

6th Global Symposium on Gender in Aquaculture and Fisheries (GAF6)

Special Symposium at the 11th Asian Fisheries and Aquaculture
Forum, Bangkok, Thailand

3-7 August, 2016



Abstracts

A FEMINIST ANALYSIS OF THE VOLUNTARY SMALL-SCALE FISHERIES GUIDELINES

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Gender equity and equality is the fourth guiding principle of the Voluntary Guidelines for Securing Sustainable Small-scale Fisheries (henceforth SSF Guidelines). This focus on gender is within the larger framework of a human rights-based approach that forms the basis of the SSF Guidelines. Language on gender and gender equity is found in many different areas of the text including monitoring, policy, development, and protection against violence, although is not treated as a cross cutting issue and is missing from areas such as climate change and disasters. Throughout the guidelines there is acknowledgement of the roles of women in small-scale fisheries, and much of the language is gender inclusive (i.e. “Women and Men” and “fishers”). The SSF guidelines also emphasize the need for equal participation in the decision making for small-scale fisheries policies, and ask states to take measures to ensure the participation of women in fisheries organizations. While this language is encouraging, it is necessary to explore the possibilities and challenges of implementation of gender equality in small-scale fisheries in different countries. The presentation seeks to highlight the potential barriers to implementation as the first step toward understanding how to manage them. For these reasons we suggest a gender transformative approach, which specifically focuses on illuminating several root causes of gender injustice and inequality. This would require engaging with power relationship, as well as capacity building for women and marginalized groups, which could include the creation of autonomous organizations where appropriate.

CARIBBEAN VIEWS ON GENDER EQUALITY: FISHERFOLK CONSIDER THE SMALL-SCALE FISHERIES GUIDELINES

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Fisherfolk in the seventeen Member States of the Caribbean Regional Fisheries Mechanism (CRFM) took great interest in the development of the Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication (the SSF Guidelines). The Caribbean Network of Fisherfolk Organisations (CNFO) has actively encouraged Caribbean national fisheries authorities and the inter-governmental CRFM to incorporate the SSF Guidelines into policy. The regional CNFO has also been very active in promoting awareness of the SSF Guidelines among the leaders of national fisherfolk organisations. The Barbados National Union of Fisherfolk Organisations (BARNUFO), under female leadership, has organised events and undertaken projects to communicate the practical benefits of the SSF Guidelines to fisherfolk in Barbados. Many of the participants and spokespersons involved have been women whose livelihoods are in the postharvest sector, particularly in fish marketing and distribution. In a country where men have been said to be “in crisis” due to low educational attainment and high levels of unemployment, mainly among young men, perspectives on gender equality may run counter to expectations. This presentation shares the results of an investigation into Caribbean fisherfolk perspectives on gender equality with emphasis on the postharvest sector in Barbados, but including other countries and components of the fisheries value chain. Special attention is paid to how perspectives relate to the guidance on gender equality in the SSF Guidelines. This information is useful for designing a CNFO programme of action to implement the SSF Guidelines.

APPLYING A GENDER LENS TO THE INTERACTIVE GOVERNANCE FRAMEWORK FOR SMALL-SCALE FISHERIES: KIRIBATI AS A CASE STUDY

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Since mid-2014, a number of communities in Kiribati have been moving towards establishing co-management arrangements for their small-scale subsistence fisheries. The emergence of this new mode of governance has governability implications for the fisheries and the resource users who depend on its contributions to food security, livelihoods and well-being.

The interactive governance framework on small-scale fisheries emphasises the need to contextualise the systems-to-be-governed (both natural and social), the governing system and the governing interactions to assess the governability of a particular small-scale fisheries system. In the emerging co-governing mode of small-scale subsistence fisheries in Kiribati, managers are striving towards ensuring broad participation of resource user groups, and equitable sharing of costs, benefits, rights and responsibilities. Co-governance approaches should, in theory, pay particular attention to promoting women's participation at all stages of a program to reduce gender inequality. However, in practice the new co-governance approaches are finding it challenging to effectively address "gender equality and equity" in the face of cultural norms, traditional governance structures and the gender-blindness of fisheries authorities.

This project seeks to understand these gender related sensitivities to better contextualize the systems-to-be-governed and improve the chances of this co-governance approach's success. Based on empirical data collected from communities on two islands in Kiribati, we evaluated how the existing gender norms as perceived by men and women influence the engagement and participation of different resource user groups. By applying a gender lens, we believe these findings provide deeper insights into the interactive governance framework for small-scale fisheries.

GENDER POLICIES OF FISHERIES AND FISHING COMMUNITIES IN JAPAN

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In the present day, women's issues are attracting greater attention in Japan. A new bill to promote women's participation was enacted in August 2015, and the fourth Basic Plan for Gender Equality was drawn up in December 2015. This bill and the Basic Plan represent an attempt to promote the hiring and appointment of women and to increase human resources to grow into leadership positions in order to expand women's participation in every arena. Looking at the ratio of female participation gives one indication for understanding actual conditions; however, increasing the ratio of women simply for the sake of number-crunching is problematic. One such indication in the fisheries and fishing communities in Japan is the ratio of women who are regular members or board members of the Fishery Cooperative Association (FCA). The FCA principally decides on policymaking about local fisheries and fishing communities. Only regular members or board members can participate in the decision-making process of the FCA. However, the ratio of female regular members of the FCA is 5.4%, while the ratio of female board members is 0.5%. These are extremely low values. In addition, the Ministry of Agriculture, Forestry and Fisheries of Japan provides support for women's entrepreneurship. The majority of women's entrepreneurship is involved in making and selling processed goods using local agricultural, forestry and fishery products. However, even if women do start up their own businesses, women's entrepreneurship alone cannot resolve the gender problems in fisheries and fishing communities. Based on the above, I will discuss in this presentation what is required for the gender policies of fisheries and fishing communities in Japan through the case of Yamaguchi Prefecture, which has strongly supported women in fisheries in Japan.

BETWEEN WOMEN SPACE IN THE FISH PORT COMPLEX AND THE VALUE CHAIN NODES OF THE FISHING INDUSTRY IN GENERAL SANTOS CITY, PHILIPPINES: AN ETHNOGRAPHIC STUDY

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This study seeks to ethnographically map and describe the spaces of women in the Fish Port Tumbler Complex of General Santos City, and investigate the points of convergence with and divergence from the value-chain nodes of the tuna fishing industry. Guided by the rudiments of ethnography, this study shall privilege the local and contextual meanings that women attach to the physical and social spaces in the Fish Port Complex, and their perspectives on the relation of such spaces to the value-chain nodes of the tuna fishing industry. The standpoint of Henri Lefebvre (1991) on social spaces shall also serve as the theoretical lens of this research. With this perspective, the fish port – through the narratives of women, shall be interpreted as a perceived, conceived and lived space. As lived space, the values and symbolisms that women attach to the market shall be the key interests; as perceived space, the relations and processes – including the tensions and contradictions, that women find themselves in shall be explored; and as conceived space, the boundaries, rules and functions that are assigned to spaces that women follow, or negotiate with as they subsist in the spaces of the market shall be characterized in detail.

GENDER AND POVERTY DIMENSIONS IN A VALUE CHAIN ANALYSIS OF MILKFISH IN REGION 10, PHILIPPINES

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This paper presents gender issues in a value chain analysis of milkfish that is mainly harvested from a mariculture park in Region 10, Philippines and distributed solely within the region. It also gives powerful insights on why both poverty and capital accumulation simultaneously occur among key players in the chain. Findings were obtained through a triangulation of primary and secondary data sources. Mapping the chain involved primary data gathering through actual observation, surveys, informal and key informant interviews, and focus group discussions. The milkfish industry assessment largely emanated from secondary data sources.

The big, medium and marginal fish cage operators – mainly men – are the upstream players in the chain. Along the chain are men and women milkfish brokers/traders, wholesalers, and retailers. Processing along the value chain was practically non-existent; milkfish was generally sold fresh, except for the negligible value-adding done by a women's cooperative. Food products, however, face stringent certification requirements, rendering precarious the women's access to the lucrative processed foods market. Brokers/traders were found to earn the *highest aggregate net income* in the chain, and only *within two days* of trading, while marginal fish cage operators earned the least and only *after four months* of production.

The difficulty in sourcing fingerlings and the increasing cost of feeds were major constraints of fish cage operators, affecting more the marginal ones. Meanwhile, opportunities and upgrading solutions such as production of their own fingerlings and feeds, and the various ways of milkfish processing to add value and to allow exportation, favor the larger players.

Such scenarios in the chain and the increasing number of big and medium players in the mariculture park – which earlier was the fishing ground of small fishers – calls for an evaluation to determine if inclusive growth and development are being achieved along the chain and in its setting.

A GENDERED VALUE CHAIN ANALYSIS OF POST-HARVEST LOSSES IN THE BAROTSE FLOODPLAIN, ZAMBIA

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The small-scale fisheries sector is of vital economic importance for many African nations. It provides millions of people with livelihood opportunities from fishing through to post-harvest processing and trading whilst also providing fish for consumption. Almost a third of the fish catch is thought to experience significant losses in quality as it transitions from net to plate creating economic losses for fishers, processors and traders, and nutrient losses for consumers. Women and men who take part in fishing and post-harvest activities face these losses due to a variety of technical, economic and larger structural and social issues. The literature on post-harvest losses tends to privilege the technical and economic aspects that drive losses within low-income countries. This paper pays particular attention to the social and gender attitudes, practices and power relations that shape and possibly play a role in driving post-harvest losses in the Barotse Floodplain fishery value chain in western Zambia. Quantitative data were collected using multiple survey instruments in 2015 on post-harvest losses, gross margins, and empowerment (e.g., decision making) at various nodes in the value chain. Preliminary results show that women face the bulk of the weight of losses whilst also experiencing significant economic losses as a result. Women endure extra time and labor burdens; restricted access to key assets and different decision-making powers all of which function within a context where unequal societal norms are prevalent. This paper argues that such attitudes, practices and gendered power relations can cause high post-harvest losses especially in roles where women are traditionally expected to perform in a fisheries value chain. The paper details a current project that aims to help both address the technical issues and challenge the perverse norms and power relations that create post-harvest fish losses for women.

LAKE CHAPALA'S FISH VALUE CHAIN DEPENDENCE ON FEMALE LABOR

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Abstract

Lake Chapala, the largest lake in Mexico, has riparian communities historically dedicated to fishing, and some of them started to process fish caught from the lake since the 1980's. Filleting is a well-known activity to add value to fish, the same link of the value chain where women participate the most.

This research study is divided into phases. The explorative part where the aim is to find out the importance of women's work in Lake Chapala's fishing activity considering the second most important processing village, Petatán. The next phase will include Jamay, the first largest fish processing community, and will consider the impact of women's fileting work in the household, its impact on women's health and in which senses can this activity be empowering women in both communities.

Hence, the explorative phase of this work, based on fieldwork carried out in 2015, intends to find out the importance of women processing activities in Petatán. Petatán is one of the riparian communities in Lake Chapala and as a response to the economic crises that affected the country during the 1980's developed this processing industry in which the women in the community immediately adopted the activity.

In this phase of the study results show that filleting was a way to add value to fish as a response to the economic crises, and at the same time an opportunity for women to enter the labor market and generate an essential income for family wellbeing, especially when fish-catch is low, creating an empowerment opportunity for the female population. Moreover, filleting satisfies multiple purposes in the value chain: it is essential to sell the fish to middlemen and to create a place for this fish in the market, and it is a way to hide the size of the fish and avoid sanctions for IUU fishing.

IDENTIFYING GENDER INEQUALITIES AND POSSIBILITIES FOR CHANGE IN SHRIMP VALUE CHAINS IN INDONESIA AND VIETNAM

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Abstract

The Oxfam programme “*Gender Transformative & Responsible Business Investment in South East Asia*” (GRAISEA) works with the support of the government of Sweden on the promotion of corporate social responsibility in South-East Asia with ASEAN and its member states and with leading agribusiness companies. Among others it does this by demonstrating gender transformative and responsible agribusiness investments models for smallholders in two selected value chains: palm oil and shrimp aquaculture.

In aquaculture improvement schemes, especially those planning to certify towards the Aquacultural Stewardship Council (ASC) standard, Participatory Social Impact Assessments (PSIAs) are applied to analyse, monitor and contribute to manage social consequences of fish farming. The application of PSIA in smallholder aquaculture is however still in its starting phases and according to Oxfam gender equality issues are not yet systematically addressed in standing PSIA guidelines. In the past year as part of GRAISEA Oxfam and partners piloted the application of PSIA in smallholder led shrimp aquaculture using two gender analysis and action planning approaches and in two different locations: Tarakan, North Kalimantan in Indonesia and in the Mekong delta in Vietnam.

In Indonesia the ASC guidelines for PSIA were “engendered” both in terms of process (which groups to talk to, how, and when) and in terms of contents (what gender specific questions to ask, how to discover gender specific social impacts, how to come to gender specific action planning). In Vietnam the PSIA analysis was combined with the use of the Gender Action Learning System (GALS). GALS approach aims to a. developing gender action learning skills of vulnerable stakeholder groups in the value chain to identify and implement sustainable strategies for economic empowerment; and b. engaging skills, energies and resources of the private sector and institutional stakeholders in the value chain to change power and gender relations.

The paper will describe the key characteristics of both approaches used, the challenges experienced and lessons learned, initial results of the assessments and a discussion on how to improve gender specific analysis and action planning in PSIAs.

THE ROLE AND WOMEN IN MALDIVES POLE-AND-LINE TUNA FISHERIES

Peter Wessels

It is argued that in an occupation as gender biased as fishing, in order for fisheries management and policy to be successful, a profile of what really matters to people – both men and women - is important. This presentation introduces a new programme of research with both the International Pole and Line Foundation (IPNLF) and the Government of the Maldives, that seeks to understand the contribution of women to the tuna supply chain and the impact the tuna fishing industry has on women within Maldivian fishing communities.

The presentation will introduce two aspects of this work: research conducted to map the roles women are playing in tuna supply chains in the Maldives; and work to develop and test indicators that can represent the gender dimension of these fisheries in a broader programme of social and economic monitoring of tuna fisheries in the Maldives. The indicators will be grouped into categories relating to: resource use and dependency; ecosystem benefits and wellbeing; and drivers of change.

The presentation highlights how understanding the role of women in this complex fishery will help understand how resource management measures may impact wellbeing, access to assets and capabilities of women; provide unprecedented insight into women-oriented components of the tuna social-ecological system; and demonstrate the feasibility of integrating gender into broader social and economic monitoring programmes.

**ROLES OF MEN AND WOMEN IN SERGESTID SHRIMP (*Acetes spp.*)
CATCHING, PROCESSING, AND TRADING IN OTON AND
TIGBAUAN, ILOILO PROVINCE, PHILIPPINES**

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The sergestid shrimp industry is important to the local economy in the municipalities of Oton and Tigbauan in Iloilo Province. The study described the roles performed by men and women in sergestid shrimp catching, trading, and processing using data collected from personal interviews of all actively operating shrimp catching operators or boat captains (9 males and 2 females), raw shrimp traders (8 females and 1 male), shrimp processors (6 males and 5 females), and a female shrimp product trader in January to March 2014. The study participants identified 98 men and women in shrimp catching, 56 in shrimp processing, and 26 in shrimp trading. The men dominated shrimp catching. Men and women collaborated more in performing the tasks in shrimp processing and trading. The women performed more tasks that required negotiation and more time, while the men performed more tasks that required physical activity and effort.

THE ROLE OF WOMEN IN BLUE SWIMMING CRAB (*Portunus pelagicus*) FISHERIES IN THE PHILIPPINES

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The blue swimming crab (*Portunus pelagicus*) is one of the most important aquatic invertebrates in the Philippines that contributes significantly to fish food supply. Its fisheries belongs to the top export fisheries commodities of the country, with products traded as fresh frozen and pasteurized crab meat mainly in the United States and some Asian markets. Blue swimming crab fishing is also one of the main sources of income for small-scale fishers in the country especially in the Visayas region. Clearly, the blue swimmer crab fisheries is commercially and economically important, contributing dramatically to food security, employment, and economic development of the different stakeholders of the industry.

This study was conducted to characterize the role of women as one of the key players in the blue swimming crab fisheries. Results revealed that women are involved in the series of activities along the blue swimming crab supply chain, from fishing preparation and operation, including gear construction, to marketing and processing. They are also involved in the top level management of crab processing plants and in the management of crab fisheries resources through community-based initiatives. Indeed, women play a vital role in the blue swimming crab fisheries industry in the country.

ENGENDERING STATISTICS FOR FISHERIES AND AQUACULTURE

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The role of women in fisheries and aquaculture is often not well represented in formal statistics. Their work is often invisible, under-valued and, resultantly, not well enumerated. The poor accounting of women's engagement in the fisheries and aquaculture sectors has direct and detrimental impacts on the development of inclusive and evidence-based policy as strong data forms the foundation of strong policies.

Through the lens of the fisheries statistics of the Food and Agriculture Organization (FAO), the current state of gender disaggregated fisheries sector statistics will be discussed along with ongoing projects to improve the quality of statistics. This year, for the first time the FAO reporting of employment for the sector will include a gender disaggregated data set. It is estimated that, overall, in 2014 women accounted for more than 19 percent of all people directly engaged in the primary sector of fisheries and aquaculture. However, when the broader industry is considered this figure swells to 1 in every 2 workers. Improved statistical reporting that builds on the findings of projects is critical as enhanced gender disaggregated statistics for both industrial and small scale operators, together with data on the secondary sector, would greatly improve the understanding of importance of women's contribution to fisheries and aquaculture, food security and livelihoods.

In the recently published document, *Guideline to Enhance Small Scale Fisheries and Aquaculture Statistics*, methodology for the collection of data and information on various aspects of the fisheries and aquaculture sector, especially concerning small-scale operators and the contributions of women to the sector, are presented and provide one means of improving available statistics.

GENDER AND EMOTIONS IN THE MANAGEMENT OF CLIMATE-RELATED RISKS IN INLAND AQUACULTURE

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Many studies have documented that farmers are risk averse but did not consider gender. In any case, conventional measures of risk aversion and appraisal do not fully explain decision behavior of women or men, suggesting it may be necessary to also consider emotions. This study drew on a combination of in-depth interviews, direct observations, a role-playing game, and quantitative surveys to assess how gender and emotions influence the management of climate-related risks. At the farm level, women give greater importance than men to monitoring, reducing costs, preparing equipment, and diversifying income sources as climate risk management strategies. At the river level, women give greater importance than men to operation of water infrastructure and watershed management, but did not attach more importance to participation in water governance where they have little influence. Differences in climate-related risk management practices could not be explained by attitudes towards risk: Women and men showed similar levels of risk aversion on two standard scales. Some additional insights, however, were gained from considering emotional responses to risk and decisions. Women and men expressed similar emotions when discussing fish farming risks, except for pride and frustration which men expressed significantly more frequently. Feeling worried, concerned, anxious or stressed, were the most common negative emotions referred to in interviews. Fear was a reason for not-taking risks. Anxiety in the period prior to harvest helps motivate risk management practices, such as close monitoring and aeration. Men who expressed pride performed better in the role-playing simulation game than those who had not, but for women there was no difference. Men who expressed feeling excited or thrilled chose riskier options than women. In conclusion, gender differences and emotions both influence risk-taking and decision-making and thus are a significant factor in how climate-related risks are managed.

ASSESSING THE IMPACT OF ENVIRONMENTAL CHANGES ON THE LIVELIHOODS OF COASTAL WOMEN WITH SOCIO- ECONOMIC AND GENDER ANALYSIS (SEAGA)

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The people in coastal villages, particularly the women, face challenges due to climate and environmental changes. From traditional occupations, coastal women have now turned towards adopting new livelihood practices. They play an important but under recognized role by taking part in capture and culture fisheries. Disaster mortalities rates are also higher in women and children than in men, as a result of socially constructed gender roles and unawareness among women. These gendered impacts need to be considered by researchers and developmental agencies. So far, detailed gender and livelihood analyses have never been attempted in assessing the impact of environmental changes on the livelihoods of coastal people. 200 women and men including tribal groups from 4 coastal districts of Tamil Nadu, South India, were selected. Participatory Rural Appraisal (PRA) tool and SEAGA analysis were used. The SEAGA tool kits included (i) the development context, (ii) livelihood analysis (iii) stakeholders priorities for development. The environmental impacts are the invasion of sea water into the coastal villages, loss of livelihoods and possessions due to tsunami, shrinking of freshwater ponds and wells, and drinking water problems. The social consequences include stress and drudgery among women and migration of men to the cities, the challenges faced by beneficiaries and researchers, majority of the households were led by women; women's Self Help Groups (WSHG) facilitated the adoption of technologies; men dominated off-shore activities, women dominated on-shore activities. Few men supported women in the household activities such as taking care of children, etc., and encouraged women in forming WSHGs. Alternative livelihoods helped women to generate family income. The findings will help the developmental agencies to integrate socio-economic and gender issues in negotiations, policy actions and initiatives to be taken by the governments and coastal communities to maintain and build adaptive measures towards the effects of environmental changes.

COASTAL WOMEN'S AGENCY IN THE AFTERMATH OF HAIYAN

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In November 2013 super typhoon Haiyan wreaked havoc on the coastal communities of Northern Iloilo and other areas of the Visayas group of islands in the Philippines. Tremendous losses in livelihood and property were recorded in the wake of the calamity, along with profound feelings of helplessness and despair among survivors. As various international, national and local institutions responded through immediate and strategic interventions, very few focused on the differential impact of disasters among women and men. Such is the case in the island-barangay of Bayas, Estancia in Northern Iloilo; thus affirming established scholarly work on the gendered nature of disasters. Utilizing feminist standpoint theory, the focus of this paper was to cull out women's situated knowledges by highlighting the coastal community women's experiences of disaster and corresponding resiliency. Using the post-Haiyan experiences of women in Bayas as case study, the paper also chronicles and highlights the rather rare opportunity that post-disaster contexts provide for coastal women's agency and empowerment.

Qualitative data for the study were gathered through a series of gender sensitivity orientations cum focus group discussions, as well as through key informant interviews with community members and leaders. Results indicated that cultural discriminations against coastal community women impede on their access and utilization of institutional relief efforts. The coastal women of Bayas were not engaged in offshore fishing and did not directly benefit from the various boat replacement assistance extended to fishing families. Thus the coastal women organize themselves and lobbied in order to address security and sustainability concerns, as well as strategic gender interests. Such opportunity in adversity needs to be harnessed by existing social networks and leadership, lest it be undermined by cultural practices that continue to marginalize and disempower women in coastal areas.

INCOME OF FISHING HOUSEHOLDS BEFORE AND AFTER TYPHOON HAIYAN: A STUDY ON COASTAL COMMUNITIES OF BATAN AND ALTAVAS, AKLAN, PHILIPPINES

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Typhoon Haiyan (Local Name: Yolanda) is the most devastating tropical cyclone that hit the Philippines in recorded history. Haiyan, which occurred in November 2013, claimed 6,300 lives, injured 28,688 individuals, and 1,062 were reported missing. The typhoon also damaged houses, communication lines, and other infrastructures. Coastal communities in Central Philippines were heavily affected because of strong winds and storm surges brought by the Typhoon. The Province of Aklan in Panay Island is one of the areas that was hit by Yolanda. This paper compares the income of fishing households before and after the occurrence of Typhoon Haiyan (Local Name: Yolanda) in coastal areas of Batan and Altavas, Aklan. Initial data gathering was done with randomly selected fishing households in 2012 using an interview schedule. Return visit to the households was done in 2014. Majority of the fishing households reported a decline in income after the typhoon. Households which are more dependent on fishery resources experienced higher reduction income mainly because of damages in fishing boats and fishing gears. Findings of this study provides useful information in understanding the relationship of well-being and natural disasters in coastal areas.

WOMEN INITIATIVE IN INTRODUCING THE BRAND NAME SIAMESE FIGHTING FISH VIA SOCIAL MEDIA IN THAILAND

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Over the last three decades society at large has been integrated into the digital world. This continues to expand as the newer devices of information technology and interpersonal and inter-organizational communication are introduced and with new users keep adding. An online business is no more alien in the country.

This state of affairs can effectively contribute towards the women empowerment especially those operating small business in a household premises.

The aquaculture of Siamese fighting fish is a popular business in almost all parts of Thailand. It can be dubbed as business-cum-hobby. Small scale production is a household phenomenon. Thus an urban-rural divide in this case is practically irrelevant. This situation can be particularly advantageous for women in a rural household to earn a business online with the only alternative to physical travelling.

The Department of Fisheries is taking steps to pursue the government objective of involving the women as part of the program to having active participation in the betta business.

THE CHANGE OF MASCULINITIES PATTERN UNDER AMENDED LAW: CASE STUDIES FROM SAMUT SAKORN

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On April 28th 2015, Thai military government has tightened and pass new law relating to fishing in order to eradicate the trafficking due to EU and USA's caution against on-broad labour exploitation connecting to trafficking and unqualified fishing boat. Whether perceiving the resulting or not, the tightened law enforcement without warning in advance has completely disrupted fishermen's livelihood in the way that they cannot practice the same activities with the same method for feeding themselves because their boats do not meet the requirement of amended law.

Regarding to the previous studies, patterns of masculinity in fishery can be impacted by amendment of legal bodies or policies which tighten implementation of rule concerning safety and requirement of license for fishing so as to conserve fish. Under these conditions, men who cannot conform the same practice as prior to such amendment as their previous generation need to construct new patterns of masculinity which differs from their previous generation¹.

In this studies, I will use relevant literatures concerning concept of masculinity to draw the framework employed for analysing in this studies. In turn, I will utilize preliminary data gathered from visiting the impacted fishermen in order to illustrate the impact of Thai new law on the pattern of masculinity of fisherman's living in Samut Sakorn.

¹ See Power, N. G. (2008). Occupational Risks, Safety and Masculinity: Newfoundland Fish Harvesters' Experiences and Understandings of Fishery Risks. *Health, Risk & Society*, 10 Number 6, 565-583.

IS MIGRATION A ROUTE OUT OF POVERTY FOR WOMEN IN FISHING COMMUNITIES?

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Fishing communities are one of the poorest groups of people in many Asian countries. We explore how poor women and men in fishing communities strategize their livelihood when fishing resources get depleted and they are not able to earn enough from fishing resources. Based on a literature review and preliminary research in Cambodia, the paper discusses potential route out of poverty for women and men in fishing communities. Some households might decide to let some of their family members to migrate. Some might decide to work together and form groups. It is assumed that such livelihood decisions are influenced and shaped by various factors, and the decisions are made differently by people of different sex, age and class. The paper attempts to map out the various options for fishing women and men, and the different factors that influence their decision and possibly the potential implication of such decisions.

FIRST STUDY ON GENDER ISSUE(S) IN FISHERIES AND AQUACULTURE IN LAO PDR

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The government of Lao is committed to promote and advance of gender equity policy through the socio-economic development strategy and five year national economic development plan. Both women and men are involved in fishing activities. Women are especially engaged in the management of fish ponds and fish culture in the rice fields. They further play a key role in processing and marketing fish. Geography and Landscape in this area create a huge fish production and caught millions ton of fish per annum and feeding millions of people in the Lao PDR.

First study on gender issue in fisheries and aquaculture in Pakse and Phothong districts is focusing on the issue of the gender issue in organisation and the second part if the gender issues at household level.

The results from the review of secondary data and focus group discussion shows that women including child involved in the fisheries and aquaculture activities mainly in the fish processing and selling activities. Recently, the Advance Women Sector has been trying to promote gender equality and equity at the organization by sharing of some higher position promotion in the organization. Although, it has been recognized that the roles of gender (man and women) play the important roles in fisheries and aquaculture development, however there is no evident to prove that the gender promotion in fisheries and aquaculture sectors in Lao PDR has been achieved and widening promote to regional level. The imitated budget to implement the gender plan and lack of gender disaggregate data for planning. The staffs who work with gender aspect at provincial are still lack of knowledge, skill and limitation access to the new information and technology.

WOMEN AND MEN'S DIVISION OF LABOUR AND TIME USE IN VIETNAM: A COMPARISON OF RICE AND RICE-SHRIMP IN SOC TRANG PROVINCE

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Small family farms in Asia are the backbone of rural society, they often have limited resources and rely heavily on family labour. The recognition of different labour inputs is an important precondition to accessing resources and inputs needed for farming. The full extent of women's labour contribution to livelihoods and food security is often underreported and less visible because it tends to be relegated to unpaid subsistence farming. Moreover, women are burdened with responsibilities that range from household and family care to productive and community roles.

The objective of this study is to make women's contribution visible and assess whether they have access to technologies and services they need to perform their work.

Relying on primary data collection, the study explores the different labour inputs and return to labour of smallholder women and men in the livelihood systems dominated by rice and rice shrimp farming in southern Vietnam. It therefore also assesses labour contributions to important complementary productive activities such as vegetables and livestock. The study reports on differences in work burden and access to technologies and services and elaborates key findings and recommendations from a gender perspective.

GENDER INTEGRATION STRATEGIES OF THE OCEANS AND FISHERIES PARTNERSHIP IN ASIA-PACIFIC REGION

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Fisheries is a gendered activity, with men and women involved in various roles along the fisheries value chain. Initiatives introduced or implemented in fisheries should be considerate of the various gender nuances, i.e. differences and needs, for inclusivity and equity. Women in fisheries face more challenges and are at a disadvantage compared to men, i.e. in access to credit, capacity building, safety, and opportunities for better compensation and market information. The Oceans and Fisheries Partnership Activity (Oceans), a collaborative project with USAID, Southeast Asian Fisheries Development Center (SEAFDEC) and Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security (CTI-CFF), recognizes the need for a gender integrated approach in its activities. Oceans aims to increase the ability of regional fisheries organizations to conserve marine biodiversity by combatting illegal, unreported and unregulated (IUU) fishing in Asia-Pacific, through the development of a catch documentation and traceability (CDT) system, based on an ecosystems approach to fisheries management (EAFM). Other key interventions include capacity-building, public-private partnerships, and addressing relevant human welfare issues. Key human welfare goals, including gender and labor, will be considered in the development of the CDT and EAFM implementation. Women actors will be consulted on their motivations or desired incentives to encourage them to be involved or engaged in sustainable fisheries management, and implementation of the CDT. A gender analysis will determine existing gender in fisheries initiatives, and, through participatory approaches, will identify strategic areas of intervention. These gender-specific interventions will be in the areas of women's economic and social empowerment, capacity building and strengthening constituencies to achieve Oceans objectives.

Oceans aims to consider gender in laws, policies and strategies arising from the project, and efforts will be taken to consider gender and women's role and participation in the fisheries value chain in the development of technological procedures and tools.

ROXAS CITY EXPERIENCE IN SUSTAINABLE LIVELIHOOD FOR WOMEN IN COASTAL AREAS TO SUPPORT RESOURCE REHABILITATION FOR FISHERIES AND AQUACULTURE SECURITY

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Roxas City's coastal resources have been under stress with the proliferation of illegal structures, indiscriminate garbage disposal, cutting of mangroves and illegal fishing. The implementation of the City's Fishery/CRM ordinance to sustain local fisheries displaced fisherfolks who demanded an alternative livelihood. Women are most affected as they carry the burden of meeting family needs. The local government was faced with the challenge of coming up with an alternative livelihood sufficient enough to replace fishers' former income from fishing. Introducing alternative livelihoods not only decreases fishing pressure but also augments family income where women can take significant roles.

Community organization process is a necessary groundwork for sustainability. Community-based ecotourism worked as a strategy to sustain resource rehabilitation efforts, and provided good income from the diversified products developed. Ecotourism, with climate change mitigation as a selling point, enabled schools to participate in environmental efforts, and companies to express their CSR, resulting in continuous visitors at the ecosites.

Fisherfolk Associations were organized in affected areas, forming a partnership with the local government. They were also given the privilege to operate ecotourism in their areas. Ecotourism evolved into diverse business ventures, generating employment for women in coastal areas. An income of over P15M was generated from more than 90,000 visitor arrivals. They participated in mangrove planting and coastal clean-up. Fish and shellfishes were revived and catches increased. When Typhoon Yolanda struck Roxas City in 2013, these organizations rebuilt their structures from their own savings, without any investment from the city government.

Empowerment and proper guidance from sponsoring organizations enabled the fisherfolks especially women to operate their ecotourism business sustainably. Their involvement from visioning, strategic action planning, until implementation showed their stake in the resources being managed. Transparency and commitment of the local government will earn trust from the people, thereby facilitating cooperation.

GENDER, RESOURCE USE, AND COASTAL MANAGEMENT: THE CASE OF SEA CUCUMBER RANCHING IN PANDARAONAN, GUIMARAS, PHILIPPINES

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Resource management initiatives are ideally gender-blind, however, there remains a big gap between theory and practice. This study focuses on the gender dimension of the sea ranching project of sandfish (*Holothuria scabra*) in Barangay Pandaraonan in Guimaras province, central Philippines, being started by the SEAFDEC/Aquaculture Department through assistance from the Australian Center for International Agricultural Research (ACIAR). The project aims to enhance and sustain local sandfish population and promote sea ranching as an alternative or supplementary income source.

A survey among sixty (60) households, focus group discussions, key informant interviews and resource mapping workshops were conducted to understand and analyse fishing activities, resource use practices and coastal management schemes acceptable to the community in support of the on-going project. Results show that although both men and women have access to the coastal and marine resources, majority of the men (98%) maintained control and ownership of gears and boats while women were limited to gleaning at the intertidal zone. Income disparity was apparent with men earning more ($p < 0.001$), indicating that women's activities were intended to obtain food for consumption or as subsidiary to their husbands' earnings. Only 22% of the households collected sea cucumber, mostly *Holothuria scabra*, yet, majority (70%) believed that collection should be regulated through size (58%), gear (45%), and time (40%) restrictions. Majority (58%) was interested to participate but records show that women dominated the attendance (58%) during meetings and consultations. Women serve as income earners and household representatives to various activities in the community – roles that should not be overlooked in project planning, monitoring and evaluation.

FISHER WOMEN'S CONTRIBUTION FOR HILSA FISHERY MANAGEMENT IN BANGLADESH

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Hilsa (*Tenualosa ilisha*), is an anadromous fish, called 'Ilish' in Bengali and commonly known as 'Indian shad', that is honored as the national fish of Bangladesh. Approximately 0.45 million fishers directly depend on Hilsa fishing for their livelihood, another 2.5 million people are indirectly dependent on Hilsa fisheries value chain. Women's participation in Hilsa fisheries value chain in Bangladesh is largely invisible. They are assumed either not to fish in the coastal waters, or not to participate directly in the fishing as this is considered mostly men's work. However, women can play an important role in Hilsa fisheries value chain and thus, can contribute to the decision making in sustainable fisheries management.

In an effort to improve resilience of the Meghna River system and the communities reliant on Hilsa fishery, a USAID funded "Enhanced Coastal Fisheries in Bangladesh (ECOFISH^{BD})" initiative has been jointly implemented by WorldFish and Department of Fisheries (DoF), Bangladesh. Gender equity and women empowerment have been considered as important inbuilt component in the ECOFISH^{BD} project. It is believed that women's involvement and leadership can have a positive role on natural resource management, and on reducing gender-discriminatory norms and practices that negatively affect their lives and livelihoods. At the community level both women and men should be included in decision making that matters to their improved livelihoods as well as establishing fisheries co-management through engagement of fishers and different stakeholders. To increase resilience and social cohesion, ECOFISH^{BD} addresses gender mainstreaming in all its activities. The project targets 100,000 fishers family members (around 50% women), who will be benefitted directly from the project. Also, 200 Fishers' Women Community Savings Groups (CSG) will be formed over the five years in different villages scattered throughout six Hilsa fish sanctuaries. CSG consist of active participation of women to ensure gender equitable systems and structures, higher participation and leadership of women in community-led initiatives as well as women's economic empowerment. Fishers' women has been provided with different on-farm and non-farm alternative income generating activities (AIGAs) to support the households during the fishing ban period and thus to influence the compliance of the management plan of the Government of Bangladesh.

PARTICIPATION, ROLES, AND WILLINGNESS-TO-BE-INVOLVED IN MARICULTURE AMONG MEN AND WOMEN IN MARICULTURE AREAS IN THE PHILIPPINES

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Mariculture was envisioned to contribute to poverty reduction by increasing employment opportunities and income in the area where it is situated. This paper assessed the participation of local men and women in seven mariculture sites in the country, the roles they perform, and their willingness-to-be-involved in mariculture operation. The data used were collected through a household survey, focus group discussion, and key informant interviews conducted in January to August 2015. Results show that only 23 percent of the 785 households had members with any participation in mariculture since they were established in the area. By site, household participation ranged between 4% and 44%. This was translated to only 228 individuals in all sites. Although men dominated mariculture, the women had demonstrated that they can equally contribute to mariculture as an operator, caretaker or feeder. The willingness-to-be-involved in mariculture was high in the study areas, particularly among the men from fishing households. Specifically, the willingness to become a mariculture operator was higher among women than men. Engaging women to become mariculture operators can be one of the areas to be explored to increase the participation of the local residents toward achieving the employment and poverty goals set for mariculture.

WOMEN'S EMPOWERMENT IN AQUACULTURE: CASE STUDIES FROM BANGLADESH

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Abstract

Women are involved in and play important roles at different levels in the aquaculture value chain in Bangladesh. However, empirically-based understanding regarding the degree to which aquaculture contributes to women's social and economic empowerment in this context is lacking. This knowledge is critical to inform aquaculture-related policy and development interventions and investments at various scales. In response to this need, in order to understand the gendered roles diverse women play in the sector, and the degree to which these roles contribute to empowerment a small study was undertaken through a partnership between the FAO and WorldFish. The study focused on two areas along the value chain: homestead aquaculture (Kutakhali village in Khulna District) and factory-based shrimp processing (in shrimp factories in Khulna city). This study sheds light on the enabling and constraining factors shaping both women's engagement and success in aquaculture, as well as analyzing the associated social and economic empowerment. This includes analysis of underlying social and gender norms and power relations that inform everyday gendered practices and outcomes. The method of collecting data for the two case studies involved focus group discussions, key informant interviews and transect walks.

The study found that rural-urban, Hindu-Muslim and production-processing contrasts provide intersectional insights regarding the factors enabling and constraining women from different backgrounds. The study found direct income from aquaculture to be a key factor in increasing the respect accorded to women, as well as their economic freedom. It also elucidated several pre-conditions for women to be able to successfully uptake aquaculture work and receive this direct income, and found that these pre-conditions are defined by the gender norms and traditions that guide the extent of acceptability of various roles for women. Fear of repercussions and injuries to ideals of femininity and masculinity were identified as contributing to gender role conformity; in contrast, the drive to fulfil basic necessities were found to stretch boundaries. The study also suggested that once these basic needs were fulfilled, higher order needs of self-esteem, security and reputation re-constrained gender roles, and associated benefits and freedoms.

WOMEN'S EMPOWERMENT IN AQUACULTURE: INDONESIAN CASE STUDIES

Irna Sari and Cynthia Lauren McDougall

Abstract

Women contribute to a range of aquaculture activities such as fish processing and operating backyard hatcheries in Indonesia, yet these roles are often unrecognised by development intervention due to patriarchy and local traditions. This lack of recognition reflects a critical gap in knowledge regarding factors that enhance or limit the participation and empowerment of women in Indonesian aquaculture. This study examined the processed milkfish industry in East Java and shrimp farming in South Sulawesi Indonesia to fill knowledge gaps and to underpin strategies to improve gender equality in aquaculture development in Indonesia. This study applied qualitative methods, namely semi-structured interviews, focus group discussions and observation. This study found that the processed milkfish industry has greater potential for social and economic empowerment of women compared to shrimp farming. However, participating in both type of aquaculture activities significantly increases women's responsibilities and time burden. Earning money to enhance opportunity for the family beyond the earnings of spouses was a driving factor for women's participation in both industries. Access to natural resources required for aquaculture is the critical enabling factor for women's direct participation in shrimp farming. Entrepreneurship, access to raw materials, financial capital and market access facilitate women's ability to establish milkfish processing business. Nevertheless, women still face obstacles that limit their success in these endeavours, including a lack of technical knowledge. In particular, for milkfish processing, women still lack skills in business strategy, especially in identifying a market niche and understanding product competitiveness. Additionally, access to financial capital and branding are critically important to the success of women in milkfish processing. Gender and social norms, especially gender norms that control the assignment of roles, are significant limiting factors. In terms of empowering women through aquaculture, an integrated strategy to address both gender constraints and the technical and capacity development barriers is recommended.

WOMEN MOLLUSKS GATHERERS ORGANIZATION IN COSTA RICA: A WAY TO MOVE FORWARD TOWARDS RECOGNITION OF A HARD WORK NEAR THE SEA

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Within the Costa Rican artisanal fishery sector the sub-sector of the mollusks gatherers or “molusqueros” and “molusqueras” as they are known in Costa Rica is a very important one. The mollusks gatherers is a group composed mainly of women, in many cases partners of fishermen, or single mothers, who see in the mangroves an option to provide money to their homes. The work in the mangroves clearly defines a cultural identity near the sea. They have to work long hours under the sun with their hands looking for mollusks in the mud and a bag as her only working tools. There is very little recognition and knowledge about this sub-sector of small scale fisheries in the country. Women in Chomes, Puntarenas are example of these brave women.

To get organized seems to be the way in which women can fight for recognition of their work, which up to now is not even recognized by the State as a formal work. The women in Chomes, have got together in the “Asociación de Mujeres Molusqueras de Chomes”. This partnership has enabled them to have a more important role in decision making in the sector at national level and fight for their rights as molluscs gatherers.

For them, it has been important to search for strengthening their skills in aspects related to labor issues and promote their empowerment and recognition in the sector. Considering these experience, a serial of workshops facilitated by CoopeSoliDar R.L with the financial support of FAO have been organized on issues related to labor rights and the importance of the participation of women in the fisheries sector and an exhibition of photographs portraying her work as molluscs gatherers was done to dignify and recognized these women work. This is the beginning of a process that seeks the visibility of this activity and the empowerment of coastal women harvesters.

WOMEN-LED RIVER BANK AQUACULTURE FOR LIVELIHOODS OF RURAL POOR COMMUNITY IN FOOT HILLS OF NEPAL

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Small-scale pond aquaculture for rural poor is one of the options for improving household family nutrition with supplemental income. However, availability of suitable land for pond construction is a major limitation in most of the cases. An attempt has been made to construct the ponds on both sides of the foot hill river bank covered by small gravel and boulders at the rural remote village of poor community. The main goal was to use available local resources to improve livelihood of the community.

Ninety ponds for fifty three households were constructed ranging from 100-500 m² with the average size of 170 m². The methods and process followed were: inception workshop, group formation, exposure visit, monthly technical training, pond construction, supply fingerlings, vegetable seed supply for pod dike farming, establishment of weekly market, group registration in District Agriculture Development Office, tie up with existing cooperative. Fish species used for culture were: grass carp, common carp and Nile tilapia. Local river species were allowed to enter and grow in ponds, and asked to harvest regularly for family consumption. Pond dikes were used for vegetable farming and grass cultivation. Some households made pig stay in dike and raised pigs. The program was launched for one year and culture period for fish were for about 6 months. Total income estimated from the aquaculture and pond dike farming is NRs 1,350,000 (US\$ 13500).

S.N.	Production item	Production (kg)
1.	Fish production	2755
2.	Local fish production	1590
3.	Pulses	600
4.	Vegetables	173
5.	Banana	150
6.	Pig	380

Besides those productions, the program benefited poor ethnic communities, empowered women, supported family nutrition, enhanced family income, increased food security, and developed saving behavior of women by proper use of available natural resource.

AN ASSESMENT OF WOMEN'S PARTICIPATION IN AQUAVCULTURE IN SOUTH EAST REGION OF BANGLADESH

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Abstract

Aquaculture has an important role in the income generation and poverty alleviation as well as household nutrition of rural people of Bangladesh. Rural women are always engaged in the aquaculture production activities. But their role is not often acknowledged and documented. The study was conducted to assess the level of women's participation in aquaculture production activities in some selected areas of south-west of Bangladesh. Total 450 households (225 USAID-Aquaculture for Income and Nutrition project intervened and 225 non project intervened households) were surveyed through a pre-tested structured questionnaire. Data were also collected through focus group discussions. The study reveals that women in 65% households were involved in aquaculture along with their male counterparts, among 48% played active role. The level of participation varied with the types of aquaculture and the inclusion in project. Women were more involved in activities of homestead aquaculture (30%) than that of commercial fish (23%) and shrimp culture (12%). Women participation belonging to project intervened households were observed more than non-project women. Women were more involved in stocking, feeding, monitoring of ponds and partial harvesting with maximum involvement (21% independently and 77% along with male) in application of feed. Involvement was found less in the removal of mud, dyke building and final harvesting. The result of logistic regression analysis revealed that the participation of women in aquaculture is positively related with family size, pond size, training received, and members of cooperatives but negatively related with distance of ponds. Educational status and age of women however had no significant effects on participation in aquaculture. Findings also indicated that various socio-cultural, practical and knowledge constraints hinder the level of women's participation in aquaculture. It concludes that education, motivation, need-based training, credit facilities and quality inputs supply have the potential to increase women's participation in aquaculture production and management.

ATTITUDE TOWARDS MARICULTURE AMONG MEN AND WOMEN IN MARICULTURE AREAS IN THE PHILIPPINES

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Mariculture is being promoted in the country in response to the declining productivity and resource depletion in capture fisheries and the persistent poverty among coastal communities. One of the challenges is the low uptake in the community with mariculture operation. To contribute in crafting policies to promote support for mariculture operation, this paper focused on the attitude towards mariculture among men and women in seven mariculture sites in the country. Survey data collected in January to August 2015 from 467 men and 318 women from fishing and non-fishing households were used. Three components of attitude were examined: cognitive component, which deals with the beliefs they have on the effect of mariculture on the community's employment, food security, income, and pollution; affective component, which deals with whether they like or dislike having mariculture in their area; and the behavior component, which deals with the fishing and gleaning activities as well as recreational activities before and after the establishment of mariculture. Results show that the proportion of men who like having a mariculture operation in their area was higher (68%) than the women (60%). In general, there is a significant association between gender and the attitude toward mariculture but it was not true of specific sites. The proportion of men and women who like having mariculture operation was higher for non-fishing households, but there was no significant association between household type and attitude toward mariculture by gender. Fishing and gleaning as well as leisure activities including swimming and strolling decreased after mariculture was established. Similarly, local employment was perceived to have improved by the mariculture operation in most sites, but food security and income of the community remained the same as before mariculture operation. Increasing women's involvement in mariculture operation may increase their support in mariculture operation.

GENDER'S PARTICIPATION IN SEAWEED PRODUCTION IN NTT, INDONESIA

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Despite the significant presence of women in the seaweed production in Indonesia, most of the data collected in official statistics fail to capture the participation of women in seaweed production. These data gaps reinforce the policy neglect of gender issues in seaweed culture that also affects strategy to increase seaweed production and quality. This study examines the role of women and men in seaweed production in NTT Province, Indonesia. The case study takes place in three districts (Alor, Rote and Kupang districts) which represent the production area of seaweed in NTT. The study presents the different characteristic of producers, including socio economic classes, ethnic groups, past occupations of men and women and how gender affects farming location. A value chain analysis was used to present the insight analysis and strategies to improve gender's participation in increasing seaweed production. The study finds women and men contribute similar amounts of labour to most processes in seaweed production in NTT. A number of issues is highlighted and need to be addressed in order to improve the production and quality of seaweed. This case study presents the production system in NTT and possibly in other Indonesia.

CAGE FARMING HEADED FOR EQUAL OPPORTUNITY IN AQUACULTURE DEVELOPMENT IN KERALA, INDIA

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Women's contribution to aquaculture in India is often under-estimated and the benefits from their involvement in aquaculture activity are also not factually considered. The present study is focused on the participation of women in cage aquaculture in Ernakulam District of Kerala, India. The observations reveal that their role is significant and forms a major component in social development as well as family wellbeing. A case study at Pizhala, a fishing village near Ernakulam showed that women have more knowledge in terms of the management of cage farms like, seed procurement, nursery rearing, feed scheduling, feeding, cage maintenance, marketing *etc.* Women have been found to be directly involved in fabrication of cage and its maintenance, procuring good quality fish seed and its stocking. They are also found to be selling fish on their own and assure more profit in terms of money as well as quality of the product is well preserved with proper handling. Women sell the produce directly at farm-gate and in local markets to assure elimination of middlemen. The most significant and positive aspect of involvement of women in cage farming is that since their family income has increased and it is being used for food, health care and education of the family members. Women's participation can ensure social and economic empowerment in the rural societies in India like the one at Pizhala, Ernakulam. Even though the village in the present study is very close to the city, development is meager due to the poor financial status of the people out there. However, with involvement of women also in cage farming activities, the village has opened up a better avenue for the development of aquaculture as well as social upliftment and equal opportunity. If women are supported more with schemes in aquaculture, a developed rural society can be assured in many areas in the country. Equal opportunity would ensure substantial societal development starting from family health, education and standard of living. It is also observed that, once involved in cage farming, women are ready to expand it further with own efforts and expenditure, which shows the positive and healthy attitude among the women farmers.

WOMEN IN THE SEAFOOD INDUSTRY: DIFFERENT COUNTRIES, DIVERSE LEVEL OF KNOWLEDGE AND AWARENESS

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On a global scale, quantitative and qualitative data on the participation of women in the seafood industry is sparse and when it exists it may be of poor quality and only cover some segments of the industry. Thus, the knowledge and understanding of the very complex distribution of roles, power, access to resources and profits between genders are incomplete and vary greatly between regions and industry sectors. This presentation illustrates the level of knowledge, the level of awareness and understanding in 6 different countries. This simple tool is not meant to run comparisons between countries.

The study carried out in early 2015 for GLOBEFISH the unit in the FAO Fisheries Department responsible for information on international fish trade summarizes the knowledges on “the role of women in the seafood industry”. What is known, documented? Does sex disaggregated data over the full employment spectrum in the seafood industry and sociological, anthropological and economical studies on the role and power distribution between sexes exist?

This research evidences that the quality of data varies greatly between countries and, interestingly enough, is not linked to the level of economic development. Developing countries like India and Senegal, for instance, offer rather good records because these important fishing and aquaculture nations have received the attention of gender sensitive development aid agencies. In contrast, the participation of women in the industry is still poorly documented and researched in most developed countries, such as France and Croatia.

OCCUPATIONAL SAFETY AND HEALTH (OSH) RISKS FOR THE FEMALE WORKERS ENGAGED IN SHRIMP PROCESSING INDUSTRY IN BANGLADESH

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The Occupational Safety and Health (OSH) risks are seen as an emergent issue for the shrimp processing industry in Bangladesh where majority of the workforce are female. After the recent accidents of fire and building collapse from the garments industry, local shrimp factory owners and the government have started looking at the OSH matters carefully across the shrimp processing sector.

Recent investigations revealed that the 'fire safety' and 'building safety' across the shrimp industry is considered safer. Working with wet raw materials in cool condition has made it less risky from fire. Processing of shrimp being done in ground floor appeared safer from building safety and most of the shrimp processing factories are two storied building. But working in cold and moist condition for longer period without adequate personal protection causes health problems for female workers. Diseases like colds, cough, asthma, backache and musculoskeletal pains are the common ailments reported by shrimp processing workers.

Other OSH risks reported include faults in electric lines and connections to run processing machineries. Improper electric lines may cause electric shocks leaving instant killing of workers or injure severely. Working in strong sound and vibration around machine room and prolong exposer without ear plugs can cause impaired hearing. The compressor machines and ammonia gas cylinders are associated with high risk of explosion and leakage of toxic gas causing breathing ailment or mass killing in severe case.

This paper presents findings of a study to assess OSH status of shrimp processing workers and to review the industrial rules related to health and safety and their compliance level. Attempt was taken also to assess the training needs and recommend policy guidelines how to improve the OSH situation making an efficient and healthy workforce for the important export industry for the country and remain competitive in the international market.

EMPOWERING WOMEN ENTREPRENEURS IN RUNNING AGRIBUSINESSES IN MYANMAR

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When Myanmar started opening the doors for international organizations to assist development process especially in rural areas, the Ministry of Foreign Affairs, Italy showed an interest in supporting a food security program. A project called *e-Women* project (entrepreneurship in women) was designed through a long discussion among partners, University of Tuscia, AIT and EERi and finally started from January 2013. The main objective of the project was to build the capacity of women in running agri-businesses in Twantay township, a Nargis affected area.

Before starting the project, a good partnership with the Yangon Region Government was established. In cooperation with Regional and Local Government, nine potential women with low income were selected in each of the 11 villages of Twantay township. The Project Team conducted a participatory rural appraisal (PRA) through a focus group discussion to identify the need and the problems of the rural communities which were lack of job opportunities, limited technical skills, limited mobility, lack of credit or high interest rate (10-15% per month), land and market access. At the same time, the Project Team also identified some potential agribusiness options for each village based on the potential profitabilities. Among the options, four categories were selected viz: 1) fish or prawn nursing and/or grow-out, 2) animal husbandry e.g. pigs, goats or ducks; 3) mushroom cultivation and 4) vegetable production.

The nine women in each village were asked to choose one of the potential options. The project contributed only 50% of the cost of the first crop. They contributed as labour and land rent as their costs. They were trained by the local trainers, some of whom were trained in Thailand. Experts from UoT and AIT also provided technical back-ups. They were also trained in keeping all the input costs and sales revenues, and in conducting monthly meeting in each village to discuss their problems, and make new plans. The project also provided a seed fund for each group in condition that each women also collects monthly savings to add to the revolving fund opening an account per group. Each women was then entitled to take a loan for each season with the condition to pay it back with an interest. After testing the business options for about year, it was found that fish fingerling nurisng and prawn culture in some villages, while in others mushroom cultivtion, raising goats and pigs, vegetables and mushroom were found to be the best agribusinesses. The peject was extended until December 2015, and evaluation was carried in November 2015. It was amazing to see that the women's

groups were still actively working in groups. Some of them were progressing well starting more profitable businesses. All the women were very satisfied with the project and committed to continue as long as possible. Results will be presented in more details during presentation.

GENDER ROLES AND LIVELIHOOD STATUS OF ORNAMENTAL FISH ENTERPRISE IN MAHARASHTRA STATE, INDIA

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The study was carried out to study the gender roles and livelihood profile of ornamental fish producers Mumbai and Thane districts in Maharashtra state, India. Majority of the entrepreneurs were middle age group and had more than 05 years of experience in ornamental fish breeding and rearing. The social participation through self help groups (SHGs) and co-operative society was high and moderate decision making power in family and their trade for women. Maximum entrepreneurs (85%) were literate. Daily, they spend about 14 hrs per day in maintaining the ornamental fish production unit and its management. Ornamental fish production was the primary occupation for their livelihood and secondary occupations include agriculture, other fisheries activity, services and business activity. The activity profile indicated that the maximum time spending was for cleaning of tanks and siphoning, feeding, observations of health and filtration system followed by household work. Access to household, fishery related resources were high and to financial resources was low to women as compare to men as well as control over these resources is minimal. Community norms, social hierarchy and institutional structures were the possible influencing factors. Education and health were basic needs and good quality seed and feed availability along with market facility and training, expert advice were the practical fishery needs for men. For women, market facility was the basic practical need and control of resources and access to credit were strategic basic needs as well as fishery needs like seed availability and marketing.

FEMINIZATION OF THE SHRIMP PROCESSING INDUSTRY IN BANGLADESH: PACE OF WOMEN EMPOWERMENT AND POVERTY REDUCTION

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Feminization of Bangladesh labor force is perceived as one of the main contributory factors to its economic growth. The shrimp processing industry utilizes a large number of female workers after the readymade garment industry. The industry has been playing an important role in foreign exchange earnings and employment generation, especially for the poor women engaging them in the post harvest and processing segment of the supply chain. But these poor female workers seem to suffer from gender disparities in their workplaces revealed in a recent labor force survey. Many of them are found to be marginalized in unpleasant job at the bottom level with lower wages, deprivation of righteous leaves and allowances and other benefits than their male counterparts.

This paper will investigate if women engaged in the formal labor sector across the shrimp supply chain are empowered adequately analyzing gender sensitive economic indicators. The paper will also evaluate the potentials of poverty reduction and women empowerment through better compliance of existing labor rules. The study will utilize data on over 530 workers randomly chosen and interviewed from 40 shrimp processing factories across the six coastal districts of the country. This paper will attempt to identify constraints to gender disparity and women empowerment across the shrimp industry and make policy recommendations to avert them.

AN UPDATE ON GENDER IN AQUACULTURE AND FISHERIES VALUE CHAINS IN INDIA

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Abstract

Though there is tacit understanding of the important roles that women play in fisheries and aquaculture, the lack of information in number terms on how many of them are active in the value chains and what and where they contribute is sadly lacking despite researchers and academicians discussing this issue for several years now. This lack of data leads to lack of attention to gender roles and relations, which ultimately lead to failure in policies or programmes in improving livelihoods or reducing vulnerabilities of fishing communities. It is essential to bring into perspective the contribution of fisherwomen to the sector by identifying the critical issues that need to be addressed from the different levels like livelihoods, technology, skill and policy. The present communication attempts to cover the baseline gender information in fisheries and aquaculture value chain that is currently available, from the works that have been carried out or from published and grey literature, in India. The objective of the present study is to elucidate the gender roles in fisheries and aquaculture value chains in India, identify the issues of social, cultural and economic importance that pertains to restricting the women roles in the sector and also analyzing the policies that could serve as avenues for a change.

For a country with a coastline of more than 8000 km and other rich resources of water bodies like rivers, canals, reservoirs, ponds, tanks, brackish water etc., the contribution of fisheries and aquaculture to the economy is significant. It has been recognized as a powerful income and employment generator as it stimulates growth of a number of subsidiary industries and is a source of cheap and nutritious food besides being a foreign exchange earner. Most importantly, it is the source of livelihood for a large section of economically backward population of the country. This is one of the reasons that women tend to be involved in a lot of activities along the value chain as small scale and often subsistence fisheries and aquaculture makes it imperative for both men and women to engage in the sector for livelihood. Developments in the sector from the technological point of view have rendered women's work redundant in some areas. Whether other avenues have opened, how women have coped with the changes are some of the issues that will be looked at.

GENDER, AQUACULTURE AND EMPOWERMENT: A SEVEN COUNTRY REVIEW

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Emerging experience suggests that aquaculture is gendered not only in terms of roles, but also in terms of enabling and constraining factors and multi-faceted costs and benefits. Although women's involvement in aquaculture production, particularly in small-scale aquaculture helps to increase productivity and fish consumption within households, their participation is relatively low compared to men's. Factors underlying women's lower participation include lack of access to and control over key assets, capital, skills, technologies and extension services. Moreover, some studies have indicated the potent role that social norms and power relations play in shaping and limiting women's adoption and use of aquaculture knowledge, technologies and practices. These gendered patterns however need further examination and elucidation within and across contexts. In particular, there is a need for further analysis of the existing literature, including on identifying the social and gender norms and power relations that constrain women's access to and control over land and other key aquaculture inputs and technologies. This study responds to that need by reviewing the roles of women in aquaculture, the enabling and impeding social factors that informs the social and gender norms and power relations constraining their access to and control over land and other key aquaculture inputs and technologies. It will also look into the outcomes of women's increased involvement in aquaculture. The review will be done on seven countries from Africa and Asia where people rely on aquatic resources for living: Egypt; Nigeria; Zambia; Tanzania; Bangladesh; Cambodia; and, Myanmar. A systematic online search of databases and search engines for journal articles, reports and other non-print materials will be carried out using a large number of search terms and various permutations. Publications areas on the websites of organizations such as The Department of Fisheries, Bangladesh, Fisheries and Aquaculture Department of the Food and Agriculture Organization and WorldFish will be searched. The search will be iterative until a saturation point is reached or until no new relevant sources appear. The review will inform interventions that aim to enable an increase in women's engagement in small-scale aquaculture productivity, an in particular that addresses barriers to women's control over assets, and constructively shifts underlying gender norms and relations towards gender-equitable assets and ultimately, engagement.

WOMEN IN FISHING - GUESTS AT MEN'S TABLE

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Only 2.8% or 260 of the Norwegian fishers are women. However, women have been and still are in many ways “the shore crew”, performing important tasks on land in order for men to fish. These tasks as well as the fishers’ work and working conditions have changed through the years. The fishery population has had to adapt to new international, national and local conditions concerning fish markets and production, technology, management systems such as quota regulations, but also education and gender equality etc.

In this presentation, I will focus on gender and equality questions relevant for coastal fishing by bringing in the national, regional and local level relevant for fishing. I will start by presenting and discussing the numbers of fishers, boat owners and quota owners.

Since fishing does not exist in a vacuum, I will thereafter look at women’s participation in politics by concentrating on women as political actors on the ministerial level in Norway, as well as political activities on the regional and local level through political actions and demonstrations. If time, I will give examples of how women have performed their roles as fishers in the context of a fishing village in the Finnmark, the northernmost county of Norway. Towards the end of the presentation, I will discuss my findings from the national, regional and local levels in a gender perspective.

The gender perspectives are concentrated on research carried out earlier, mostly by women, focusing on women’s conditions in fishing and fishery, but also on perspectives developed in other resource based industrial and global-oriented sectors.

My own standpoint is that women in fishing and the tasks they perform should be as much valued and give the same economic, political and social rights as men have.

CARIBBEAN FISHERIES: PERSPECTIVES ON GENDER

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The Caribbean Community (CARICOM) is a geo-political body with a membership of fifteen small island developing states. Most of these countries are English-speaking and heavily dependent on the marine resources of the Caribbean Sea for tourism and fisheries. While tourism is the most important economic sector in many countries, fisheries typically rank near the least economically important according to official statistics. It is argued that these statistics do not appropriately or accurately measure the real contribution of fisheries to social, economic and cultural assets and incomes of CARICOM states. In such arguments, and in the official statistics, gender is customarily ignored.

Although sex disaggregated fisheries statistics are scarce, it is clear that men dominate the harvest sector labour force of CARICOM fisheries while women dominate landing site fish vending and as labour in fish processing plants. Most CARICOM fisheries are small scale, but semi-industrial and industrial fisheries exist. Big investors in fisheries are mainly men in both harvest and postharvest, but there is evidence that investment by women is underestimated. Female fisheries officers, fisherfolk leaders, researchers and NGO staff are often as common as men. Yet gender in Caribbean fisheries is poorly documented and gender is not considered in regional and national fisheries decision-making. The newly established Gender In Fisheries Team (GIFT) provides data and information that address the above with perspectives on gender mainly from Caribbean fisherfolk leaders.

DECENT WORK BEYOND THE SEA: THE ROLE OF COSTA RICAN WOMEN IN FISHERIES.

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In Costa Rica the productive work related to fishing goes much beyond the action to catch the fishes every day. The act of capturing the fish, like in other Central American countries is more common between men but women have an important role in activities pre and post fishing. These activities become an essential issue that brings a more equitable and just distribution of the benefits of small scale fishing in coastal communities. In the pre fishing activities we find the work of the “lujadora”, a woman who is responsible for organizing the line with hooks used in line fishing. This work is done by hand and requires a lot of skill and technique that can only be achieved over the years. “Lujar” is a family activity, mothers teach their daughters the art since the girls are very young, passing knowledge from generation to generation.

Post fishing activities are also part of women responsibility. They are responsible for the preparation and marketing of fish and other sea products. They help (in the case of artisanal fishery) their partners not only in moving the product from the boat, but also many of them are responsible for negotiating with intermediaries the best price for the fish. Along with all these almost always invisible tasks, women are mothers, wives and homemakers and in some cases perform other work to provide an income for their families and become community leaders. All of that without proper recognition of their work directly and indirectly related with fishing work.

Part of the reason that could explain this invisibility of women's work is in the conceptualization of the fisheries work as productive chains and not as value chains. In a value chain, fishing is focused as a community activity in which the activities taking place before and after fishing become visible, including the women's work.

THE SURVIVAL STORY OF WIFE IN SECURING HOUSEHOLD'S ECONOMY IN FISHING COMMUNITY OF PEMALANG REGENCY- INDONESIA

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Fishers in Pemalang are mostly conventional and small-scaler. Asemdayong, Tanjungsari and Mojo are considered as the three biggest fishing landing in Pemalang. Perhaps due to climate change situation and/ or saturating in fish stocks, the catch taken home by fishers is declining significantly. Nowadays, cantrang as modified baby trawl which is usually widely used by fishers in Pemalang is prohibited by the government of Indonesia lately. They do not have any other alternative income. In facts, cash outflow for their household must be secured every day and wife is taking-over all the problem to sustain the household's economy. The level of successness of wife in maintaining the life of fishers' household will be depend on the survival efforts put on by wife. The main objective of this study is to investigate the role of wife in securing her family's economy and community life. The approach of mixed-method has been employed as the analytical tools. The study found that vulnerable fisheries really stipulates role of wife urgently in production, reproduction, managing community and to overcome her domestic problem. Therefore, encouragement to wife's empowerment is indeed need as one of best exit-strategy to manage the fisheries under vulnerable conditions.

SMALL-SCALE FISHERIES IN INDONESIA: BENEFITS TO HOUSEHOLDS, THE ROLES OF WOMEN, AND OPPORTUNITIES FOR IMPROVING LIVELIHOODS

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Increasingly, small-scale fisheries (SSFs) are receiving recognition for their contribution to food security, poverty alleviation and to the livelihoods of households in remote coastal communities. The number of women involved in the SSF and aquaculture sectors in Indonesia is largely unknown as women's work in the sector, and their associated value chains, is often not recorded in government statistics. The international literature has identified significant research gaps in the extent of women's participation in all aspects of the fisheries and aquaculture sector and its supply chains identifying the need for policies and programs to take better account of gender and encourage gender equality and the implications that has for poverty alleviation, development policy, livelihoods and resource management.

Many attempts have been made to improve or develop new livelihoods for coastal communities in eastern Indonesia, but the documentation of these initiatives, particularly their successes and failures, is in general poor. Further, a gender approach to livelihood enhancement programs and benefits is also often lacking. Understanding the social and economic value of small-scale fisheries, and the roles of women in fisheries were identified as priority areas for research in the 10 year plan for the ACIAR Fisheries Program in Indonesia in 2014. In this paper we report on preliminary findings of a collaborative research activity between researchers from Australian and Indonesian Universities and NGOs to: 1) develop an understanding of the significance of SSF in Indonesia, their contributions and women's roles; 2) identify success factors in developing enhanced livelihoods in SSF communities, including for women, 3) identify opportunities where livelihoods may be strengthened, diversified or alternatives developed, and 4) document knowledge gaps and future research needs. We present preliminary results from our review and case study evaluations of livelihood enhancement projects. The synthesis of available knowledge and analysis of different initiatives will help to identify common factors for enhancing livelihoods successfully, as a basis for more applied, action-driven research in Indonesia in the future.

INTEGRATING SUBSISTENCE FISHERIES IN LOCAL FOOD SYSTEMS: CASE STUDY OF PALMA DISTRICT MOZAMBIQUE

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This research discusses the factors leading to the deficient integration of subsistence fisheries in the local food systems using the evidences from the district of Palma, Northern Mozambique. one of the critical findings of this study is that, the majority of subsistence fishers are women (>70%) and that, subsistence fishing constitutes one of the most important sources of food and incomes for the local communities. However, despite government efforts in creating institutional platforms and opportunities that encourage small scale fisheries participation in food security and nutrition, subsistence fishing always remains amongst the most marginalized food systems in the district. In most cases, it is not the lack of opportunities or spaces at all, but the fact that subsistence fishing is not taken seriously, and fisherwomen are always included in these processes in disadvantageous and discriminatory ways. As a response to this exclusion, subsistence fishers are creating parallel spaces to sustain their livelihoods. These spaces are based on informal structures but, are rich and powerful: Through these structures, subsistence fishers are able to access and use gainful markets, as well as to perform arrangements that strengthen their connections with other important sources of food and incomes (subsistence farming and small business). These findings are very important, as they can bring serious changes on the ways subsistence fishing and fisherwomen are dealt with so far. Possibly, subsistence fishing and associated structures need to be taken seriously and used as useful entry points in structuring functional integrated community food systems in this district.

FOOD SECURITY PRACTICES AMONG WOMEN-HEADED HOUSEHOLDS IN URBAN COASTAL AREAS IN ILOILO CITY, PHILIPPINES

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There is a growing strand of literature on urban poverty and the role of women in obtaining food security for their households. While men play a major role in food production, women play vital roles in food preparation, income augmentation and household income budgeting, and provision of sufficient food supply every day. Still, gender inequalities exist in food production and understanding how these emerged, how they function and how these are upheld are major research gaps. This paper contributes to the discussion by examining the experiential measures of food security by women-headed households in three coastal villages in the highly urbanized Iloilo City. Using surveys, interviews with officials and secondary sources, data show that these women live below the poverty threshold, unemployed, and have limited to non-existent access to human, social, financial, physical, and natural assets. They are also largely food consumers, are not food producers although they have exhibited skills as food managers. The paper argues that cultural and institutional factors contribute to the emergence and persistence of the challenges experienced by women in obtaining food security. The study shows that food production of the locale is challenging in securing food because of lack of education resulted to limited skills in food preparation, absence of economic opportunities and livelihood of the women headed household. Most part of their income focuses on the day to day household food consumption while education has the least expense incurred. Food accessibility becomes very costly due to limited space in growing their own food supply as their food source. A group approach to food production, creation of public land banks, and establishment of a resource center may address constraints experienced by these women. This signifies that women demonstrate an essential role on household food security by contributing to food production through addressing the challenges.

WOMEN OF THE COAST: LIFE HISTORIES OF DEEP-SEA WOMEN FISHERS

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Using the life history approach (Ojermark 2007), this paper attempts to understand the status and plight of deep-sea women fishers by presenting three stories from three different barangays, namely - Montserrat, Nangan, and Surop in Governor Generoso, Davao Oriental. *Nanay* Soping (age 62), *Ate* Nene (49), and *Auntie* Alet (55), are deep-sea women fishers who employ different fishing methods – *pamasol* and *pangundak* (hook-and-line fishing), barter (exchange of fish for other commodities between *basketeras* and *basketeros* or small traders and commercial fishers), and *panapyaw* (uses sapyaw and sibot [fish nets] in catching fish over the bigger gill-nets of commercial fishing vessels.) I draw on these three life histories to examine larger socio-cultural practices and processes that inform the lives of women of the coast. Instead of stressing on women's disempowerment in the fisheries sector, I lay more emphasis on their individual capabilities as deep-sea fishers and highlight their abilities as equally-functioning agents. This paper also examines the existence, or lack thereof, of women fishers' groups and organizations. Pink's (2009) 'sensory ethnography', audio and visual documentations and participant observation are the methods of this study.

THE VALUE OF MARINE PROTECTED AREAS: THROUGH THE EYES OF THE COMMUNITY MEMBERS

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Values (social norm) and beliefs (shared understanding) plays a vital role in how people make choices and undertake actions related to marine resource use. This information is vital for MPA managers since values and beliefs influenced behavior of the community members, which in turn may affect the management operation of the MPA. Understanding this factor may be able to guide MPA managers in effectively incorporating local values and beliefs in the MPA management structure and in designing appropriate social marketing strategies.

In a study conducted to evaluate the marine protected areas in Southern Iloilo, Philippines, one of the indicators used is the determining the local values and beliefs about the marine resources. The indicator describes how people make choices and undertake actions related to marine resource use and management based on their values about what is good, just and desirable and their beliefs of how the world works (Pomeroy, 2011).

Results of the survey of 499 respondents showed that most of the respondents believe that the sea is important because it is a source of food and livelihood. Most (74%) of the respondents very strongly agree that we need to manage the sea to ensure that there will be fish left for the next generations. On the statement that “We do not have to worry about the fish. God will take care of it for us”, 21% of the respondents disagree on it while 17% very strongly agree on it. About 64% of the respondents consider fishing as a source of livelihood and only 20% consider it as a source of food. The results were also segregated to compare the men’s vis a vis the women’s perspectives.

ENGAGING WOMEN AND MEN IN SMALL-SCALE FISHERIES AND AGRICULTURE development

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Women play a critical role in each stage of small-scale fisheries value chains, including their participation in extraction, processing and marketing of fish and fish products. Yet, women's contributions are undervalued, and tend to be marginalized from efforts to manage natural resources and develop small-scale fisheries. Gender equity is highlighted by donors and managers as critical to success, but these initiatives have failed to translate into substantial and equitable changes to natural resource management processes and outcomes in practice. There remains a need for more opportunities to create space for women to fairly participate, contribute to, and benefit from natural resource management and development programs and projects. A first step in tackling this challenge is to understand gender differentiated barriers and opportunities related to small-scale fisheries participation and management. This presentation will use Solomon Islands as a case study, where most people's livelihoods and food security are tied to agriculture and fisheries. We explore how gender norms are promoting or hindering women and men's engagement in small-scale fisheries development, and the implications these norms have upon the wellbeing of women and men. We examine interview and focus group discussion data and find that women face greater restrictions in access to information and support services, divisions in productive labour, participation in decision-making processes, physical mobility, and hold differing motivations for the use of natural resources. We find that cultural norms and customary rights systems are highly influential and critical to carefully navigate. We explain how these insights have translated into changes in the way in which we work within small-scale fisheries and community development in Solomon Islands, and in WorldFish programs globally. This presentation offers practical solutions, and highlights further challenges, for development initiatives that seek to be more gender sensitive by strengthening women's engagement in small-scale fisheries management and development.

IMPROVING NUTRITIONAL STATUS AND LIVELIHOOD FOR MARGINALIZED WOMEN HOUSEHOLD IN SOUTH WEST OF BANGLADESH THROUGH AQUACULTURE

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Mud crab (*Scylla serrata*) fattening and culturing is an emerging industry in Bangladesh and directly benefiting women-led households in coastal region of Bangladesh. Currently, 37.8% of crab fattening and culturing facilities are owned and operated by women. Many of the household members of these women-owners are malnourished and live in impoverished. The study was conducted in order to promote the integration of tilapia (*Oreochromis mossambicus*) into traditional mud crab culture, thus diversifying their crops and improve the household nutrition. Firstly a baseline survey of 150 mud crab farmers in the Satkhira, Khulna, and Bagerhat regions was conducted focusing on their food consumption, dietary nutrition and earned incomes. Household demographic and socio-economic information was also collected. The survey revealed that the majority of mud crab farmers are poorly educated, receive low dietary nutrients, and are malnourished. The second part of this study, integrating tilapia in mud crab culture was conducted with 45 farmers, 15 from each region originally surveyed. Five farmers continued with the traditional mud crab fattening procedures. Ten of these farmers were instructed on methods of mud crab and tilapia stocking. Mixed sex tilapia were used to allow continuous breeding. Five of these ten farmers sold their tilapia products to market while the other five kept the tilapia for direct consumption by their household members. In both groups small tilapia were fed to mud crab to reduce reliance on wild-caught trash fish as feed for crab. The study revealed that the inclusion of tilapia in mud crab fattening and culture farms led to greater overall growth and production of mud crabs. Addition of tilapia had benefited in increasing income and availability of nutrient-rich foods for farmer's households. The women and their household members had consumed more high quality protein in their diets leading to better health and less malnourished.

The women and their household members had a higher income, consumed more high quality protein in their diets leading to better health and were less malnourished. This may directly lead to create a more sustainable method of mud crab. The addition of tilapia in crab fattening and culture ponds had benefits in increasing nutrient-rich foods available to the farmer's households. The households consumed greater amounts of protein-rich foods after the study than they did before the study

PARTICIPATION OF WOMEN FARMERS IN AN ON FARM TRAINING OF SUSTAINABLE PERIPHYTON ENHANCED SYSTEM

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The two best treatments obtained from on-station trial done at Agriculture and Forestry University, Chitwan, Nepal were tested in household ponds of 37 women farmers in Chitwan (15 farmers) and Nawalparasi (22 farmers) districts. Carp polyculture with 100% feeding and carp+SIS+substrate with 50% feeding were introduced to 19 and 18 women farmers, respectively. In Chitwan, participants were members of Sundardeep women fish farmer's cooperative whereas in Nawalparasi farmers were in a process to establish a cooperative. Farmers stocked carp and SIS, fed them with supplementary feed, and fixed bamboo substrate to ponds at the rate of 1 % of pond surface area to enhance periphyton growth. Purpose of periphyton enhancement was to supplement natural food to carp and reduce feed cost. Farmers netted and weighed fish monthly to check fish growth and calculate ration. Farmers were provided with a book to record fish that were consumed, sold, or died. Final harvest was conducted after eight months of culture in December by netting fish following partial water withdrawal from ponds. Since farmers wished to keep fish for their biggest festival "Maghi" that fell on January 15, netted fish were counted, weighed, and returned to the pond. During Maghi, major sales of fish occur because fish is an important food item in this celebration. Some farmers also saved fish in ponds for year-round consumption and to fetch higher prices later when there is less fish in the village. In aggregate, 84% of farmers consumed fish at home, and 41% of farmers sold carp. Total fish production and gross margin were 19.3% and 51.7% higher in carp+SIS+substrate with 50% feeding than in carp polyculture with 100% feeding. Training on carp+SIS+substrate technology was also provided to another 28 women and 7 men farmers through a workshop in Chitwan.

FEMINIZATION AND DEFEMINIZATION OF FISH SUPPLY CHAINS: ARE WOMEN BECOMING LESS EQUAL?

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For fish supply chains, sex-disaggregated statistics are rare. At any scale and over time, the quantum and form of women's participation cannot be tracked. Researchers wanting to make a positive difference for women in fish supply chains have tended to focus on local and endogenous constraints and opportunities. This "development" approach endeavors to understand the current, past and potential future activities of women, and find interventions to positively influence their lives, such as how to secure women's access to fish and how to create more women entrepreneurs. The approach usually focuses on entry level and small scale activities, tending to ignore larger comparisons within and outside fisheries, such as how the women's opportunities may compare with those of the mainly male operators at other scales and in other sectors.

Yet, most likely, the main forces shaping participation and quality/inequality in fish supply chains are exogenous and operate at massive scale. These include the economic competitive forces of capitalism, technology changes in production, processing and logistics, the social forces of gender norms and power relationships, policy factors such as trade preferences agreements, resource access and rights allocation policies, environment sustainability and climate change. These forces are gender blind but have gendered impacts, positive and negative, much greater than those of local development interventions.

Since time series of sex-disaggregated data are not available, this presentation will review selected studies that provide trend information on how the larger exogenous forces affect gender participation and equality. In the fish sector workforce, trends in feminization, defeminization and sometimes both will be examined in an attempt to understand the key drivers and impacts. Forces such as international trade and logistics, technology change, food standards and political conflict will be examined in cases from Asia, Africa, Europe and South America, raising the question of how these forces relate to small, local development interventions on gender.

SECTORIAL GENDER ACTION PLANS HARDLY REDUCE GENDER INEQUALITY IN AQUACULTURE AND FISHERIES

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Although Vietnam has a weak patriarchy and implemented at least two 5-year gender action plans (GAP) for the aquaculture and fisheries sector, in terms of gender equality little progress occurs and international project support continues. To assist the Vietnamese aquaculture department to prepare a new action plan, the EU-AquASEM09 project funded one pilot workshop, where, next to ministry staff, six provinces were represented. Only some of these provinces had gender activities based upon a sector specific GAP. Whether or not a province has a sectorial GAP might depend on the gender of the leader of the department or its aquaculture section, the presence or absence of a specifically trained person, or an active Women Committee. According to Trần Thị Thu Nga (2013, former head of a provincial Aquaculture section) a GAP could succeed only if, next to the plan, there were: (1) a budget; (2) a committee, and (3) collaboration between the Women Committee and the leaders of the provincial departments. Moreover, the latter need to be accountable for reaching the goals of the GAP.

The workshop identified several gender biases that are constraints to reducing gender inequality in the sector. Some of these have been published and are objective, e.g.: *getting less paid for the same labor, limited access to technologies and extension services, loss of income and properties due to hazards related to reproductive tasks, and not enough women involved in decision-making*. Others are less known or more subjective: *disadvantaged in recruitment, appointments and higher education/training* as considered not useful for women as they will be bound to the house to take care of children, *violence against vulnerable genders, pressure on giving birth to boys*, and the related *inferiority complex that reduce women's confidence*.

Though 'Raising awareness at all levels' is one of the action areas in the related ministry's GAP, one may wonder if addressing the issues at sector level will relieve the main constraints. At least three of the constraints to gender equality identified by participants: *Roles and perceptions based upon culture and customs; Preconceptions/prejudices on gender; Violence against vulnerable genders*, do require a broader public awareness before changes may be reached. These three constraints are related to the role in which women (leaders) may be forced by their husband, and by both their own and the in-law families, and thus to macho attitudes and general cultural values, even in these weak patriarchal societies. Thus deep cultural and political changes going beyond the strategies of the technical ministries are needed to reduce gender inequality.

A MULTIFACETED APPROACH TO CLOSING THE GENDER GAP IN AQUACULTURE FOR IMPROVING GLOBAL NUTRITION

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The United Nations Food and Agriculture Organization estimates that nearly 842 million people, or roughly one in eight people in the world, suffered from chronic hunger and undernourishment from 2010-2012. Hunger is concentrated in developing nations and especially affects women and children in poor, rural environments. As demand for animal-source proteins continues to grow, aquaculture stands out as an efficient and sustainable method for food production. The nutrients in fish can help fill gaps that represent some of the most widespread deficiencies among vulnerable populations, specifically iron, zinc, and vitamin A. While women play various roles in aquaculture and their representation in the industry has improved in recent years, they remain a marginalized group. Women are key to the growth of the aquaculture sector and are gatekeepers of household nutrition, therefore a multifaceted approach to gender integration in aquaculture can help address global hunger and nutrition needs. As part of this effort, the AquaFish Innovation Lab is working to address hunger and under nutrition in Africa and Asia through aquaculture research and through the equitable involvement of women in leadership and training activities.

EXAMINING GENDER AUTHORSHIP IN AQUACULTURE JOURNALS

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While gender disparities are decreasing in some areas of academia, studies have shown that gender inequities in scholarly literature still persist (West et al. 2013, Breuning and Sanders 2007, Jagsi et al. 2006, and Dubey et al. 2016). A study by West et al. 2013 found that men predominate in the first and last author positions and women are underrepresented in single-authored papers in a review of more than eight million papers across disciplines in natural sciences, social sciences, and humanities. Other studies have assessed women authorship in disciplines including political science and medicine, and found that a gender gap in published literature still remains (Breuning and Sander 2007, Jagsi et al. 2006, and Dubey et al. 2016). This study attempts to apply the methodology of West et al. 2013 to the broad discipline of aquaculture peer-reviewed journals. A survey of more than 1,000 people in the broader AquaFish Innovation Lab (CRSP) network revealed the most influential journals within aquaculture. The surveys also provided information regarding gender authorship of the first and last author of prominent peer-reviewed aquaculture journals since 1980, the time period when the discipline began to grow substantially. Learning how authorship gender has changed in the aquaculture discipline over the last few decades is critical for promoting gender equity for future aquaculture scholarship and the sustainability of the discipline.

COMPARING AWARENESS AND BEHAVIOR BETWEEN MALE AND FEMALE MILKFISH PURCHASE DECISION MAKERS TOWARDS FOOD CONSUMPTION TRENDS IN THE PROVINCE OF ILOILO, PHILIPPINES

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A number of studies have validated that consumer awareness is not univocally consistent with behavior. This study attempts to compare awareness and behavior of milkfish purchase decision makers in the Province of Iloilo, Philippines towards food consumption trends. Food consumption trends included are: (1) food safety; (2) organic food; (3) sustainability in production; (4) good agricultural practices; (5) traceability; (6) local production; (7) support to local farmers; and (8) food labeling.

Respondents for the study consisted of 375 milkfish purchase decision makers. Sampling of respondents was done by stratified random sampling with geographic location as basis of stratification. Sampling frame was developed from a list of households obtained from Iloilo's different municipalities. To determine level of awareness and behavior, respondents were to answer an interview schedule with 5-point Likert scale-type questions for awareness and 7-point Likert scale type for behavior. A one-way ANOVA was conducted to explore the effect of gender on awareness and attitude towards the eight food consumption trends.

Results show that there is no significant difference between male and female purchase decision makers on the level of awareness for all eight identified consumption trends. In terms of behavior, there was a statistically significant difference in the level of behavior between male and female purchase decision makers for all eight food consumption trends. Difference in the level of behavior was found to be highest on the issue of food safety with the male having an average of 5.9 (true of me) vis-à-vis 5.2 for females (somewhat true of me).

It is recommended that more information/ dissemination campaign targeted to female purchase decision –makers is needed in order to convert level of awareness to increase in declared behavior.

A MODEL FOR GENDER-BASED POST HARVEST FISHERIES TECHNOLOGY TRANSFER INITIATIVES

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The implementation of new and innovative management strategies and interventions responds to the social and economic problems that beset the coastal fishing communities in the Philippines. These management interventions include the establishment of marine protected areas, stock enhancement, ecotourism, regulations of fishing gears and methods, and provision of livelihood, among others. In the past years, there have been a number of skills trainings conducted in coastal communities in the country that aimed to transfer available technologies to these communities. Although there have been reported success stories on these initiatives, there is still a need to change the approach so as to make these skills trainings more effective and appropriate to the needs of these communities while considering the status of fisheries resources in the area.

A study on a gender-based post harvest fisheries technology transfer was designed to offer an alternative intervention model that could provide more effective and responsible livelihood activities for coastal communities. The study included a rapid resource and needs assessment, and the design of skills training modules for the women, of Carles, a coastal town in northern Iloilo, Philippines. Results reveal the recent status of the coastal resources in the area, the existence of problems similar to other coastal communities in the country, and the strong need to empower women in these communities *via* provision of alternative livelihood activities for them. Appropriate and executable training modules for these women ranged from those dealing with Food Safety and basic Hygiene and Sanitation, Fisheries Post Harvest Technologies designed for coastal communities, to Enterprise Planning and Development, including food packaging, marketing, and networking. The same approach in transfer of post harvest technologies may be replicated in other coastal communities in the country.