in Chile's salmon industry. It also found that the majority of workers in the shrimp sector in Bangladesh reported a gender wage-gap, and in Ghana's small scale fishing sector, there was only limited government support to women working in fish processing and trading activities, including access to subsidies; skill upgrading/training; education, sanitation facilities. To make the fisheries and aquaculture sectors more gender equitable, the study advocated social protection and the implementation of international human rights law instruments.

Arlene Nietes Satapornvanit, Meryl J. Williams and Nikita Gopal presented a Cooperative Action Plan as a guide for addressing gender and labor issues in the Asia-Pacific fisheries and aquaculture. The goal of the roadmap is to contribute to greater regional understanding across stakeholder groups of key labour challenges for women in fisheries and to support regional advancements for gender and just, equitable, and inclusive labour conditions in the Asia-Pacific region. The Plan adopts an intersectional approach based on the understanding that women's labour is diverse, as are women themselves and their needs. It is being disseminated to promote gender-equitable actions among various stakeholders, their members, networks, and partners and in the press and social media.

Thematic Session: Pandemics, disasters and shocks: Impacts on livelihood, occupations, habitat, resources, life

This thematic session explored how the consequences of disasters and shocks, whether natural or man-made, are gendered. Men and women are impacted differently; they have different capabilities and skills to cope with such events, and further, disaster policy and action are often gender-blind, failing to take into account the specific needs of the most vulnerable, especially of women.

Through case studies and reports from Bangladesh, India, Kenya, Mexico, Nepal, Philippines, Thailand, China and Indonesia, the following section covers the discussions that took place around, first, the most recent event that had global ramifications – the COVID-19 pandemic, and then, other disasters and shocks that impact particularly the fisheries and aquaculture sectors.

During the COVID-19 pandemic, in Bangladesh, around 11 percent of the population turned to agricultural work as this was the only productive work available during the pandemic. As Mohammad Monjurul Karim reported, lockdowns minimised the opportunity of manual labour in cities, and with farming and fishing presenting intermediate solutions, a reverse migration to villages was observed.

COVID-induced lockdowns had caused huge disruptions to market access and the financial viability of women

In neighbouring India, Aswathy N, Anuja A R., Sunil P .V and Vipinkumar V.P found that during the pandemic, the average earnings of women working in the peeling sheds of Alappuzha in the southern state of Kerala, were higher than those of workers in other categories. In small-scale fisher households in Alappuzha, monthly expenses fell by 21 percent during the pandemic while in similar households in the nearby city of Ernakulum, monthly expenditure fell by 30 percent. However, household incomes also declined, leading to increased indebtedness among small-scale fisher households, with more than 75 percent households borrowing money to tide over their financial constraints. A 37 percent rise in gender-based violence and a 67 percent rise in household work were reported by the respondents in Alappuzha during the pandemic.

Wilckyster N. Nyarindo, Hezron N. Isaboke and Robyn Alders reported that in Kenya, during the pandemic, the high cost of feeds, lack of output markets, inadequate resources

to formulate own feeds, lack of resources for disease vaccination, drought and inadequacy of water adversely affected the poultry sector, where employment is dominated by women and youths. With the introduction of improved breeds of poultry, indigenous breeds have suffered, and in the context, the COVID-19 pandemic posed significant challenges for poultry production, which need further study and action.

From Mexico, a study by D. Pinedo, Lopez-Ercilla, I., N. Solano, J. Torre and F.J. Fernández Rivera Melo discussed efforts to promote gender equality in small-scale fishery-based sustainability initiatives and explored the conditions necessary for fisherwomen to reach, and remain in, leadership positions. In response to the socio-environmental shocks posed by the pandemic, the study recommended encouraging initiatives that promote economic autonomy, with particular attention paid to the community contexts in which women live.

The absence or the poor quality of homes and infrastructure can be a disaster risk for fishing and coastal communities

Dipika Das and Sanjeev Poudel discussed the impact of COVID-19 on marginalised women smallholder farmers in the Eastern Tarai region of Nepal. They reported that the COVID-induced lockdowns had caused huge disruptions to market access and the financial viability of women, while stay-at-home protocols had increased the work burdens of women vegetable farmers. Up until the lockdown was lifted, these women managed their livelihood by selling vegetables door-to-door, relying mainly on social networks and locally-available high interest credit.

Sashah B. Dioso and Darlene Joy D. Calsado presented the findings of their study on the impact of COVID-19 in Pandan, the first municipality in mainland Antique Province, Philippines, to register a case infection in April 2020. The study detailed the multiple ways in which, as infections spread and mobility restrictions and lockdowns were imposed, the lives of fishing communities in Pandan, who relied on the sea for daily subsistence, were disrupted.

Another study of the impact of COVID-19 in the Philippines was presented by Lovella Mae M. Magluyan, whose focus area was the Gigantes group of islands in the municipality of Carles, Iloilo, one of the exploited sites of shellfish production in the Philippines. The women shell fishers in the small islands faced loss of income, financial burdens, struggles with home schooling and temporary disconnection from the mainland due to strict travel protocols. The women coped by looking for new income generating activities, providing emotional support to family members, helping with the enforcement of community quarantine, seeking locally-available help with home schooling their children, and, in the absence of access to formal lending institutions, availing loans from local financiers on high interest rates.

The impact of the pandemic on fishers in the small-scale fisheries and industrial fisheries in five coastal provinces along the Gulf of Thailand was the focus of a study by Watcharapong Chumchuen, Shiela Villamor Chumchuen, Krisada Kajonrit and Kraison Krueajun. The team interviewed 171 Thai fishers in both small-scale and industrial fisheries. Most of the interviewees were male fishers, working as skippers, workers, steersmen, mechanics and vessel owners, while a few were women, some vessel owners in industrial fishing and some workers. For most, the pandemic resulted in reduced market access, high cost of fishing, and high revenues from the catch but they also reported having received support in the form of loans and gear supplies from a range of private and government institutions.

A pandemic of the scale and intensity of COVID-19 was no doubt an unexpected and extraordinary disruptor in the lives of the general public. However, the specific vulnerabilities of fishing and coastal communities make them vulnerable to the impacts of a wide range of natural and manmade hazards and disasters. Within fishing and coastal communities, disadvantaged populations, such as women, are at higher risk.

An analysis of the gendered vulnerability of coastal fisher households in Ernakulum district, Kerala, India carried out by Aswathy N, P.U Zacharia, P.V.Sunil, Shyam S Salim and Athira N.R came up with a composite livelihood vulnerability index (LVI) based on data from 400 small scale fisher households. The team found that female-headed households had significantly higher vulnerability compared to male-headed households, indicating a need for gender-inclusive approaches in developing action plans on climate change adaptation and disaster - risk reduction programmes.

Pratikshya Neupane and Sunila Rai in their study documented the role of women in the mitigation of impact of climate change in aquaculture in Chitwan District, Nepal, a country where aquaculture is one of the fastest growing sectors of food production. The study found that women's participation in mitigation of climate change impacts in small scale fish farming is higher but so also is their vulnerability; further, they found that women require better training in technology and knowledge to minimize fish loss from flood and drought.

In China, fishing bans act as a double-edged sword: they help realize sustainable goals but have an exclusionary effect on disadvantaged groups. The researcher Sai Tang found that women and men from the fishing community around the Erhai Lake, Yunnan, China have been affected by a fishing ban implemented since 2017, with heavy penalties for illegal fishing. The study found that the livelihood impact of the fishing ban was gendered. With household fishing days decreasing dramatically, women's participation in illegal fishing trips decreased and they became more dependent on men's fishing activities. Households with transport continued to fish in other villages, but those without had fewer fishing days. While men controlled major decisions and assets and felt free to play Mahjong on idle days, it was women's responsibility to ensure normalcy within the family. The study concluded that more inclusive policymaking was needed to balance conservation and livelihood goals.

A study by Veena N and Kyoko Kusakabe that examined the impact of pollution caused by marine plastics found that such pollution has a greater impact on women in fishing communities whose productive and reproductive workload increase as a consequence. In view of the serious and global nature of the problem, the study recommended field research on the specific impacts of marine plastic on every demographic within fishing communities across Southeast Asia.

The absence or the poor quality of homes and infrastructure can be a disaster risk for fishing and coastal communities. Pekalongan is an important landing and fish auction site in Java, Indonesia. A study by Aini Nur Furoida, Waridin and Rudhi Pribadi found that while women's role in the coastal communities in Pekalongan was often limited to household chores and looking after children, during the high tide, the responsibility for securing, and ensuring the safety of, the property, the children and the dependent family members fell on women while men worked outside the house in areas that were far from high tide flooding zones. Women expressed the need for access to safe shelters and wash facilities, especially for the differently abled, the elderly and pregnant women.

The idea that a 'hazard' becomes a 'disaster' only because of the underlying vulnerabilities of the population exposed to it is key to understanding and planning for disaster risk reduction. The vulnerabilities may be, for example, due to poverty, malnutrition, poor sanitation, dependence on extractive and unsafe livelihoods, and exposure to various natural and human-induced hazards. Researchers Darlene Joy D. Calsado and Sashah B. Dioso studied the vulnerability of women fishers to hydro-meteorological hazards in the small island communities of Carles, Iloilo, Philippines, with particular focus on the Gigantes group of islands. The Pressure and Release (PAR) Model, which demonstrates how disasters occur when natural hazards affect vulnerable populations who are unable to recover and respond to the hazards, was used as a tool for analysis. Chief among the disaster reduction mechanisms identified by women fishers were capacity building, diversification of livelihood sources, social and economic buffers such as access to food, cash and credit, health, and welfare services to cushion the trauma or stress of disasters.

Thematic Session: Gender justice & institutional roles: Policy regime, roles of civil society, academia and other formal and informal institutions at local, national and global levels

An enabling environment is critical for gender justice, and institutions have a crucial role to play in creating an environment where women, particularly, poor and marginalized women, are safe and can hope to thrive. The thematic session on Gender Justice and Institutional Roles examined the policy environment, as well as the role of civil society, academia and other institutions at all levels through presentations and case studies from several countries, including, from Africa, case studies from Kenya and Madagascar; from the Pacific region, Fiji, Papua New Guinea, Samoa and the Solomon Islands; and, from Asia, Cambodia, India, Indonesia and Myanmar.

One attempt to create an enabling environment in Samoa was detailed in the presentation by Libby Swanepoel, Courtney Anderson, Barbara Pamphilon, Silva Larson and Ulusapeti Tiitii, whose study aimed to develop a gender inclusive seaweed program to support

Samoaan villages improve wellbeing and livelihoods. The study used a bottom-up,

The idea that a 'hazard' becomes a 'disaster' only because of the underlying vulnerabilities of the population exposed to it is key to understanding and planning for disaster risk reduction

V. SYDDALL



Fisherwomen selling tuna, Gizo Market, Solomon Islands. Need for access to safe shelters and wash facilities, especially for the differently abled, the elderly and pregnant women

participatory design focusing on four Ds: Discovery, Dreaming, Design and Delivery, and led to an inclusive, albeit “fluid, messy and dynamic”, process, where leadership and a strengths-based approach to gender empowerment were encouraged.

Sarah Harper, Emily Darling, Sangeeta Mangubhai, Georgina G Gurney and Natalie Ban analysed the critical role of coral reefs as a source of livelihoods, cultural identity and food security for millions of people who depend on the fisheries connected to these environments in six countries: Fiji, Indonesia, Kenya, Madagascar, Papua New Guinea and Solomon Islands. Starting in 2016 and using the marine and coastal monitoring framework (MACMON), the Wildlife Conservation Society’s Coral Reef Program collected over 3,000 household survey responses to understand the impact and benefit of management at community level, individual level and perceived impact of management by gender in these countries. Perceptions of the human wellbeing domains: social, health, economic, governance, environment, and culture were explored. In terms of benefits and costs of management, women mentioned improved food provisioning and nutrition more than men. Men sought increased access to markets, gear and infrastructure more than did women. Both women and men were equally concerned with livelihood security and change in travel time and distance. The insights from this analysis aim to contribute to broader conversations in coral reef management on how to reconcile environmental and development objectives and outcomes within environmental governance. Specifically, in countries where fisheries play a substantial role in the lives of coastal peoples, how may gender equitable outcomes be assessed and advanced?

In a less explored area of women in science and technology, Santosh N. Kunjir, Arpita Sharma and Vinod K. Yadav studied patenting activities in Indian fisheries. Women make up only 28 percent of the workforce in Science Technology, Engineering and Math (STEM) in India, and there exists a significant gender gap in the status of women in patenting activities. Women patentees are fewer in number and less oriented towards patenting and entrepreneurship. Out of the patents granted, only 19.46 percent were to women, and the ratio of female to male inventors was about 1:4, indicating the need for a policy framework that encourages the participation of women in science and technology. To address the gender gap in patenting, it was recommended that scientific institutes take proactive measures to promote and facilitate special schemes for

women inventors. By doing so, women can be encouraged to participate in patenting activities and can be provided with opportunities to showcase their innovations and ideas.

The livelihood activities of women in the floating market in Lok Baintan on the Martapura River in South Kalimantan, Indonesia were documented in a study by Rahmi Widyanti, Farida Yulianti, Lamsah, Mentari Anggun Djatayu and Indah Susilowati. The study explored the role of women in community development both in urban and rural areas in the study location. At 95 percent, women dominated as traders and consumers in the floating market Lok Baintan, which operates for only four hours a day and where barter is the main form of trade. Women reported that this did not provide them with sufficient funds to cover education and medical expenses, although it did feed their families. The study suggested that community empowerment might be possible through counselling to increase knowledge and awareness.

Attempting to study women’s empowerment in Small-Scale Fisheries and Aquaculture (SSFA), Amanda Morelli made use of a combined gender analysis framework – the Empowerment and Equality Analytical Framework – to assess three current gender-inclusive program designs in SSFA in Cambodia, Myanmar, and Indonesia. The results indicated that local women in the targeted communities are being empowered through access and conscientization, and engaged through welfare provisioning. The study identified several limitations in programme design, such as the disregard of men’s engagement in gender equality and women’s empowerment in four of the five projects examined; the sole concentration on strengthening and expanding women’s pre-established productive roles; the emphasis on neoliberal market solutions to gender marginalization; an exacerbation of the triple burden that women face in their everyday life; and the gap in directly supporting the very vulnerable subgroup in these regional communities, namely the local fisherwomen, as distinct from fish processors and traders. The study showed that prevailing efforts lack a gender transformative approach, whereby root causes of gender inequality and unequal power relations can be addressed and reshaped.

Institutional interventions and an enabling environment are necessary for the progress and wellbeing of indigenous and marginalised communities. The Andaman and Nicobar Islands in India is an archipelago of 572 islands in the Bay of Bengal, out of which 38 Islands are inhabited by immigrants and aboriginals.



A woman diver group from de Mexican North Pacific, during their oceanographic monitoring. Success stories of women who have achieved what they have due to sheer grit and determination are inspirational to other women and show a way forward

Marine fishery is a major source of livelihood. Sreepriya Prakasan, U Abarna, Ajina S. M and Gladston Y examined and documented a programme through which unemployed youth in the islands were trained by ICAR institutes, with residential facilities available for the tribal participants. Following training, two percent of the participants went on to become entrepreneurs. Women participants tended to opt for value addition of fishery resources.

What are the trends, barriers, enablers, and impacts of women's participation in small-scale fisheries management? Mouna Chambon, Sara Miñarro, Santiago Alvarez Fernandez, Vincent Porcher, Victoria Reyes-Garcia, Huran Tonalli Drouet and Patrizia Ziveri explored this question through a systematic analysis of peer-reviewed literature consisting of 124 case studies. The researchers found that in more than 80% of the examined case studies, women's participation was non-existent or limited, more so in co-managed sites. The study pointed out that structural socio-cultural barriers that prevent women's active participation must be examined more closely and participatory approaches

should be favoured in order to promote gender-inclusive fisheries management.

Thematic Session: Understanding women's rights: Tenure, resources, institutions, inputs, foods, nutrition

The theme 'Understanding women's rights: Tenure, resources, institutions, inputs, foods, nutrition' had presentations on various issues ranging from global, conceptual and methodological themes, including gendered political economy approaches and cognitive testing of data gathering instruments, to understanding the various types of masculinities that prevail in the fisheries sector.

Meryl J Williams and Victoria M Syddall reviewed historical changes in aquaculture and fisheries with a gender lens. Post 1945, fisheries and aquaculture production burgeoned, becoming more mechanized and trade-dependent, profoundly affecting fishworkers, including women. General improvements in the status of women, in fields such as education and health, did not directly translate into gains for women in the booming fishery sectors, where women had little power. Though data

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The question of tenure is at the heart of women's engagement in the small-scale fisheries, with the tenure loss often eroding their livelihood options

are scarce, women's labour force history in the fish sectors is mixed. Gender and fish sector studies commonly use or challenge narratives such as 'women are invisible', 'women don't fish', 'technology is for men', 'the gender division of labour just reflects social norms', and 'women have no decision-making power'. Based on their study, the authors presented a new narrative in the fish sectors: women experience greater levels of technological exclusion; they are economically ostracized and politically powerless. The new narrative suggested that a political economy (PE) approach is needed to address gender inequality. The authors derived a simple framework of the economy and society that can be used to try to understand what is happening to women. The framework has three interacting parts - the production elements, the fish economy organisation, and the organising institutions. Three different political perspectives from which the framework is viewed are the market economy, the managerial, and intersectional and feminist.

In an interesting cognitive testing study, Surendran Rajaratnam, Rahma Adam, Katie Sproule, Nirmallya Mandal and Kaustuv Mukhopadhyay attempted to assess the respondent comprehension and validity of a social science measuring tool, the Women's Empowerment in Fisheries and Aquaculture Index (WEFI). Cognitive testing is an evidence-based, qualitative method for assessing and improving a research method. The study found that in many cases, respondents found it hard to understand the terminology that the tool used; for example, half the respondents could not understand the term "active member" and in one particular area where forest cover was minimal, respondents failed to understand the words "forest" or "forest users".

The question of tenure is at the heart of women's engagement in the small-scale fisheries, with the tenure loss often eroding their livelihood options. Gunakar S and Ramachandra Bhatta attempted to examine the question of women's tenure relations through a study of the Malpe Fisherwomen Co-operative Society in Karnataka, India, the first co-operative society for women to be established in the state. Examining the supply chain for salt, the primary ingredient used for curing fish, in the context of the management of the land being used by cooperative members for processing activities, they concluded that there is an urgent need to formulate policy to protect fishers' rights over coastal land, including the land in the port used by women fish curers, and to provide social security to those engaged in fishing and related activities.

The important role of institutions in protecting and promoting tenure rights for fishing communities was highlighted also by Jeyakumari A., Narasimha Murthy L., Priyanka Ajay Nakhawa, Tulsiram Wagnarae and K.K. Asha, who studied the functioning of the *Adiwasi Koli Vividh Karyakari Sahakari Sanstha Maryadit* (Tribal Fishers Cooperative Society) in Raigad, in Maharashtra, India. This team of researchers found that the main challenges contributing to poor incomes from fishing were poor infrastructure, lack of ice, limited local market facility, and poor transportation, and concluded that institutional support was necessary for building capacities and enhancing livelihoods.

Food and nutritional security is a basic right, without which survival itself is fraught. A study by Akshay. P, Suseela Mathew, Mohanty A. K., Gopika. R, Joshy C. G. and Sajeev M. V. conducted in the Wayanad district of Kerala, India, found that tribal groups like the Paniya, Kurichyan, Kuruman, Kattunaykkan, Adiyana and Vettakuruman, whose diets, traditionally, were deeply reliant on fish, report only about one kg average monthly per capita consumption of fish today. Given that nutritional anaemia is a major problem among these groups, the study urged the inclusion of fish in diets, especially for children, adolescents and women.

Another study on fish consumption was presented in this thematic session by Sajeev M.V., Rejula K., Nikita Gopal and A.K. Mohanty, which aimed to assess the per capita consumption pattern and perceptions around fish consumption in a highly fish consuming society. Selecting the state of Kerala, India for this purpose, the study found that coastal households had significantly higher monthly as well as per capita fish consumption than did inland district households. While women recorded a significantly higher awareness about nutrition and health benefits of fish, the study found that men require more customized information about the health benefits of fish, and women needed better information on the quality and safety risks associated with fish consumption. The findings call for better customisation of scientific communication about nutrition and health benefits of fish, tailored to gender- and location-based requirements.

An interesting study by Neyra Solano, Alejandra Salguero-Velázquez, Francisco J. Fernandez-Rivera Melo, Inés López-Ercilla and Jorge Torre, explored the influence of masculinities on women's participation in the management of fisheries resources in Mexico. Cooperatives in three marine ecosystems were examined: the northern Mexican Pacific

with red lobster fishery, the Gulf of California with pen shell, and the Mexican Caribbean, with Caribbean spiny lobster fishery. The study uncovered four types of masculinities in these three communities. The first, which the researchers termed 'reluctant traditional', consisted of fishermen who refused to accept the participation of women in fisheries because they consider the field to belong to men. The second type of masculinity, 'flexible traditional' were characteristic of men between 40 and 50 years, who accepted the participation of women in certain areas like marine conservation, and could be persuaded by young staff to attend gender equality workshops. The third masculinity, 'transitional', characterized men who had incorporated notions of gender equality and were open to the participation of women in fisheries, the changes in their thinking being triggered by exposure to academic training or interactions with people from different backgrounds. The fourth type, 'apprentice masculinity' was a changeable construct, often displayed by young men, which morphed itself to suit the masculinity type of the leader. So, a young 'apprentice' fisherman if led by a reluctant masculine type fisher would continue to reproduce gender inequalities but, under a mentor who was 'transitional', might advocate for women's access to the management of fishery resources.

Thematic Session: Women achievers – Success stories of women entrepreneurs in aquaculture and fisheries

Success stories of women who have achieved what they have due to sheer grit and determination are inspirational to other women and show a way forward. The theme 'Women achievers: Success stories of women entrepreneurs in aquaculture and fisheries' had a selection of such stories, albeit small in number but significant, from India, Lao and Nigeria.

Tanuja S presented a success story of a collective of women who were able to transform their livelihood activity into a branded product. With support from ICAR-Central Institute for Women in Agriculture in Bhubaneswar, Odisha, a programme of entrepreneurship development was launched among fisherwomen in the state, with support for technological backstopping where required. The programme addressed the perceived occupational needs of fisherwomen, including the need for financial support, market awareness, awareness about financial schemes, and digital literacy. Groups were formed, and licensing support, along with linkages with government schemes and markets, were provided. The women now produce dry fish and fish pickle, using social media for advertising.



Women in Crab gill net making in at Koayod village Rayong Province Thailand. Development of entrepreneurship among women in fisheries and aquaculture is to be supported

The women have also been linked to Falcon-Chilka Fish, a public-private initiative of the state government, through which the products are sold under the brand name 'Fishlikes'.

Women have also succeeded in areas of fisheries conventionally dominated by men, and Muktha Menon presented one such case study: that of women fish auctioneers in the Visakhapatnam fish harbour in North Coastal Andhra Pradesh, India. Conventionally, fish auctioning, the first step in the fish marketing chain, is a male dominated job. In Visakhapatnam fish harbour however, among the 150 women who work in the harbour area, mainly as fish vendors, are 30 women who, in the motorized and non-motorized vessel landing area of the harbour, work as fish auctioneers. The women, all illiterate and hailing from the 'Jalari' fishing community, live near the harbour, work for five hours a day from 5 am and transact an average daily volume of business of about 70 kg, earning a 10 percent commission. These women report facing a range of challenges, including poor access to institutional finance; tedious field

The vulnerability and need for respect of marginalized people (including physically challenged persons) who are involved in fisheries and aquaculture activities has not been assessed and addressed appropriately

operations; lack of access to dynamic markets, relevant information and digital literacy; poor infrastructural facilities at the harbour, such as lack of shelter, wash rooms and potable water; the absence of co-operatives and groups for women fish auctioneers; and a lack of savings, except in the form of gold jewellery. Despite these handicaps, the women fish auctioneers are role models, and, with their income, they are able to educate their children, arrange for marriage of their daughters and establish assets through their contributions to the family income.

Another area of entrepreneurship in India almost wholly owned by men is shrimp farming, which was the focus of a case study by Naik, B. V., Patil, S. V., Yadav, B. M., Chaudhari, K. J., Wasave, S. M., Shingare, P. E. Yewale, V.G., Gitte M. J. and Kamble S.C. The study showcased the achievements of a young woman named Shradha Anagolkar, who, armed with a diploma in fishery engineering, took a shrimp farm on lease in a village in the Ratnagiri district of Maharashtra, India, where she successfully cultures two crops annually. Shradha, who is also a shrimp feed dealer selling directly to buyers in both her home state and in the neighbouring state of Goa. She is of the opinion that women need personal motivation as well as the support of the family to overcome challenges like high initial investment, high risk, remote work locations and the scarcity of hands-on training opportunities on shrimp farming techniques.

Another inspiring case study is the story of Gunabai Sudhar, a crab farmer from Vashi, Navi Mumbai in Maharashtra, India engaged in crab fattening and fish farming. Manju Lekshmi N., Greeshma S.S. and Leela Edwin documented Gunabai's workflow: juvenile mud crabs (*Scylla serrata*), a few varieties of fish such as pearl spot, seabass, and groupers, and shrimp seeds are collected during the high tide and stocked in the plastic containers for 40 to 50 days for fattening with poultry waste feeds. Crab seeds are also procured from local suppliers and stocked in earthen ponds. Gunabai is an expert in handpicking of large crabs from the mud during low tide. She employs eight people and also imparts training in crab fattening.

The spirit of entrepreneurship was celebrated in yet another case study highlighting the work of a woman seaweed farmer, Jayalakshmi, from Thonithurai Village in Ramanathapuram in the South Indian state of Tamil Nadu. Presented by P. S. Swathi Lekshmi, the study traced the ups and downs in Jayalakshmi's journey with seaweed farming. In 2004, when she began working in this area, Jayalakshmi was able to earn enough to meet her needs through the sale of seaweed in both dry form and as liquid fertilizer. Since

2013 however, returns have been diminishing. Jayalakshmi attributes the decline to a variety of factors, including poor seed quality, grazing by fish, low price of farmed seaweed, lack of proper infrastructural facilities, and insufficient support for value addition and marketing of seaweed.

Vinuja S presented the case study of a woman cage farmer, Vishnupriya, based in Vellayani, Thiruvananthapuram in the state of Kerala, India. Vishnupriya began farming pearl spot (*Etroplus suratensis*) in 2021. A yield of 200 kg per cage fetched a handsome gross revenue of Rs. 1,00,000 (approximately, USD 1,215). With marketing done through a Fisheries Society and channelled into the domestic market, the case study showed how with proper support from the State, more women can take up fish farming.

Another presentation demonstrated how carefully planned and executed skill development interventions by ICAR-CIFT, Kochi in Veraval, Gujarat, India, led to income generation for fisher women from two communities: Kharwa, primarily a fishing community, and Sidi, a tribal community in Veraval. Training in fish-based product preparation and value addition was given to select groups from the Kharwa community. The prepared products were displayed in fish *melas* (exhibitions) and ongoing activities to maintain product quality were initiated, including the onsite monitoring of products and discussions around public feedback. Anupama T. K explained that the group has now started an enterprise named 'Real taste of seafood'. S Remya further explained that the Kharwa fisherwomen group under the name '*Sagar Manthan Machhimar Utthan Mandal*' have started selling fish-based snacks and opened a restaurant in Veraval city. With the effective use of social media platforms, they have also started home delivery of seafood products in and around Veraval.

S Remya also talked about ICAR-CIFT's interventions with women from the Sidi community who were extended support to establish a solar fish drier, and, under the banner '*Bharath Adim Juth Matsyodyog Sahakari Mandli*', the registered society of the Sidi Tribe, started selling hygienically dried fish products with attractive packaging in the local markets in Veraval.

Moving from Indian experiences to those from Laos, Dongdavanh Sibounthong presented the findings of a baseline survey undertaken jointly by Southeast Asian Fisheries Development Center (SEAFDEC) and the Department of Livestock and Fisheries (DLF) of Lao PDR. The baseline survey was conducted from 2017 to 2019 to promote the sustainable



A panel discussion. The six thematic sessions, ten special sessions on projects, initiatives, narratives and stories from different parts of the world were presented in panel discussions

utilization of fishery resources and livelihood security of fishers and identify key issues for a proposed fisheries management plan for the Nam Xouang reservoir. Two womens' groups from villages close to the reservoir were trained in fish pre-processing and processing activities as an additional source of income, following which the groups were given support to prepare four types of fish products: wrapped sour fish (*som hor*), sour fish (*som ton*), sour fish eggs (*som khai pa*), and fermented fish (*pa dek*). These products were prepared using knife fish (*Chitala sp.*) and sold in local markets and to the local school for inclusion in the school lunch programme. The project helped promote women's empowerment, contributing much-needed incomes to households and communities.

Finally, a paper by Siyanbola Omitoyin, Selorm Omega, and Femi Olapade showcased the achievements of women across small-scale fisheries and aquaculture value chains in Nigeria and other West African countries such as Ghana, Mali and Sierra Leone. The study found that while women are involved in fish processing and value addition activities they don't have adequate access to support and resources, their activities are often poorly known and that the collection of gender disaggregated data is a priority in order to fully capture and highlight women's achievements.

Recommendations

The foregoing is a distillation of the discussions that took place during GAF8: The 8th Global Conference on Gender in Aquaculture & Fisheries which was titled 'Shaping the Future: Gender Justice for Sustainable Aquaculture and Fisheries'.

The recommendations from the main Thematic Sessions and the Special Sessions are included below. These are directed towards multiple stakeholders in the sector: academics, for whom these would be leads for further research; the policy maker for whom the challenges identified would be a starting point for better policy; the fisherwomen (and men) whose needs they reflect and amplify; the entrepreneur, who can learn from the success stories presented; and civil society organizations, to encourage action. The 30 recommendations that emerged from the conference are presented under appropriate headings.

Recognition

1. The need of greater recognition in policy, programs, and research of the diverse roles and contributions of women in fisheries and aquaculture.
2. The vulnerability and need for respect of marginalized people (including physically challenged persons) who are involved in fisheries and aquaculture activities

has not been assessed and addressed appropriately. Gender equality, social inclusion and disabilities are to be taken into consideration when formulating programs and projects in future.

Approaches to business, labour, technology and governance issues

1. It is essential to guard against romanticizing the life and livelihood of marginalised fishing communities. Rather, efforts are to be made to include their voices in the mainstream or secure their places through targeted gender sensitive approaches. Their rights need to be protected, and they should have better access to mainstream rights and facilities, such as health and education.
2. A human rights approach should be adopted at all the nodes of value chains in fisheries and aquaculture to ensure that no one is left behind. This can ensure safe and hygienic work environments, provide social protection and in general lead to development of gender sensitive labour norms which take into account the occupational safety and health concerns of women, which all need to be reflected in regulations as well.
3. Gender issues in aquaculture and fisheries are context specific and are influenced by social, political, cultural, economic and other factors. An intersectionality approach needs to be adopted for understanding and addressing gender issues. Value chains need to be given greater focus because they associate people and economic value and expand our scope of investigation.
4. With increased capitalization and associated technology intensification, the concerns of women are getting marginalized as in the case of fish vending. This warrants affirmative policy to ensure equity. Further, gender sensitivity is to be an essential part of the development approach related to fisheries and aquaculture.
5. Studies on institutional, structural and systemic changes need to be continued to inform gender mainstreaming policies and strategies.
6. Transformative approaches in challenging and bridging gender inequalities need to be integrated during technology interventions.
7. The COVID-19 pandemic has revealed the fault lines when it comes to gender sensitive and responsive coping strategies.

This was a social shock. However, the fisheries and aquaculture sectors are continuing to face short-term and long-term issues related to climate change and other environmental, resource, market and trade related shocks that need similar coping strategies. Better stakeholder engagement is warranted and the role of ITKs, technology, ICTs also need to be looked at for developing such strategies.

8. Successful approaches such as co-designing and participatory approaches in partnerships with direct stakeholders (Community based management) need to be replicated.
9. Commodity-specific, problem-oriented research recommendations need to be shared with policy makers for policy inclusions regarding gender inequalities in the field.
10. Gender specific approaches in fishery value chain analysis provide more robust interpretations, which can rationally be utilized in designing programmes and policy recommendations.
11. Develop policy frameworks for enhancing the participation of women in the work force in Intellectual Property Rights activities.
12. Community-based management approaches and exploring sustainable alternative livelihoods options may lead to gender empowerment.

Entrepreneurship

13. Development of entrepreneurship among women (and other vulnerable groups) in fisheries and aquaculture is important and this is to be supported by capacity building and assistance in terms of project formulation, finance and marketing to meet competition. The importance of assessing the market demand prior to promoting entrepreneurship and products is also essential to create sustainable women-led enterprises.
14. Compatibility and adaptability of technologies to be assessed so that better entrepreneurship models in fisheries can be developed and sustained.
15. Success stories of women / men entrepreneurs in rare / upcoming areas like seaweed cultivation as well as less travelled job avenues like fish auctioneering and farm management to be documented.
16. Good Management Practices of successful women entrepreneurs and

Gender issues in aquaculture and fisheries are context specific and are influenced by social, political, cultural, economic and other factors



A group photo. The discussions during GAF8 led to common ground, such as the need for new approaches to document and analyse gender issues in aquaculture and fisheries, including human rights, intersectionality, and transformative, participatory, and gendered value chain approaches

- groups to be validated and documented for benefit of upcoming entrepreneurs.
17. More study trips and training for women's capacity building to improve income of the women.

Data

18. Lack of gender disaggregated data results in policy and planning blindness. Standardized tools and methodologies are needed for generating gender-based data in aquaculture and fisheries, founded on improved understanding of which data are needed, why, how they may be sourced and which are the responsible agencies.

Transformations

19. Better use of political economy insights is recommended to educate, campaign against, encourage or challenge dominant institutions to achieve major and mainstreaming transformations.
20. Institutional structures need to be refined taking into consideration the hegemonic masculinities that dominate organizational practices. There is a strong need to increase participation of women in management positions and to encourage inclusive organizational cultures that embraces multiple perspectives and values appropriate to functions and services.
21. Primary efforts should be aimed at younger generations to move towards more equitable social relations within organisations and industries.
22. To combat the coastal land shrinkage out of developmental activities, women's

rights to the management and use of the coastal land areas need to be respected, protected and ensured.


23. There is an urgent need to formulate appropriate policies for ensuring land rights and then take practical measures for ensuring social security of fisherwomen.
24. Adequate facilities for drinking water, sanitation and other facilities should be provided in the fish drying yards and fish markets, by the Government or other authorities and their maintenance should be entrusted to fisherwomen's associations.

Communication/ awareness creation strategies

25. There is an urgent call for better customisation of scientific communication about nutrition and health benefits of fish specifically designed for members of both genders residing in coastal and inland regions.

Collectives/organization

26. Involving women in the cooperative can be way to make their voices heard and to empower them.
27. Collectivization of women entrepreneurs may help to strengthen them.
28. Formation of an association of women auctioneers is needed to access governmental subsidies and information.

Links to the individual presentations as well as a compilation of abstracts can be downloaded from <https://www.genderaquafish.org/gaf8/gaf8-programme-book-of-abstracts-ppts/> 

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