

Global Symposium on

GENDER AND FISHERIES

**Seventh Asian Fisheries Forum
1-2 December 2004
Penang, Malaysia**

Edited by
P.S. Choo • S.J. Hall • M.J. Williams



GLOBAL SYMPOSIUM ON GENDER AND FISHERIES

Seventh Asian Fisheries Forum
1-2 December 2004
Penang, Malaysia

Edited by
Poh-Sze Choo
Stephen J. Hall
Meryl J. Williams



Global Symposium on Gender and Fisheries: Seventh Asian Fisheries Forum 1-2 December 2004, Penang, Malaysia

Edited by
Poh-Sze Choo
Stephen J. Hall
Meryl J. Williams

2006

Published by the WorldFish Center
P.O. Box 500 GPO, 10670 Penang, Malaysia

Perpustakaan Negara Malaysia. Cataloguing-in-Publication Data

Global Symposium on Gender and Fisheries : Seventh Asian Fisheries Forum, 1-2 December 2004, Penang Malaysia / edited by Poh-Sze Choo, Stephen J. Hall, Meryl J. Williams.

ISBN 983-2346-51-7

1. Fisheries--Asia--Congresses. I. Poh-Sze, Choo. II. Hall, Stephen J. III. Williams, Meryl J. IV. Asian Fisheries Forum (7th : 2004 : Pulau Pinang). 338.3727095

ISBN 983-2346-51-7

WorldFish Center Contribution No. 1763

Printed by Practical Printers

Reference:

Choo, P.S., S.J. Hall and M.J. Williams. 2006. Global Symposium on Gender and Fisheries: Seventh Asian Fisheries Forum, 1-2 December 2004, Penang, Malaysia. WorldFish Center, Penang, Malaysia. 174 p.

The views presented in these papers are those of the authors and do not necessarily represent those of the WorldFish Center, its partners or the organizations that provided funding for the publication.

© 2006 WorldFish Center. All rights reserved. This publication may be reproduced in whole or in part and in any form for educational or non-profit purposes without the permission of the copyright holders provided that due acknowledgement of the source is given. This publication may not be copied or distributed electronically for resale or other commercial purposes without prior permission, in writing, from the WorldFish Center.



WorldFish Center is one of the 15 international research centers of the Consultative Group on International Agricultural Research (CGIAR) that has initiated the public awareness campaign, Future Harvest.

CONTENTS

Preface <i>S.J. Hall</i>	v
Acknowledgements	vi
Changing traditions: a summary report on the first global look at the gender dimensions of fisheries <i>M.J. Williams, M.C. Nandeeshha and P.S. Choo</i>	1
Sustainable aquaculture development: impacts on the social livelihood of ethnic minorities in northern Vietnam with emphasis on gender <i>M.G. Kibria and R. Mowla</i>	7
Constructing realities: documenting women's fisheries in the Pacific Islands <i>I. Novaczek and J. Mitchell</i>	15
An integrated approach on gender issues in coastal fisheries projects in Bangladesh: problems and challenges <i>R. Mowla and M.G. Kibria</i>	21
The impacts of aquaculture development in relation to gender in northeastern Thailand <i>L. Sullivan</i>	29
Gender and generation: crucial aspects of local fisheries management on Lelepa Island, Vanuatu <i>J. Tarisesei and I. Novaczek</i>	43
Fishing: what has HIV/AIDS got to do with it? <i>S.B. Williams, B.F. Dada, G.N. Shimang and O.O. Williams</i>	51
Gender and nutritional status among children under seven in the coastal barangays of Buenavista, Guimaras, Philippines <i>A.J.G. Ferrer</i>	59
Nutritional status and socioeconomic empowerment of fisherwomen in the coastal ecosystem of Andhra Pradesh, Karnataka, Kerala and Tamil Nadu, India <i>V. Khader, R.N. Kumar, J. Lakshmi, K. Dhanapal, H.M. Kasim, R. Sathiadhas and N.S. Sudhakara</i>	69
Women's involvement in processing and the globalization of processing in fisheries and aquaculture in Taiwan <i>N.-H. Chao, M.-H. Chen and Y.-H. Chen</i>	81

Women in fish border trade: the case of fish trade between Cambodia and Thailand	91
<i>K. Kusakabe, P. Sereyvath, U. Suntornratana and N. Sriputinibondh</i>	
The involvement of female labor in seafood processing in Sri Lanka: impact of organizational fairness and supervisor evaluation on employee commitment	103
<i>D.A.M. De Silva and M. Yamao</i>	
The women fish traders of Tarawa, Kiribati	115
<i>M. Tekanene</i>	
Gender status in Indian fisheries education, research and development organizations	121
<i>M.C. Nandeesha</i>	
Legal recognition of women's contribution in fisheries and aquaculture in the European Union	139
<i>K. Frangoudes and J. O'Doherty</i>	
Women's participation in fisheries activities in Manipur Valley in India with traditional fish-based beliefs and customs	149
<i>S.D. Gurumayum, G.A. Devi and M.C. Nandeesha</i>	
Women in fisheries in Bangladesh: level of involvement and scope for enhancement	159
<i>S. Halim and M.K. Ahmed</i>	
Valuing local knowledge in the Canadian Arctic: how the involvement of local peoples results in relevant resource management decisions	169
<i>J. Kafarowski</i>	

PREFACE

Incorporating a gender dimension into any socioecological or socioeconomic research is likely to be informative and useful. Knowing how different genders access and use resources; who has power and makes decisions; whose priorities are being addressed; and who is impacted by, or benefiting from different development alternatives provides rich and important information. Experience in many fields tells us that conducting research with gender-sensitive tools often provides answers that take us beyond simplistic perspectives that assume, for example, that all women and men in a community share the same priorities and perspectives. From a human development perspective, such research questions are vitally important because answering them allows us to better understand existing circumstances and design more appropriate interventions to improve the situation.

The benefits of a gender-focused research agenda apply as much to the fisheries sector as any other, a fact recognized by the Asian Fisheries Society, the WorldFish Center and the Consultative Group on International Agricultural Research in their support for the Global Symposium on Gender and Fisheries and for their championing of this important issue over the last decade.

The papers contained in this volume represent a substantive contribution to the literature on the topic of gender and fisheries. Drawing on work undertaken around the globe, the results described here confirm and extend earlier work and show that contributions to the fisheries sector among different genders are highly differentiated but uniformly substantial. As with many other sectors, however, the size and nature of the contribution of women, in particular, is inadequately recognized and there is rarely an equitable distribution to each gender of the benefits that derive from their inputs. Such problems are especially stark for the small-scale fisheries of developing countries where women often bear the brunt of the poverty that pervades the sector. Notwithstanding the value of the contributions provided in these pages, however, a careful reading of them reveals as many gaps as answers. These gaps indicate that our understanding of these enduring inequities remains inadequate. We have made an important first step, but much more is needed.

As Dr. Meryl J. Williams, in her summary paper for this volume notes, the field of gender and fisheries is in its infancy. For the field to mature, much greater effort will be needed to move from general descriptions of the gender dimensions of fisheries to rigorous analyses. Such analyses must focus, not only on quantifying the gender-specific contributions to the sector (especially using economic valuation approaches), but also on the linkages and drivers, both within the fisheries sector and beyond, that explain the current situation. It is only with a more thorough understanding of these interactions that better interventions can be designed to ensure a sustainable and equitable distribution of the benefits that fisheries can provide.

Stephen J. Hall

Director General
The WorldFish Center
September 2005

ACKNOWLEDGEMENTS

We wish to thank Dr. Vicki Wilde, Program Leader, Consultative Group on International Agricultural Research (CGIAR), Gender and Diversity Program, for helping us to secure funding from the CGIAR for the publication of the proceedings. Our deepest appreciation goes to the CGIAR for their financial contribution.

CHANGING TRADITIONS: A SUMMARY REPORT ON THE FIRST GLOBAL LOOK AT THE GENDER DIMENSIONS OF FISHERIES

M.J. WILLIAMS
17 Agnew Street, Aspley
Queensland 4034, Australia
scylla@myjaring.net

M.C. NANDEESHA
College of Fisheries
Central Agricultural University
Lembucherra -799210
Tripura, India
mcnraju@yahoo.com

P.S. CHOO
WorldFish Center
P.O. Box 500 GPO
Penang, Malaysia
p.choo@cgiar.org

In Penang, famous for its seafood and maritime history, and located right in the heart of Asia, the Asian Fisheries Society and the WorldFish Center conducted the first ever Global Symposium on Gender and Fisheries on 1-2 December 2004. The symposium, held in conjunction with the Seventh Asian Fisheries Forum, attracted 30 papers by over 100 authors and strong audience discussions covering countries from Kiribati, through Asia Pacific, Africa, and Europe to the Arctic. The flavor of the symposium was of changing traditions and awakening to the contributions of different people to fisheries.

Fishing and aquaculture are usually pictured as occupations or recreations of men—hauling nets and lines in dangerous seas, piloting fishing boats, constructing fish ponds and cages and negotiating with fish traders and fisheries officials. Throughout the world, what these pictures miss are the contributions and roles of women, youths and even children. Studies and closer observation of fisheries and communities are starting to put together descriptions, stories and hard statistics on the contributions of these other segments of our societies. The invisible groups, in fact, may contribute more economically than the traditionally recognized fishers. While scientists may still have a long way to go to substantiate such a conclusion, the discussions at the Global Symposium pointed the way forward to understanding the full human dimensions of fisheries and how they are starting to change.

Valuing the Economic Contributions to Fisheries

Figures on employment and income in fisheries typically only count direct fishing work that leads to cash payments or fish production for home consumption. This overlooks the unpaid work such as net mending and help with boat-building that women do, often, as in rural Philippines, as part of their marital obligations.

Irene Novaczek and Jean Mitchell in their paper entitled “Constructing realities: documenting women’s fisheries in the Pacific Islands”, noted that we should do away with gender stereotyping. Women’s activities in fisheries are often regarded as low-value versus men’s activities which are considered high-value. These assumptions are reflective of western, industrial values that are rooted in dichotomous patterns of analysis which leads to gender discrimination.

Chao Nai-Hsien of the Taiwan Fisheries Research Institute tracked down successful women entrepreneurs for her research on “Women’s involvement in processing and the globalization of processing in fisheries and aquaculture in Taiwan” and found that their businesses largely employed women and showed great creativity in developing new products and markets, including global markets. The businesses were mainly in post-harvest products, ranging from high-end pearl and coral items to convenience foods and surprising new foods such as mooncakes containing tuna bellies. The businesses often combined the basics of post-harvest fisheries food products with new directions in artwork, gourmet, use of byproducts and fashion. Many of the businesses are global and nearly all use the Internet extensively.

The symposium also heard how, in European, Philippine and Pacific studies, women tended not to view their efforts as “work” but rather saw them as family obligations. Katia Frangoudes, of the University of Brest (France) who presented a paper on “Legal recognition of women’s contribution in fisheries and aquaculture in the European Union”, noted that “a few women in our European studies found that learning to understand and value their efforts as work, in the full economic sense, raised their status in the family and raised their own self-confidence”. Similar results are shown by the study conducted by Marieta Banez-Sumagaysay of the University of the Philippines in the Visayas, on “Gender stratification in fish production systems: women do have economic power” where she mentioned that although women’s various forms of fisheries labor are strategically indispensable (both a positive and a negative factor for the women and the family), basic training in business and technical skills could increase women’s monetary contribution to the family and community incomes.

Another economic consequence of excluding or overlooking women, youths and children in fisheries matters comes from the breakdown of local fishing rules, if the knowledge of these groups is left out. Irene Novaczek of the University of Prince Edward Island in Canada presented the paper “Gender and generation: crucial aspects of local fisheries management on Lelepa Island, Vanuatu” which she co-authored with Jean Tarisesei. When the chiefs of the island of Lelepa in Vanuatu set up protected areas without consulting women and male youths, this led to breakdowns in the protected areas system. The youths were openly defiant of the fishing bans and the women were led, in desperation, to fish illegally as the location of the protected areas made their inshore fishing nearly impossible to carry out.

Human Dimensions of Fisheries Regulations, Policies and Institutions

Surprisingly, well-meaning policies and regulations can often ignore the human side of those who work under them. An International Labour Organization – Department for International Development study conducted by Md. Nazmul Ahsan and co-workers on the “Alternative livelihood options for female workers in shrimp processing industries in Bangladesh” noted that European Union-certified seafood processing plants in Bangladesh showed that while the plants met the product quality requirements using Hazard Analysis and Critical Control Point management (HACCP), many were not careful of the conditions under which employees, mainly women, worked on the factory floor. Workers often spent extended periods standing in chilled waters in order to fulfill the requirements for top quality export shrimp.

Significantly in this context, a study by D.A.M. De Silva and Mashiro Yamao on “The involvement of female labor in seafood processing in Sri Lanka: impact of organizational fairness and supervisor evaluation on employee commitment” showed that women’s perceptions of workplace fairness and justice had the greatest impact on whether these educated but low-

paid workers were committed to their work. Commitment is an essential requirement to create quality products.

Trade policies, national fisheries codes and international fisheries instruments often pay little attention to gender. Jovelyn Cleofe in her presentation “Looking for women in Philippine fisheries policies: research to determine advocacy points for fisheries” reported that, in the Philippines, action research with women in the fisheries sector had generated the concept of developing a “Magna Carta for Women” aimed, among several objectives, to get greater formal representation of women in local level fishing management bodies.

In Langalanga Lagoon in Malaita, Solomon Islands, women have traditionally been involved with the preparation and sale of shell money. Fidali-Hickle and Whippey-Morris described in their presentation “No shells, no langalanga: hard times in Malaita, Solomon Islands” how the decreased demand for shell money in their hometown led to the need for women to leave their home to travel to Honiara to sell their products. Their absence from home often led to quarrels with their husbands and even to divorce.

In the Canadian far north, Joanna Kafarowski of the University of North British Columbia, in her study “Valuing local knowledge in the Canadian Arctic: how the involvement of local peoples results in relevant resource management decisions” found that Nunavut women were rarely represented in the local Hunters and Trappers Organizations and on the co-management councils at higher levels.

According to the study “Women in fish border trade: the case of fish trade between Cambodia and Thailand” by Kyoko Kusakabe of the Asian Institute of Technology (AIT) and co-authors, Cambodian women in the cross-border trade of fish from Tonle Sap into Thailand are caught in a squeeze between the merchants handling the fish from Cambodia and the border authorities and business people such as transport operators. The traders, almost all of whom are women, would benefit from more equitable trade arrangements, such as realistic and transparent tariff schedules that are implemented predictably. The women traders also have no links with the management of Tonle Sap fisheries. The vulnerability of the women makes them targets for pressures from all parties in the border supply chain.

This theme, the difficulties of women fish traders, was repeated in other papers. For example, in Kiribati, Maere Tekanene in her paper “The women fish traders of Tarawa, Kiribati” reported that women fish traders labor under the most basic of conditions, paying their market fees but receiving few services in return. In Bangladesh, Sadeka Salim and Md. Kawser Ahmed, a sociologist of the University of Dhaka, in their paper “Women and fisheries in Bangladesh: level of involvement and scope for enhancement” recommended that the emerging group of women fish traders would be assisted in the market place if they were deliberately allocated some space, rather than have to compete with the well-established male traders.

Mainstreaming Gender Considerations in All Fisheries Activities

Globalization, booming seafood markets and declining fisheries resources are driving changes in traditions in the fisheries sector. The symposium recognized the breadth and depth of changes needed to create a gender-sensitive fisheries sector and make real improvements in the lives of those involved.

The Honorable B.A. Dada, Minister of Agriculture and Rural Development of Nigeria, who attended the symposium, stressed the importance of governments not leaving out a significant percentage of the population from economic activity. Countries need not just policies, but also strategies to implement the policies for sustainable development of fisheries and economic empowerment of women.

The regional Mekong River Commission's Fisheries Program has an official policy to mainstream gender, according to Napaporn Sriputinibondh of the Thailand Department of Fisheries. In her presentation "Gender mainstreaming in Mekong fisheries: from policy to practice" which she co-authored with others, she noted the major shift underpinning this policy—a shift from women as the target of welfare help, to gender equity as the desired outcome.

M.C. Nandeesh in his paper "Gender status in Indian fisheries education, research and development organizations" reported on major studies of gender in Indian universities, and fisheries research and technical organizations. Overall, women's participation is low, for example, only 18% of graduates from university fisheries courses and 14% of researchers in the national fisheries research system are women. Yet women have reached some high positions and several have world-class research reputations. Women's participation rates vary by state and are linked to female literacy and social status. Kerala, with the highest literacy rate in India, tops most tables. In the Kerala Fisheries College, women comprised 70% on average of the top 10 fisheries graduates from 1995 to 2003. To achieve greater gender equity will need sensitization of senior leaders, a curriculum that is more gender sensitive and action on the support facilities for women in the education system, including ensuring their physical security.

To address gender sensitization in university curricula, the M.S. Swaminathan Research Foundation in Chennai has created a course on this topic for agricultural students and is delivering this in collaboration with the Kerala Agriculture University. Such curricula are needed in fisheries education also. Within organizations delivering gendered programs, such as CARE-Bangladesh, a gender-sensitive workplace has been created to support the delivery.

Other economic sectors appear to be more advanced in mainstreaming gender than is fisheries and the symposium attendees recognized that lessons could be learned from agriculture and forestry.

Another form of mainstreaming is bringing the fisheries sector into the health, education and other empowerment programs of the wider community. This is being done with respect to baseline nutrition studies in India under the National Agriculture Technology Program, reported by Vijaya Khader et al. in their paper "Nutritional status and socioeconomic empowerment of fisherwomen in the coastal ecosystem of Andhra Pradesh, Karnataka, Kerala and Tamil Nadu". More than 70% of the women were anemic, even though about 60% of earnings were spent on food. Discrimination against girls in terms of nutrition and education varied with the educational level of parents. In Kerala, where literacy levels for both women and men are higher than in other parts of the country, such discrimination is gradually being eliminated from the society. Stella Williams et al. in their paper "Fishing: what has HIV/AIDS got to do with it?" reported on efforts in southern Nigeria to educate rural fishing communities that HIV/AIDS is not only a disease of the cities; students and nongovernmental organizations have been mobilized to visit and educate the fishing communities. In northeast Thailand, Leah Sullivan of AIT, in her study "The impacts of aquaculture development in relation to gender in northeastern Thailand" found that even when women benefited from the income of new cage culture operations, they still seemed to lack the mobility of men in the same communities. By using a gender lens in her studies on fisheries, she revealed more general questions on women's empowerment.

Strengthening the Basis of Gender and Fisheries Research

The emerging field of "gender and fisheries research" still has a long way to go in terms of accepted and rigorous methods. Emerging only in the 1990s as a descriptive enterprise, it is only now starting to stimulate original research studies. It is not well connected to the more established fields of gender and development research but is gaining greater acceptance in fisheries research as shown by the focus at the Asian Fisheries Forum. The Gender and

Fisheries Symposium was among one of the more popular topics, capturing sufficient papers for a full two-day event.

The symposium debated the difficulty of distinguishing research, action research and advocacy in gender and fisheries work. To be academically respectable, distinctions are essential. Yet, in separating the different professional engagements, the attendees felt that close links were desirable so that relevant policy and management results were able to be immediately taken up. The field of gender and fisheries research was emerging in response to the perceived need for action.

At this early stage, gender and fisheries research was seen to be in need of more rigorous methods to address the research questions. Much data were gathered using standard social science methods such as focus group discussions, semi-structured questionnaires and household surveys. Further exploration of the best ways to use such instruments in gender studies was needed. In addition, most quantitative studies suffered from lack of sex-disaggregated background statistics. Sex-disaggregated data should be encouraged in national data collections as well as in research.

If gender and fisheries is to become a respectable field of academic endeavor, it will need to generate undergraduate and postgraduate university programs, recognized research methodologies and academic status as well as recognition for its impacts and utility to the betterment of people's lives. Already, among fisheries specialists, gender and fisheries is starting to be seen as a serious topic and the Asian Fisheries Society and the WorldFish Center have really shown a strong role through the triennial forums, this being the third forum to feature women/gender symposia.

Conclusions and Recommendations

The symposium challenged researchers to find out what they can do to help the world understand the gender dimensions of fisheries. The target is to help those involved in the fisheries sector—fish workers, their families, fisheries policymakers, nongovernmental agencies and technical experts—to create new opportunities and solve current problems.

The symposium provided new views and insights, and the open discussion at the end settled on four principal directions for future action: to investigate in depth the economic contributions of all segments of fishing communities; to put human dimensions into all formal fisheries regulations, policies and plans; to bring gender considerations into the mainstream of all fisheries activities, from fishing to the organization of research; and to support these actions by strengthening the basis of gender and fisheries research.

The Global Gender and Fisheries Symposium made a start by highlighting the economic contributions of all genders and ages to fisheries. Much more needs to be done to understand how gender affects the operations of the sector and what actions and policies could bring change for the better in the empowerment of the different groups. The symposium concluded that researchers needed to study, in more detail, the contributions of all segments of communities to different fisheries to create the basis for a better understanding. Beyond research, fisheries regulations, policies and plans would be enhanced by embedding gender and other human dimensions. Overall, the sector needs to mainstream gender in all activities, starting with the gender sensitization of organizations dealing with fisheries and including all fisheries programs and support. Gender and fisheries research is a nascent field of academic work and one that is grappling with its linkages to policy development and action. Its basis needs to be better developed through synergies with other academic fields concerned with gender and development and by greater attention to relevant and rigorous research methods, both qualitative and quantitative, the latter having regard to good sex-disaggregated data. The symposium discussion concluded that women in the fisheries sector are up against advocacy-formidable challenges from language difficulties, lack of funds and lack of representation.

SUSTAINABLE AQUACULTURE DEVELOPMENT: IMPACTS ON THE SOCIAL LIVELIHOOD OF ETHNIC MINORITIES IN NORTHERN VIETNAM WITH EMPHASIS ON GENDER

M.G. KIBRIA

Hanoi Agricultural University (HAU)
HAU Aquaculture Group, Trau Quy, Gia Lam
Hanoi, Vietnam
kibriamg@yahoo.com

R. MOWLA

Coordinator (Gender and Informed Choice)
Engenderhealth
Bangladesh Country Office
House # 52, Road # 15A
Dhanmondi R/A,
Dhaka -1209, Bangladesh
rmowla@engenderhealth.org

Abstract

The Aquaculture Development in Northern Uplands Project (VIE/98/009/01/NEX) in 1999-2002 was aimed at alleviating poverty in three provinces of Vietnam by diversifying rural development through the promotion of sustainable aquaculture activities, building capacity within the local population and the project staff to address household food security issues, and reducing malnutrition of disadvantaged ethnic minorities. The ethnic minorities were predominantly Black Thai, Kinh, Tay, Hmong and Dao. The project focused on strengthening an extension network and improving fish seed production and delivery systems among the remote area target groups. A high priority was given to gender education and women's involvement in all activities. A field study among project beneficiaries showed that women played a vital role in aquaculture activities, although they were not involved in any activity without the support of men. The project succeeded in creating suitable opportunities and an environment in which ethnic women were able to effectively participate in economically important activities such as taking loans, and learning aquaculture techniques and about micro-credit management. Through this series of aquaculture-related activities, the role and status of ethnic mountain women were improved. The role of the women's unions was also strengthened through their participation in project meetings, workshops, study tours and cross-field visits.

Introduction

Between 1999 and 2002, the United Nations Development Program (UNDP) Aquaculture Development in Northern Uplands Project (VIE/98/009/01/NEX; Anrooy 2001; Schimidt 2001, 2002; Siriwardena 2002) was executed by Vietnam's Ministry of Fisheries (MOFI) through the Department of Fishery Extension as the implementing department and with the following co-implementing agencies: Provincial Department of Agriculture and Rural Development (DARD) of the provinces of Son La, Lai Chau and Hoa Binh; Research Institute for Aquaculture No. 1; and Food and Agriculture Organization (FAO) of the United Nations. The objective of the project was to alleviate poverty and malnutrition in three pilot provinces by diversifying rural development to include aquaculture.

The project involved a total of 151 result demonstration farms (RDFs) from 50 communes spread across the three pilot provinces (Son La, Lai Chau and Hoa Binh), in six districts (Thuan Chau and Song Ma of Son La province, Tuan Giao and Sin Ho of Lai Chau province, Da Bac and Mai Chau of Hoa Binh province). Of these farms, 72 were grow-out farms, 35 were nursing farms using the integrated household farming methodology (horticulture-aquaculture-livestock or VAC), 41 were rice-fish farms, and three were involved in cage culture. More than 5,900 poor ethnic minority farming households (fellow farmers) were the project target groups (Siriwardena 2002).

In Son La, Lai Chau and Hoa Binh provinces, the project introduced and tested two new management practices for poverty reduction. First, it established commune action groups (CAGs)—small responsive social groups—and used them to create an enabling environment and to mobilize the involvement of the local communities in planning and implementing the project. Second, the CAGs were used to organize participatory extension and credit support services to ensure the delivery of technology and financial package assistance to poor, disadvantaged and isolated ethnic communities, of whom more than 50 percent were women.

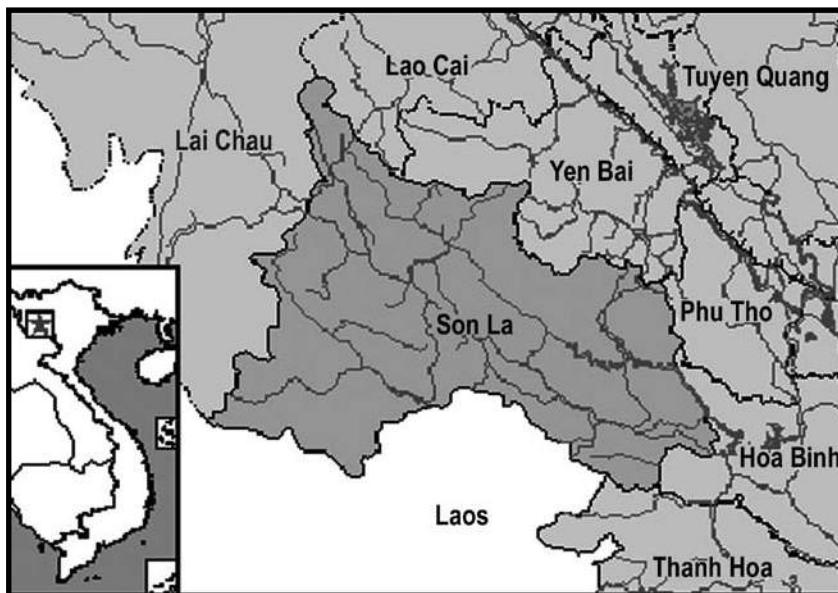


Figure 1. Map showing project areas of Northern Uplands, Vietnam.

This paper reports on the results of the project from a gender perspective. Specifically, the objective was to determine how issues of gender affected the distribution of income and labor on farms, and how these differed where farm activities were diversified to include aquaculture.

Methodology of the Study

Fieldwork was carried out between July and August 2002. It focused on six districts in three pilot provinces. The project team studied one commune per district. Chieng Ly and Na Nghiu commune from Thuan Chau and Song Ma districts of Son La province, Quai Cang and Sin Ho commune from Tuan Giao and Sin Ho districts of Lai Chau province and Tong Dau and Tu Ly commune from Mai Chau and Da Bac districts of Hoa Binh province were selected for this study (see Figure 1).

The methods used in the study were focus group discussion and key informant interviews.

Focus group discussion is one of the approaches commonly used in participatory rural appraisal. In the present study, the members of each focus group discussed aquaculture among themselves with the help of an outside facilitator and in the presence of one or more outside observers. The focus groups included such people as poor women, and women having middle-class and better living standards and who already undertook aquaculture activities. Each focus group consisted of five to seven women old enough to be working and married. Ninety-five percent of the members were from ethnic minorities. An attempt was made to conduct the group discussions in a very informal way. Initially, the team met with the focus groups and established rapport with the participants by introducing the facilitators and providing background information on the visit and discussion. The project team then explained the general purpose of the meeting, emphasizing that the group's assistance was needed to ensure that the project met its needs.

Semi-structured interviews were conducted with the key informants who were selected stakeholders (heads of CAGs, Commune Women's Union members, members of District Action Groups and commune extension workers of the project who had knowledge of aquaculture and gender issues). A checklist was prepared for the interviews. Secondary data were collected from the Project Management Unit offices and the Project Implementation Units in the three pilot provinces.

Gender is the social difference between men and women, including the social relations between them that define their roles. Gender roles are therefore not determined biologically, but are constructed socially and can differ between cultures and environments. Overall, gender roles have a major impact on production, reproduction, consumption and distribution, including aquaculture.

Research Findings

Gender and labor

On-farm labor was clearly divided between the genders at commune and district levels. The roles of men and women were different in production activities. The division of labor was suited to physical culture and reciprocal social relations between the two genders. The gender division led to cooperative and supplementary arrangements that appeared to achieve efficient production. The following describes how the division operates.

In rice cultivation, we observed that women worked in all stages of rice production except pesticide spraying; weeding, husking and selling were exclusively female pursuits (see Table 1a).

In fish farming (Table 1b), men undertook most of the pond preparation, seeding and fish health monitoring. Both men and women did weeding, liming and fertilizing of the pond, feeding, harvesting and marketing.

The women played a vital role in aquaculture activities, although they were not involved in any activity without support from men. Nevertheless, in areas such as marketing, feeding and fertilization, women were significantly more involved than men. Aside from household work, many women were involved in aquaculture and other on-farm activities (such as arable farming and animal husbandry). The total time spent by women in aquaculture production was found to be generally comparable to the time spent by men.

Table 1. Division of labor by gender in the project areas.

a) Agriculture				
Tasks	Men	Women	Both	Children
Land preparation			√	
Watering			√	
Transplanting			√	
Weeding		√		√
Pesticide spray	√			
Harvesting			√	√
Storing			√	√
Husking		√		
Package			√	
Transportation			√	√
Selling		√		
b) Aquaculture				
Tasks	Men	Women	Both	Children
Pond preparation				
Pond dike compaction	√			
Removal of rocks/stones from pond bed	√			
Weeding			√	√
Water draining	√			
Drying pond bottom	√			
Liming			√	
Stocking	√			
Feeding and fertilization		√		
Fish health check and disease control	√			
Harvesting		√	√	
Marketing		√		

Source: Field survey by Kibria in 2001.

Gender in income contribution to household

This study showed that women play a vital role in the livelihoods of their households. In many families, both the husband and the wife were actively involved in economic activities to earn income. The commune leader of Tong Dau stated, "My wife contributes 80% of her earnings for family purposes. Although I have a salary, much of it is spent on social maintenance. Therefore, I have to use the family's income." Another woman from Na Nghiu commune reported, "If any Thai ethnic family has a hardworking and fit wife, the living standard of that family will be better. In contrast, the living standard of a family will be lower if it possesses a lazy or unhealthy wife."

Most of a household's assets, such as land and house, were used but not owned by women in the ethnic minority societies in this study. Most land and house owners were men. However, when the husband dies, his land or house will be passed on to his wife. Most of the production decisions, such as planting patterns, labor use, purchase of inputs and selling of products, were made by men who often have more education and more contact with other people. Thus, they were considered to be more knowledgeable than the women. Thai, Dao and Mong followed this custom and considered the rights of men to be higher than those of women. For young people, the decision-making activities were the same for both genders. One of the Mong ethnic people from Sin Ho commune said, "A Mong ethnic woman is not equal to her husband. Her husband always has a poor impression of his wife because she is always at home, doesn't know how to approach outside people and is usually illiterate. She therefore doesn't have any right to make decisions on family affairs."

One of the Dao women from Sin Ho commune stated, "A Dao ethnic man is the leader of his family. When children want to do something, their mother refers them to their father for advice. Construction of buildings and doing other heavy work are usually initiated by the husband, but homestead activities like husbandry and household production are undertaken by the wife."

Gender in household activities

Housework, such as cooking, washing, carrying water and collecting firewood, was considered women's work. In the study area, men also took part in housework at certain times such as after a wife had borne a child, and if she was ill or too busy. These efforts were considered "helping his wife" and were thus not really work for him. Husbands who were not healthy enough to do heavy work would stay at home to do housework instead of the wives who then went farming in the field and hills. However, this was rare. The concept of the "greater intelligence of the husband" also tended to give them the right not to do housework.

Looking after small children was also the duty of women. Growing children were educated and taught good behavior by both the mother and the father. However, since both parents were usually busy with rural activities, their involvement with their children's education usually amounted to encouraging them to study and sending them to school. In general, the mother played a larger role than her husband in teaching children, especially in the case of a daughter.

Women were usually responsible for keeping and managing money in the family because they were more careful with money than men. They usually allocated more money for food and other high priority household needs. Although household funds were managed by women, this did not mean that they had the right to spend the money freely on what they liked. A woman was only permitted to make decisions by herself on expenses for daily meals, clothes and parts of the children's education costs such as tuition fees and school meals. Other family expenses, especially those for expensive family goods, were decided by the husband or both the husband and the wife. A man from Tu Ly commune reported, "Financial management is the concern of women. If I keep the money, I'll spend much of it for various purposes as if

there is no limitation. So, I only advise my wife on daily activities but she smoothly runs the family expenses using her own capacity."

Impacts on social livelihood of ethnic minorities of sustainable aquaculture activities through project intervention

Before the project, fish farming in the upland areas was carried out in a traditional way and lacked any technical or financial assistance. It was mainly an activity of the men, although the women assisted them. Women's roles were not clear. During the project, the specific intervention of training ethnic women at the commune level in aquaculture techniques was considered a pragmatic and necessary activity. This approach led to improved awareness of pond, cage and rice-fish culture techniques among the women's groups of the uplands area. The ethnic women learned about aquaculture through a series of aquaculture technology training sessions delivered through the project (Schmidt 2001). In focus groups and key informant interviews in the project area, the women's groups agreed that fish farming had brought many benefits to households such as supplemental nutrition for women and their children, and clearer definitions of the gender division of labor between men and women. The project also helped to create activities for the children such as collecting local feed, to enable households to make use of byproducts in pond farming and to improve the families' incomes.

One of the men from Noong Heo commune of Sin Ho district of Lai Chau province reported, "Before the project, I didn't have any clear idea about fish stocking density, feeding rate and fertilizer dose. Although I usually released a certain number of fingerlings into the pond, I only applied grass as feed for pond fish. If I was engaged in another job, nobody could help me take care of the pond. As a result, the fish did not grow much."

A woman project farmer from Mai Hao commune of Hoa Binh province said, "The aquaculture training taught me that fish culture is easy and brings many advantages. Our rice fields are not enough to support us and so our income is very low. After starting the rice-fish farming, we earn money for our daily marketing, medicine and children's school fees."

With the training, ethnic women are now able to discuss with their husbands the development of pond/cage/rice-fish farming. They are now more knowledgeable about stocking density, kinds of feeds and rates, fertilizers and daily farm management. We observed that the ethnic women fish farmers of the project are now actively involved in aquaculture activities such as the purchase and release of fingerlings, feeding, pond fertilization and pond management. Their husbands still help them in pond excavation and take part in guarding the pond sites at night.

From one of the project's best RDFs, Ms. Ca Thi An (Quai To commune, Tuan Giao district of Lai Chau province) stated, "It was a very good initiative of the project authority that they encouraged poor, ethnic, women communities to join fish culture. I had been trained inside and outside the country (in Thailand) on simple aquaculture techniques. Now, I am capable of teaching other interested fellow farmers in my commune. The dignity of women in our society is now very high and outside people as well as our relatives respect us."

From another of the project's RDFs, Ms. Hoang Thi Mai (from Sin Ho town of Lai Chau province) reported, "After the project was launched in our own Commune Women's Union, we feel that we can deal with any credit management difficulties by informing the project technical staff and the commune extension workers. We interact with them on interest payments, fish culture record-keeping and other matters." Project RDF participant, Ms. Tran Thi Hien (from Song Ma town, Son La province) expressed, "After receiving gender training from the project, we understood and realized that the gender division of labor is a good

approach in family life and gives women the right to take part in leading household economic development.”

Women’s advancement and gender mainstreaming

This project succeeded in creating suitable opportunities and conditions for women to be able to effectively participate in all activities by providing loans, training in aquaculture techniques and micro-credit management. The role and status of ethnic, mountain women have been improved through the aquaculture activities. The role of the women’s unions has also been strengthened through their participation in project meetings, workshops, study tours and cross-field visits.

Table 2. Percentage of project women stakeholders in the different units of project management.

Project Management Unit	Percentage of project women stakeholders
Project Management Unit	45
Project Implementation Unit	34
Provincial Action Group	34
District Action Group	33
Community Action Group	32
Project Technical Staff	67
Commune Extension Worker	25
Results Demonstration Farmer	43
Average	33

Conclusion

The minority ethnic women of communities in the three pilot provinces in Vietnam play important roles in agriculture as well as in aquaculture activities. For many women, the income generation activities are equal to those of men. The project found out that the women usually undertook three types of work at the same time—farm production, fish and animal husbandry, and other work to supplement home income. The total work time and the labor power of women were greater than those of men but the women’s role in making household decisions was valued less than that of the men.

With this as the setting, the project succeeded in creating suitable opportunities and an environment in which ethnic women were able to effectively participate in economically important activities such as taking loans, learning aquaculture techniques and about micro-credit management. Through the series of aquaculture-related activities, the role and status of ethnic mountain women were improved.

The project tracked gender indicators in key project activities. By ensuring that women were involved, the project created the foundation for enhancing the role and capacity of women in the community. The program will be replicated at local levels in the future, following the success of its pilot activities.

Acknowledgements

The authors would like to extend their thanks to project farmers; heads of people's committees at provincial, district and commune levels; officials of the DARD of provinces, district Agriculture Extension Centres, and Women's Unions at district and provincial levels; and local people in the survey areas of northern Vietnam (Son La, Lai Chau and Hoa Binh) for their sincere cooperation during the study period. The project VIE/98/009/01/NEX (nationally executed) was funded and executed by the UNDP, MOFI of the Government of Vietnam and FAO. Their financial and logistical support is gratefully acknowledged. This paper was prepared based on the senior author's intensive field monitoring experience in the project as a United Nations Volunteer-Project Coordinator during 2000-2002. The views expressed in this paper do not represent the formal views of UNDP or the project partners.

References

- Anrooy, R.V. 2001. Fingerlings and fish marketing mission report. UNDP/FAO/MOFI (VIE/98/009/01/NEX Project). Project Management Unit, Ministry of Fisheries, Hanoi, Vietnam. 63 p.
- Kibria, M.G. 2001. UNDP/FAO/MOFI (VIE/98/009/01/NEX Project) annual compendium report on routine management activities of various culture practices of project RDFs. 57 p.
- Schmidt, U.W. 2001. Mid term review mission report, UNDP/FAO/MOFI (VIE/98/009/01/NEX Project). Project Management Unit, Ministry of Fisheries, Hanoi, Vietnam. 54 p.
- Schmidt, U.W. 2002. UNDP/FAO/MOFI (VIE/98/009/01/NEX Project) Final impact evaluation report. Project Management Unit, Ministry of Fisheries, Hanoi, Vietnam. 54 p.
- Siriwardena, S.N. 2002. Senior Technical Advisor's (STA) final mission report, UNDP/FAO/MOFI (VIE/98/009/01/NEX Project). Project Management Unit, Ministry of Fisheries, Hanoi, Vietnam. 167 p.

CONSTRUCTING REALITIES: DOCUMENTING WOMEN'S FISHERIES IN THE PACIFIC ISLANDS

I. NOVACZEK

Institute of Island Studies
University of Prince Edward Island
550 University Avenue, Charlottetown, PE
Canada C1A 4P3
inovaczek@upei.ca

J. MITCHELL

Institute of Island Studies
University of Prince Edward Island
550 University Avenue, Charlottetown, PE
Canada C1A 4P3
mjmittchell@upei.ca

Abstract

Research on Pacific Islands has revealed the pivotal involvement of women in all aspects of fisheries, from harvesting through processing to marketing. Women are not “just gleaning”; they are making essential contributions to local food security and in many cases, also enabling the commercial fishing activities of male family members. These days, they are increasingly engaged in food and commercial fisheries that employ modern technologies as well as traditional skills and detailed marine ecological knowledge. Nevertheless, stereotypes persist that reflect androcentric Western paradigms and that allow women's work to be undervalued or ignored. This leads in turn to the perpetuation of policies and societal institutions that discriminate on the basis of gender and inhibit women's full participation in fisheries management and economic development. As researchers interested in promoting equity and sustainability in fisheries, we each need to examine our use of words and patterns of analysis so that we do not become part of the problem. Traditional Pacific societies that take a more holistic approach to the relationship of humans within nature may hold the key to more equitable and effective models of fisheries management.

Introduction

Over the past year, a group of researchers in the South Pacific Islands has been taking a close look at gender roles in small-scale fisheries, fish marketing and fish processing (Novaczek et al. 2005). This work has been supported by the government of Canada (Canada-South Pacific Ocean Development Program), the University of the South Pacific and the University of Prince Edward Island. As a result, 13 case studies from 7 different countries, as well as 2 overview papers, have been developed for publication in 2005 in a volume called *Pacific Voices: Equity and Sustainability in Pacific Island Fisheries* (Novaczek et al. 2005). These studies highlight the complexity, diversity and fluidity of small-scale fisheries activities. They help us understand how small-scale fisheries intersect with, reflect and affect culture, tradition, economy and society in island communities.

Changing Fisheries on Pacific Islands

The shape of small-scale fisheries on any island depends upon many factors. These include the types of fish habitats and species available, gender roles and intergenerational relations in coastal societies, the degree to which technologies have been introduced and adopted by various societal groups, and other processes of modernization and commercialization. Like many aspects of society in Pacific Islands, fisheries lie at the nexus of tradition and modernity. Fishermen and fisherwomen must continually negotiate traditional culture and the modern world. In Vanuatu, for example, women fishers still remember the ancient art of singing to octopus to lure them from their hiding places. At the same time, these villagers are increasingly active participants in globalized commercial activities such as the ornamental fish trade, employing sophisticated technologies and receiving ideas and information from global networks (Tarisesei and Novaczek 2005).

Many of the case studies in *Pacific Voices* trace change through time in village fisheries. A long-standing complaint from development practitioners is that their programs and projects take root slowly if at all in the South Pacific (Veitayaki and Novaczek 2005). Yet, from the perspective of elders in coastal villages, change over the past hundred years has been rapid and profound. Not only have new technologies been adopted, leading to the intensification of pressure on coastal resources, but these changes have often been gendered (Ram-Bidesi and Mitchell 2005). For example, a case study from Vanuatu documents how hook and line gear has been taken up by both men and women whereas other fishing gear such as spear guns, gill nets and deep water reels remain exclusively male technologies (Tarisesei and Novaczek 2005). In Fiji, by contrast, some women use gill nets and take small boats out to relatively deep water to fish (Vunisea 2005). In a case study from the Solomon Islands (Agassi 2005), it was shown how women and youths have become increasingly prominent in fisheries, compared to the past. Everywhere there was evidence of increasing commercialization of what had traditionally been women's food fisheries. In some cases, women entered male domains; in others, men entered women's fisheries as they became commercially important. In Tuvalu (Resture and Resture 2005) and Solomon Islands (Fidali-Hickey and Whippy-Morris 2005) cultural shell crafts have been transformed into tourism products, with different ramifications for men and women. As women entered the fish trade in Kiribati and Fiji, their business development needs were largely ignored owing, in part, to gender discrimination in society (Tekanene 2005; Vunisea 2005). When Fijian industrial fisheries required a cheap and malleable labor force for fish processing, women were the preferred recruits, a situation that had gender impacts for families and communities (Rajan 2005).

Other changes in Pacific fisheries have been related to rapid population growth and the increasing proportion of young people in Pacific societies. Persons under the age of 25 now compose 50% or more of most Pacific Island populations. An increasingly youthful and educated society means that the desire for modern amenities and the cash with which to purchase them is growing. This desire commonly outstrips both employment opportunities and the productive capacity of available natural resources (ADB 1996). The gender roles and relative positions of youth and elders in fisheries, as well as pressures on fisheries resources, therefore change and evolve over time.

Also changing is the relationship of coastal communities to their resources. In the past, access to marine food species may have been controlled by hereditary chiefs. In light of modern pressures that include declining fish stocks, habitat degradation, climate change and the entry of foreign corporations into fisheries, the need for more complex and comprehensive management has become clear. This includes restricting access to fishing grounds and regulating fishing technologies. In many countries of the South Pacific, academics, fisheries departments and nongovernmental organizations (NGOs) are working with communities to develop local resource management institutions, sometimes based on traditional institutions (Veitayaki and Vesi 2005). Often, this involves setting aside areas of the sea as protected areas where no fishing is allowed. Such regulatory and management initiatives have different impacts

on youths and elders, as well as differential impacts on men and women. Where traditional culture dictates that women may not participate in public decision-making, women may end up bearing more of the sacrifices required by the new management system (Siamomua-Momoemausu 2005). Youths may also be left out of the decision-making process and as a result, may find destructive ways to show their resistance to domination by male elders (Novaczek and Tarisesei 2005).

Women in Pacific Island Fisheries

Women's small-scale, inshore fisheries provide essential protein to a majority of Pacific Island citizens. Yet, the importance of these fisheries remains largely unquantified and women's work is taken for granted. In the same way, the reproductive work of women that supports and enables all other forms of local economic activity is also largely neglected.

In fisheries literature pertaining to the South Pacific region there are often generalizations made that stereotype inshore fisheries, and the fishing efforts of women and children, as relatively small and unimportant. These stereotypes suggest that women restrict their activities to shallow waters, fish for family food rather than for commercial sale, and use only simple technologies. Further, in the absence of a clear cash value, food fisheries are assumed to be less important than commercial fisheries.

Another tendency that effaces women's fishing work is the common assumption that fishing for food is simply a natural extension of their reproductive work. It goes unpaid, there are no benefits or retirement pensions attached to it, and therefore it seems not worthy of the same attention as "real" work, which is performed for wages outside of the home.

Women also face particular barriers to participation in decision-making processes related to the management and conservation of their fisheries. Developing world government institutions engaged in fisheries management, which are modeled on those of the west, are typically male-dominated. Identification of male managers with persons of their own gender means that unless they take care to be equitable, they will pay more attention to men, while failing to recognize women's work. As a result, women's fisheries attract less attention from development agencies and may be left out when modern fishing technologies and methods are introduced. This is a vicious circle that ultimately restricts women's opportunities to engage in decision making related to fisheries management and development. This in turn reinforces women's lower status in society.

Problematizing the Western Paradigm

The lack of recognition of women's work in Pacific fisheries mirrors western industrial thinking, which also values commercial and industrial-scale fisheries over small-scale food fisheries. Western patterns of thought are frequently dichotomous rather than holistic. Rather than grapple with the complexities of nuanced reality, western decision-makers often characterize situations in oppositional terms: things are black or white, left or right, good or bad, weak or strong, etc. This convenient but superficial classification system leads to unwarranted assumptions and prejudices. Because genders are also, at first glance, a clear-cut dichotomy, our tendency is to set male-female alongside these other dualisms and then assign "male" to one side of the pair (typically that which is dominant, strong and positive) and "female" to the other. This reflects another western penchant – biological determinism based on an observation that, on average, human strength and size is greater in males. The tendency to pigeon-hole reality into tidy, dichotomous boxes leaves little room for complex grades of gender, or the possibility of, for example, strength within apparent weakness, or power inherent in smallness. Because education in the Pacific has been modeled on western institutions, indigenous researchers have to be similarly on guard not to fall into the habit of glib stereotypes and assumptions.

A key western influence in the Pacific has been the church, and so religion has been an important path for the spread of androcentric and dichotomous patterns of thought. Various Christian denominations have promoted the subservience of women to men. The church has also worked to advance the separation of humans from nature, effacing many traditional institutions that, directly or indirectly, served to protect the environment. Here is another example of dualism, the relegation of entire cultures to one side or the other: good or bad, civilized or wild, God-fearing or heathen.

A further tendency that we need to guard against is the (now discredited but not yet extinct) western style of fisheries science that dissects marine resources into discrete stocks and then attempts to manage each in isolation from the rest. Not only are fish considered in isolation from their supporting natural environment, but fisheries are regulated in isolation from the people, especially women, who depend on fish for livelihood. In the Pacific, where fisheries management is in many respects in its infancy, there are opportunities to develop more holistic and effective strategies for management and conservation.

Cultural concepts and practices in Pacific Island societies provide unique opportunities to rethink the way in which western ideas have come to dominate perspectives on the marine environment. Indigenous concepts of the environment are often expansive, describing not only place and space but the related identities of self and community (Rodman 1992). Many such cultural ideas that are glossed as traditional or customary are still very much alive and central to dynamic communities (Malimali 2004; Vunisea 2005). Hviding (1998) has noted that there is a “contextual flexibility” at the heart of customary or traditional practices in Melanesia which means that these cultural systems can and do effectively accommodate to change. Indigenous cultural practices can also provide creative direction for understanding the environment while offering a critique of the Western ideas underpinning the often limited and instrumental approaches to the marine environment and fisheries.

The Challenge to Fisheries Researchers

Fisheries researchers are starting to pay attention to the roles of both genders in fisheries, to document women’s contributions and to ask questions about the efficacy of male-dominated decision-making structures. Pacific fisheries, and the gender roles and power structures in rapidly globalizing Pacific societies, require careful examination and thoughtful interpretation. In fishing communities, the interface of tradition and modernity is continually contested ground. In this context, gender roles and responsibilities are both complex and fluid and cannot be captured in facile stereotypes. Recognizing the complexity and variability of local contexts helps to keep us humble as we struggle to facilitate development of local management institutions.

One sure way to appreciate the complexities of local context is through action research that involves living in a fishing community. In the *Pacific Voices* project, researchers were encouraged to spend time in their case study communities. Where they uncovered a need to address some pressing local issue, they consulted local people to develop concrete recommendations for action. In many cases, researchers were studying their own home villages and so brought an unusual depth of understanding to their task. The results are encouraging and indicative of what can be done through detailed inspection of “the local” through a gender lens. In many cases, as one might expect when dealing with research topics that are under-represented in academic literature, a key recommendation was for more research. In every case, writers were also able, after discussions with local people, to point to practical solutions for local problems. More importantly, because of their hands-on approach and their explicit attention to both male and female voices, researchers could discuss which of the possible options would gain local support and be feasible within the cultural, social and economic context at hand. In some cases, options were gendered. In Solomon Islands, for example, Malaitan villages involved in shell money production urgently need to establish controls over shell harvesting (Fidali-Hickey and Whippy-Morris 2005). Whereas men suggested the reinstatement of chiefly

authority and reinvention of traditional harvesting bans (which included gender-based bans on certain reefs), women favored increased government participation and pointed out that for youths, the relevance of cultural taboos is declining. Considering the need for both local and national harvesting controls, the researcher recommended a multi-party approach involving church, traditional leaders, NGOs and governments.

Often, fishers and especially fisherwomen feel incapable of designing and maintaining their own fisheries management and marketing systems. They look to outside agencies for leadership. In many Pacific countries where research was performed, we noted the increasing importance of NGOs, sometimes with support from academics, in facilitating collaboration between fishers and their governments. Documenting such partnerships, noting the respective roles of men, women and youths, and examining what works and what does not in different contexts, is an emerging and important area of work for Pacific researchers.

Pacific Paradigm

Food fisheries are critical to food security in the Pacific, and many are also in decline and under threat from many forces (Sauni and Fay-Sauni 2005). Given the importance of their fisheries, it would be foolish to ignore the potential for conservation and management that is embodied by women and youths. If these fishers are denied a place in decision making for management, if their ecological knowledge is not tapped to support conservation strategies, then further degradation of inshore habitats and loss of productivity seem inevitable. The alternative path, which deviates from the typical Western industrial paradigm, recognizes the importance and potential power of the small, resists generalizations and accords respect to active fishers of all ages and both genders. This alternative encourages self-sufficiency that is based on respect for a natural world – *vanua* – where humans are not the masters of creation but an integral part of a complex dynamic that requires thoughtful negotiation.

References

- ADB (Asian Development Bank). 1996. Sociocultural issues and economic development in the Pacific Islands. Pacific Studies Series, ADB Office of Pacific Operations and Social Development Division.
- Agassi, A.S. 2005. Feast or famine? Fishing for a living in rural Solomon Islands. In: I. Novaczek, J. Mitchell and J. Veitayaki (eds), Pacific voices: equity and sustainability in Pacific Islands fisheries. Institute of Pacific Studies, University of the South Pacific, Suva, Fiji.
- Fidali-Hickey, K. and C. Whippy-Morris. 2005. No shells, no langalanga: hard times in Malaita, Solomon Islands. In: I. Novaczek, J. Mitchell and J. Veitayaki (eds), Pacific voices: equity and sustainability in Pacific Islands fisheries. Institute of Pacific Studies, University of the South Pacific, Suva, Fiji.
- Hviding, E. 1998. Contextual flexibility: present status and the future of customary tenure in Solomon Islands. *Ocean Coast. Manage.* 40(2): 253-269.
- Malimali, S. 2005. Trochus resources: a new fishery for Tonga? In: I. Novaczek, J. Mitchell and J. Veitayaki (eds), Pacific voices: equity and sustainability in Pacific Islands fisheries. Institute of Pacific Studies, University of the South Pacific, Suva, Fiji.
- Novaczek, I. and J. Tarisesei. 2005. Gender, generational perceptions and community fisheries management in Lelepa, North Efate, Vanuatu. In: I. Novaczek, J. Mitchell and J. Veitayaki (eds), Pacific voices: equity and sustainability in Pacific Islands fisheries. Institute of Pacific Studies, University of the South Pacific, Suva, Fiji.
- Novaczek, I., J. Mitchell and J. Veitayaki, Editors. 2005. Pacific Voices: Equity and Sustainability in Pacific Islands Fisheries. Institute of Pacific Studies, University of the South Pacific, Suva, Fiji.
- Rajan, J. 2005. Gilt-edged packet or economic straight jacket? A case study of cannery workers in Levuka, Fiji Islands. In: I. Novaczek, J. Mitchell and J. Veitayaki (eds), Pacific voices: equity and sustainability in Pacific Islands fisheries. Institute of Pacific Studies, University of the South Pacific, Suva, Fiji.
- Ram-Bidesi, V. and J. Mitchell. 2005. Gender in Pacific maritime communities: putting the social into science and connecting the local to the global. In: I. Novaczek, J. Mitchell and J. Veitayaki (eds), Pacific voices: equity and sustainability in Pacific Islands fisheries. Institute of Pacific Studies, University of the South Pacific, Suva, Fiji.
- Resture, A. and S. Resture. 2005. Seashells on the seashore: women's participation in the shell trade on Funafuti and Nukufetau, Tuvalu. In: I. Novaczek, J. Mitchell and J. Veitayaki (eds), Pacific voices: equity and sustainability in Pacific Islands fisheries. Institute of Pacific Studies, University of the South Pacific, Suva, Fiji.

- Rodman, M. 1992. Empowering place: multilocality and multivocality. *Am. Anthropol.* 94(3): 640-657.
- Sauni, S. and L. Fay-Sauni. 2005. Vulnerability and dependence: the nearshore fisheries of Tuvalu. In: I. Novaczek, J. Mitchell and J. Veitayaki (eds), *Pacific voices: equity and sustainability in Pacific Islands fisheries*. Institute of Pacific Studies, University of the South Pacific, Suva, Fiji.
- Siamomua-Momoemausu, M.J. 2005. Gender collaboration: a case study of local resource management in Safa'i Village, Samoa. In: I. Novaczek, J. Mitchell and J. Veitayaki (eds), *Pacific voices: equity and sustainability in Pacific Islands fisheries*. Institute of Pacific Studies, University of the South Pacific, Suva, Fiji.
- Tarisesei, J. and I. Novaczek. 2005. Gender, generational perceptions and community fisheries management in Lelepa, North Efate, Vanuatu. In: I. Novaczek, J. Mitchell and J. Veitayaki (eds), *Pacific voices: equity and sustainability in Pacific Islands fisheries*. Institute of Pacific Studies, University of the South Pacific, Suva, Fiji.
- Tekanene, M. 2005. Selling fish in Tarawa, Kiribati. In: I. Novaczek, J. Mitchell and J. Veitayaki (eds), *Pacific voices: equity and sustainability in Pacific Islands fisheries*. Institute of Pacific Studies, University of the South Pacific, Suva, Fiji.
- Veitayaki, J. and I. Novaczek. 2005. Voices, Lenses and Paradigms: Understanding Fisheries Development in the Pacific. In: I. Novaczek, J. Mitchell and J. Veitayaki (eds), *Pacific voices: equity and sustainability in Pacific Islands fisheries*. Institute of Pacific Studies, University of the South Pacific, Suva, Fiji.
- Veitayaki, J. and W.P. Vesi. 2005. *Yavi rau*: the customary fish drive in Malawai and Lamiti villages, Gau Island, Fiji. In: I. Novaczek, J. Mitchell and J. Veitayaki (eds), *Pacific voices: equity and sustainability in Pacific Islands fisheries*. Institute of Pacific Studies, University of the South Pacific, Suva, Fiji.
- Vunisea, A. 2005. Women's changing roles in the subsistence fishing sector in Fiji. In: I. Novaczek, J. Mitchell and J. Veitayaki (eds), *Pacific voices: equity and sustainability in Pacific Islands fisheries*. Institute of Pacific Studies, University of the South Pacific, Suva, Fiji.

AN INTEGRATED APPROACH ON GENDER ISSUES IN COASTAL FISHERIES PROJECTS IN BANGLADESH: PROBLEMS AND CHALLENGES

R. MOWLA
EngenderHealth
Bangladesh Country Office
Engenderhealth
Bangladesh Country Office
House # 52, Road # 15A
Dhanmondi R/A,
Dhaka -1209, Bangladesh
rmowla@engenderhealth.org

M.G. KIBRIA
Hanoi Agricultural University (HAU)
HAU Aquaculture Group, Trau Quy, Gia Lam
Hanoi, Vietnam
kibriamg@yahoo.com

Abstract

Many fisheries projects in Bangladesh address both men and women as target groups. One such project, the Patuakhali Barguna Aquaculture Extension Project (PBAEP) in the south and southeast coastal areas of Bangladesh was supported by the Danish International Development Agency which worked in cooperation with the Department of Fisheries of the Ministry of Fisheries and Livestock, Bangladesh. The project was implemented by two local nongovernmental organizations in 1997–2004 and aimed to strengthen the socioeconomic status and physical well-being of men and women, and to improve their participation in social and economic development programs. The project, which involved integrated pond farming activities, emphasized the concept of community-based fisheries management.

The PBAEP integrated gender issues into many of its policies and programs. This paper reviews the problems and challenges encountered by the project in the implementation of gender-sensitive policies. Fish farming placed additional demands for time and labor from women who were already stretched to the limits; yet they, to some extent, were more involved than men in the pond farming activities even though men enjoyed more leisure time as there was minimal sharing of household chores. Despite this higher involvement, women were usually reluctant to attend the training programs often due to heavy responsibilities at home. Discussions were held with both women and men to understand the factors that affected women's effective participation in aquaculture and to identify the problems and constraints faced by them.

The recommendations of the project included the following: provide micro-credit to farmers; form gender-separate groups to encourage women to participate actively in meetings and training programs; provide extensive gender training to participants as well as to extension workers who are still confused about incorporating gender mainstreaming methodology in development programs.

Introduction

Bangladesh is a country with abundant rivers and aquatic resources. People usually consider it as a country where fish are produced in abundance and eaten at every meal. While this was the situation in the past, fish has now become a scarce and expensive commodity, beyond the reach of poor people—even for those who produce fish. In this situation, many government institutions and nongovernmental organizations (NGOs) have initiated fish farming among poor farmers to increase fish production and to improve their nutritional status and socioeconomic conditions.

The project, implemented by PBAEP at Patuakhali, Bangladesh, covered 105 villages (union) in the Patuakhali and Barguna districts. The primary target groups were individuals from households with ponds, fish cage operators and small-scale fishers who derived most of their income from fishing. At least 50% of the households who received training under PBAEP were either poor (possessing less than 50 *shatangsho* of land; 1 *shatangsho* = 40 m²) or marginalized (possessing less than 200 *shatangsho* of land). This paper analyzes the women's involvement in the aquaculture elements of this project.

Materials and Methods

The study focused on 60 randomly selected women and men farmers involved in aquaculture activities in two villages. The groups chosen from these villages were mainly involved in pond-based aquaculture activities, although some were involved in fingerling production. Tools used in the study included: semi-structured interviews, focus group discussions, home visits, key informant interviews and informal discussions. A checklist was prepared for the purpose of gathering and analyzing information on the roles that women were already playing in the sector, as well as the problems that debarred them from drawing a salary.

If one goes beyond the conventional market-oriented definition of a productive workforce, almost all women in rural Bangladesh today can be considered as farmers working as waged laborers, unpaid workers in the family farm enterprise or a combination of the two. In Bangladesh, Indonesia, the Philippines and Thailand, women were heavily involved in post-harvest activities, contributing 50-75% of all the handling, processing, marketing and distribution of the fish catch (Hauriham 1986).

The gender strategy in training and extension activities in integrated pond farming (IPF) was based on the following principles:

1. Avoiding conflict: mainstreaming women by involving them in all activities rather than lecturing them on their rights, which may cause resentment from their husbands, leading to training disruption.
2. Addressing both men and women beneficiaries: PBAEP maintains a strict household approach ("men are also members of the household"), with each household sending one male and one female trainee to all the training sessions. The mixed training sessions provide opportunities for discussion on gender issues.
3. Using role-play to act out day-to-day situation: all activities in IPF (e.g., stocking ponds, growing vegetables, looking after ducks, and harvesting and marketing fish) require decisions on who will actually carry out the activities (male or female member) and the

quantity of resources that will be allocated (in money or in kind). Role-play was found to be an excellent technique to let the beneficiaries address the issues themselves.

4. Assessing gender aspects in IPF through regular sample surveys and case studies: from time-to-time surveys and studies were conducted to assess women's involvement in activity and decision making. Issues on health and household nutrition were also included in these studies.

Study Results

People from the remote coastal areas were still unaware of how strict adherence to social division of labor could hinder community development. The project coordinators had to be careful not to raise any conflicts in the households and at the community level. Discussions revealed that the project participants considered fishing a man's occupation. Women were usually reluctant to attend the training programs and to become knowledgeable. They thought only their husbands should know the technology of scientific fish farming because they understood all things better than they could. Women were usually, or traditionally, responsible for feed preparation, fertilization of pond and feeding fish. Generally, men were responsible for pond preparation, pond weeding, draining and filling the pond. Harvesting with the use of cast nets was considered a responsibility of men.

Women's status at the household level, the strict gender division of labor, religious-cultural norms and values, and the extent to which traditional customs prevail and influence women's lives, can be great constraints on women's active participation in IPF. The few women who had adopted fish farming had gained not only in financial standing but also in social status and prestige, especially in permanent female-headed households where they were either divorced or widowed. Some women were not only involved in aquaculture but also in many other activities, such as raising poultry and livestock, home gardening and family welfare work at home. As a result, the total time inputs of women in aquaculture production and household chores were found to be generally higher than those of men.

Women were involved in various activities related to IPF in the selected villages (Table 1). With the exception of harvesting and marketing, most of the women interviewed reported that they usually had to do everything related to fish farming within their households. They were also likely to be responsible for growing vegetables and raising poultry along with fishing and fish farming in ponds.

Table 1. Division of labor in IPF.

Activities	Gender	Issues
Training activities	More men than women (25 men, 15 women)	<ul style="list-style-type: none"> • Women felt too shy to attend mixed group training programs • Women had multiple work burdens in the house • Both men and women thought that most women were slow learners • Religious prohibition
Pond preparation	Men and women (27 men; 24 women)	<ul style="list-style-type: none"> • Women assisted male partners since the former were less confident in technical issues
Preparing feed/ feeding/applying feed in feeding ring	Mostly by women and children (24 women; 10 men)	<ul style="list-style-type: none"> • Men and women considered this work the extension of household chores • Both considered this was not men's work

Making/repairing nets (“invisible” job)	Women more than men (24 women; 12 men)	<ul style="list-style-type: none"> • Traditionally, women did this in their leisure hours, while men take a nap or rest • Men and women both considered women more dexterous with their fingers
Stocking	Mostly men (28 men; 5 women)	<ul style="list-style-type: none"> • Men were more knowledgeable on species selection • Women could not travel far from home to collect good fingerlings • Women encountered cultural barriers on her mobility
Marketing	Exclusively by men (29 men; 1 women)	<ul style="list-style-type: none"> • Women had little marketing knowledge • Women were less confident in the marketplace • Society did not permit women to go to market and bargain with male buyers even at nearby market
Credit or capital investment	Mostly men (28 men; 2 women)	<ul style="list-style-type: none"> • Men were better at investing money • Women did not have easy access to credit while men had a better networking system

Source: Field survey by R. Mowla, April 2001; based on a sample size of 60 with 30 men and 30 women.

Table 2. Usual “time use” on various activities by men and women in Laukhathi and Labukhali villages, Bangladesh.

Time	Activities of Men	Activities of Women
05:30 - 06:30 AM	Still sleeping	Wake up, sweep, clean house and yard, feed poultry and livestock
07:00 - 08:30	Wake up and eat breakfast	Prepare breakfast and feed children
09:00 - 10:30	Go out for agricultural work	Eat breakfast, prepare feed for fish, prepare children for school
11:00 - 12:00	Return home from the field and take a rest	Cook lunch, wash and clean clothes
12:00 - 14:30 PM	Eat lunch with the children, go out to field	Wash and clean utensils, feed poultry and livestock again
15:00 - 17:00	Return home to take nap	Eat lunch, repair nets and traps, sew <i>kantha</i> (a kind of clothing)
17:00 - 19:00	Go to ponds to set nets, cages, etc.	Prepare tea and some cookies for evening meal
19:00 - 20:30	Look after children’s study, talk to relatives and neighbors	Cook dinner
21:00 - 22:00	Eat dinner and go out to someone’s house and watch TV	Eat dinner, continue to sew <i>kantha</i> , clean and wash utensils
23:00 - 24:00	Go to bed	Go to bed

Source: Author’s (R. Mowla’s) home visit, April 2002. (The author stayed with the farmer’s family for at least 10 days and 4 nights every month to become familiar with rural life.)

Women were involved in fishing with traps in the two villages. During the dry season, they fished in ponds when the water level was low enough to enable catching fish with traps, hands or spears. Daily “time use” and “division of labor” in IPF are shown in Tables 1 and 2. Fish farming required additional time and labor which women might not have, yet they were involved with men in pond farming activities. Men enjoyed more leisure time as they normally did not help their wives with household chores which were culturally considered to be their duty and responsibility. Women worked longer hours than men, averaging 15-16 hours a day leaving them with very little free time to attend meetings or gatherings, to listen to radio or to watch television. Usually women’s productive work was given less consideration than the men’s contribution. The villagers, leaders and religious persons—both men and women—still believed in a traditional gender division of labor in which men are responsible for outside work and women for household work.

Problems and Challenges

Training and extension services

Usually women did not speak out in the mixed training sessions whereas men were quick in responding. The trainer tried to encourage women’s participation but without much success. Although the majority of the extension workers were women, women participants in the training were reserved and lacked confidence. One reason was that women were not so well educated, and they felt less at ease during the meetings.

Women had to work longer hours and had little time to attend training and were confused on how to arrange their time at home and at work. Some interviewees also said that they were unable to attend the aquaculture training, as they had to take care of small children, as well as ill or aged family members. Another reason for the low participation of women at training was because of their lack of education; they felt that they were unable to follow the technical lessons. Only a small percentage of women participated in the training programs. Many male interviewees said that women were not farmers since they usually performed minor farming tasks helping them. There were more Hindu women in fish farming than Muslim women. Hasan (2000) also found that there were no traditional and social restrictions in Hinduism related to fish farming. Capture fisheries and aquaculture were not part of the Muslim tradition.

Access and control over resources and decision-making process

Traditionally, women did not have access and control over resources like land, knowledge, cash and tools. They were still dependent on their family or in-laws for access to land and were less knowledgeable on resource allocation and control. Women thought that men spent most of their money on unimportant items such as cigarettes. On the other hand, women were more likely to purchase goods for their children and husband and for general household consumption. Women were relieved that they could depend on men’s decisions on financial matters related to aquaculture. Buying and stocking fingerlings were important technical decisions that few women were involved in. The role of men focused more on decision making on matters such as fish species, purchasing, netting, harvesting and marketing while women provided the labor for preparing the feed and feeding of fish on a daily basis.

The social position of women was so inferior to that of men that women had little or no influence on the decision-making process. Lack of access and control over cash income perpetuated the myth that women’s work was less important than men’s. Little attention was given to women’s contributions in the various unpaid domestic jobs as well as family agricultural enterprises in rural areas. In Bangladesh, although Islam acknowledges women’s rights to inheritance, in practice, women did not own land or have direct access to other productive resources, such as fish ponds (Nathan and Apu 1998). Although men made the final decisions on financial matters, in certain circumstances they discussed with their wives issues concerning the children’s and household needs.

Nathan and Apu (1998) found in their study that women in Bangladesh complained that men not only monopolized all the financial transactions, but also made decisions on stocking and harvesting without consulting them. The decision-making power was uniquely justified on grounds of unquestioned religious and sociocultural norms. Men controlled the cash income from the sale of fish at the pond site and in the market, but consultation with their wives on household expenditure was to some extent common. Nathan's and Apu's findings contrasted with those of this study, i.e., women were relieved that men took decisions.

Most of the credit was obtained from informal sources and women had less access to credit than men. The majority of fish farmers came from relatively wealthy sections of the community; fish farming was quite an expensive undertaking for rural farmers. Most of the farmers in the project area did not have the funds or savings to renovate or reconstruct the pond for fish culture. In addition, the farmers needed money to buy fingerlings and in most cases they had to borrow money at high interest rates from neighbors and relatives. Access to formal banking was considered to be more complicated for women than for men often because of illiteracy and sociocultural constraints. The majority of the women (60%) could only save small amounts of money, as the bulk was spent on family needs. Sometimes, women formed informal savings and loan associations with other women in the neighborhood.

Sociocultural norms and values

There were various forms of sociocultural constraints, such as female seclusion practice and the social perception that fish farming was a man's activity. In many cases, women depended on their husbands whom they considered as their guardian. If the men felt that there was another activity in the household which required women's attention, fish farming would likely be relegated to second position. Women needed to get permission to be involved in fish farming activities. Support from families was also an important factor. Women farmers, especially those with young children, were more constrained in their mobility and time availability. The survey from the PBAEP found that: 90% of the women were not involved in fingerling purchase; 75% were not involved in decision-making processes concerning their children's education; 99% had early marriages; 100% needed permission to go out; 97% of those who adopted family planning were women; and that land and resource transactions were carried out by men.

Women's interest

Despite many problems and challenges for women farmers originating mainly from sociocultural and religious norms and values, there were high levels of interest among women and men towards aquaculture. Easy access to fish for the family was one of the main reasons. Aquaculture also easily fitted into women's other household chores. The production from ponds depended largely on the time and effort allocated by women and children for pond management and for feeding fish. Multiple ownership of ponds was one of the main constraints to expanding fish culture. The one pond per household had varied uses. Apart from fish farming, pond water was used for bathing, washing and cleaning of all household items.

Aquaculture had been integrated with other economic activities such as agriculture and raising livestock and poultry. Raising fish was considered lighter work and less time-consuming than raising livestock. Aquaculture had become one of the main sources of cash income for coastal women especially those who were divorced, widowed and were heads of households. Nathan and Apu (1998) found in their study on the Oxbow Lake Project at Jessore that grouping women together made it easier for them to carry out fish farming. Before the project, women were mostly involved in domestic chores and handicraft production, but this changed to livestock raising, pond farming and vegetable gardening after the PBAEP Project. Members in the Fish Farming Group had a higher standard of living than private pond owners.

Recommendations

Based on the findings from this study, the following approaches are worthy of consideration:

- It is recommended that women farmers be separated from men farmers during training since women felt uncomfortable participating in meetings and training programs in mixed groups. Nathan and Apu (1998) also found that all-women groups performed better than mixed groups.
- Farmers, especially women, should be given basic training on accounting and other practical aspects of aqua-business as they lacked this knowledge. There should be provision for credit to promote pond aquaculture. Kibria et al. (2004) found from his field survey in Vietnam that women and men working together successfully managed grow-out ponds, nurseries, hatcheries, rice/fish and cage culture, and integrated agriculture/aquaculture farms. Financing these activities was made available through a micro-credit and savings scheme established to provide direct financial support to farmers.

Some general recommendations are as follows:

- It is very important to arrange for training on business and financial management—improving women's marketing and negotiation skills so that they can bypass the middlepersons in the marketing process.
- The project should have a separate gender program to monitor, evaluate and examine women's involvement and whether they have benefited from this project. Women play a large role in aquaculture, and in some cases, larger than the role of men and this must be documented. It is also necessary to examine how policies and efforts in extension services can support women farmers and how their involvement in aquaculture enhances their well-being.

Acknowledgements

The senior author would like to express her gratitude to the field personnel (Project Officer and Training Officer) who helped her immensely during her field visit and stay with the farmer's family in two villages, namely, Labukhali and Laukhathi of Patuakhali district. Thanks are also extended to all women fish farmers in the two villages who cooperated in the interview sessions and participated in the discussions, whenever required.

References

- Hasan, M. 2000. Coastal fishermen communities of Bangladesh: some facts and observations. *GrassRoots Voice* 3(3): 111-118.
- Hauriham, J. 1986. *Women in development: guidelines for the fishery sector*. Asian Development Bank, Manila, Philippines. 79 p.
- Kibria, M.G., R. Van Anrooy and R. Mowla. 2004. Women in aquaculture: success story in Vietnam's northern uplands. *Global Aquacult. Advocate* (February) 1: 23-24.
- Nathan, D. and A.A. Apu. 1998. Women's independent access to productive resources: fish ponds in the Oxbow Lakes Project, Bangladesh. *Gender, Technol. Dev.* 2(3): 397-413.

Bibliography

- Jensen, K.M. 1985. *By the River Meghna*. Centre for Development Research. Copenhagen, Denmark. 59 p.
- Kibria, M.G., P. Edwards, G. Kelker and H. Demaine. 1999. Women in pond aquaculture in the oxbow lakes of Bangladesh. *Aquacult. Asia* 4(4): 7-14.
- Molyneux, M. 1985. Mobilization without emancipation? Women's interest, state and revolution in Nicaragua. *Feminist Stud.* 11(2): 227-254.
- Moser, C.O.N. 1993. *Gender Planning and Development: Theory, Practice, and Training*. Routledge, London, UK. 285 p.
- Thida, K. 2001. Gender roles in Cambodia. In: K. Kusakabe and G. Kelkar (eds.) *Gender concern in aquaculture*. Southeast Asia Gender Studies, Monogr. 12: 93. Gender and Development Studies, Asian Institute of Technology, Bangkok, Thailand.
- Townsend, P. 1998. Social issues in fisheries. *FAO Fish. Tech. Pap.* 375: 93 p.

THE IMPACTS OF AQUACULTURE DEVELOPMENT IN RELATION TO GENDER IN NORTHEASTERN THAILAND

L. SULLIVAN

Gender and Development Program
School of Environment Resources and Development
Asian Institute of Technology
P.O. Box 4, Klong Luang, Pathum Thani 12120
Bangkok, Thailand
leah.sullivan@gmail.com

Abstract

This paper addresses the trend of livelihood diversification in agrarian communities that results from growth-oriented development policies. This study uses empirical data from rice-farming communities in Maha Sarakham province, Thailand, that are diversifying into freshwater aquaculture to examine the impacts of such changes in economic activity. The case study compares inland cage culture in Ban Kilek and subsistence pond aquaculture in Ban Makha to analyze the effects and benefits associated with the introduction of the activities. The results suggest that significant differences exist between the two communities with cage culture leading to greater benefits than pond culture, including higher income and mobility levels. However, the benefits from diversifying into commercialized aquaculture are unequally distributed between men and women as evidenced by extra-community mobility levels. Among cage culturists, women are significantly less mobile than men, and despite women's high income levels, they exhibit similar mobility levels to women not engaged in the activity. The combination of the corporate organization of cage culture, kinship networks and traditional expectations, and household responsibilities continues to confine women's mobility to within the community and, thus, inhibits an increase in mobility that male cage culturists experience. While livelihood diversification into activities such as cage and pond culture provides significant benefits, the paper recommends a critical review of the impacts on the individuals and households involved.

Introduction

Since the 1970s, Thailand's rural development strategies have promoted livelihood diversification (Pingali et al. 1997; Hanpongpanth 2001). The low return, high risk and uncertainty associated with agricultural production have fueled the transition from extensive to intensive farming systems, subsistence to commercialized crops and farm to non-farm employment. In the aftermath of the 1997 economic crisis, the government's dual objectives of economic growth and self-sufficiency have advanced the trends of crop and employment diversification, which has included the promotion of freshwater aquaculture. For inland rural communities, freshwater fish culture has been hailed as a poverty alleviation initiative to

enhance incomes and improve food security (DoF 2002). Projects have targeted women for involvement because of livelihood benefits and ease of integrating aquaculture into other agrarian activities (Kelkar 2001; Kusakabe 2001).

The purpose of this paper is to examine the impacts of freshwater aquaculture development on rural households and the men and women in them. The study compares intensive and subsistence freshwater aquaculture systems to address the effects associated with diversification. The paper also examines the growing reliance of rural livelihoods on an increasingly wide range of activities and the varied effects of this dependency (Rigg and Nattapoolwat 2001).

Background: Agricultural Transformation

Rural livelihood diversification

Rural households in Thailand are increasingly diversifying their livelihood activities and becoming evermore hybrid, both spatially and sectorally (Rigg and Nattapoolwat 2001). This livelihood diversification is linked to the country's economic growth orientation, which has fueled the commercialization and commoditization of agriculture (Pingali 2004). The growth orientation is balanced by His Majesty the King's philosophy of a sufficiency economy, which advocates self-reliance and moderation.

With economic growth, non-farm activities have been introduced to the economy at large. Traditionally, rural villagers were only engaged partly and temporarily in non-farm seasonal employment by migrating to urban areas. With industrial expansion, rural laborers found more permanent work, and beginning in the 1980s, rural laborers began to migrate abroad, meeting the demand for skilled as well as manual laborers (Hanpongpanth 2001). Diversified on-farm and agro-industrial activities have also been introduced to the rural economy, including commercialized crops other than rice and rubber and the integration of livestock and fish farming. The agrofood industry has developed, and of the transnational agro-industrial conglomerates, Charoen Pokphand (CP) Group is Thailand's largest with annual revenues of \$13 billion (Goss et al. 2000). The CP has grown beyond feed processing and into the production chain to organize contract production in a system of vertical integration. For several commodities, the CP provides all the production inputs and then processes and markets the outputs (Goss et al. 2000).

Freshwater aquaculture development

Worldwide, aquaculture is the fastest growing food-producing sector, and in Thailand, a popular form of on-farm livelihood diversification. The practice of farming aquatic species has existed for centuries, and in recent decades, technological innovations have intensified the production process to increase yield and profit levels. This so-called "blue revolution" has been hailed for its potential to relieve pressure on capture fisheries and to meet growing demand for aquatic resources (The Economist 2003).

The Department of Fisheries (DoF) aquaculture policy under the National Fishery Development Policy 2002-2006 promotes an increase in production at the rate of 5% per year (DoF 2002). This proposed intensification is significant for the freshwater sector because of its traditional subsistence production level and potential for income generation and domestic food security. The two types of freshwater aquaculture discussed in this study are cage culture and subsistence pond culture, which differ in their production intensity. Cage culture is market-oriented requiring significantly more investments of time and monetary resources (Kusakabe et al. 2003).

Subsistence pond culture is the most common type of aquaculture in Thailand and involves either monoculture, stocking one species, or polyculture, many species. The fish are raised mainly for household consumption and occasionally for sale. On average, subsistence-level

ponds are small in size, no larger than 1 *rai* (0.16 ha), and can be part of integrated farms. These ponds have low stocking rates and often do not use feed (Kusakabe et al. 2003).

Cage culture uses natural open water sources, such as a river or reservoir, to decrease the pressure on land use for aquaculture. Intensive cage culture has been promoted in Thailand since the late 1990s and is the newest form of aquaculture in the northeast region. The private sector introduced monosex tilapia cage culture, which is intensive and for-profit. The stock is all male and of big-fingerling size, which allows culturists to harvest more than two crops per year. The fish are given high-protein feed more than three times per day and the maturing period is three to four months (Kusakabe et al. 2003). The feed comprises the most significant production cost and makes cage culture capital-intensive. Farmers are in frequent contact with feed and fingerling companies for inputs and with middlepersons for sales. In utilizing open source water, cage culture does not require the conversion of land, but rather an investment of financial resources and time. Farmers who initiate cage culture often are able to maintain the same levels of rice and other crop farming.

Women and freshwater aquaculture

Freshwater aquaculture has been promoted for women farmers throughout South and Southeast Asia. Subsistence pond culture is a livelihood activity easily incorporated into farm systems and in which women traditionally have been involved. This form of aquaculture requires low levels of time commitment and technical support. Women's engagement in aquaculture is often considered an extension of the domestic sphere and work, which is beneficial for incorporating it into household responsibilities (Kelkar 2001). Research has demonstrated that women's participation in small-scale aquaculture yields numerous benefits for themselves and their households (see Nandeesh 1994; Voeten and Ottens 1997; Debashish et al. 1999).

The promotion of cage culture for women has been more recent and more limited. Women's participation in intensive aquaculture systems has been considered lower than in subsistence systems (Kusakabe 2001). Cage culture produces high incomes, but women have less control over the production in comparison with less intensive forms of aquaculture (Kusakabe et al. 2003). In cage culture production, the farmers' mobility is a critical component because, as a commercialized production system, more information sources exist and are required. In the study of Kusakabe et al. (2003) on freshwater aquaculture in northeast Thailand, female culturists reported having equal levels of mobility to men but traveling shorter distances, which potentially affected their access to information sources and control over culture activities.

Survey Methods

A survey was conducted of 70 villagers in two rice-farming communities in Kantarawichai district, Maha Sarakham province. Interviews were conducted in person during March and April 2004 in Ban Kilek, Tambon Khaow Yai, where cage culture is being developed and Ban Makha, Tambon Makha, where pond culture is practiced (Figure 1). The sample was selected randomly with the objective of interviewing equal numbers of men and women and of aquaculturists and non-aquaculturists. Interviews were conducted during the dry season, and each interview lasted 35-45 minutes. The response rate was 100% (all villagers approached for the survey agreed to participate). The survey instrument is provided in the Appendix.

In the interviews, villagers were asked about their economic activities, involvement in aquaculture and mobility outside of the household. The first section of the survey contained questions about the demographic characteristics of the respondents. The next two sections included a list of questions relating to income sources, assets and livelihood activities including aquaculture, rice farming and non-farm activities. The final section of the survey addressed physical mobility and contained questions on the frequency of movement, type of transportation used and purpose for mobility. Their mobility was ranked as a composite

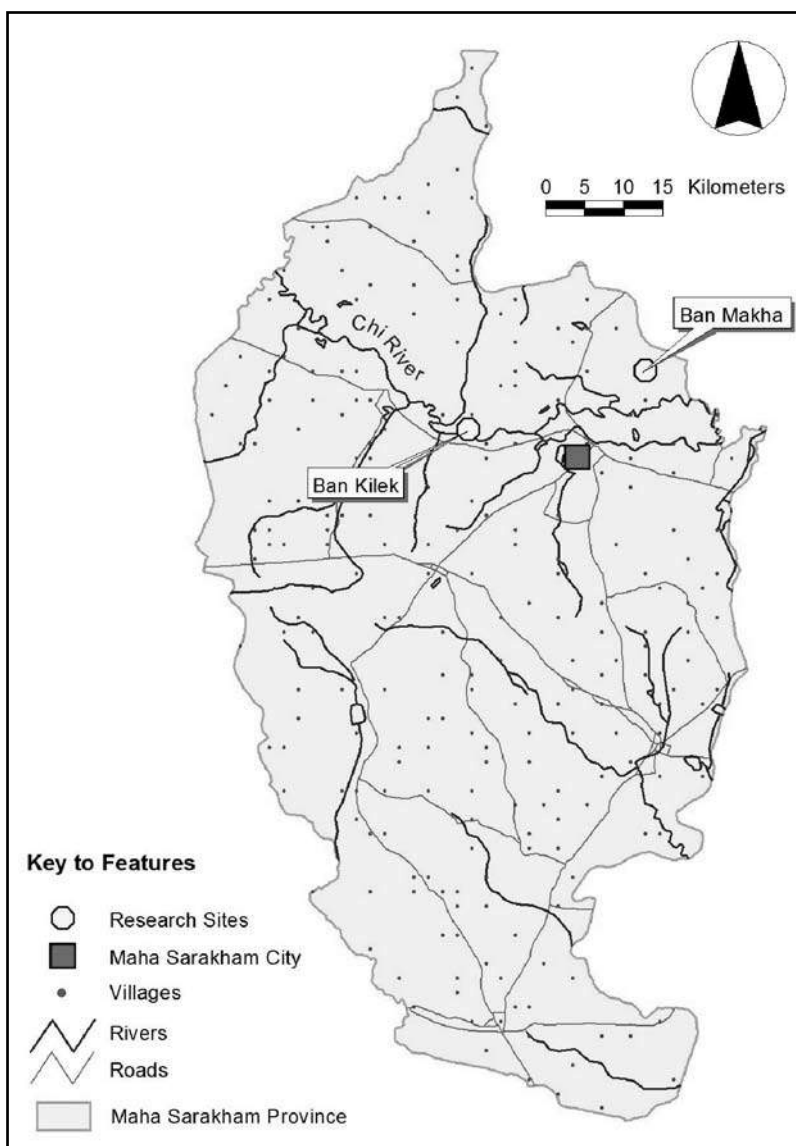


Figure 1. Research sites in Maha Sarakham province.

index on a scale of one to five (one being low mobility and five high), and the distance between rankings was assumed to be equal for statistical purposes.

Maha Sarakham province was selected as the research site for having a large variability in freshwater aquaculture production, including both cage and pond culture. The province is located in the center of the northeast or *Isaan* region where aquaculture is a diversification strategy in the farm sector. The northeast is the least developed and poorest region of Thailand, and rural villagers there are the most engaged in seasonal and permanent migration for non-farm employment. This out-migration has contributed to a dependence of rural areas on remittances (Hanpongpanh 2001).

Pond culture is the most common type of aquaculture practiced in the region (Kusakabe et al. 2003). Of the mostly herbivorous and some omnivorous fish species cultured, tilapia is highly demanded throughout the region (Kusakabe et al. 2003). Tilapia is the second most important fish produced in freshwater aquaculture, providing an important source of protein for poor people in developing nations (WorldFish Center 2001). In Maha Sarakham, the Chi River is the major area for cage culture, flowing from Khon Kaen to the Mun River in Ubon Ratchathani.

Survey Results

The random sample of respondents in Ban Makha and Ban Kilek included 26 males and 44 females, ranging in age from 27 to 68. The median age was 48. All respondents were married with 4 being widowed and 1 separated. Two-thirds (66%) of respondents reported having 4 years of schooling, and only 4 respondents have attended university. In Ban Kilek, 21 cage culturists and 14 non-culturists were interviewed, and in Ban Makha, 20 pond culturists and 15 non-culturists. The sample distribution was not evenly balanced between genders with there being a predominance of female respondents. As shown in Table 1, this was especially the case in Ban Kilek where fewer men were available to be interviewed.

Table 1: Sample distribution in Ban Kilek and Ban Makha.

	<i>Ban Kilek</i>			<i>Ban Makha</i>			Total
	Cage culture	No culture*	Total	Pond culture	No culture	Total	
Male	8	2	10	9	7	16	26
Female	13	12	25	11	8	19	44
Total	21	14	35	20	15	35	70

*No culture means not involved in aquaculture activities.

Economic activities

The villagers interviewed are engaged in a wide range of farm and non-farm activities. Every respondent reported involvement in at least one agrarian activity, such as rice cultivation, aquaculture, animal husbandry, and fruit and vegetable farming (Figure 2). Furthermore, 94% of respondents reported that they are engaged in more than one activity with more than two-thirds (70%) of them being engaged in both farm and non-farm activities.

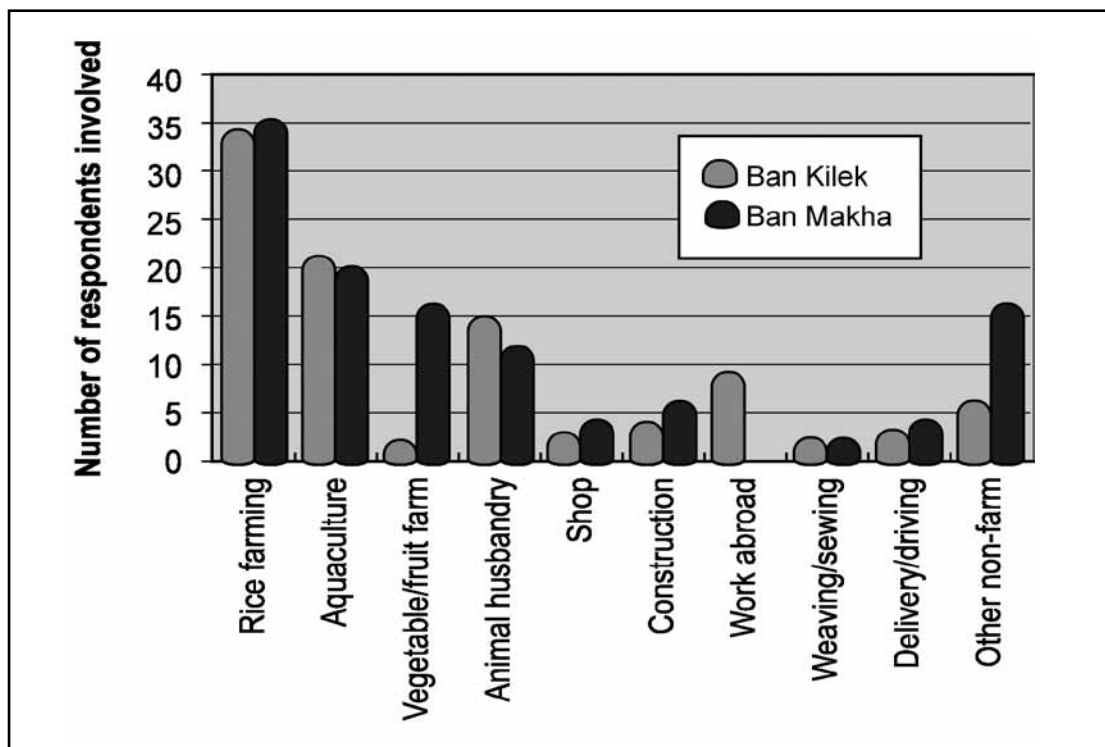


Figure 2. Current economic activities.

Nearly all, 96%, of the respondents are involved in rice cultivation. All keep part if not all of the harvest for domestic consumption. However, only 19% reported rice cultivation as their primary income source, reflecting diversification into more lucrative on-farm and off-farm activities. The most frequently reported primary income source, for nearly 56% of respondents, is on-farm employment.

The primary income sources for households differed between Ban Kilek and Ban Makha. In Ban Kilek, 77% of respondents reported either cage culture or remittances from abroad as their main income source. For 90% of cage culturists, this activity is their primary income. Half of all households in Ban Kilek have family members working abroad who send money home. For 47% of such households, these payments are the primary income. The high levels of temporary out-migration to other countries have mostly involved men as demonstrated by only 16% of Ban Kilek women interviewed reporting working abroad. As one woman commented, "all men over 20 years old have passports in preparation for working abroad." Cage culture presents a new livelihood activity that provides local and comparable income to foreign labor.

In Ban Makha, not a single villager reported remittances from abroad as primary income, which relates to only 6 households having family members who have worked abroad. In addition, only 1 of the 20 villagers involved in pond culture reported it as the primary income, reflecting the subsistence level of aquaculture there. Instead, the majority of respondents rely on either rice cultivation (34%) or non-farm employment (52%) for income.

Aquaculture activities

In Ban Kilek, aquaculturists farm an average of 10 cages, which they harvest 2-3 times a year depending on environmental and market conditions. They have cultured fish for a median time of 4 years. Ten households reported involvement in a cage culture group that started 7 years ago, and from this group's success, farmers decided to invest in their own cages, spreading the information to relatives and neighbors. In addition, the CP Group, several CP subsidiaries, and other feed and fingerling companies have been closely involved in Ban Kilek's cage culture development. The CP Group hosts seminars in the region, to which culturists working with the company reported being invited throughout the year.

The cage culturists reported close involvement with companies with 95% of cage households describing "dependent" relationships. This dependence categorization relates to their use of one or several companies for feed, fingerlings and middlepersons. In contrast, independent cage culturists seek production inputs and markets themselves. The companies make site visits to cage households, delivering feed and gathering fish, and the culturists are not required to go anywhere. All cage culturists have at least one mobile phone, which they reported using to contact companies. Cage culturists did not report formal contract relationships with companies, but several respondents noted that purchasing inputs from vertically integrated companies did ensure later sales of fish. One respondent switched from Wiboon to CP fingerlings because he was unable to sell his fish last year when the tilapia market was oversaturated and CP middlepersons would not purchase Wiboon fish. The corporate organization of cage culture in Ban Kilek parallels that of the shrimp industry. The system of cage aquaculture production is characterized by a large degree of vertical integration, in which companies are involved in several production steps. As in shrimp aquaculture, many cage farms are part of a corporate presence and not small-scale entrepreneurial locals (Goss et al. 2000).

Pond aquaculture in Ban Makha has no corporate presence. Three in four farmers interviewed (75%) do not use any feed in their ponds. All pond culturists reported consuming the tilapia they farm in comparison to only half (52%) of all cage respondents, who often reported consuming only the dead fish. Twenty-five percent of pond culturists sell the fish they raise, mostly one time per year. Pond culturists have an average of two ponds, which they have farmed for a median time of eight years. Pond culturists reported farming fish for consumption

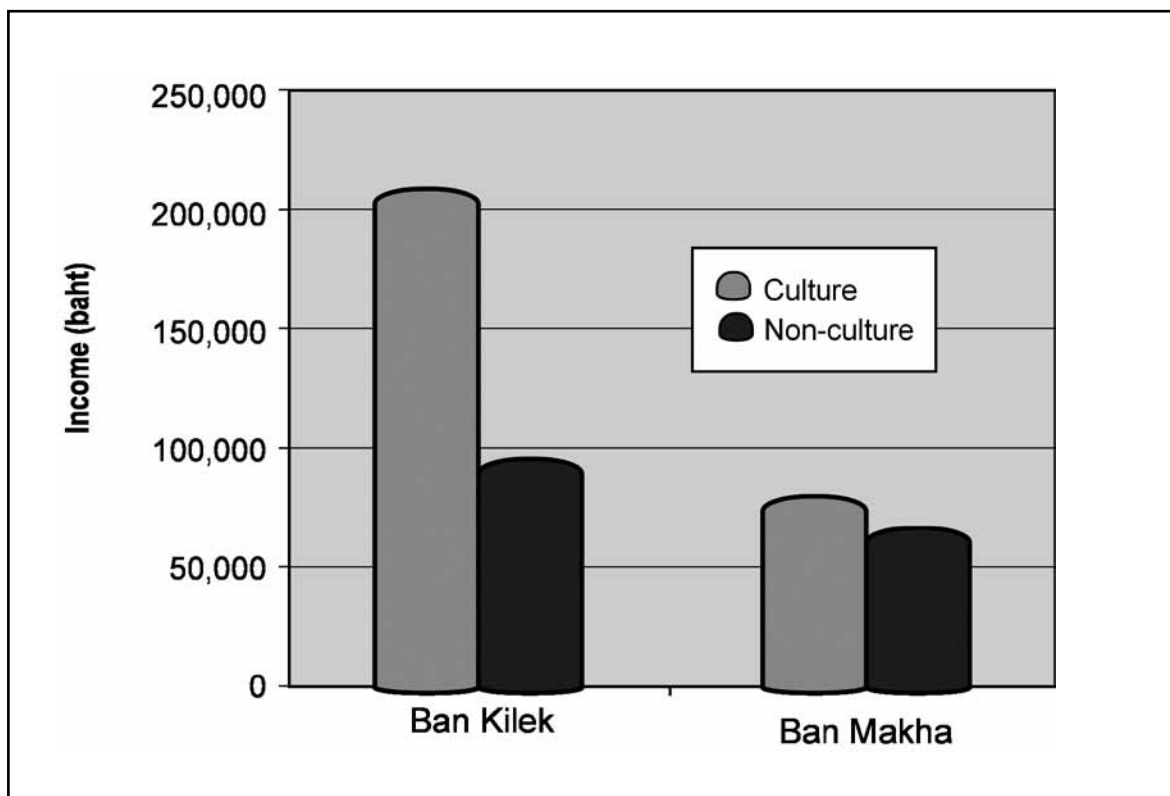
purposes and noted the benefits of improved food security, which differs from cage culturists who noted seeking new income sources.

Women and men equally reported involvement in aquaculture activities. In cage culture, women noted gaining knowledge on it through male relatives. Women also reported that men attend seminars on cage culture more often than women.

Income levels and assets

The income levels between Ban Kilek and Ban Makha are significantly different ($t = 4.22$, $p < 0.001$, $df = 68$). The median annual income level of Ban Makha is 63,000 baht versus 120,000 baht for Ban Kilek, which relates to the high incomes generated in Ban Kilek from cage culture and remittances (Figure 3). In Ban Kilek, cage culturists rank in the top income quartile, and the total income levels reported by cage households are significantly higher than those not engaged in aquaculture ($t = -3.33$, $p < 0.05$, $df = 33$). Cage respondents also consistently reported viewing their incomes as better now in comparison to 5 years ago with 90% reporting improvement. Among Ban Makha respondents, only half (54%) noted improvement while the other half (46%) complained of declining income levels. Despite the fact that many Ban Makha respondents have diversified out of rice cultivation, they have not initiated activities as lucrative as cage culture. Pond culture especially does not provide the same economic gains as cage culture.

Figure 3. Average annual income per household.



The results also suggest that respondents with high income levels have more assets. Ownership of mobile phones increased with income levels ($\chi^2 = 8.62$, $p < 0.01$, $df = 2$). Sixty-four percent of all respondents reported owning mobile phones, and the majority of them are from Ban Kilek where nearly nine in ten (89%) Ban Kilek respondents own mobile phones, and 100% of cage culturists own them. For transportation assets, the majority of all respondents (89%) reported household ownership of at least one motorbike. The number of motorbikes

owned increases with rising income levels (chi-square = 13.25, $p < 0.001$, $df = 2$). Respondents in Ban Kilek reported ownership over more modes of transport—motorbikes and cars—than those in Ban Makha ($t = 2.06$, $p < 0.05$, $df = 68$). The total number of cars Ban Kilek residents reported owning doubled that of Ban Makha.

Women and men reported similar household-wide income levels and asset ownership with no significant difference between incomes or ownership of mobile phones or motorbikes ($p > 0.05$). Despite household ownership over modes of transport, half (48%) of all female respondents reported being unable to drive motorbikes or cars themselves. The majority (57%) of the female motorbike drivers noted only driving within their community to rice fields or neighbors' houses.

Mobility and kinship networks

Physical mobility levels within the communities themselves were very high. Eighty-five percent of respondents reported leaving their households daily to visit neighbors and relatives in their village for social purposes. Respondents reported walking or riding motorbikes for travel within the community. This high level of intra-village physical mobility reflects the strong kinship networks existent in the communities. Eighty percent of respondents were born in their village and have lived there most of their lives, especially due to the matrilineal *Isaan* tradition.

In considering physical mobility beyond the community, respondents' responses varied broadly, from never having left the village to leaving every day. Ban Makha respondents reported moving outside of the village significantly less frequently than Ban Kilek respondents, who cited high mobility levels ($t = 2.81$, $p < 0.01$, $df = 68$). In Ban Makha, no significant difference in mobility levels was reported between pond aquaculturists and other respondents. Among all respondents, the cage culturists interviewed stated significantly higher levels of mobility ($t = -2.72$, $p = 0.01$, $df = 68$).

Yet these general results on highly mobile Ban Kilek respondents and cage culturists mask the significant gender differences in physical mobility levels that actually exist. In comparing male and female cage culturists in Ban Kilek, the men interviewed reported significantly more mobility beyond the community than women ($t = -2.33$, $p < 0.05$, $df = 19$). Actually among all respondents, men were cited being significantly more mobile than women ($t = 2.23$, $p < 0.05$, $df = 68$). Despite these differences between men and women's mobility levels, no significant differences emerge between women. In considering the female respondents in Ban Kilek, women cage culturists did not report significantly more mobility than women not engaged in cage culture. Furthermore, in such a mobile community as Ban Kilek, the women there did not report significantly higher mobility levels than the women in Ban Makha.

Discussion

Impacted mobility

The survey results portray differences between men and women in their movement within versus beyond the community. Both men and women reported high levels of intra-community mobility. Yet men appear to have greater physical mobility beyond the community while women's mobility is confined to the village level. Even among highly mobile cage culturists, women's mobility has remained significantly lower than men's and comparable to that of other women in Ban Kilek and even Ban Makha. The persistently low mobility levels of women cage culturists can possibly restrict their full participation in aquaculture activities, control over production and leadership in technology innovation (Kusakabe et al. 2003). For women more generally, their limited mobility beyond the community can impinge on their ability to carry out productive and reproductive roles.

Empowering mobility

Men's and women's extra-familial but intra-community mobility is important for reducing isolation within the household and providing access to community resources. The purposes for this and other types of physical mobility can be categorized broadly as domestic, social and economic (Mashiri and Mahapa 2002). For women especially, their access to social networks and extra-household resources has proven critical to domestic relations, enabling women to exhibit improved self-perception and bargaining positions (Dwyer and Bruce 1988; Fernando and Porter 2002). Women's participation in social groups can also bring community benefits, leading them to mobilize community resources and participate in political activities (Dwyer and Bruce 1988). Kabeer (1994) found that women's esteem and influence within a community is closely connected to the extent of their participation in extra-domestic associations. Improving women's mobility also increases their access to markets and their exposure to education, training and information (Fernando and Porter 2002). Mobility is a precondition for women's ability to activate their other rights and entitlements whether to political participation, employment, education or health (Matin et al. 2002).

Restricted mobility

Despite these diverse benefits, isolation and limited mobility persist throughout the developing world. With globalization increasing cultural transfers and mobile capital, it has, in the words of Joseph Stiglitz (2002), "reduced the sense of isolation felt in much of the developing world." However, such general claims that highlight migration and mobile people mask the isolation and confined daily mobility that many still confront. For women especially, their mobility is often restricted and more curtailed than men's (Fernando and Porter 2002). Numerous factors, which vary between cultural and social contexts, contribute to the persistence of isolation. Several broad trends affecting women's mobility include cultural constraints and norms, domestic responsibilities, poverty, safety and limited transportation infrastructure (Kabeer 1994; Fernando and Porter 2002).

These factors restrict women's mobility and limit their command over the political and social processes that determine their lives. As Massey (1991) describes, "the mobility and control of some groups can actively weaken other people. Differential mobility can weaken the leverage of the already weak." Restrictions on women's physical movement define their entitlements to income and employment opportunities, and safe and secure transport (Matin et al. 2002). Improving the transport infrastructure alone will not directly lead to improved mobility or improved access to goods and services. Rather, having "mobility" is crucial for accessing goods and services (Fernando and Porter 2002).

Mobility within confines

Women in both Ban Kilek and Ban Makha experience the benefits of extra-household mobility, but face restrictions on physical mobility beyond this level. Female respondents frequently commented on not going anywhere beyond the household or community because of domestic responsibilities, including caring for children and home-based economic responsibilities, such as silk production. Women also noted having modes of transport in their household but not being able to access them. For motorbikes especially, only one-quarter (26%) of all women who reported household ownership actually ride them outside of the community. The women who could not ride motorbikes reported being too old to learn or too small to ride them. For those who ride only in the community, they stated safety as a concern as well as not having legal driving licenses.

For the women who reported extra-community mobility, diverse activities bring them beyond the community. Women reported such purposes as non-farm employment located outside of the village and community groups' seminars and trainings. For women in Ban Kilek, the out-migration of male relatives factors into their mobility levels as they make monthly deposits

at the bank in Maha Sarakham City. These women running Ban Kilek households while men are abroad take responsibility over new tasks and perhaps gain increased self-confidence to move beyond the village.

The nature of cage culture and its corporate organization operate to both enhance and curtail mobility. The activity can boost mobility through company-sponsored seminars and site visits as well as increased income levels and asset ownership. However, corporate-organized cage culture is structured so that those involved do not have to leave the household or community for aquaculture-related reasons. The agro-industrial companies provide all of the production needs to the households and cages themselves, and thus, remove an economic reason for extra-community mobility. All cage culturists reported owning mobile phones, which are used for contacting companies and could substitute for actual physical mobility. At night, many culturists either turn lights on over cages or sleep near them to ensure that no fish are stolen, and these actions require proximity to the household and/or cages.

Additional aspects of cage culture contribute to the location of female culturists, in particular, in the household and community. Someone from the household must feed the cages three times a day, and this is usually performed by women (Kusakabe et al. 2003). Furthermore, women cage culturists do not participate in seminars at equal rates to men, and many women comment that their husbands or male relatives attend instead of them. Women reported receiving most of their information on cage culture through their male relatives and strong community networks, and not needing to leave the community to learn about the activity. Even though women cage culturists have high incomes, they exhibit similar mobility levels to women non-culturists rather than to other men cage culturists. Women's engagement in aquaculture is often viewed as an extension of their domestic responsibilities, reducing its social value and consideration as a productive activity (Kelkar 2001).

Conclusions and Recommendations

The livelihood transitions occurring throughout the farm sector in Thailand bring varied benefits to and impacts on each community. The diversification of the communities studied has widened job opportunities for the rural poor and realized the macrolevel objectives of economic growth and self-reliance. Many households continue to be involved in on-farm livelihood activities, and even in households dependent on non-farm income, rice cultivation remains an important agrarian activity for traditional and consumption purposes.

The diversification into freshwater aquaculture results in numerous benefits that vary significantly depending on the intensity of production. The introduction of subsistence pond culture to Ban Makha contributes to improved domestic food security and self-reliance, and in Ban Kilek, cage culture contributes to increased levels of incomes, assets and mobility. Cage culture brings additional benefits as a lucrative on-farm livelihood activity, providing a significant income source located within the community, which is important for Ban Kilek in which numerous residents migrate abroad to work. Furthermore, cage culture is not necessarily a mutually exclusive activity in which households must convert land or discontinue sending family members abroad. Ultimately, each type of culture has different but successful components of poverty alleviation initiatives.

Yet are these benefits distributed gender neutrally? The answer is no. Cage culture appears to bring significantly more benefits to men who can more readily access and utilize the benefits of increased incomes and asset ownership. Whether these benefits contribute to increased mobility levels or not, male cage culturists do experience more frequent movement beyond the community level. For female cage culturists, their mobility is not *restricted* per se, but rather continues to be *confined* to the intra-community level of other women. This persistence of low extra-community mobility is pertinent because these female cage culturists ideally have access to the same increased incomes and asset ownership as male cage culturists. Perhaps the corporate organization of cage culture, kinship networks, cultural norms and

household responsibilities act to maintain female cage culturists' mobility levels at customary levels. Additionally, these women's access to mobile phones could substitute for increases in physical mobility that may have otherwise been experienced.

Livelihood diversification is the direction of agrarian change occurring across the world, and involves gender differences in its impacts and benefits (Pingali 2004). Several recommendations are proposed to improve the distribution of benefits between men and women from diversifying into freshwater aquaculture:

- *Increasing leadership*: Support women's involvement in leadership positions in community aquaculture groups to increase access to networks and provide mentors.
- *Improving participation*: Increase women's involvement in company and DoF-sponsored seminars and site visits to other aquaculture systems to provide them with mobility beyond the household level and technical knowledge on aquaculture.
- *Providing support*: Strengthen the DoF's social policies and socioeconomic analysis of fisheries programs, improve gender mainstreaming of fisheries policies and gender training of DoF staff, and provide extension services to women.
- *Enabling access*: Provide workshops that discuss women's and men's transport needs and the factors that contribute to and hinder mobility levels.

An underlying recommendation is to address gendered power relations, which ultimately factor into the distribution of benefits among men and women. The survey suggests that currently imbalanced power relations are disabling women, especially female cage culturists, from experiencing the full gains of livelihood diversification. Unless some change in the direction of aquaculture policy occurs, however, few women will have the opportunity to claim such benefits.

Acknowledgements

I would like to thank Kyoko Kusakabe, Ubolratana Suntornratana, Nappaporn Sribuddhinipon and the Maha Sarakham Inland Fisheries Research and Development Center for their invaluable contributions and assistance; the Thailand-United States Fulbright Foundation for research funding; Penporn Paengkhamsaen, Pitak Pakkhetanang and Nong Jiraporn for their introduction to Maha Sarakham life and their help in the field survey; and the Ban Kilek and Ban Makha villagers for their time and generosity.

References

- Debashish, K.S., M. Shirin, F. Zaman, M. Ireland, G. Chapman and M.C. Nandeesh. 1999. Strategies for addressing gender issues through aquaculture programs: approaches in CARE Bangladesh. CARE Bangladesh, Dhaka, Bangladesh. 18 p.
- DoF (Department of Fisheries), Thailand. 2002. Development plan, project and activities of the Department of Fisheries 2002. Fisheries Policy and Planning Division, Bangkok, Thailand.
- Dwyer, D. and J. Bruce. 1988. A Home Divided: Women and Income in the Third World. Stanford University Press, Palo Alto, California. 289 p.
- The Economist. 2003. The promise of a blue revolution, *Economist* (9-15 Aug) 368 (8336): 19-21.
- Fernando, P. and G. Porter, (eds). 2002. Balancing the Load: Women, Gender and Transport. Zed Books, London, UK. 320 p.
- Goss, J., D. Burch and R.E. Rickson. 2000. Agri-food restructuring and Third World transnationals: Thailand, the CP Group and the global shrimp industry. *World Dev.* 28(3):513-530.
- Hanpongpanh, S. 2001. Diversification in rural development in Thailand. Paper presented at the Japan Program/INDES 2001 Conference, Japan. 16 p.
- Kabeer, N. 1994. Reversed Realities: Gender Hierarchies in Development Thought. Verso, London, U.K. 346 p.
- Kelkar, G. 2001. Gender concerns in aquaculture: women's roles and capabilities, p. 1-10. In: K.Kusakabe and G. Kelkar (eds), Gender concerns in aquaculture in SE Asia. *Gender Stud. Monogr.* 12, 102 p. Asian Institute of Technology, Bangkok, Thailand.
- Kusakabe, K. 2001. Intensification of aquaculture: does it empower women? p. 11-26. In: K. Kusakabe and G. Kelkar (eds), Gender concerns in aquaculture in SE Asia. *Gender Stud. Monogr.* 12, 102 p. Asian Institute

- of Technology, Bangkok, Thailand.
- Kusakabe, K., A. Korsieporn and U. Suntornratana. 2003. Gender and technology transfer in freshwater aquaculture: women's access to information in northeast Thailand. Asian Institute of Technology, Bangkok, Thailand. 50 p.
- Mashiri, M. and S. Mahapa. 2002. Social exclusion and rural transport: a road improvement project. In: P. Fernando and G. Porter (eds), *Balancing the Load: Women, Gender and Transport*. Zed Books, London, UK. 320 p.
- Massey, D. 1991. A global sense of place. In: T. Barnes and D. Gregory (eds), *Reading Human Geography: The Poetics and Politics of Inquiry*. Arnold, London, UK.
- Matin, N., M. Mukib, H. Begum and D. Khanam. 2002. Women's empowerment and physical mobility: implications for developing rural transport, Bangladesh. In: P. Fernando and G. Porter (eds), *Balancing the Load: Women, Gender and Transport*. Zed Books, London, UK. 320 p.
- Nandeeshha, M.C. 1994. Aquaculture in Cambodia. *Infofish Int.* 2: 42-48.
- Pingali, P. 2004. Agricultural diversification: opportunities and constraints. Food and Agriculture Organization Rice Conference, Rome, Italy. Accessed from www.fao.org/rice2004/en/pdf/pingali.pdf
- Pingali, P., M. Hossain and R. Gerpacio. 1997. *Asian Rice Bowls: The Returning Crisis*. CAB International, New York, USA.
- Rigg, J. and S. Nattapoolwat. 2001. Embracing the global in Thailand: activism and pragmatism in an era of deagrarianization. *World Dev.* 29(6): 945-960.
- Stiglitz, J. 2002. *Globalization and its Discontents*. W.W. Norton and Co., New York, USA. 304 p.
- Voeten, J. and B.J. Ottens. 1997. Gender training in aquaculture in northeastern Vietnam: a report. *Gender, Technol. Dev.* 1(3): 413-432.
- WorldFish Center. 2003. A selected bibliography on tilapia (Pisces: Cichlidae). *WorldFish Bib.* 13 (Suppl. 1). WorldFish Center, Penang, Malaysia. 209 p.

Bibliography

- Bello, W., S. Cunningham and P. Li Kheng. 1998. *A Siamese Tragedy: Development and Disintegration in Modern Thailand*. Zed Books, London, UK. 256 p.
- Kusakabe, K. 2003. Women's involvement in small-scale aquaculture in northeast Thailand. *Dev. Practice* 13(4): 333-345.
- Marsden, T., P. Lowe and S. Whatmore, (Eds) 1990. *Rural Restructuring: Global Processes and Their Responses*. David Fulton, London, UK.
- Nartsupha, C. 1999. *The Thai Village Economy in the Past*. Silkworm Books, Chiang Mai, Thailand. (Translation by C. Baker and Pasuk Phongpaichit). 131 p.
- Nissapa, A. and S. Boromthanasat. 2002. Analysis of policies, institutional and support services in fisheries. Draft Rep. Prince of Songkla University, Hat Yai, Thailand.
- Siar, S. 2003. Knowledge, gender, and resources in small-scale fishing: the case of Honda Bay, Palawan, Philippines. *Environ. Manage.* 31(5):569-580.
- UNDP (United Nations Development Programme). 2003. *Thailand human development report 2003*. UNDP, Bangkok, Thailand. 153 p.
- World Bank. 2004. Thailand overview: country brief. Accessed in June 2004 from <http://www.worldbank.org>

Appendix: Survey Instrument Used in Research

Demographics

What is your name, age and gender?

Where do you live and how long have you lived there?

Are you married?

How many children do you have, and how many people reside in your household?

How many years of schooling do you have?

Aquaculture activity

Are you involved in cage/pond culture?

Do you have your own and/or group cages/ponds?

If you are not involved in aquaculture, why? Do you want to have cages/ponds?

Group:

How many households are involved in the group?
How many cages/ponds does the group have?
How many years has the group existed?
What was the income earned last harvest (and on average)? How many harvests per year?
From which company do you buy feed and fingerlings?
Do you sell to middlepersons from the same company where you purchase feed and/or fingerlings?
Last harvest, to whom did you sell fish?
Do you consider the group to be company-independent?
Are you a member of any community groups?

Own:

How many cages/ponds do you have?
How many years have you had cages/ponds?
What was the income earned last harvest (and on average)? How many harvests per year?
What is the size of cages/ponds?
From which company do you buy feed and fingerlings?
How many bags of feed do you use per harvest? How often do you feed fish?
Why did you build the cages/ponds? What benefits did you derive from these?
Have you worked with this company the whole time you have done cage/pond culture?
Do you sell to middlepersons from the same company where you purchase feed and/or fingerlings?
Last harvest, to whom did you sell fish?
Who in the family goes to look for fingerlings and to market fish? Where? How? How often?
Who goes to contact officers of DoF, CP, etc.?
Do you consider yourself to be company-independent?
What did you do before becoming involved in aquaculture?
How does your income compare to pre-aquaculture on 1 2 3 scale?

Economic activities

Do you have land? How many *rai*? What is it used for?
How many rice harvests do you farm per year? Is the rice for consumption and/or sale?
How much did you earn last harvest?
Do you grow any fruits and/or vegetables? For consumption and/or sale?
Do you have water buffalo? Cattle? Chickens?
(In Ban Kilek) Does anyone in your family fish in the Chi River? For consumption and/or sale?
What other economic activities are you involved in? How much income is accrued from these?
Have you ever worked in Bangkok and/or abroad? Do any family members work abroad?
Do they and/or other family members send money to you?
What is the primary source of income in your household?
How does your income compare to 5 years ago on 1 2 3 scale?

Mobility

Do you have a bicycle? Motorbike? Car? Mobile phone? Others?

If you have a motorbike and/or car, can you drive it/them yourself? Is safety a concern?

In considering the following places, please answer the questions: How many times did you go there? How did you get there? What was the purpose of going?

Neighbors' houses

Relatives' houses in the *ban* (village)

Neighboring *tambon* (subdistrict)

Maharakham town

Other Maharakham *amphor* (district)

Other provinces

Fields (rice/vegetable/fruit)

Cages/ponds

What is the farthest place you have been to? What was the purpose of your travel?

Last month did you travel outside Maha Sarakham province? If so, where? What was the purpose of your travel? How long were you away?

Do you view any difference in the purpose, distance and frequency of movement outside the home between men and women? Is so, why?

Do you view any difference in the safety between men and women traveling?

GENDER AND GENERATION: CRUCIAL ASPECTS OF LOCAL FISHERIES MANAGEMENT ON LELEPA ISLAND, VANUATU

J. TARISESEI

Vanuatu Cultural Centre
Port Vila, Vanuatu

I. NOVACZEK

Institute of Island Studies
University of Prince Edward Island
550 University Avenue, Charlottetown, PE
Canada C1A 4P3
inovaczek@upei.ca

Abstract

Lelepa is a small island off the northwestern coast of Efate in central Vanuatu. Typically, livelihoods depend on a mix of subsistence and small-scale commercial fishing, farming and handcraft production. The main sources of protein for families are fish and shellfish. The history of the inshore fisheries of Lelepa Island is the story of changing technologies, changing gender roles and, most profoundly, changing needs and priorities of fisherpeople. Over time, marine species have developed a market value and new infrastructure has allowed for transportation to an urban market, prompting a shift from fishing for community food to fishing for personal income. Through commercialization and overharvesting, fisheries habitats have been degraded and fish and shellfish stocks depleted. Since the mid-1990s, the people of Lelepa have embarked on a process of local management through a process led and dominated by elder males in the community. Constraints of history and culture work against the inclusion of women and youth, two groups who are central agents in harvesting. The views of men and women, elders and youth reveal a basic lack of communication around marine resource issues and a tendency to label "the other" as destructive, greedy or ignorant. Until this changes, the prospects for the future are poor. The knowledge and energies of women and youth are needed for successful local management.

Introduction: The Changing Fisheries of Vanuatu

In recent decades and especially since national independence in 1980, the desire to develop and join the cash economy has led rural people in Vanuatu to harvest marine resources for commercial purposes, in contrast to their tradition of communal sharing of fish and shellfish. Many communities also allow outside interests such as the aquarium trade to harvest corals, clams and small fish from their reefs in return for access fees. In the case of Lelepa Island off north Efate in Vanuatu, increased fishing pressure has caused a once abundant inshore fishery to decline. The need for resource management has been recognized and acted upon by

the community. Yet, finding the balance among subsistence needs, economic development and resource conservation continues to be difficult and contentious. This case study explores how culturally defined gender roles and traditional power relationships between genders and among generations influence marine resource use, management approaches and compliance or resistance to fisheries rules.

Methods

Researchers from the Vanuatu Cultural Centre in Port Vila, Vanuatu, performed interviews and on-site observation to document traditional harvesting and management practices on Lelepa in 1999-2001. Additional research in November 2003 focused on the history of fishing technologies, changes in the marine environment, village governance, gender roles and attitudes, and fishing activities of youth and elders. Research methods were village observation and semi-structured interviews with key informants, including males and females ranging in age from 12 to 80 years.

Lelepa Island

Lelepa is a tiny island on the northwestern side of the island of Efate in central Vanuatu, only a half-hour drive from the capital of the country, Port Vila. On the island, 7 small villages are occupied by about 350 people spread among 80 households. Close to half (41%) of the people are under the age of 15. Only 8% are elders over age 60 (NSO 2000). It is said that two or three new houses are added to the villages every year. The population, however, does not grow as rapidly as it could because most young women marry into communities on other islands. Conversely, many of the women living on Lelepa have migrated in from other islands to marry local men and therefore are "outsiders" relative to the local power structures. Most people share a common religion and the Presbyterian Church is central to village life.

Lelepa people originally came from the mainland of Efate, so they own extensive lands on the Efate coast and also control the fishing grounds attached to these lands. Each clan that came to settle on Lelepa had a hereditary chief. Currently there are twelve "small chiefs" on the island, under the authority of one paramount chief. The Council of Chiefs meets to make decisions affecting the entire island. Customary police appointed by the paramount chief enforce local traditional laws, for example against theft and violent behavior. Council activities are funded by various resource access fees and fines levied on people who break customary laws.

The land base of Lelepa is owned by individual families, who may sell it if they wish. In contrast, the marine territory is held in common, with access controlled by the small chiefs whose clans own the adjacent land. Most families have a small garden on Lelepa as well as larger gardens on Efate. People subsist mainly on their garden crops, shellfish, crabs and fish.

In addition to the food they grow themselves, Lelepa people require cash for shop goods such as sugar, tea, kerosene, soap, tools and clothes. Cash is also needed for school fees and church contributions. Income is derived from sales of coconut crabs, land crabs, garden vegetables, marine products and handicrafts. A few people, mostly men, hold office jobs in Port Vila, do construction work or work in tourism. Tourism operators wanting to bring people into Lelepa waters must pay an access fee to the paramount chief.

The History of Change in the Lelepa Fisheries

Elders on Lelepa remember when there were few people and many fish. They also say that gender roles in the fisheries were firm in the early part of the twentieth century. Only women collected *Trochus* and other shells for food, while men used hand spears to capture fish. Fish were shared among households in those days; there was no such thing as a commercial sale. Gender roles in the fisheries began to change when *Trochus* became commercially valuable and men entered the shell fishery to earn cash. Over time, the harvesting intensity on *Trochus*

increased and harvesting spread over wider areas. Men also became active harvesters of other shellfish. Today, men often collect a variety of shells to eat while on fishing trips.

New fishing technologies prompted further changes in gender roles. By the 1940s, fishing lines and hooks had been introduced and these were adopted by women as well as men. Thus, women entered the finfishery. Modern spear guns replaced the early home-made spears and underwater torches allowed men to spear fish as these slept on the reef at night. Nets were introduced in the 1970s and these, like spear guns, remained exclusively male technologies. People believe that net fishing has caused some species to become scarce. Elders also complain that driving fish into nets and chasing them with spear guns has made them wary and more difficult to catch.

The 1980s brought national independence and a new emphasis on development of export fisheries. Motor boats with reels for fishing red snapper came into use and once again, it was men who acquired the new technology.

By the early 1970s, Lelepa people had begun to sell fish in Port Vila. The elders say that because of the increased pressure to catch fish for sale, by the end of the 1970s Lelepa's marine resources were already in decline. In addition to increasing pressure from new technologies and commercialization, the health of Lelepa fisheries has been affected by the destruction of coral reef habitat through both natural disasters (earthquakes and cyclones) and human activities such as trampling and the anchoring of boats.

Today, women provide family food primarily by diving for shellfish and octopus. However, green snails may be locally extinct, *Trochus* are uncommon, giant clams are much smaller and even the more common edible shellfish are much less abundant than in the past. Fishers report that many of the big fish, especially wrasse and grouper, are now rare. Deepwater reel fishers can no longer catch large red snapper close to shore but must fish in ever-deeper water.

The local fish trader who bought reef and deepwater fish in Lelepa from 1986 to 2002 bears witness to the decline of inshore fisheries. Whereas he could buy up to 120 kg of fish a day from Lelepa fishers in the late 1980s, 10 years later he would be lucky to go to market with 30 or 40 kg, even though the number of fishers was the same. The current fish buyer in Lelepa sells to a supermarket in the capital city. He provides a guaranteed market and immediate pay for men and women fishers. Thus, even though their resource is in decline, Lelepa people are encouraged to maximize their fish catch, and most of the fish caught go to the market rather than to local homes.

Outside Interests in the Fisheries: Bêche de Mer and Aquarium Traders

Bêche de mer (sea cucumbers) are delicacies in the Asian market but in Lelepa they were not recognized as edible until the late 1970s. At that time, a harvest was arranged to raise money to renovate the church, and the sea cucumbers were quickly fished out. In the late 1990s, a second harvest was attempted but village people felt that taking out the sea cucumbers affected the quality of the water and so the harvest was called off after about three months.

In recent years, foreign-owned companies have begun to collect small fish, live corals and juvenile giant clams for the North American and European aquarium markets. The companies pay each small chief for access to waters adjoining clan land. No one monitors what or how much the divers take or what technologies are used. Definitive scientific information on the impact of aquarium fisheries is lacking (Hughes and Connell 1999) and the possibility that these activities will have long-term, negative impacts on reefs (Pyle 1993; Sauni et al. 2004) causes concern among some elders in Lelepa. The paramount chief claims that the Council of Chiefs lacks the expertise needed to control aquarium fisheries.

The Evolution of Local Management Practices

Chiefs demand fees from commercial enterprises targeting the fishing grounds of Lelepa, and local fishers chase away interlopers from outside communities who try to fish on their territory. Thus, traditional tenure restricts access and controls fishing effort to some degree. Gender expectations in society also limit fishing pressure by limiting the access of women to the more powerful fishing technologies. But, in spite of the limits to fishing that exist, resources have been declining noticeably since at least the 1970s. Today, demand for fish and shellfish outstrips supply.

In the distant past, according to the elders, there were no controls placed on fishing because people were few and fish was only for food, not for sale. From about the 1960s, the paramount chief controlled the commercial *Trochus* harvest by placing temporary harvest bans on the reefs. When a ban was lifted, generally near Christmas time, divers were allowed to take only the larger shells.

In the early 1990s, the paramount chief, inspired by these historical bans, banned the collection of *Trochus* and green snails throughout the Lelepa fishing grounds. However, poachers from other communities still took them and Lelepa men and women also freely admitted to violating this ban. Although some villagers reported violations to the chief, enforcement was weak.

After setting in place the ban on green snail and *Trochus*, the paramount chief decided that a marine protected area was needed to conserve fish. Support for this move had been building for some time. In the 1980s, information about community-based resource management reached Lelepa. Government departments of fisheries and environment reinforced the message through radio programs that urged Vanuatu people to be environmentally conscious. A third influence came from the Vanuatu Cultural Centre, whose field workers have a mandate to promote environmental responsibility. When a fisheries biologist came to the island to do research, he recommended that steps be taken to protect the fisheries. The elders of Lelepa also exerted considerable influence on the debate by relating how marine resources had declined over time.

The chiefs decided that the best location for a protected area would be the degraded reef directly in front of the villages, because everyone could help monitor it. They prohibit fishing along 2 km of shore, extending from the beach to the reef crest. However, fishing from a canoe just outside of the reef crest is still allowed, even though this removes some fish that are supposed to be protected. Now that the ban has been in place for more than 6 years, people report that fish and shellfish, including *Trochus* and giant clams, are increasing in the protected area but are still much less than they were long ago.

Many fishers objected to the idea of a protected area. According to the women, the men were upset because for them, the fishing area in front of the village was the easiest place to make quick money. Young men who objected were simply told that it was for their own good, but they remained unconvinced. For women, the decision had other ramifications. The need to travel up to 1 km to gather shells for food meant that for many elderly women, their fishing days were over. Older women had to depend more on their children and grandchildren for food, and also shouldered greater child care responsibilities when young mothers went fishing. Although some women at first resisted the idea of a ban, they have come to see the protected area as a necessary inconvenience that they support for the sake of their children.

When interviewed, village men claimed that the protected area was entirely their doing, as women had neither expressed concern about resources nor openly favored the ban when it was proposed. The women agreed that until the elders started to talk about it, they did not

realize how badly the marine resources had been degraded. Women said nothing during the chief's meeting because traditionally they are not allowed to speak in public. Some women also felt that if they had spoken up in favor of the ban, that might have made the men reject the idea.

The majority of men interviewed voiced the opinion that women did not care about the future of the fisheries. The entry of women into commercial fisheries was characterized as greedy. Women were blamed for breaking the *Trochus* ban and for collecting too many shells, even though men are also active shell harvesters. This gender stereotype may reflect the fact that women's fishing power and economic options are limited, yet they are expected to provide food and cash for their families. This leads women to maximize fishing effort, hence edible shells and fish are collected regardless of size. When asked why they need money, women always say: for family food, school fees and church contributions. Although hard pressed to support their families, women do not lack understanding of the need for conservation. They play an important and unacknowledged role in educating young children to refrain from picking shells or harming fish in the protected area.

Opening the Protected Area

Although in theory there is a permanent ban on fishing, there are occasions when the paramount chief opens the protected area. If the ban is lifted to collect food for a church meeting, village people do not object. Occasionally, near Christmas time, if *Trochus* in the protected area are deemed to be large and abundant, the chief lifts the ban on *Trochus* only and allows each diver to take one bag full of shells. This is also accepted.

Much more contentious is when the paramount chief allows outsiders to take protected resources in return for a fee. In the late 1990s, for example, he allowed aquarium trade divers to harvest small blue fish from the protected area, until complaints from the community convinced him to cancel the deal. Several years later, the small chiefs sent divers into the protected area to take clams to sell to the aquarium trade. For many young men, this was the point at which the Council of Chiefs lost its legitimacy. The perception that the chiefs are willing to break their own rules for personal financial gain has led to problems with compliance.

Every year, some people are brought in front of the Council of Chiefs to be punished for fishing in the protected area. For the young men, the protected area is a symbol of chiefly authority; breaking the fishing ban is their way of voicing objections to the paramount chief's decisions and showing contempt for the small chiefs. Other villagers, including the custom police, have given up trying to enforce the ban on certain strong-willed young men.

Future Management Options

Although the shells and fish in the protected area show signs of recovery, the Lelepa fishing ground generally continues to decline. When asked what options they have for management of the fisheries, most people could only suggest extending the ban on fishing to other areas. However, because people depend so heavily on marine resources, the extension of protected areas could cause real hardship and enforcement would be very difficult. The paramount chief would like to see more active federal government support for the enforcement of traditional bans.

A young man suggested reducing access to the fishing grounds by outsiders. Women suggested that a ban could be put on all shell fishing because they could turn to gardening or handicrafts to raise money. However, women could not imagine developing a management strategy of their own and doing it voluntarily. They felt that any ban had to come from the chief, and

even then the men might not accept it. A variation on this was the suggestion that seasonal bans be employed so that people would focus on their gardens during the months when these are most productive, and go shell fishing in months (April-July) that have the largest full moon tides.

In response to problems in inshore fisheries, the number of village-based marine resource management measures implemented in Vanuatu more than doubled between 1993 and 2001 (Hickey and Johannes 2002). Some chiefs have banned both night fishing with spear guns and use of gill nets (Johannes 1998). In Lelepa, the chiefs also considered this approach, but were met with resistance from fishers who had invested in these relatively costly technologies.

Elders bemoan the erosion of traditional cultural values and note that resources could be conserved if young people shared more and reduced their need for cash. A return to traditional ways does not, however, seem likely in light of the growing needs for cash in a globalizing economy.

Whatever the Lelepa people decide to do to secure their future, there are a number of critical factors necessary for success. These mirror findings from an analysis of traditional management institutions in eastern Indonesia (Novaczek et al. 2001). Legitimate leadership is required, meaning that chiefs must regain the trust of the people and resist the temptation to profit from marine resources that are the common property of the community. The equitable sharing of the benefits and sacrifices attached to local management is also important, and public education is essential so that people understand the reasons behind new management rules.

Both women and youth in Lelepa represent a largely untapped power that could become a force for conservation and management. Currently, young men appear powerless to do anything except engage in destructive activities as a form of political protest. They are particularly sensitive to perceived inequities in the distribution of benefits from the fisheries. Unfortunately, there is at present little communication between men and women, and also between youth and their elders, on topics related to fisheries and resource management. Unhelpful stereotypes prevail. Some men paint women as mindless and destructive harvesters, whereas some women view men as selfish and unwilling to listen. Youths are dismissed as troublemakers, while elders are assumed to be corrupt. In reality, no party fits neatly into a category of "good" or "bad". All are struggling with forces of modernization and demands for cash that are beyond their control, while trying to maintain the sense of place and self-esteem that are enmeshed with culture and tradition.

Men, women and youth all need to be recognized as legitimate stakeholders who have something positive to offer in the process of resolving problems in the fisheries. Traditional norms stifle women's public voices. Both women and youth are excluded from decision making. Opening up the dialogue may seem dangerous to some because it contravenes these cultural norms. Custom is not, however, a static edifice. Culture is a living and mutable social arrangement and as such it is open to negotiation. In Melanesia especially, traditional institutions have "a virtually unlimited capacity for accommodating new things" (Hviding 1998). The history of Lelepa shows that gender and generational roles, which influence the shape and success of resource management arrangements, have been changing steadily through time. Surely, they will continue to change. The challenge is to identify and promote the types of change that maintain the best of traditional ethics, accommodate new ideas, and ultimately allow for sound and equitable resource management.

References

- Hickey, F.R. and R.E. Johannes. 2002. Recent evolution of village-based marine resource management in Vanuatu. *SPC Trad. Mar. Resour. Manage. Knowledge Inf. Bull.* 14: 8-21.
- Hughes, T.P. and J.H. Connell. 1999. Multiple stressors on coral reefs: a long-term perspective. *Limnol. Oceanogr.* 44: 932-940.

- Hviding, E. 1998. Contextual flexibility: present status and future of customary marine tenure in Solomon Islands. *Ocean Coast. Manage.* 40: 253-269.
- Johannes, R.E. 1998. Government-supported, village-based management of marine resources in Vanuatu. *Ocean Coast. Manage.* 40: 165-186.
- Novaczek, I., I. Harkes, J. Sopacua and M. Tatuhey. 2001. An institutional analysis of sasi laut in Maluku. ICLARM Tech. Rep. 59, 397 p.
- NSO (National Statistics Office). 2000. The 1999 Vanuatu national population and housing census - main report. NSO, Vanuatu.
- Pyle, R.L. 1993. Chapter 6: Marine aquarium fish. p. 135-176. In: A. Wright and L. Hill (eds), *Nearshore marine resources of the South Pacific*. Institute of Pacific Studies, University of the South Pacific, Forum Fisheries Agency, and International Centre for Ocean Development, Suva, Fiji.
- Sauni, S., M. Kronen, A. Vunisea, L. Fay-Sauni and P. Labrosse. 2005. Is it worth the cost? The live rock fishery at Muaivusu qoliqoli, Fiji. In: I. Novaczek, J. Mitchell and J. Veitayaki (eds), *Pacific voices: equity and sustainability in Pacific Islands fisheries*. Institute of Pacific Studies, University of the South Pacific, Suva, Fiji.

FISHING: WHAT HAS HIV/AIDS GOT TO DO WITH IT?

S.B. WILLIAMS

Department of Agricultural Economics
Obafemi Awolowo University
Ile-Ife, Nigeria
swilliams@oauife.edu.ng

B.F. DADA

Federal Ministry of Agriculture and Rural Development
Garki, Zone 11, Abuja, FCT, Nigeria
agricnigeria@yahoo.com

G.N. SHIMANG

Federal Ministry of Agriculture and Rural Development
Garki, Zone 11, Abuja, FCT, Nigeria
gshimang@yahoo.com

O.O. WILLIAMS

PANAFSTRAG
302 Iju Waterworks Road
Iju-Isaga, Agege, Lagos State, Nigeria
Buky81@hotmail.com

Abstract

Some 75% of the people around the world who have the human immunodeficiency virus (HIV) and the medical condition, acquired immune deficiency syndrome (AIDS), are not aware that they have contracted the virus. This is the case in all the fishing communities in Nigeria as well as in other fishing and rural communities in sub-Saharan Africa. As of the end of 2003, the Joint United Nations Programme on HIV and AIDS (UNAIDS) reported that 25 million Africans are living with the disease. As of 2003, the population of Nigeria has increased to 120 million and of these 3.6 million (3%) are living with HIV/AIDS. There is no record of those in fishing communities that have been infected due to the fact that they have not gone for medical tests because of the stigma attached to those who have been diagnosed with the infection. There is a culture of polygamy in most fishing communities; the many wives of fishers are very susceptible to getting infected out of ignorance and the cultural belief of not denying their husbands when they demand sexual favors. Young adolescent girls and women too are at risk of getting infected because of the declining household incomes especially in the rural fishing communities where family members, in particular the fishers, have become less productive. Children of fishers are forced to leave school or college and to get employment. They become involved in crimes, and some even become sex workers. There is no cure for HIV/AIDS and more people will become infected in the future if nothing is done to create awareness of the pandemic. It is heartening therefore to

observe that young people globally are taking up advocacy roles. In fishing communities in Nigeria and the Cameroon, for example, there are nongovernmental organizations (NGOs) that are actively involved in educating youths through peer-group meetings and civil society programs.

Introduction

Some 75% of the people around the world who are infected with HIV and its medical condition, AIDS do not know it because they have no way of getting tested (POZ Pandemic 2003). One in 20 of sub-Saharan African children have lost both parents to the disease because only 0.1% of sub-Saharan Africans have access to anti-retroviral drugs compared to 100% of Brazilians. The HIV/AIDS infection was initially discovered in the late 1970s when the first few cases came to the limelight in Western Europe and North America. By the 1980s, it was discovered to have been in existence for much longer and was believed to have originated in Central Africa. By the end of 2003, sub-Saharan Africa accounted for about 70% of the world's HIV infected population (UNAIDS 2004). In 2000, Nigeria was ranked the tenth most populous nation in the world with a population of 117 million. At present, Nigeria is the most populous country in West Africa, and one in every six Africans is a Nigerian! By the end of 2003, Nigeria's population had risen to 120 million of which 3.6 million (3%) have been diagnosed as living with HIV/AIDS. With an HIV/AIDS adult prevalence rate of 5.8%, Nigeria has been declared as the next hardest hit country by HIV/AIDS behind South Africa.

Famous People with HIV/AIDS in Africa

According to most scientists, there are two strains of HIV/AIDS found in sub-Saharan Africa; these are HIV1 and HIV2. HIV2 is a milder form of the virus; it is less lethal and transmissible when compared to HIV1. The first case of HIV/AIDS was discovered in Nigeria in 1986 but the case did not raise any anxiety in the country. It was treated as an exception or anomaly until the internationally renowned and acclaimed Afro-jazz musician, Fela Anikulapo-Kuti, died of AIDS in 1997. Until 1997, most people thought that it only affected foreigners and workers in the city or urban areas so they had nothing to worry about. Research interests were limited to sex workers and other workers who resided in the cities, and no one initiated similar research in rural communities, in particular fishing communities. The high profile death of Mr. Kuti brought the issue of HIV/AIDS to the forefront in Nigeria as a national issue, but not much has been done since then due to the political, economic, ethnic and cultural issues within the country.

One person has made history in East Africa, the Rev. Canon Gideon Byamugisha of Uganda was diagnosed as HIV positive and is still living with the disease. He is in his 40s and is the first Anglican priest to publicly declare his status with regard to the disease. His wife died from the infection some years back and he has since re-married. His new wife is a widow whose husband died of HIV/AIDS and she too is at present living with HIV/AIDS. They have both helped to bring awareness to their community about the disease and the possibility of a life after infection, working through the church and NGOs like World Vision, and Reproductive and General Health Program.

More recently, the eldest son of Madibo Mandela, Africa's political sage and past president of South Africa, died of the disease. The statesman did not hide the fact that his son died of HIV/AIDS. This is a positive promotion for continued creation of awareness for others to learn that this is a scourge that must be contained and this can only be done through educating the people that this disease is real and it is easy to get infected through unsafe sexual behavior.

Fishing: What has HIV/AIDS got to do with it?

Fishing is a very important livelihood for people who live and work in the coastal areas of the Atlantic Ocean and the Gulf of Guinea, West Africa. The majority of the fishers from Nigeria, Benin, Ghana and Togo move up and down the West African coastline in search of fish stocks. HIV/AIDS infection in fishing communities that is scattered all over Nigeria should be investigated and awareness should be created to ensure that those residing in these areas know that HIV/AIDS is a serious medical problem. During the 1970s/1980s when it became a global issue, many people in the sub-Saharan continent denied its existence, until the death of some eminent Africans. Most of the research work and disease diagnosis are restricted to the urban metropolis where people think that sex workers are in high numbers. However, the sexual lifestyles of fishers are also in question, with the majority of them having multiple sex partners. Fishers need to be provided with information and to be tested for the disease to ensure that those who have contracted the infection do not spread it.

What has HIV/AIDS got to do with fishing? "Nothing I suppose" is the response from most people. They forget that fishers in Nigeria, like those in other parts of the world, are migratory by nature and might have multiple sex partners. Therefore, there is a need to research the issues of HIV/AIDS among fishers in sub-Saharan Africa. Studies have shown that the prevalence of HIV among adults has been steadily increasing. In 1990, the estimate was 1.9%; 3.8% in 1994; 4.5% in 1995; and the most recent figures were 5.4% in 1999 and 12% in 2004. There are currently 250,000 deaths related to HIV/AIDS and the number is expected to increase to 5 million within the next 10 years (Badejo 2004).

The population living with HIV/AIDS is already 3.5 million and this number is projected to triple by 2010. As of 2003, only 0.1% of sub-Saharan Africans have access to anti-retroviral drugs, which are out of the reach of rural communities such as fishing villages. The statistics are staggering and the steps taken by the Nigerian Government need to be more urgent and targeted. Efforts must also be made to target fishing communities. The political and economic instability in Nigeria is curtailing the work being done by the new political administration to fight the spread of HIV/AIDS, especially in fishing communities. Nigeria had been under military rule for the past 16 years until the transition to civilian rule dating back to 29 May 1999. The new President, Chief Olusegun Obasanjo, has been more pro-active in dealing with the problem than other presidents, but, he still has some more obstacles to overcome due to the volatility of the political situation.

Effects of HIV/AIDS

The disease is likely to negatively impact almost all sectors of the Nigerian society, including all the fishing areas by 2010. HIV/AIDS will take a heavy economic toll on the population by robbing the countries in sub-Saharan Africa of many key government and business elites and by discouraging foreign investment, although the oil sector is unlikely to be hurt significantly. The professional classes in Nigeria, like other African countries are more vulnerable in comparison to other next-wave countries because adult prevalence rates are already high. The drag of HIV/AIDS on economic growth will further reduce the ability of the government to handle the rising social and health care costs. The further deterioration of the already weak government institutions by the escalating HIV/AIDS crisis could affect Nigeria the way it affected Ethiopia. Nigeria's ability to continue playing a regional leadership role may be compromised. HIV/AIDS probably will complicate staffing in the military officer corps of the two countries as it has in other African states. Ethiopia is more likely to suffer military human resource shortages through the lower ranks. Rising social tensions over HIV/AIDS and related economic problems could exacerbate regional and ethnic tensions within Nigeria and Ethiopia while leaving both governments less able to manage the problems.

The hardest hit population group is “young and middle-aged adults between the ages of 15 and 45”. Most of them are breadwinners and that is an important loss of income for their families. Family members would have to drop out of school due to ill health and the state will have to take care of them. The number of orphans (which at present stands at 1.4 million) left behind by this sector of the population will put further strain on the already strained economy. The implications of HIV/AIDS on the economy of Nigeria, as is the overall case in sub-Saharan Africa, are hard to determine but the prospect is bleak at this point in time. Countries like Uganda have taken a bold step to address the situation. The Food and Agriculture Organization of the UN has developed guidelines for extension agents (FAO 2004).

Constraints in the Fight on HIV/AIDS

Political will

Nigeria’s population is made up of 250 ethnic groups and this has led to a power struggle among the different groups. One of the criticisms of the HIV/AIDS program in Nigeria is the lack of political will by the government. According to some journalists in Nigeria, the “unstable political situation, lack of political will, commitment and involvement” have made the fight against ignorance and HIV/AIDS education very difficult. The effectiveness of the government has been hampered by the ethnic and political tensions fueled by the numerous socioeconomic crises in the country especially in the Niger Delta area. Many of the programs relating to HIV/AIDS created by the government are funded by foreign aid from the United States of America.

Nigeria is one of the poorest countries in the world even though it is one of the major oil producers. Corruption and mismanagement have wasted the economic potential of a resource-rich state under military rule. This has led to a dependence on donors for the funding of most of the research projects and medical treatments needed to implement programs to fight HIV/AIDS. In spite of all of these problems, the government is taking steps towards spreading awareness about HIV/AIDS. This government has progressed a lot further than the previous governments. In the previous regimes, all the funding was disbursed to NGOs. Now some of the funding is disbursed to the government due to the dedication of the new president’s efforts to prevent the raging spread of HIV/AIDS. The present government has initiated programs and a framework with which to address the issue of HIV/AIDS. The new government created the national committee against HIV/AIDS and also a civil society consultative group on HIV/AIDS. It has also tried to build partnerships with private enterprises and corporations such as Coca-Cola to use their influence to support these programs. There has also been the creation of phone help-lines to support those with HIV/AIDS especially in the cities and towns. The government has also created a framework to fight HIV/AIDS. However, the successes of these efforts have been slow because of the lack of political will and commitment to thoroughly execute the plans. The impact of the lack of political will and commitment by the government will lead to serious future problems in Nigeria.

Religion and ethnicity

There are several other deterrents that hinder the work to reduce the scourge of HIV/AIDS in Nigeria. The life of the people in Nigeria is heavily influenced by religion and ethnicity. The way of life is a lot harder to change in comparison to a change in regime. The influence of religion and ethnicity has made the spread of awareness and knowledge about HIV/AIDS a lot more difficult. Discussion of sex is taboo in most communities and this makes it hard for HIV/AIDS education to spread awareness about the disease. The main mode of transmission is through heterosexual transmission and the only way to control the spread of HIV/AIDS would be through educating the people about the role of sex in the fight against HIV/AIDS. Ethnic practices such as polygamy, female genital mutilation and the second-class position of women have made the task of overcoming HIV/AIDS so much more difficult. Prostitution

and promiscuity is very evident in Nigeria and these practices fuel the spread of HIV/AIDS. Sex workers and their clients are a part of the population most at risk in the contraction of HIV/AIDS. The level of contraceptive use in Nigeria is very low. Some studies have shown that most Nigerians do not use contraceptives when having sexual relations with multiple partners including prostitutes. The level of education, religion and closeness of the couple play important roles in the degree of extramarital relations (Isiugo-Abanihe 1994).

Since the last Asian Fisheries Society Conference in Taiwan, it is a delight to report that the presentation on HIV/AIDS at the Global Gender and Fisheries Workshop has motivated youth involvement through the establishment of an NGO operated principally by young people (females and males) in some of the fishing communities in West Africa to educate people in their communities about the dreaded disease. These young people are serious about their advocacy roles and have been very committed to their tasks. These youths need to be encouraged by assisting them with funds to continue the work they have started. In Yaounde, Cameroon, the youth NGO's fight against HIV/AIDS received some funds from the Swedish Development Cooperation Agency (SIDA), to carry out educational promotion on how to avoid the pandemic. In South Africa, to celebrate the 17th World AIDS Day, there was a release of a film entitled "Yesterday!" The story is based on a young mother who was infected by her husband, a mine worker. She was helped to finally go to the hospital where she was diagnosed after a number of struggles. She visited her husband to inquire about his involvement. He was angry with her and would not talk to her. In the end, the disease won and he had to return home to her. She had to take care of him. The lesson from the film is that 'Yesterday' is the story of 'Tomorrow'. This is the case in all fishing communities. The people residing in these communities, especially the women and children, are infected with HIV/AIDS as a result of their husbands' and fathers' sexual activities. These women and children are "Yesterday's" products! What are we as researchers and policymakers doing to help these people in our fishing communities?

Need for Awareness and Education

Will they too become "Tomorrow's" showcase? Fishing communities: what has HIV/AIDS got to do with it? Plenty, my friends, plenty. Let us all join in the fight against this pandemic and help with education of the people by creating an enabling environment where people have the information. Information is knowledge and knowledge is power. Let us give the fishers the power to fight back.

People infected with HIV/AIDS run the risk of social stigmatization as well as discrimination. Most Nigerians believe that HIV/AIDS is caused by evil forces and evil curses that have been put on them by their enemies. Most of the people also believe that it is God's way of punishing people for things they have done, so HIV/AIDS sufferers deserve to be punished. This has led to the belief that HIV/AIDS can only be cured by miraculous healings. So instead of seeking medical treatment, they seek cures from religious institutions, such as churches and mosques, and from traditional medicine practices. They believe that HIV/AIDS is caused by their enemies and evil doers rather than the fact that HIV/AIDS is spread by their sexual practices, and this is reinforced by some religious institutions. The sexual behaviors of Nigerians are determined by their cultural and ethnic beliefs. Many of them practice polygamy and genital mutilation of their female children. They also believe that women are second-class citizens. It is acceptable for men to sleep with prostitutes and then go back home and sleep with their wives, thereby infecting themselves, their wives and their future children. They believe, since HIV/AIDS is caused by evil, they do not have to change their behaviors.

Most rampant is the ignorance that most people have towards HIV/AIDS sufferers. Some communities do not understand how HIV/AIDS is transmitted so they discriminate against anyone infected with HIV/AIDS by isolating them. This leads to less people getting tested due to the fear of being stigmatized or discriminated against. This is the toughest battle that faces Nigeria in its fight against HIV/AIDS. This also violates the rights of infected persons according

to the UN Commission on HIV/AIDS. The media and workplaces perpetuate these messages. The media sensationalize the spread of HIV/AIDS, and they use scare tactics to inform the general public. Some workplaces dismiss their employees who test positive for HIV/AIDS. Most of the population does not have a clear idea of how one can get infected (Olori 2002). There is now a move in Nigeria to include religious organizations and cultural groups in the planning and implementation of programs to combat the spread of HIV/AIDS. Examples of these are the new advertisements in Nigeria in which the featured slogan is "I care, do you ... stop pretending that HIV/AIDS does not exist". The billboard represents the latest efforts in Nigeria to show the highest level of commitment against the epidemic, and highlights the dangers faced by the country's young people (IRIN 2002). These measures are important in reducing the spread of HIV/AIDS. Cooperation among the government, religious and cultural groups is greatly needed in order to win this fight.

Women and HIV/AIDS

If 8 out of 10 illiterate women in Peru do not know about the disease (POZ Pandemic 2003), what can be said of the illiterate women in rural communities in sub-Saharan African countries where most children have been withdrawn from schooling as a result of their parents' death from the disease? There are more girl-children that have no access to education in sub-Saharan African countries compared to other developing nations of the world. Most African cultures are based on a patriarchal system where women are subordinate to men. It is therefore not a surprise that more women compared to men are infected by HIV/AIDS. Some women are prostitutes and most of them cannot refuse the men who do not want to wear condoms. Women are more easily abandoned when infected. There was a troubling piece of information about contraceptive health; very few women use contraceptives that could save their lives. "Contraceptive prevalence, which dipped in the '90s after withdrawal of USAID public sector assistance, has remained depressed at 6% among married women and 13% among single women." A study conducted by UNAIDS (2003) showed that in some African countries there are more women than men infected by the HIV/AIDS virus (Table 1).

Table 1. Data on population of people infected with HIV/AIDS in three African countries, as of end of 2003.

Country	National population	Total population living with HIV/AIDS (Per cent of total population)	Women	Men
			living with HIV/AIDS	
Nigeria	120 million	3.6 million (3%)	1.9 million	1.7 million
South Africa	43.5 million	5.3 million (12.18%)	2.9 million	2.2 million
Kenya	29.5 million	1.2 million (4.06%)	0.72 million	0.38 million

Source: UNAIDS (2003).

Additionally, as a result of war and communal fights, women are more likely to be victims of sexual crimes. Such crimes increase women's chances of getting infected since they are forced to engage in unsafe sex. Also, basically for economic reasons, young adolescent girls are forced to have sexual relations with older men who prefer them to older women. If these men are already infected then they will pass the infection to these young women.

Hopefully, there will be change and the effects of HIV/AIDS on women will be explored in depth. A gender-based approach towards HIV/AIDS in Nigeria has not been adopted yet. This approach needs to be taken since women usually make up half the population affected with HIV/AIDS in any given country and they already have fewer rights than men.

Conclusions

Fishing communities should be considered in future research and development programs with regard to HIV/AIDS because fishers belong to a high-risk group. It is easy to justify why the rural fishing communities need information and education on the pandemic of HIV/AIDS—they are some of the most vulnerable and definitely at risk of infection. More so, the women and young girls in fishing communities need all the help they can get to protect themselves against the HIV/AIDS pandemic sweeping the African continent in the 21st century. Youths must get involved as they are at risk of getting infected since sub-Saharan Africa accounts for close to 70% of the worldwide HIV/AIDS infection.

HIV/AIDS illnesses will directly affect productivity in continental Africa south of the Sahara. Since one of the numerous impacts of the disease is that it depletes the labor force, this invariably impacts on the potential for economic growth which naturally will be reduced. The human development of the continent as a whole and of each of the countries in particular is impacted because the families will be fragmented while the number of orphans as a result of death of the parents from the disease grows. Children's education is impacted as attendance at schools declines. The group impacted most will be the youths in the communities because as household incomes decline, the families become less productive and the young children, especially the young girls may be forced into prostitution. This will invariably lead to destruction of young lives in the fishing communities just as much as in the urban communities because of their lack of education, careers and income. This situation will result in the disintegration of the family units and the society at large. A poverty-stricken environment may lead to an increase in crime, unlawful behavior and high promiscuity. Nigeria, like all sub-Saharan African nations, must act now to change the behavior of the people and to reflect a change that will empower the youths to save themselves from the HIV/AIDS scourge that is on the loose on the continent!

References

- Badejo, A. 2004. HIV/AIDS: Even You Can Stop It. Yintab Books, Lagos, Nigeria. 76 p.
- FAO (Food and Agriculture Organization). 2004. HIV/AIDS resource guide for extension workers. SD – people, gender and development. Accessed from www.fao.org
- IRIN. 2002. IRIN Web special on World AIDS Day. Nigeria: struggling to promote awareness. Accessed in November 2002 from <http://www.irinnews.org/webspecials/aids/nigeria.asp>
- Isiugo-Abanihe, U.C. 1994. Extramarital relations and perceptions of HIV/AIDS in Nigeria. *Health Trans. Rev.* 4(2): 111-125. Accessed from <http://eprints.anu.edu.au/archive/00000601/>
- Olori, T. 2002. Health-Nigeria: stigmatisation, the bane of HIV/AIDS scourge. Accessed from http://www.ipsnews.net/aids2002/africa_2.shtml
- POZ Pandemic. 2003. Planet AIDS. Accessed from <http://www.ChrisLam/ClamStudios.com>
- UNAIDS (Joint United Nations Programme on HIV and AIDS). 2004. UNAIDS reports for 2003. United Nations, New York, USA.

GENDER AND NUTRITIONAL STATUS AMONG CHILDREN UNDER SEVEN IN THE COASTAL BARANGAYS OF BUENAVISTA, GUIMARAS, PHILIPPINES

A.J.G. FERRER

Division of Social Sciences

University of the Philippines in the Visayas

Miagao, Iloilo, Philippines

aj_ferrer2005@yahoo.com

Abstract

This paper describes the nutritional status of male and female children under 7 years old in the coastal barangays (villages) of Buenavista, Guimaras, Philippines. Secondary data of 1,731 children weighed on February-March 2004 by the barangay nutrition scholars (BNS) for 15 out of 17 coastal barangays were used. The data were organized and summarized using frequency and percentages. Chi-square test was used to determine if there is a significant difference in the nutritional status of male and female children. The prevalence rate of malnutrition among children under 7 was about 28%. More males than females weighed normally (52.05% vs. 47.95%). Among overweight children, there were more males than females (62.79% vs. 37.21%). Among underweight children, there were more females than males (58.17% vs. 41.83%). The difference in the nutritional status of male and female children was highly significant, particularly among 12-59 months old. Nutritional risk varied among coastal barangays. A review of the current nutrition program to make it more relevant to the needs of children is needed. A study on the determinants of malnutrition is recommended.

Introduction

The benefits of nutritional security provided to children have long been recognized. Not only does it ensure survival but it also has beneficial effects on the physical, mental and social development of children. These benefits can be passed on: healthy children will become healthy adults who will give birth to healthy children.

With the same logic, the effects of malnutrition can be deleterious and long-lasting. Being underweight increases the risk of death, disease and disability, leading to a less fit and productive adult. Being overweight is also a concern because of its harmful effects on health and work performance in later adult life. Hence, providing optimum nutrition to children regardless of sex must be a priority concern.

Many factors influence nutritional status, with nutritional intake as one important factor. This puts the children on islands and in coastal communities in a special position. Islands and coastal communities are unique environments because of the interaction with the sea. In coastal communities that are economically distressed due to overexploited resources, food

security is a challenge. Moreover, if food insecurity is accompanied by a strong male-child preference, malnutrition can be worse for female children.

In the Philippines, various intervention programs to ensure child survival, protection and development are in place. Under the devolved setup, local government units are responsible for the delivery of health care and nutrition services. The over-riding purpose of the study described in this paper is to provide information for local policymaking, planning and action programs in the area of nutrition. This paper offers some preliminary findings from an in-depth study described to assess the state of nutrition in the coastal barangays (villages) of Buenavista, Guimaras, with the goal of improving the health and nutrition of the children. In particular, this paper addresses the gender issue in nutrition by comparing the situation of female and male children.

Study Area

The municipality of Buenavista is located at the northern tip of the island province of Guimaras, which is located in central Philippines (Figure 1). The northern and northwestern parts face Panay Island and the northeastern part faces Negros Island. The municipality is bounded in the southwest by the municipality of Jordan and in the southeast by the municipality of San Lorenzo. It can be reached by a 15-minute boat ride from Iloilo City.

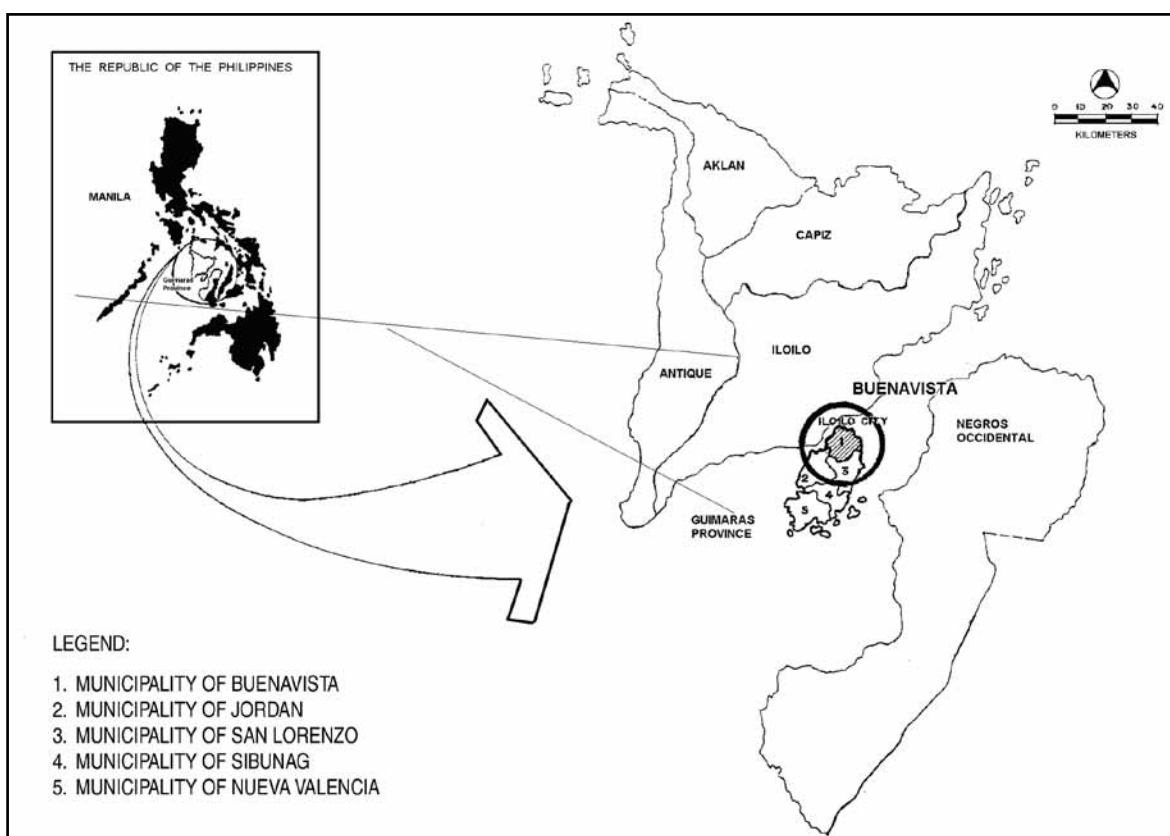


Figure 1. Map showing the location of Buenavista, Guimaras province.

Buenavista is the largest municipality in terms of population and has the highest number of barangays among the five municipalities of Guimaras. Seventeen of its 36 barangays are coastal (Figure 2). The 2000 population census gave the total population of the coastal barangays as 17,948 or about 43% of the total population. In terms of household population, the coastal barangays have 3,589 households or about 43% of the total household population. The aggregate land area of coastal barangays is 38.28 km², about 35% of the total land area of Buenavista.

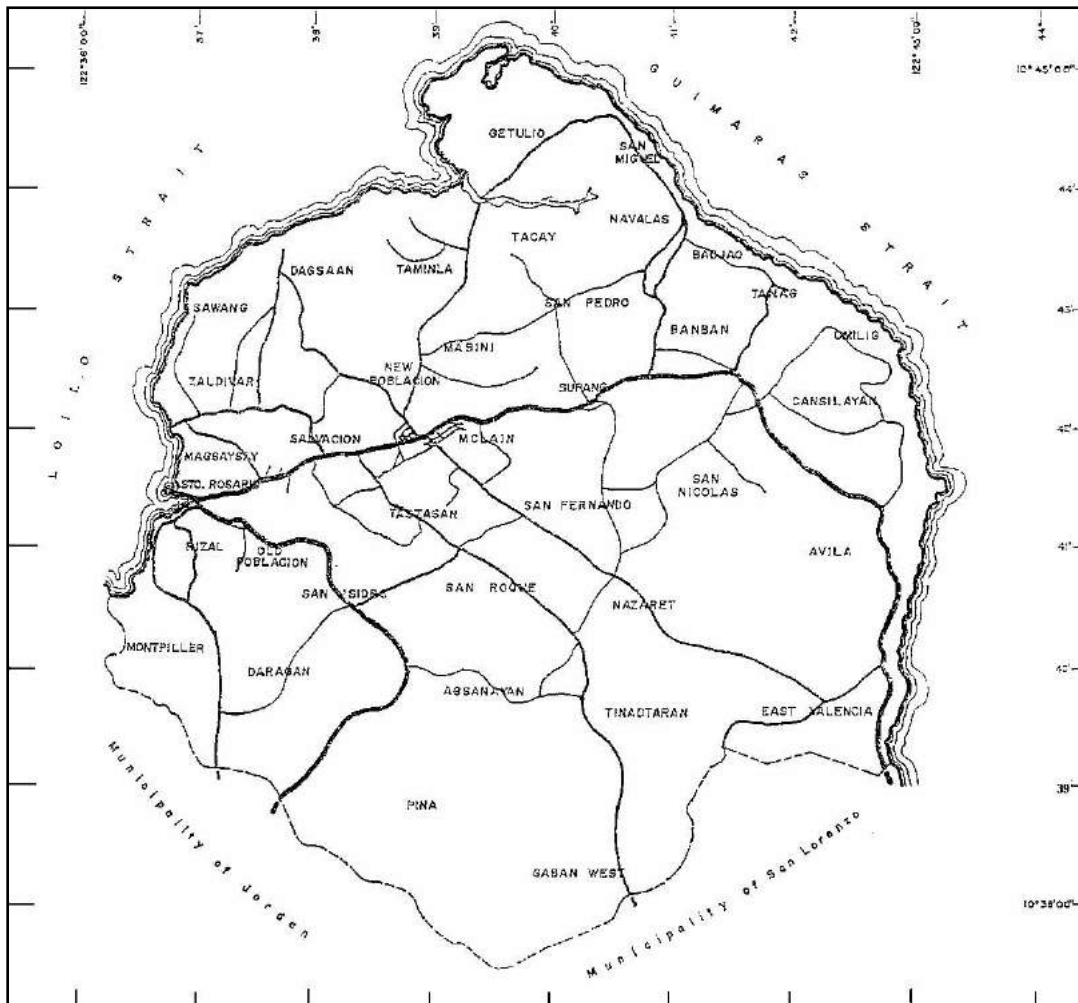


Figure 2. The municipality of Buenavista, Guimaras.

(Source: Municipal Development and Planning Office, Buenavista, Guimaras.)

Fishing is an important occupation in Buenavista. There is no record of commercial fishers but there are 754 registered municipal fishers. About 85% are using non-motorized boats. Many of them rely solely on fishing for income while others are fish farmers. Most of these fishers are from the coastal barangays of Avila, Bacjao, Dagsaan, East Valencia, Getulio, San Miguel, Sawang, Tanag and Umilig. The fishers are organized at the barangay and municipal levels. They are also represented in the Municipal Fishery and Aquatic Resources Management Council.

The fishery of Buenavista is characterized as multigear and multispecies. The gears used include bow and arrow, hook and line (pole and line, multiple handline and long line), gill nets (bottom set and drift), beach seines, lift net (crab lift net and dip net), push nets, barriers and weirs (fish corral and filter net), and traps. The species caught are shrimps, frigate, mackerel, moon fish, nemipterids, cavals, roundscads, anchovies, slipmouths, groupers, slately sweetlips, goatfish, catfish, sting ray, mullets, lobsters, blue crabs, herring, mojarras, seabass, squids and sardines. The other fishery products include seaweeds, ornamental shells, prawn fry and milkfish fry. The fish caught are marketed locally but the “first-class” catches are sold to specialty restaurants in Iloilo city. The major fishing areas are Guimaras Strait and Iloilo Strait.

Fisheries management currently has attention from the local officials. There are now efforts to rehabilitate the fisheries resources through the deployment of 600 artificial reef modules in the waters of 10 major fishing barangays that include Avila, Bacjao, East Valencia, Getulio, Navalas, San Miguel, Tanag, Taminla, Tacay and Umilig. The Bantay-Dagat, a coastal law enforcement group, was recently activated. A seaweed project was also introduced this year as an alternative livelihood to fishers in the 10 barangays of Montpiller, Rizal, Zaldivar, Sawang, Dagsaan, San Miguel, Navalas, Bacjao, Tanag and Avila.

Buenavista also has 4.76 km² of brackish-water fishponds or 3.1% of the total land area. These fishponds are in Avila, Bacjao, East Valencia, Getulio, Montpiller, Navalas, San Miguel, Tacay, Taminla, Tanag and Sto. Rosario. The 59 registered fishpond operators employ more than 500 workers.

Methodology

The paper used secondary data available at the Buenavista Municipal Health Office (MHO) for 15 out of 17 coastal barangays. The data for two coastal barangays were missing. The data were written records of children weighed by BNS during the last week of February to the first week of March 2004. In every barangay, the number of children weighed represented all target children from 0–83 months. The data included the parent's name and the children's name, sex, birth date, age in months, weight in kilograms and nutritional status based on weight-for-age index using the Philippine Reference Standard. Unfortunately, there was no information that can help identify the type of household where the children belonged. It can be said, however, that many of these children are from fishing and fishing-related households given that the percentage of this type of household ranged from 15 to 75% in the coastal barangays (based on the number of registered fishers who are also head of the household and barangay household population.)

Other pertinent secondary data were sourced from the Municipal Planning and Development Office and the Municipal Agriculture Office. An interview with the Municipal Health Officer and the Chair of the Municipal Fisheries and Aquatic Resources Management Council was also conducted.

For the purposes of this paper, the data for each barangay were verified for accuracy in terms of age-group classification and nutritional status based on weight-for-age index of each child. The children were classified using the age-groups of 0–11 months (below 1 year old), 12–59 months (1 year – below 5 years old), and 60–83 months (5–7 years old). The reference table used in classifying the nutritional status of children is the weight-for-age table for children 0–83 months old produced in 1999 by the National Nutrition Council for the BNS Program of the Department of Agriculture (DA). The source of the table is the Food and Nutrition Research Institute-Philippine Pediatric Society Anthropometric tables and charts for Filipino children (1992). The data were organized and summarized using frequency and percentages. The chi-square test was used to determine if there is a significant difference in the weight-for-age status between male and female children.

Results

General description of the municipal nutrition intervention program

In Buenavista, there are three main government agencies providing nutrition interventions. The Municipal Health Office (MHO) is responsible for micronutrient program, growth monitoring and nutrition education. At the barangay level, the rural health midwives, assisted by barangay health workers (BHW), deliver these nutrition services. The National Nutrition Council, an attached agency of the DA, is working through the Municipal Nutrition Action

Officer and the BNS in its growth monitoring and food supplementation activities. The Municipal Social Welfare and Development Office (MSWDO) has Community Development Workers (CDW) supervising supplementary feeding for 90 days to identified second and third-degree malnourished children. This is under the Early Childhood Development (ECD) Project, which is a joint Government of the Philippines, World Bank and Asian Development Bank funded project. It started in 5 pilot barangays in Buenavista in 1999. By 2003, it had expanded to 29 barangays, 12 of which are coastal barangays. The ECD Project is expected to run until year 2005.

The BHW and BNS are appointees of the Barangay Captain, while the CDW are selected by the MSWDO. Each barangay has 1 BNS and at least 1 BHW. In a few barangays, BNS are also BHW. Only 19 of the 29 ECD-covered barangays have a CDW.

The incentives available to the BNS include an accident insurance and a monthly travel allowance of PhP 15 from the National Nutrition Council (NNC). Starting 2004, they also receive a monthly stipend of PhP 500 from the local government. The BHW also receive a monthly honorarium of PhP 200–500. The amount of honorarium would depend on the internal revenue allotment of the barangay. The CDW receive a monthly stipend of PhP 1,000.

The BNS, with the help of the BHW, conduct *operation timbang* (weighing operation): monthly for 0-24 month-old children; quarterly for 25-71 month-olds; and semi-annually for 0-83 month-old children. The semi-annual weighing is usually conducted during February-March and October-November. The weighing scale used is the Salter or the Detecto weighing scale.

The weighing schedule is usually announced by word-of-mouth or through written announcements posted at strategic locations in the barangay. Weighing is usually conducted in the barangay hall. Those who fail to bring their children for weighing are usually visited at home. This is to ensure universal coverage of target children. In a few barangays, a supplementary feeding schedule is synchronized with the weighing schedule to increase voluntary participation in child weighing. Supplementary food is cooked food prepared by BNS. The barangays have the financial responsibility for supplementary feeding, and a few barangays give weekly or monthly feeding.

The BNS submit their weighing operation reports to the Municipal Nutrition Action Officer who is tasked to consolidate the reports. This officer used to be the Municipal Councilor who headed the Health and Nutrition Committee. In 2001, the responsibility was transferred to the Municipal Agriculture Officer because the NNC running the BNS Program is under the DA. An order from the Local Chief Executive, dated 1 September 2004, affected this transfer of responsibility.

Gender and nutritional status

There were 1,731 children under 7 who were weighed in the 15 coastal barangays (Table 1). Of these, 49.68% were male and 50.32% were female. By age group, there were more males among children 0–11 months old (50.69%) and among children 12–59 months old (50.80%). In contrast, there were more females in the 60–83 months-old age group (52.76%).

About 3 out of every 10 children were malnourished (underweight or overweight). Underweight children comprised 25.82%, while 2.48% were overweight. Children weighing normally comprised 71.69%.

Results show that the prevalence of malnutrition is at least 25% in every age group. About 26% of children aged below 12 months were malnourished; about 30%, 12–59 months; and about 28% in the 60–83 months group.

Table 1. Frequency and percentage distribution of children under 7 years old by gender and nutritional status.

Characteristic	Age group						All children	
	0-11 Months (> 1 Year)		12-59 Months (1 Year - > 5 Years)		60-83 Months (5 - > 7 Years)			
	no.	%	no.	%	No.	%	no.	%
All children	217	12.50*	1,006	58.12*	508	29.35*	1,731	100
Gender								
Male	110	50.69	511	50.80	239	47.05	860	49.68
Female	107	49.31	495	49.20	268	52.76	871	50.32
Weight status								
Underweight	53	24.42	271	26.94	123	24.21	447	25.82
Overweight	3	1.38	21	2.09	19	3.74	43	2.48
Normal	161	74.19	714	70.97	366	72.05	1,241	71.69

*This is a percentage of the 1,731 children weighed.

Difference in the nutritional status between genders

For children who weighed normally, there were more males than females (52.05% vs. 47.05%) (Table 2). Among malnourished children, there were more females (56.33%). When classified by form of malnutrition, there were 6 females for every 10 undernourished and 6 males for every 10 overweight children. This weight-for-age status difference between male and female children is highly significant at the 1% level.

When the children were classified by age group, significant difference in weight status between male and female was observed among those 12–59 months old. More males than females weighed normally (54.06% vs. 45.94%). There were more females, 6 for every 10, among undernourished children. Among overweight children, 7 for every 10 were males.

Although the weight status difference between male and female children aged 0–11 months was not significant, it is worth noting that there were more females (56.60%) than males (43.40%) among undernourished children. Among overweight children, there were more males than females (66.67% vs. 33.33%). There were also more males among children with normal weight (52.80% vs. 47.20%).

Among children aged 60–83 months, the weight difference between male and female is not significant. This time, among children that weighed normally, there were more females than males (52.19% vs. 47.81%). Among undernourished children there were more females (56.10%), while there were more males (52.63%) among overweight children.

Malnourished children

Considering the prevalence of children under the category underweight-for-age, barangays Sawang, Avila and Bacjao appear to be the worst off (Table 3). About 4 for every 10 children were underweight-for-age. These barangays were followed by Dagsaan, Montpiller and Umilig where there were 3 underweight children for every 10. In Sawang, 3 for every 4 underweight children were female, and in Montpiller and Umilig, 2 for every 3 were female.

Table 2. Frequency and percentage distribution of male and female children under 7 by nutritional status.

	Malnourished						Normal		All children	
	Underweight		Overweight		All		No.	%	No.	%
	No.	%	No.	%	No.	%				
All children ^a										
Male	187	41.83	27	62.79	214	43.67	646	52.05	860	49.68
Female	260	58.17	16	37.21	276	56.33	595	47.95	871	50.32
Total	447	100.00	43	100.00	490	100.00	1,241	100.00	1,731	100.00
Children aged 0–11 months (below 1 year) old ^b										
Male	23	43.40	2	66.67	25	44.64	85	52.80	135	52.53
Female	30	56.60	1	33.33	31	55.36	76	47.20	122	47.47
Total	53	100.00	3	100.00	56	100.00	161	100.00	257	100.00
Children aged 12–59 months (1 year – below 5 years) old ^c										
Male	110	40.59	15	71.43	125	42.81	386	54.06	511	50.80
Female	161	59.41	6	28.57	167	57.19	328	45.94	495	49.20
Total	271	100.00	21	100.00	292	100.00	714	100.00	1006	100.00
Children aged 60–83 months (5 – below 7 years) old ^d										
Male	54	43.90	10	52.63	64	45.07	175	47.81	239	47.05
Female	69	56.10	9	47.37	78	54.93	191	52.19	269	52.95
Total	123	100.00	19	100.00	142	100.00	366	100.00	508	100.00

The difference is highly significant at 1%: ^a $\chi^2 = 16.77$; ^c $\chi^2 = 16.96$.

The difference is not significant: ^b $\chi^2 = 1.72$; ^d $\chi^2 = 0.85$.

Among overweight children, there were 4 for every 100 in barangays Avila, Rizal and Zaldivar and 3 for every 100 in barangays Bacjao, Dagsaan, Magsaysay, Navalas and Tanag. There was no overweight child recorded in Sawang, Tacay or Taminla.

Discussion

Despite the implementation of health and nutrition programs geared towards the improvement of nutritional status of children, results show that malnutrition among children under 7 in the coastal barangays remains as a great challenge to the Municipality of Buenavista. The prevalence rate of malnutrition is still high, and should be considered as a public health concern. These levels may increase further once the International Reference Standard (IRS) for measuring weight-for-age is adopted. This calls for action by the local government of Buenavista to tackle the nutrition problem seriously. Although the overweight prevalence rate of 2 for every 100 children is not as high as the underweight prevalence rate, it should not be ignored at this time because of the health risks in later life.

Table 3. Percentage distribution of underweight and overweight male and female children by coastal barangay. *

Barangay	No. of children weighed	Underweight			Overweight		
		Male	Female	All	Male	Female	All
Avila ^a	223	18.39	19.73	38.12	1.79	1.79	3.59
Bacjao	88	19.32	19.32	38.64	2.27	1.14	3.41
Dagsaan ^b	155	13.55	17.42	30.97	2.58	0.65	3.23
Getulio	241	7.05	11.20	18.26	0.41	0.41	0.83
Magsaysay ^b	64	6.25	10.94	17.19	1.56	1.56	3.13
Montpiller	102	12.75	18.63	31.37	0.98	0.98	1.96
Navalas ^a	144	7.64	14.58	22.22	2.08	1.39	3.47
Rizal ^a	135	11.85	11.11	22.96	3.70	0.74	4.44
San Miguel ^b	84	9.52	16.67	26.19	1.19	1.19	2.38
Sawang ^a	25	8.00	32.00	40.00	0.00	0.00	0.00
Tacay	91	5.49	7.69	13.19	0.00	0.00	0.00
Taminla	145	9.66	15.17	24.83	0.00	0.69	0.69
Tanag ^a	64	4.69	4.69	9.38	3.13	0.00	3.13
Umilig ^b	74	12.16	18.92	31.08	1.35	0.00	1.35
Zaldivar ^a	96	6.25	15.63	21.88	2.08	2.08	4.17
All	1,731	10.80	15.02	25.82	1.56	0.92	2.48

*As a percentage of the total number of children weighed in the barangay.

^aECD-barangay since 2001.

^bECD-barangay since 2003.

Two coastal barangays, Sto. Rosario and East Valencia, which data were not included in the paper are ECD-barangays since 1999.

The high prevalence of malnutrition among children less than a year old is a concern. This may be due to the poor performance of the breastfeeding program in coastal barangays. Also, the nutritional status of the mother while pregnant might be a factor; malnourished mothers give birth to malnourished children.

Gender equality in nutrition appears to be an issue. Disaggregating the data by gender, the underweight problem seems to be more prevalent among female children. In contrast, the male children appear to be at risk of being overweight. Food allocation in the family might be an issue here. Also, the significant difference in the nutritional status of male and female children, particularly of the age group 12–59 months, suggests unequal treatment of male and female children in coastal barangays. The belief that males should have a greater share of the food because they do hard work might be strong in these communities. This might also be a reflection of improper or inappropriate feeding.

Based on the results, Sawang, Avila and Bacjao are considered the three most nutritionally-at-risk barangays, being the ones with the highest prevalence of children who were underweight for their age, followed by Dagsaan, Montpiller and Umilig. Nutrition programs should target

these barangays. The findings support the selection of Sawang, Avila, Dagsaan and Umilig as ECD-barangays. Sawang and Avila have been ECD-barangays since 2001 and Dagsaan and Umilig since 2003. Bacjao and Montpiller are not ECD-barangays. Moreover, almost 75% of the households in Sawang are involved in fishing. This indicates that fishing households in this barangay are nutritionally-at-risk. Likewise, for other nutritionally-at-risk barangays where 15–45% of the households are into fishing (based on the number of registered fishers who are also heads of household and barangay household population): Avila (15%), Bacjao (25%), Dagsaan (25%) and Umilig (45%). There is no available information for Montpiller.

Recommendations

There is a need to review the existing municipal nutrition-program to make it more relevant to the needs of the children. Other programs that influence children's health and nutrition should also be strengthened, such as those on breastfeeding and on improving the nutrition of pregnant and lactating women and the health of women at reproductive age. This is to prevent the vicious cycle of malnutrition. In addition, there is a need to address gender inequality in nutrition. Without eliminating unequal treatment of male and female children, the problem of malnutrition cannot be solved.

Special attention is needed for improving the nutritional status of children in Sawang, Avila, Bacjao, Montpiller, Dagsaan and Umilig. The supplementary feeding program should be evaluated to improve its efficiency. Financial commitment of the barangays and local municipal government to the nutrition program should also be increased.

The use of weight-for-age (underweight) index should be accompanied by height-for-age (stunting) and weight-for-height (wasting) indices. There are no available data for these two indices but weight-for-age data are available for several years. The available weight-for-age data need to be managed, properly stored, organized, processed and analyzed so these can be used as input in local planning and decision-making. Trend analysis to see the progress and gaps in nutrition can be done using these data. The use of computers to ease recording and processing is needed.

The use of the IRS adopted by the World Health Organization can make international comparisons possible. Training on the use of the IRS was given to BNS and BHW in May 2003 but they continue to use the Philippine Reference Table. Reluctance to change what is practiced for a long time may account for this.

This paper is a very preliminary work on the state of nutrition of children under 7 in the coastal barangays of Buenavista. An in-depth study that will look into the determinants of malnutrition is recommended. The determinants have important implications for policies that provide intervention to the nutrition problem. The significant difference in the weight status of male and female children should also be sought. Among other things, household food patterns, allocation, practices and beliefs should be investigated. Also, an evaluation of the nutrition program that will look into its structure, activities, expenditure, benefits and areas for strengthening should be conducted. In addition, it would be interesting to compare the nutritional status of children by type of household (fishing and non-fishing), by area (coastal and non-coastal), by type of household head (female and male) and by income class.

Bibliography

- Ferrer, G. 2003. Buenavista Guimaras municipal health plan for 2004. (Unpublished).
- Heaver, R. and J.M. Hunt. 1995. Improving early childhood: an integrated program for the Philippines. A collaborative report by the World Bank and the Asian Development Bank for the Government of the Republic of the Philippines. World Bank and Asian Development Bank, Mandaluyong City, Philippines.
- Kartasurya, M.I. 1999. Food pattern and underfive children nutritional status on fishermen's families in Semarang Utara. *J. Coast. Dev.* 2/3: 427-433.

UNICEF (United Nations International Children's Fund). n.d. Girl children have rights too! UNICEF, Makati City, Philippines.

UNICEF (United Nations International Children's Fund). 1994. 1995 mid-decade goals for Filipino children. UNICEF, Makati City, Philippines.

UNICEF (United Nations International Children's Fund) and the Province of Guimaras. n.d. Ang kabataan sa Guimaras: Provincial development for children 2002–2025. UNICEF, Makati City, Philippines.

NUTRITIONAL STATUS AND SOCIOECONOMIC EMPOWERMENT OF FISHERWOMEN IN THE COASTAL ECOSYSTEM OF ANDHRA PRADESH, KARNATAKA, KERALA AND TAMIL NADU, INDIA

V. KHADER

Acharya N.G. Ranga Agricultural University
Hyderabad, India
vijayakhader@yahoo.com

R.N. KUMAR

Kakinada Research Centre of Central Marine Fisheries Research Institute
D. No.8-14-18/2, Red Cross Street
Gandhi Nagar, Kakinada 533 004
Andhra Pradesh, India
ramani65@rediffmail.com

J. LAKSHMI

College of Home Science
Bapatla 522 101, Guntur District AP India
jagarlamudi@yahoo.co.in

K. DHANAPAL

Department of Fish Processing Technology
College of Fishery Science
Muthukur 524 344, Nellore District AP India
kdhanpal@yahoo.com

H.M. KASIM

Madras Research Centre of Central Marine Fisheries Research Institute
75, Santhom High Road
Raja Annamalai Puram
Chennai India 600 028
chfish@vsnl.com; hmkasim@invitation.sms.ac

R. SATHIADHAS

Central Marine Fisheries Research Institute
Tatapuram P.O.Box 1603
Cochin 682014, India
rsdhas@rediffmail.com

N.S. SUDHAKARA

Department of Fish Processing Technology
College of Fisheries
Mangalore 575 001
Karnataka, India
ns_sudhakara@yahoo.com

Abstract

This study was carried out in the coastal areas of Andhra Pradesh, Karnataka, Kerala and Tamil Nadu. From these states, 13 districts and 28 villages were selected. A total of 5,744 households were covered. Cereal consumption was highest in Andhra Pradesh followed by Kerala, Karnataka and Tamil Nadu. Pulse consumption was high in Kerala when compared to other states. The overall energy intake of the fisherwomen was 1,827 kcal/day; protein intake was 50.6 gm/day; carbohydrate intake was 343.5 gm/day; and fat intake was 27 gm/day. The mean intake of micronutrients was less than the recommended dietary allowance. The mean body mass index was 21.3. The nutritional status of the women was: 49% normal; 17% low normal; 10.5% mildly malnourished; 4% moderately malnourished; and 2.9% severely malnourished. About 11.5% of the fisherwomen were overweight and 4.6% were obese. A subsample of 915 women was clinically observed: 34.8% were diagnosed with angular stomatitis; 31% with cheelosis; 42.8% with bleeding gums; and 44.2% with dry skin. Some 72% of the women were anemic.

An assessment of the socioeconomic status indicated that very few households (15.4%) maintained livestock for income generation. About 60% of the fisherwomen carried out post-harvest activities to earn income. Food expenditure comprised 60.7% of the earned income contributing to the major share of the spending. Debt servicing was a serious problem faced by 44.9% of the respondents who had procured loans mostly from non-institutional sources.

Introduction

In India, women constitute about 50% of the population and comprise one-third of the labor force. Women contribute significantly to the fishery sector of the Indian economy. Out of the 5.4 million active fishers in India, 3.8 million (70.4%) were fishermen and 1.6 million (29.6%) were fisherwomen (Ashaletha et al. 2002). Women constituted an estimated 25% of the labor force in preharvest activities of fish; 60% in export marketing; and 40% in internal marketing (Dehadrai 2002). Srinath (1987) described the role of women in small-scale fisheries, while Dubey and Kohli (2001) presented an overview on the contribution of women in Asian fisheries. Ashalatha et al. (2002) depicted the changing role of fisherwomen in India. Sathiadas et al. (2003) gave an account of the socioeconomic profile of women workers in post-harvest marine fisheries sector in Kerala.

Diet is a vital determinant of health and nutritional status. The dietary habits of people/families/communities vary according to socioeconomic factors, regional constraints and traditions. Precise information on the food consumption pattern of people, through the application of appropriate methodology, is often needed, not only for elucidating the relationship of nutrient intake with deficiency, but also for the detection of degenerative diseases. Information on food consumption patterns is also essential for assessing the food needs of population groups at national and regional levels. In recent years, economists have been making use of dietary energy data for defining poverty levels of population groups.

Anthropometry is one of the methods used in nutritional assessment. From the public health point-of-view, identification of subclinical forms of malnutrition is very important for planning programs on nutritional intervention so as to prevent milder cases going into severe forms with consequent risk of high mortality. Clinical examination is an important practical method for assessing the nutritional status of a community. The clinical examination method was based on an examination for changes believed to be related to inadequate nutrition that can be seen or felt in superficial epithelial tissues, especially the skin, eyes, hair and buccal

mucosa, or in organs near the surface of the body, such as the parotid and thyroid glands. The current information on socioeconomic and nutritional status of fisherwomen in India is inadequate to suggest appropriate interventions to improve income generation and nutritional status. Hence an attempt was made to study the socioeconomic status of fisherwomen in the coastal areas of Andhra Pradesh, Karnataka, Kerala and Tamil Nadu.

Methodology

Information on the food consumption of fisherwomen in the selected villages was obtained through a detailed study for one month on the food consumed, the frequency and amount purchased, as well as the total amount of each food consumed. The nutritional status of fisherwomen was assessed by noting the type of food and weighing the amount of food they consumed over a day. The cooked ingredients were measured using standardized cups and then converted to their equivalents as raw ingredients. The mean intake of the raw equivalents was calculated from the intake of cooked food amounts using the formula developed by Thimmayamma (1987):

$$\text{Individual intake of items in raw equivalents (gm/ml)} = \frac{\text{Total raw amount of each ingredient used in preparation} \times \text{Individual intake of cooked amount}}{\text{Total cooked amount of each preparation (g/ml)}}$$

The nutritive value of the foods consumed was calculated as per Gopalan et al. (1989).

Anthropometry

The height and weight obtained by the survey were compared to the National Centre for Health Statistics (NCHS) standards.

$$\text{Body mass index (BMI)} = \frac{\text{Weight in (kg)}}{\text{Height in (m)}^2}$$

The BMI was used as an indicator of the nutritional status of the fisherwomen. The different degrees of chronic energy deficiency (CED) and obesity are given below (Table 1), following the scale developed by James et al. (1988).

Table 1. Scale of degrees of chronic energy deficiency and obesity (James et al. 1988).

BMI	Nutritional grade
<16.00	Malnourished (III degree)
16.0 – 17.0	Malnourished (II degree)
17.0 – 18.0	Malnourished (I degree)
18.5 – 20.0	Low normal
20.0 – 25.0	Normal
25.0 – 30.0	Overweight (I degree obese)
>30.0	Over obese

Clinical examination

The medical assessment of the nutritional status was based on the clinical examination of the hair, face, eyes, lips, tongue, teeth, gums, glands, skin, nails, subcutaneous tissue, and muscular and skeletal systems.

Assessment of socioeconomic status

The socioeconomic status of the fisherwomen's household was assessed by their occupation pattern, income level, income and expenditure, and level of involvement in loan servicing. A comparative assessment was made among the four states.

Estimation of standard of living

The socioeconomic assessment helps to estimate the standard of living of the different groups of the people from whom the data were collected. An attempt was made to compare the annual per capita income and the Engel's coefficient of the fisher's household. The Engel's coefficient was calculated as follows:

$$\text{Engel's coefficient} = \frac{\text{Annual expenditure on food}}{\text{Annual total expenditure}} \times 100$$

Statistical analysis

Frequency distributions, mean and standard deviations (SD) and tests of significance were calculated for each of the variables studied. Analysis of variance, chi-square test and multiple comparison 't' test procedures (Visveswara Rao 1996) were utilized to test for significant differences in the data collected.

Results and Discussion

Food intake of fisherwomen

Details of food consumption among fisherwomen are provided in Table 2. Cereal consumption was highest among those of Andhra Pradesh, followed by Kerala, Karnataka and Tamil Nadu.

Table 2. Food intake of fisherwomen (g/per capita/day).

State	Cereals	Pulses	Green leafy vegetables	Other vegetables	Fat and oil	Fruits	Sugar and jaggery	Milk	Poultry	Fish
Andhra Pradesh	469 ± 124.0	19.5 ± 9.0	21.6 ± 12.7	23.19 ± 17.7	19.1 ± 6.7	25.0 ± 8.7	19.81 ± 7.3	38.4 ± 30.7	15.4 ± 23.7	14.2 ± 42.5
Karnataka	246 ± 20.8	7.1 ± 5.4	3.6 ± 5.8	11.61 ± 4.4	8.3 ± 0.1	7.21 ± 10.6	8.0 ± 2.3	8.82 ± 2.9	12.31 ± 9.42	92 ± 10.8
Kerala	384 ± 11.4	31 ± 3.5	15 ± 4.1	71 ± 20.1	16.0 ± 3.8	31.0 ± 4.2	17.0 ± 2.4	111 ± 38.7	129 ± 19.49	163 ± 71
Tamil Nadu	224 ± 52.8	15.0 ± 3.0	8.2 ± 1.3	14.2 ± 2.3	12.2 ± 1.9	12.2 ± 1.9	21.7 ± 3.4	40.0 ± 8.0	12.0 ± 2.5	147 ± 56
Overall	330	18.2	12	30	13.9	20.8	16.6	49.5	22.1	136
RDA	300	40	100	100	20	120	20	200	-	-

Notes: Figures given are mean + SD; RDA - recommended dietary allowance.

Nutrient Intake

Macronutrient intake

Higher intakes of energy, carbohydrate, protein and fat were found among the fisherwomen of Kerala followed by Tamil Nadu and Andhra Pradesh (Table 3). Percentage adequacy of macronutrients in each of the states is given in Figure 1. Karnataka fisherwomen had the lowest intakes.

Table 3. Macronutrient intake by the fisherwomen (per capita/day).

State	Energy (kcal)	Protein (gm)	Carbohydrate (gm)	Fat (gm)
Andhra Pradesh	1,470 (376)	35.6 (9.2)	289.0 (60.4)	19.0 (4.6)
Karnataka	1,053 (99)	20.4 (2.7)	220.4 (20.0)	10.0 (2.2)
Kerala	2,967 (414)	97.0 (24.0)	512.0 (20.1)	59.0 (11.6)
Tamil Nadu	1,786 (254)	49.3 (13.9)	352.7	19.8 (5.3)
Mean	1,820	50.6	343.5	27.0
RDA	2,225	50.0		20.0

Note: Figures inside parentheses indicate SD values.

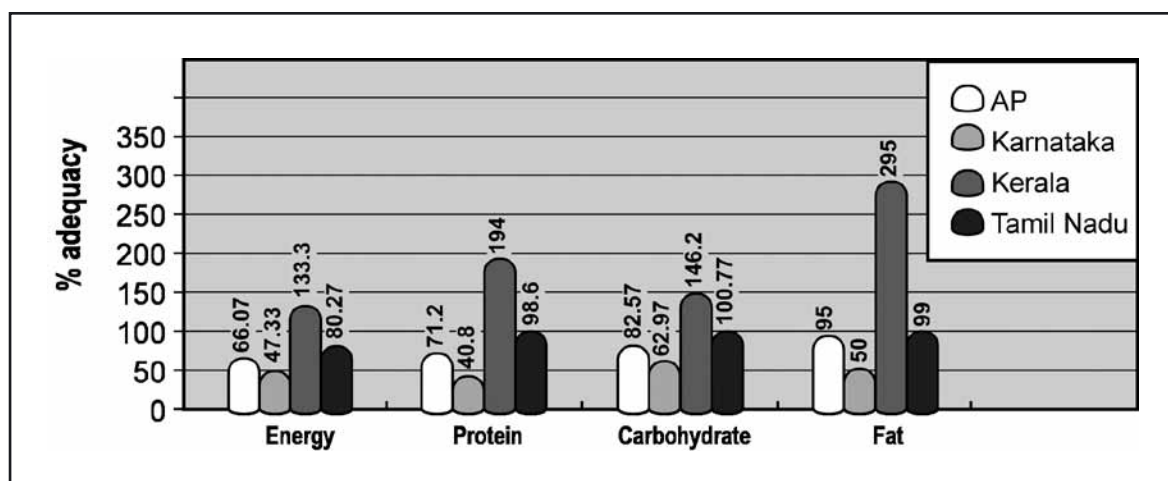


Figure 1. Percentage adequacy of macronutrient intake by fisherwomen in the different states studied.

Vitamins

The overall intake of B1, B2, Niacin and Vitamin C by fisherwomen in the states studied was lower than the RDA (Table 4). High intake of micronutrients was recorded among the fisherwomen of Kerala, followed by Tamil Nadu. This might be because of the parboiled rice consumed in that region.

Table 4. Vitamin intake of fisherwomen (per capita/day).

State	B1 (mg)	B2 (mg)	Niacin (mg)	Vit C (mg)
Andhra Pradesh	0.57 (0.2)	0.59 (0.2)	10.62 (2.9)	29.1 (6.9)
Karnataka	0.56 (0.05)	0.16 (0.02)	10.30 (5.1)	4.9 (5.9)
Kerala	1.0 (0.0)	1.00 (0.0)	19.00 (4.5)	35.0 (29.3)
Tamil Nadu	0.84 (0.2)	0.80 (0.5)	12.80 (2.6)	37.9 (4.0)
Overall mean	0.74	0.63	13.19	26.7
RDA	1.1	1.3	14	40

Note: Figures inside parentheses indicate SD values

Percentage adequacy of vitamins in the different states is given in Figure 2.

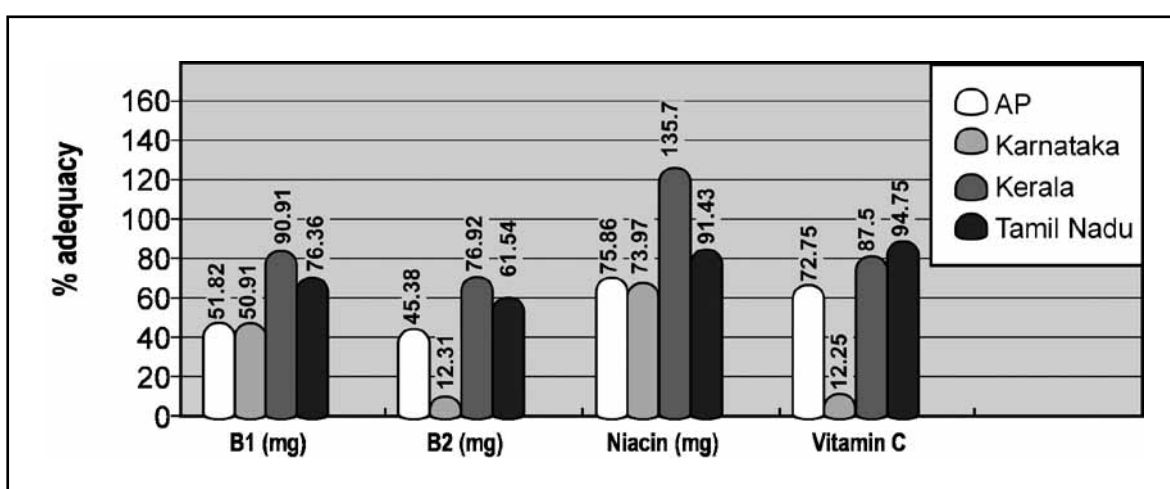


Figure 2. Adequacy of vitamin intake by fisherwomen in the different states studied.

Minerals

Table 5. Mineral intake of fisherwomen (per capita/day).

State	Iron (mg)	Calcium (mg)
Andhra Pradesh	20.3 (5.1)	415.8 (129)
Karnataka	3.5 (0.6)	155.3 (74)
Kerala	27.8 (8.4)	539 (85)
Tamil Nadu	22.8 (9.0)	391 (90)
Overall mean	18.6	375.3
RDA	30	400

Note: Figures inside parentheses indicate SD values.

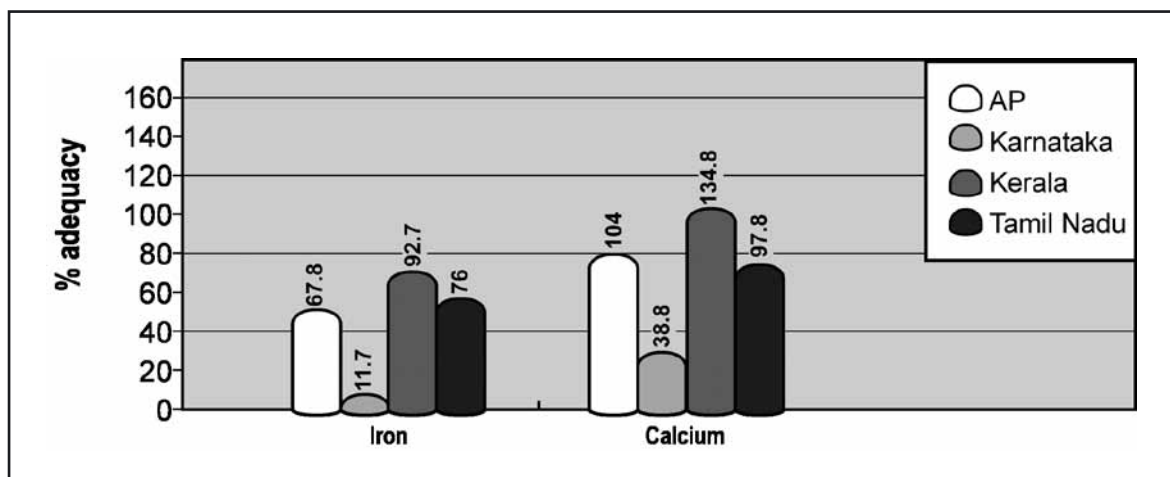


Figure 3. Adequacy of mineral intake by fisherwomen in the different states studied.

The iron and calcium intakes of fisherwomen in the four states are shown in Table 5 and the adequacy of their mineral intake is given in Figure 3.

Anthropometry

The average anthropometric measurements of fisherwomen are shown in Table 6.

Table 6. Average anthropometric measurement of fisherwomen surveyed.

State	Anthropometric measurements		
	Height (cm)	Weight (kg)	BMI
Andhra Pradesh	153 (5.5)	48.0 (6.3)	21.4 (2.9)
Karnataka	151 (5.2)	47.1 (5.7)	20.5 (7.6)
Kerala	149 (3)	47.3 (3.5)	21 (1.1)
Tamil Nadu	149 (8)	52.0 (13.0)	22.6 (5.3)
Mean	150	48.5	21.3

Note: Figures inside parentheses indicate SD.

Forms of malnutrition of women based on James' classification

Based on BMI, the women were categorized as obese, overweight, normal, low normal, mildly malnourished, moderately malnourished and severely malnourished (see Table 7).

Table 7. Forms of malnutrition of women based on BMI.

State (number surveyed)	Forms of malnutrition						
	Severe	Moderate	Mild	Low	Normal	Overweight	Obese
Andhra Pradesh (625 women)	4 (0.6)	13 (2.1)	51 (8.2)	121 (19.4)	377 (60.3)	57 (9.0)	3 (0.4)
Karnataka (210 women)	0 (0.0)	0 (0.0)	14 (6.7)	63 (30.0)	127 (60.4)	6 (2.9)	-
Kerala (165 women)	10 (6.1)	4 (2.4)	19 (11.5)	29 (17.6)	84 (50.9)	11 (6.7)	8 (4.8)
Tamil Nadu (538 women)	31 (5.8)	46 (8.6)	78 (14.5)	51 (9.5)	173 (32.1)	8 (1.5)	54 (10.0)
Overall (1,538 women)	45 (2.9)	63 (4.1)	162 (10.5)	264 (17.2)	761 (49.5)	178 (11.6)	65 (4.2)

Note: Figures inside parentheses indicate percentages.

Clinical Studies

Clinical symptoms observed in women are given in Table 8.

Table 8. Prevalence rates of clinical nutritional deficiency signs in women.

State	No. surveyed	Anemia	Angular stomatitis	Cheelosis	Bleeding gums	Dryness of skin
Andhra Pradesh	490	392 (80.0)	133 (27.1)	80 (16.3)	76 (15.5)	146 (29.8)
Karnataka	210	178 (84.4)	89 (42.4)	96 (45.7)	147 (70.0)	123 (58.6)
Kerala	215	92 (42.8)	-	-	-	-
Tamil Nadu	-	-	-	-	-	-
Total	915	(69.2)	(34.8)	(31.0)	(42.8)	(44.2)

Note: Figures inside parentheses are prevalence rates in percentages.

Occupational Patterns

The details of the occupational patterns of fisherwomen are presented in Table 9.

Table 9. Occupational patterns of fisherwomen.

States	Occupation				
	Fishing	Fishery-related and aquaculture	Non-fishery	Others	Total
Andhra Pradesh	575 (41.2)	452 (32.4)	299 (21.4)	70 (5.0)	1,396
Tamil Nadu	0 (0.0)	169 (52.0)	0 (0.0)	156 (48.0)	325
Kerala	687 (27.0)	1,257 (49.0)	592 (24.0)	0 (0.0)	2,536
Karnataka	330 (50.2)	0 (0.0)	297 (45.1)	31 (4.7)	658
Total	1,592 (25.8)	1,878 (30.4)	1,188 (19.3)	257 (5.2)	4,915

Note: Figures inside parentheses indicate percentages to the corresponding row total.

Maintenance of livestock

Only 15.4% of the respondents maintained livestock to support or generate income for the family. Among those who maintained livestock, 50.9% had poultry and 36.4% cattle. The maximum average annual income realized from maintaining livestock was Rs 7,358 in Andhra Pradesh and Rs 3,520 in Tamil Nadu. Fishing communities in the two coastal districts in Karnataka traditionally do not own any livestock. Only a few families reared poultry for domestic consumption.

Post-harvest activities

Fisherwomen play a vital role in the post-harvest operation of fish. Once the fish are landed, the women are responsible for sales, drying and processing, and related aspects. Their efforts have not been quantified effectively so far and the details of their involvement in different post-harvest activities are given in Table 10. Out of 5,744 households, women in 3,241 (56.4%) households involved themselves in post-harvest operation of fish besides looking after household activities. About 50% of fisherwomen were involved in value addition in Kerala. This is mainly because of the number of processing industries in the state, especially in the Alapuzha district.

Table 10. Number and percentage of women involved in post-harvest activities.

State	Post-harvest activities					Total
	Sun drying	Smoking of fish	Salting	Value addition and processing	Fish vending	
Andhra Pradesh	228 (28.2)	23 (2.8)	129 (16.0)	0 (00.0)	429 (53.0)	809
Karnataka	647 (64.2)	0 (0.0)	0 (00.0)	0 (00.0)	361 (35.8)	1,008
Kerala	50 (04.0)	0 (0.0)	151 (12.0)	602 (48.0)	452 (36.0)	1,255
Tamil Nadu	42 (24.8)	0 (0.0)	0 (00.0)	0 (00.0)	127 (75.2)	169
Total	967 (29.8)	23 (0.7)	280 (08.6)	602 (18.6)	1,369 (42.2)	3,241

Note: Figures inside parentheses are percentages.

Annual Income and Expenditure

Annual income was analyzed based on four categories: less than Rs 24,000; between Rs 24,000 and Rs 36,000; between Rs 36,000 and Rs 48,000; and above Rs 48,000. Overall, 40% of the respondents earned an income of less than Rs 24,000 per annum and 26% between Rs 24,000 and Rs 36,000. Some 80% of income earners in Karnataka and 57% in Andhra Pradesh earned below Rs 24,000. The maximum number of respondents earning the highest income above Rs 48,000 was found in Kerala (36%) and Tamil Nadu (37%). The income from fisheries accounted for 93.5% of the annual income followed by income from other sources (5.9%). Aquaculture was an economic activity in Andhra Pradesh only. Food expenses occupied the major share of income (61%) followed by clothes (9%) and medicines (6%).

Standard of Living

The welfare of the households was measured in terms of their standard of living. There are a few measures of standard of living. Each one has its own merits and demerits. The following measures were analyzed in this study.

Annual household income and per capita income

The income from all sources earned by the fisheries household was pooled and divided by the average family size of the fishers' household to arrive at the per capita income (see Table 11). Fisherwomen from Andhra Pradesh had a higher standard of living than the others. This may be due to the fact that they earned additional income from aquaculture.

Table 11. Annual household income and per capita income (Rs).

State	Source of household income				Family size	Per capita income
	Fishery	Related	Others	Total		
Andhra Pradesh	29,923	818	2,580	33,821	4.0	8,455.25
Karnataka	21,785	0	0	21,785	5.0	4,357.00
Kerala	22,194	0	5,206	27,400	4.0	6,850.00
Tamil Nadu	13,464	0	312	13,776	5.0	2,755.20

Engel's coefficient

This measure indicates percentage of expenditure on food in relation to total expenditure (see Table 12). The higher the Engel's coefficient, the lower is the standard of living.

Table 12. Engel's coefficient of standard of living.

State	Expenditure on food	Total expenditure	Engel's coefficient
Andhra Pradesh	23,256	33,861	68.7
Karnataka	17,265	21,785	79.3
Kerala	67,130	137,000	49.0
Tamil Nadu	5,715	13,776	41.5
Average	28,342	51,601	54.9

Comparative Socioeconomic Assessment

The socioeconomic status of the fisherwomen's households was compared; parameters used include literacy level of the respondent's household, housing pattern, electrical facilities, per capita household income and Engel's coefficient.

Table 13. Comparative socioeconomic status of the fisherwomen households in the selected states (ranks).

Sl. no.	State	Literacy level	Housing pattern	Elec- tricity facilities	Per capita house- hold income	Engel's Co- efficient	Total of ranks	Grading of overall ranks
1	Andhra Pradesh	IV	II	II	I	III	12	II
2	Karnataka	III	I	III	III	IV	14	IV
3	Kerala	II	III	IV	II	II	13	III
4	Tamil Nadu	I	IV	I	IV	I	11	I

None of the states have maintained a consistency in the rankings of the selected parameters (Table 13). It is very difficult to rank the socioeconomic status of the four states. If the percentage of the ranks scored by the states was used for ranking, Tamil Nadu came first in 3 out of 5 parameters (60%), thus topping the list. If Engel's coefficient was used as an indicator, Tamil Nadu also ranked first since only 41.5% of income was spent on food and the rest was for other uses.

Acknowledgements

Dr. (Mrs.) Vijaya Khader, Principal Investigator, acknowledges the financial support extended by the World Bank through the National Agricultural Technological Project and by the Indian Council of Agricultural Research to carry out this study.

References

- Ashaletha, S., C. Ramachandra, I. Sheela, A. D. Diwan and R. Sathiadas. 2002. Changing roles of fisherwomen in India: issues and prospective, p. 21-43. In: M.P. Kohli Singh and T. Ratna (eds), Women in Fisheries. Indian Society of Fisheries Professionals, Mumbai, India.
- Dehadrai, P.V. 2002. Women at the centre stage for socio-economic change in fishing community, p. 1-7. In: M.P. Kohli Singh and T. Ratna (eds), Women in Fisheries. Indian Society of Fisheries Professionals, Mumbai, India.
- Dubey, K. and M.P. Kohli. 2001. An overview on the contribution of women in Asian fisheries. Proc. Int. Conf. Women Fish. 4: 2-5.
- Gopalan, C.B., V. Ramasastry and S.C. Balasubramanian. 1989. Nutritive Value of Indian Foods. (As revised and updated by B.S. Narasinga Rao, Y.G. Deosthala and K.C. Pant). National Institute of Nutrition, Indian Council of Medical Research, Hyderabad, India.
- ICMR (Indian Council of Medical Research). 1988. Recommended Dietary Allowances for Indians. ICMR, New Delhi, India.
- James, W.P.T., A. Ferro-Luzzi and J.C. Waterlow. 1988. Definitions of chronic energy deficiency in adults. Eur. J. Clinical Nutr. 42: 969-989.
- Sathiadas, R., S. Ashaletha, S. Sindhu and Y. Josephraj. 2003. Women workers in the post harvest marine fisheries sector of Kerala: socio-economic profile. Fish. Chimes 23(2): 31-35.
- Srinath, K. 1987. Role of women in small-scale fisheries: a case study. Mar. Fish. Inf. Serv. T. & E. Serv. No. 74: 12-17.
- Thimmayamma, B.V.S. 1987. A Hand Book of Schedules and Guidelines in Socioeconomic and Diet Surveys. National Institute of Nutrition, Indian Council of Medical Research, Hyderabad, India.
- Visweswara Rao, K. 1996. Priostatistics: A Manual of Methods for Use in Health, Nutrition and Anthropology. Jaypee Brothers Medical Publishers, New Delhi, India.

WOMEN'S INVOLVEMENT IN PROCESSING AND THE GLOBALIZATION OF PROCESSING IN FISHERIES AND AQUACULTURE IN TAIWAN

N.-H. CHAO

Taiwan Fisheries Research Institute

199 Hou-Ih Rd.

Keelung, 202 Taiwan

nhchao@mail.tfrin.gov.tw

M.-H. CHEN

Department of Marine Biotechnology and Resources

National Sun Yat Sen University

Kaohsiung, 700 Taiwan

mhchen@mail.nsysu.edu.tw

Y.-H. CHEN

Department of Agricultural Economics

National Taiwan University

Taipei, 100 Taiwan

yhc@ntu.edu.tw

Abstract

In Taiwan, products from fisheries and aquaculture are often processed in traditional ways. Recently, however, new packaging ideas and protocols have emerged. Women's efforts and ingenuity have contributed immensely to the novelty products and have provided the cutting edge for the marketing of Taiwanese seafood products in domestic and international markets. In the present study, a questionnaire was designed and used in interviews to explore the competitiveness of major Taiwanese processed aquatic products in the global market. From the results we found both local and foreign consumers are willing to pay more for certified and ready-to-eat processed seafood. There is a lucrative market also for non-food products, such as well-designed carved corals and processed fish larval feeds. Self-designed homepages and websites plus the popularity of using commercial networks among consumers provide the potential for e-marketing now and in the future. Value-added aquatic products have been created using suitable processing and packaging methods. Hazard analysis critical control point (HACCP) accreditation has also made the processed products more competitive. Women have created many pioneering ideas in the processing of aquatic products. Women's innovativeness is often linked with their innate eye for natural beauty, and their talent in turning out nutritious and delicious food in home cooking. The popular ready-to-eat microwaveable milkfish and tuna products in Taiwan are testimony to women's ingenuity in the processing and packaging areas. From the results we obtained, we recommend that:

1. the government offer further training courses for women and men in e-commerce, food processing and packaging, business management and other business-related activities;

2. the relevant associations establish a databank for production and consumption;
3. women be encouraged to join and enhance the global market; noting that women-owned companies have increased their share of the aquatic products business turnover in the last 20 years; and
4. for further development, more research be devoted to evaluate the future roles that the government, industry and research sectors can play to ensure sustainability of processing and globalization in fisheries and aquaculture products.

Introduction

The Food and Agriculture Organization (FAO) has reported that the demand for seafood has been rising faster than the supply, as reflected in the decline in per capita consumption of seafood from 14.6 kg in 1987 to 13.1 kg in 2000 (FAO 2002). The global population is increasing while the supply of aquatic protein from capture fisheries is static or declining. There is a growing global need for aquaculture. For millions of people in developing countries, the increasing demand for protein that can only come from aquaculture is a crucial priority. In addition to this basic protein demand, aquatic products can provide new convenient and delicious foods and wonderful jewelry. Women's efforts and creative ideas have often been the key to new uses of aquatic products.

In many developing countries, new aquaculture ventures offer one of the few avenues to new enterprises that can generate employment and income to overcome poverty, particularly in rural areas (FAO 1995). The responsible women's communities worldwide have shown themselves very willing to work with the men to address such opportunities. The key to success in many industries is going back to the basics of full utilization of wisdom and effort from both genders. It is through maintaining a dialogue on opportunities, regardless of gender, that we create the chance of taking these industries to a fair and sustainable development.

Processing is an ideal means of prolonging, or at least maintaining, the shelf life of aquatic products. Processing technologies need to improve. Suitable technologies and practices are needed for managing the whole production line and for marketing the products. Women play increasing and sometimes pivotal roles in the development of aquatic product processing, and in so doing increase their incomes, help promote trade, and increase the globalization of fisheries and aquaculture (Kao 1997). However, to understand women's contributions, we need to bring updated information from different continents to understand the whole picture better. In gathering this information, the more we have the involvement of professional societies such as the World Aquaculture Society, Asian Fisheries Society, American Fisheries Society, European Aquaculture Society, the more women will be able to play productive and functional roles. This study therefore contributes to the knowledge of the role of women in the Taiwanese fisheries industry.

According to the statistics provided by the Tax Information Center in the Ministry of Finance, 33.87% of the Taiwanese enterprises were owned by women in 2003. In terms of total business turnover, women contributed 13.07%: 8.62% of export value and 14.58% of domestic sale value. In the last 20 years, the percentage of women employers leaped from 10.15% to 15.14% and the percentage of businesses owned by women also increased from 15.79% to 22.00% (Anon. 2004). According to statistics that have been compiled by the National Youth Commission (<http://www.nyc.gov.tw/default.htm>), businesses owned by women have grown in the past 10 years, from 12.7% to 16.6% of the total number of businesses. In addition, 15.8% of small and medium-scale enterprises and 11.9% of big enterprises hired women executives in 2002.

In the present study, a questionnaire was designed to explore Taiwan's unique and important processed aquatic products, considering the key issues related to globalization. We sought out companies with long-term or diligent involvement of women to thoroughly and fairly investigate their achievements and efforts to solve problems during the phases of establishment, growth and expansion. We note that to ensure aquatic food safety and enhance production value, international processed food quality standards are moving toward the adoption of HACCP as a mandatory requirement for the processed food industry. Thus, this trend was also investigated in our study. In Taiwan, e-commerce has become feasible and popular (Yang 2001). Both local and foreign consumers are willing to pay more for certified and healthy seafood, and other nonhuman food products such as well-designed carved coral jewelry and larval fish food organisms. The self-designed homepages and websites plus the popularity of using commercial networks among producers, transporters and consumers provide the potential for e-marketing systems now and in the future.

In Taiwan, women no longer remain invisible and their roles as competitive professionals in fisheries development are already acknowledged (Chao et al. 2001). In this study, interviewees show their individual concepts and understanding of processing, trade and globalization for aquaculture and fisheries products. Crafted coral, designer pearl jewelry, unique tuna mooncakes, salted roes of grey mullet, *Mugil cephalus*, processed Sakura shrimps (*Sergia lucens*), frozen cultured copepods, milkfish sausages and popsicles are some of the unique products from the aquaculture and fisheries sectors in Taiwan. In this study, these are the target products specially chosen for discussion because women have played a significant role in their development and marketing. We present the results of our interviews as a series of case studies.

Case Studies

A. The True Story of the LuCoral & LuPearl Company and the LuCoral & LuPearl Corporation

The corporation was established in 1963 in the Pescadores, a series of islets famous for rich natural coral resources. It has been operated under the collaboration of eight daughters and three sons in the Lu family and supervised by their mother for years. Today, LuCoral & LuPearl is an international enterprise run by the founders' children and several of her grandchildren. Two of the founders' younger daughters, Victoria H.Y. Lu and Felicia Lu Chen, work as liaison officers in the Taipei headquarters, while two elder sisters are handling the international marketing branches in the United States of America (USA). The corporation has more than 1,000 staff in more than 20 branches worldwide. Holdings include research and development centers in Taiwan, China and USA, freshwater and saltwater pearl farms in China, and two pioneering Coral Museums (Taipei and Honolulu, Hawaii). The LuCoral Museum, the first of its kind, is one of the holdings of the LuCoral & LuPearl Corporation. The global business is spread over North America, South America/Caribbean, Western Europe, Asia, Australia and New Zealand.

The corporation originally produced precious coral jewelry for the domestic market. Over the past 41 years, the Lu family has trained a majority of Taiwan's master coral craftsmen. Many of them have contributed works to the LuCoral Museum. During the interview, we learned that the museum offers the chance to view coral sculptures, including the largest precious coral sculpture in the world. There is a framed and unique pearl-cross which is a replica of the one presented to Pope John Paul II by LuCoral & LuPearl. There are also carvings of scenes from Christianity, including angels and Christ's crucifixion. Many other works feature traditional Chinese motifs.

In addition, the company also conducts seminars and classes. Classes include do-it-yourself jewelrymaking and gemstone identification. The classroom is one of the locations that offer courses leading to international and official certification of the Fellowship of the Gemological

Association from the Gemological Association and Gem Testing Laboratory of Great Britain. In the last 40 years, the company has developed a variety of business models, including Original Equipment Manufacture, Original Design Manufacture, Original Brand Manufacture, Original Marketing Manufacture (OMM), export/agent, value-added resell, wholesale, retail and others.

The LuCoral & LuPearl Corporation (www.lucoral.com) is the pioneer of precious coral art exhibitions through the contribution of women members in three generations of the Lu family. It is also a personal interest of the Lu family who wish to help others to appreciate the beauty and rich history of precious corals and to have concern for fisheries resources and products from the sea.

In the near future, they have a vision to establish the Lu-Coral Theme Park to emphasize the following five issues: (1) the culture of a creative industry that stimulates the combination of domestic culture with the coral and pearl industry; (2) resort fisheries to promote island-wide souvenirs as favorite items for tourists; (3) e-commerce to utilize digital and web techniques as modern tools of services and business; (4) linkages with biotechnology to produce unique products such as facial membranes with pearl ingredients for OMM; and (5) making of fashion items for adults.

B. Yuan-Bo Company: Export-oriented Company of Frozen Food Organisms and Live Fish Larvae

Mrs Cheng, wife of a well-known Taiwanese fish hatchery owner, involved in exporting live larvae of marine fishes, such as grouper, seabass, seabream, red drum and cobia, has herself become involved in a series of hatchery tasks such as propagation, induced maturation, larval food production and feeding, and live transportation of larvae. During the last three decades, she worked as a manager in the hatchery and quickly learned all details of the necessary technical know-how. The company's most important processed item is frozen copepoda as convenient food organisms for fish larvae. The protocol to reproduce the frozen copepoda includes their cultivation in ponds, harvesting and grading, freezing at -30°C, examination of their sanitary condition and packaging for exportation. Mrs Cheng has always played a very important role in the family business and has strongly encouraged her two sons to study aquaculture in domestic and Japanese universities. Now, the family owns the export-oriented Yuanbo Aquaculture Corporation and has established a Japanese website for international e-business in selling live fish larvae, specific pathogen-free larvae, fertilized eggs, compound feeds and frozen food organisms. The corporation (www.yuanbo.com) owns a branch in Japan, five hatcheries and export stations in China and is ranked as a successful international entrepreneur of hatchery products.

C. OTORO: Creative Net of Tuna Promotion

Two housewives, Mrs Hsin-Chun Hsu and Mrs Ju-Yi Cheng, met three years ago in a Parent-Teacher Association meeting and came up with the same idea to work at home using fisheries products, especially high-value tuna from the Tungkan fishing village. They went to join the Flying Geese Program and Small Office Home Office Association (SOHO) established by the Executive Yuan, Taiwan. SOHO provides consultant and evaluation services to help entrepreneurs achieve success in cyberspace. The annual fees they paid covered website operations and maintenance, training classes on e-commerce, and consultant and marketing services.

Soon they started to work via a personal website selling raw tuna belly fillets, the famous and expensive otoro, in both Japanese and Taiwanese markets, during the peak seasons for otoro. Not long after that, they created another idea to prepare frozen homemade otoro dumplings during the lean season. It was a successful innovation and initiative in terms of fully utilizing a high-priced fisheries product. The product proved convenient for consumers who could

enjoy the processed fisheries product year-round. Furthermore, they also created a novel kind of mooncake, again a product of processed residual otoro, during moon festival, one of the three big events in the Taiwanese calendar. Before they could manufacture it, however, the bakery owner required them to sign a contract for at least 30,000 cakes to meet the costs of HACCP and to meet the sales demand of the festival weeks. Without previous experience but full of confidence, they complied and found that the novel mooncakes with otoro as the major ingredient were looked upon as a healthy food, neither as oily nor as sweet as the traditional mooncakes. Finally a total of 50,000 mooncakes were sold. Recently, they have hired women workers during the production season of mooncakes and have kept on expanding their processing business for tuna and other local products. The keys to their success are respect for professionals including computer experts and university professors, getting timely assistance from ongoing government programs and promoting their stories to the media. Visit www.otoro.com.tw

D. Tungkang Song Co.: Exporter of Processed Sakura Shrimp

Sakura shrimp is one of the shrimp resources belonging to the family Sergestidae in Taiwan. The shrimps are captured only from Kaoping Channel off the mouth of the Kaoping River, southwestern Taiwan and Suruga Bay, Tokyo, Japan, and are thus looked upon as a unique product (Chen and Su 1993; Omori and Shida 1995; Lee et al. 1996). The depth distribution of sergestids ranges between 100 and 300 m, covering an area of about 320 km². In the 1990s, the Tungkang Fishermen's Association learned about the existence of such precious fisheries resources from Dr. S. Omori, Tokyo University of Fisheries. The association then organized a product-promotion union to ask their members to obey the fishing regulations for the shrimp, including controls on the number of fishing vessels (slightly more than 40 boats), the amount of catch per vessel, fishing periods throughout the year, and maximum and minimum unit prices of Sakura shrimp. High-fishing intensity is a cause of great concern for this resource. All fishing boats harvesting the fisheries stock are baby trawlers that use similar gear (mid-level trawl nets) and techniques, with uniform fishing operations.

Tungkang Song Co. (www.hipages.com.tw), owned by Mr. Song and his sister, is one of the companies that has been involved in this fishery for more than 20 years. Because of having a single target species and a short and intensive fishing period, the fishery demands a great deal of labor during harvesting, cleaning, sorting, sun-drying, air-drying, packaging, marketing, promotion and cold-storage. In the Song's 10-ha factory, most of this labor is supplied by women. The monthly business volume reaches US\$57,000 to 85,000 during the peak season. It is expected that with improved technology and automation, both men and women will soon work together in a less labor-intensive fashion and with higher revenues possible for the owners. To work toward globalization, they have organized a study group with friends in the same field to visit the Japanese company that has developed automatic processing. They have also annually invited Japanese experts to evaluate and comment on their processing factories.

E. Chuan Kuan Enterp. Co. - Aquaculture Department Stores

Over the last 30 years, Aquaculture Department Stores (www.omega3.com.tw) has become a well-known company that supplies over 1,000 items of aquaculture-related goods in Taiwan and to many Asian countries. As in case B above, the lady owner, Mrs Chin-Men Chien, started to work hand-in-hand with her husband right at the beginning of the business. She became a capable leader and manager of an international business, and the boss of several senior and junior lady assistants. Her company distributes new brochures on aquaculture-related goods yearly to existing and potential clients. The brochures provide details on products including feeds, chemicals, nets, blowers, engines, aerators, pipes, tanks, laboratory wares, test kits and aquaculture books, among others. Among these products, supplemental feeds for fish, prawn and shellfish, and dry cysts of *Artemia* are the major processed products. The company has successfully established a vertically integrated international chain of businesses including

upstream domestic and international suppliers, hatchery owners, professors and students in the aquaculture field in universities. It is a growing aquaculture department store with a well-established business and a good future as a sustainable global enterprise.

F. Hanaqua Tech. Inc.: Feed and Tilapia Exporter

Hanaqua Tech. Inc. (www.hanaqua.com) is well-known as an importer of fishmeal and an exporter of manufactured feeds for fish and prawns. Hanaqua's services broadly cover the aquaculture industry fields of hatchery, grow-out, feed factory and processing plant. The company has 10 staff (50% women, including an assistant manager) in the liaison office and around 70 employees (over 90% women, including a leader) in the processing plants. It also has a group of experts and specialists in charge of particular problems in turn-key projects.

In Hanaqua Tech. Inc., the two major missions are: better animal cultivation and better human nutrition. A shortage of fish protein supply is becoming very evident (Hasan 2001). With the concept that promoting aquaculture is also a means to facilitate preservation of natural resources, the company is strongly promoting awareness of the crucial role that aquaculture will play in supplying the world demand for more aquatic products and richer human nutrition.

After reorganizing, the company is now a major Taiwanese tilapia processing and exporting firm. May to December is the peak season for tilapia export. On average, the company exports a total of 4-5 containers (18-19 t/container) of processed tilapia monthly. Their gross income reached US\$2,850,000 in 2003. In addition to sashimi-grade tilapia fillets, normal grade, instant quick frozen, instant water packaged and tilapia blocks, the company processes other seafood products, such as shrimp (mainly black tiger and American white shrimp), seabass, red-drum, and barramundi. Various combinations and proportions of seafood items, such as squid, octopus, mussel and clam are also included, depending on customers' demands. In Hanaqua Tech's other business, the volume of premix vitamins and essential minerals for compound feed manufacturers also reaches US\$2,850,000.

For the last 30 years, the assistant manager, Mrs Hsiao-Fan Kuo, has been working hand-in-hand with her husband and is in charge of the main business. The company has expanded its business scale by signing contracts with more tilapia farms, scouting for the right manager of its main processing factory, modernizing its tilapia processing protocols, adopting HACCP standards and developing its international export markets.

Hanaqua is dedicated to the objective of increasing the supply of fish and creating a good working environment. Four principles defined by FAO for environmentally friendly aquaculture are being implemented by Hanaqua in various activities in the industry, namely: (1) economic viability, (2) proper technology, (3) environmental safety and (4) social acceptability. Hanaqua's long-term target is to develop a set of guidelines for the sustainable breeding of aquatic organisms, including: use of the fry from artificial propagation; conditional use of transgenic species and any genetically modified organisms; raw material either from land or water; minimal use of feed protein from aquatic animals; humane handling of animals cultured; and compliance with HACCP for processed products.

G. Distributor of Processed Milkfish (Saba Fish) - Cuisine from Old Capital

Recent developments in processed milkfish products—such as fishballs, smoked fish fillets, fish sauce, baked, kabayaki (grilled), frozen fish bellies, frozen flavored whole fish and fish floss—have created easy ways for the wider distribution of fish products locally and internationally. Distribution is done via traditional market routes and modern websites. A majority of women and men who are in charge of household food purchasing are becoming used to spending more money on frozen food than they did before. The freshness and convenience of enjoying frozen milkfish products seem much more attractive to consumers who live in metropolitan

cities far from milkfish culture areas in Chiayi, Tainan and Kaohsiung in southern Taiwan, than they do to those living near these culture areas.

There are two business ventures under this section. The first is the Fish and Shrimp House which sells processed milkfish and shrimp products. A group of women in Tainan, a southern county in Taiwan, started the processing of pond-harvested milkfish. They invited their family members to expand the business and now there is a nationwide network of sales. In every rest area along the express highways and major county roads, milkfish and shrimp products are usually available in tourist shops. Most customers will pick up a sheet or leaflet so that they can then easily visit the website and order, online or via telephone, more fish and shrimp products after going home. They may consume these themselves or send them to relatives or friends to once again enjoy traditional hometown foods.

The second business venture is a one-woman distributing firm of milkfish products run by Mrs Su-Feng Liu who originally comes from Tainan. Milkfish is an important aquaculture product for people in her hometown and it is the centerpiece of a traditional meal. However, using milkfish to make processed products, including burgers, sausages, hotdogs and even popsicles subverts tradition. She loves challenges, however, and enjoys subverting tradition! Mrs Liu established her online business with a major working capital of US\$3,000 (NT100,000) for learning website design and how to set up an online platform through Taiwan SOHO who also provided minor capital for hiring other part-time helpers—frozen-food professionals, a dietician and accountants. She has created the convenient route of large-scale ordering of dried, processed and frozen milkfish products directly via her hometown relatives. Online or telephone orders are delivered within two days. The flexibility of this business model not only allows her to take good care of her family with three children, but also helps her make money in her spare time. She always goes to schools, firms and institutes to demonstrate how easy it is to cook the processed milkfish dishes. She provides creative and useful ideas for processing, such as flavorings, dressings, notes on nutrition facts and packaging. She also sends questionnaires to ask customers for their opinions of her products, to compensate for the fact that the online transactions provide no face-to-face contact between the buyer and the seller. This business is another good example of a “dream come true” due to a woman’s brave decision and effort in taking advantage of the Internet to pursue an unorthodox business. “Bigger is not better” Mrs Lu mentioned during our interview and she would rather enhance her service than expand her business for the long-term purpose of sustainability. Visit fishproduct.myweb.hinet.net

H. Family Factories of Mrs Chuan and Other Women at Tungkang: Traditional Grey Mullet Roe for Exportation

Every winter, grey mullet migrate along the west coast of Taiwan during their spawning season. Traditionally, there are taboos against women joining mullet fishing at sea. Women are not allowed to step onto the mullet fishing boats, or they will be blamed for poor harvests. However, women are the major workers in processing mullet roes in Tungkang, a typical mullet fishing harbor, and recently also in Tainan and Kaohsiung county where cultivation of sex-reversed female mullet has been popular under a joint project between researchers and farmers. Salted grey mullet ovaries are processed in the traditional way in the backyards of houses or in open fields of family factories. Processing mullet roes needs skill; great care is needed in salting, peeling of blood vessels and frequent turning during sun-drying of ovaries. High-quality standards are needed for these processing activities, before the mullet roe are sold internationally at a high price, with Japan as the major market.

Mrs Chuan grew up among a family of fishers. She learned how to manufacture the mullet roe before her marriage. After marriage, she decided to use this knowledge for earning money, since she could not go far from her household duties. Processing of mullet ovaries does not disturb her daily life. She fits this extra work into her free hours. When the mullet roe season comes, she hires several women helpers, but seldom men helpers. In her case, 2,000 pairs of

processed mullet roes can be produced in the peak season from November to February. The retail price of each pair ranges from US\$40-80. This processing business is labor-intensive and requires skill. There is no possibility of using automatic tools or facilities to reduce the labor of the traditional work. Nonetheless, the woman owner is determined to continue this profitable venture.

I. A-TZE Snail Chain Stores: From Undervalued Snails to Popular Snacks

For many decades, sea snails have been one of the traditional snacks in coastal villages in Taiwan, and probably in other Southeast Asian countries. The profit earned from selling snails is comparatively low and seldom attracts men's attention. Women and children used to share the heavy work of cleaning, cooking at home and selling the popular snail snacks along the roadside.

Over the past 15 years, Mrs Wan-Tze Young, a woman with creative ideas, started to make this business enterprising in several ways, including: (1) increasing the supply through the polyculture of snails in fish or shrimp ponds and collection or importation of wild ones from the coast in several islets; (2) using automatic washers and clean tap water for rinsing and cleaning snails; (3) utilization of cement-sand-water mixer to mix sea snails with additive ingredients such as hot pepper, garlic, green onion, soy sauce and standardization of the spiciness of the cooked snail product; (4) procuring certificates of excellence for processed seafood from the Council of Agriculture and Institute of Food Research and Development; (5) designing and using the registered logo for their products on leaflets, in chain stores, on uniforms and containers of snails over the last ten years; and (6) securing permanent arrangements with chain stores to sell the product. Three kinds of snails are processed, namely, the horn snail (*Batillaria zonalis*), areola babylon (*Babylonia areolate*) and screw turritell (*Turritella tereb*).

During our interview, we found that Mrs Wan-Tze Young hires only women for her sales people, these being mainly school students during their holidays. To ensure the products conform to sanitary standards, she hires middle-aged ladies. Male employees represent less than 10% of her total workforce and are mainly in charge of labor-intensive work, such as snail collection, cleaning and transportation. She has started to attend training courses, such as HACCP and product promotion. In the early phase of establishing her business, she depended on her brother, who studied in a medical school, for sample examination. Now, she sends samples to the Taiwan Fisheries Research Institute and the Institute of Food Research and Development for the authorized examination of product sanitary conditions. Visit www.kissfish.com.tw

It is now recognized that after proper processing and creative modernization, even originally low-profit sea products can help women create value-added products and thus earn monthly income of as much as US\$3,000-5,000 year-round.

J. Yen and Brothers Enterprise Co., Ltd.: Distributor of Microwaveable Seafoods

The Yen and Brothers Enterprise Co. (www.dear2u.com.tw) has a philosophy that the sea resources are like an uncut diamonds. It seeks to uphold the concept and ideal of society, customers and employees uniting and prospering with one another. The company sales volume was around US\$30 million in 2001. The company specialized in seafood and is committed to developing gourmet food that is fresh and healthy. In 2003, after gaining valuable experience in exporting and importing seafood, it started to organize a branch of six women and two men to introduce modern seafood processing and to distribute microwaveable seafood products through convenient delivery chains from farm/food processors to dining rooms. The Yens asked their women staff to consider women's views and to concentrate on promoting ready-to-eat seafood dishes for family reunions and occasions such as Chinese New Year. At our interview with Chairman Yen Yuan-Po, we found that the Yens maintain their own unique business philosophy as well as apply vertical integration strategies and constantly innovate

and improve their competitive advantage. After the branch of microwaveable seafood dishes had been operating for only one year, the Yen head office announced that it had developed a program to help the company's women, using all the professional skills available in their diversified seafood business. For example, staff in the branch of microwaveable seafood dishes may obtain assistance easily from Yen's other divisions of wholesales, hypermarket sales, direct sales, logistics, overseas market and processing under the same head office. Including through the use of modern marketing strategies and computerized operations, it is hoped that the women staff will gain enhanced capacity in research and development and thus be better able to meet the requirements of customers.

Conclusion

Women are an important part of any nation's human resources. The statistics from the Ministry of Interior Affairs (<http://www.moi.gov.tw>) in Taiwan indicate that the female to male sex ratio in the Taiwan population has been 105-110 to 100 in recent years. Therefore, slightly fewer than half of the Taiwanese population is male. All citizens receive compulsory education for 9 years and women have equal opportunities to higher education. Our interviews have highlighted that many women in Taiwan have more than 30 years of experience in traditional and modern processing of fisheries and aquaculture products, gained during the recent rapid development of the seafood sector in Taiwan. The past achievements of women in the sector have been productive and innovative but even more can be achieved in the future with appropriate encouragement for women. Our studies have shown that women's capacity for innovation is often linked with their eye for natural beauty, and with their ability to produce nutritious and delicious food in home cooking. Excellent examples of women's ingenuity in the processing and packaging areas include ready-to-eat microwaveable milkfish and tuna products. Women have also found that knowledge-based e-businesses are appealing to consumers and can assist their own capacity to operate from home or close to home.

In summary, in Taiwan, social acceptance, government policies and women's growing business ambitions have all contributed to the growth of female entrepreneurship in the seafood and aquatic products sectors.

1. Social acceptance: Women's involvement in capture fisheries is rather limited while in aquaculture, women mostly worked with men in hatcheries and pond farms (Chao et al. 2001). Based on our present study, we conclude that processing of fisheries and aquaculture products comparatively provides women more space and opportunity to develop their talents for artistic products, ideas on new healthy and convenient seafoods, and creativity in production and marketing concepts.
2. Government policies: Statistics provided by the National Youth Commission showed that 27% of women lacked the professional skills to start a business; 22% were short of capital; 17% had no access to market information; and 12% lacked confidence in themselves. The commission has increased its budget for small loans to encourage more women entrepreneurs. The Ministry of the Interior attempted to restore the balance by designing the "Flying Geese" Program through the Cabinet's Women's Rights Promotion Commission to encourage female entrepreneurs. This program is intended to organize short-term business training programs for women interested in becoming entrepreneurs. It turns the spotlight on women's roles and gender relations in creative businesses of any kind, including processing of fisheries and aquaculture products. These initiatives were taken by government, communities and policymakers to ensure a sustainable, equitable and gender-just form of related development. The results show that women with original ideas did receive useful training, optimal guidance and financial loans to develop their own successful businesses, as highlighted in this study.
3. Women's growing business ambitions: In this study, women in some of our case studies run online businesses to realize their business objectives as women entrepreneurs and to spread access to their traditional or special aquatic products, mainly from their hometowns. Their success lies not only in their unique business positioning, but also in their product

identities that are critical selling points that cannot easily be copied. Women in other case studies hope that their businesses can expand to include ecotourism and healthy services so that they can offer customers more than men entrepreneurs do. Most importantly, all proved to be able to handle their responsibilities to their families and also run thriving aquatic food or jewelry processing businesses. Overall, the efforts of these women have contributed to expanding the opportunities for processing of fisheries and aquaculture products in terms of artwork, gourmet foods, handicrafts and unique functional products. This diversification has increased the quantity, quality and convenience of products to meet consumers' choices. Some businesses have globalized and some others still need more time to break through and become international.

In the future, marketing infrastructure and channels as well as economic analysis of existing processing systems or subsystems with significant contribution from women should be emphasized in order to improve the opportunities for globalization. To maximize the opportunities for the country, women's opportunities must also be addressed. The difficulties faced by women during globalization should be studied to provide wise solutions and useful responses. The experiences among developed and developing countries where there is significant involvement of women in processing activities should be shared among countries. Taiwanese women have many achievements to share as well as much that they can also learn. Therefore, we propose that: (1) government should further help by training personnel in aspects of e-marketing, processing ideas, cost and return analysis, and expanding marketing channels of business; (2) relevant associations should be in charge of establishing complete and updated market information, such as monthly prices of eel fingerlings, marketable eel, processed eel, eel feed and eel oil capsule as a significant reference source for association members in respective industry sectors; (3) more women should be formally trained to join in and create the globalization wave and contribute fully to the sector, including in areas where their expertise and creativity may surpass that of men, such as in creation of new food and aesthetic products; and (4) more research is needed to evaluate and identify the future roles that government, research, manufacturing, retail and consumer sectors should respectively play to attain practical sustainability of the processing industry of aquatic products.

References

- Anon. 2004. Women entrepreneurs making topics on finance and economics. China Times Daily Newspaper (September 20): A8. (In Chinese).
- Chao, N.H., C.F. Chang and E.Y. Chang. 2001. Responding to globalization trends in fisheries: assets of professional Taiwanese women, p. 65-76. In: M.J. Williams, N.H. Chao, P.S. Choo, K. Matics, M.C. Nandeesh, M. Shariff, I. Siason, E. Tech and J.M.C. Wong (eds), Global Symposium on Women in Fisheries, 2001. The WorldFish Center, Penang, Malaysia.
- Chen, S.R. and W.C. Su. 1993. Study on fishing efficiency of the sakura shrimp fishery in the coastal waters off southwestern Taiwan. Taiwan Fish. Res. 1(1): 11-18. (In Chinese).
- FAO (Food and Agriculture Organization). 1995. Development policy and strategy for the benefit of rural women. D/V2715E/1/9.95/1000. FAO, Rome, Italy.
- FAO (Food and Agriculture Organization). 2002. The State of World Fisheries and Aquaculture 2002. FAO, Rome, Italy.
- Hasan, M.R. 2001. Nutrition and feeding for sustainable aquaculture development in the third millennium, p. 193-219. In: R.P. Subasinghe, P. Bueno, M.J. Phillips, C. Hough, S.E. McGladdery and J.R. Arther (eds), Proceedings of the Conference on Aquaculture in the Third Millennium, 20-25 February 2000, Bangkok, Thailand.
- Kao, S.W. 1997. A study of women's participation in decision-making of fishery families. Rev. Agric. Ext. (December): 19-53.
- Lee, D.A., S.H. Wu, I.C. Liao and H.P. Yu. 1996. On three species of commercially important sergestid shrimps (Decapoda: Sergestidae) in the coastal waters of Taiwan. J. Taiwan Fish. Res. 4(1): 1-19.
- Ministry of Interior Affairs. Accessed from <http://www.moi.gov.tw>
- National Youth Commission. Accessed from <http://www.nyc.gov.tw/default.htm>
- Omori, M. and K. Shida. 1995. "Sakura-ebi": history of one hundred years of the Sergestid shrimp fishing industry. Shizuoka Shimbunsha, Japan. 305 p. (In Japanese).
- Yang, S.C. 2001. Will globalization increase the unevenness of international wealth? Common Wealth (February) 1: 30-33. (In Chinese).

WOMEN IN FISH BORDER TRADE: THE CASE OF FISH TRADE BETWEEN CAMBODIA AND THAILAND

K. KUSAKABE

Gender and Development Studies
School of Environment, Resources and Development
Asian Institute of Technology
P.O. Box 4, Klong Luang
Pathuthani 12120, Thailand
kyokok@ait.ac.th

P. SEREYVATH

Cambodian Center for Study and Development in Agriculture
Tuol Kok, Phnom Penh, Cambodia
Sereyvathp_CEDAC@online.com.kh

U. SUNTORNRATANA

Udonthani Inland Fisheries Research and Development Center
Udonthani Province 41000, Thailand
ubolrana@yahoo.com

N. SRIPUTINIBONDH

Maharakham Inland Fisheries Research and Development Center
Maharakham Province 44000, Thailand
napapornfish21@yahoo.com

Abstract

Fish is one of the largest export items from Cambodia to Thailand. The current concept of regional trade in the Greater Mekong subregion focuses on special and physical planning. It does not take into consideration the role of small traders. Normally they are grouped together as informal traders and considered as smugglers. However, if regional trade is to benefit the poor people living in the border areas, it is important that the small border traders are given central attention. This study challenges the notion that access to infrastructure especially roads will benefit border traders, and attempts to contribute to the missing link in the regional trade framework—the link between trade and natural resources management. Women are the dominant players among the small border exporters. Women traders have always been under the “protection” of and exploitation by the state, either in the form of street-level bureaucrats or by the military, when doing their business. This study explores the obstacles that women face in a changing macroeconomic and political environment—from a war zone to the state monopoly of the fish trade, and to the opening of borders and deregulation.

Introduction

Cambodia's inland fisheries are the fourth most productive in the world (Yim and McKenney 2003), given the combined capacities of the Tonle Sap (Great Lake) and the Mekong River, where more than one million people depend on the fisheries sector for employment, income and food security. Freshwater capture fish production was recorded at 385,000 t in 2001 (MAFF 2004). Fisheries were estimated to account for 7-12% of GDP in 2002 (Yim and McKenney 2003). On the other hand, in Thailand, the amount of harvest from freshwater capture fisheries is half of that in Cambodia—around 200,000 t in 1997. Thai fishers/farmers culture almost the same amount of fish as they capture (MAC 2004). Because the amount of domestic-captured fish is not enough for domestic consumption, Thailand imports freshwater fish from Cambodia and it is the largest importer of freshwater fish from Cambodia. Trade statistics in Cambodia show that the total fisheries export from Cambodia (including from marine fisheries) was around 35,000-45,000 t. However, this is not considered reliable due to under-reporting (Yim and McKenney 2003)¹. According to Leepayakoon (2004), who collected daily fish import data at the Aranyaprathet at the Cambodia-Thailand border checkpoint from 1999 to 2002, fish imports to Thailand from Cambodia were 10,719.9 t (300.4 million baht) from June 1999 to May 2000, and 10,522.5 t (349.2 million baht) from June 2001 to May 2002.

The present study looked at trade between Thailand and Cambodia after the Democratic Kampuchea (DK) regime that ended in 1979. During the DK regime, commercial fisheries were banned, individual fishing was restricted, and trade between Thailand and Cambodia was nonexistent. After 1979, with the exodus of refugees to the Thai borders, commercial activities emerged in the border areas. With changes in the border trade policies and structures, such as the establishment of state-owned enterprises, market liberalization and formalization of border trade, actors and their relations have changed over the years. This study focused on women small-scale fish traders. They are important actors in the trade chain and the fish trade has created employment for these women who, with their meager incomes, can financially support their households. This paper examined the changing roles and positions of these traders with the changes in the border trade environment, and analyzed their relations with other actors.

One of the important issues that distinguishes these traders' businesses from that of other parts of the fisheries supply chain is the physical place and space that they work in. The study also examined how the international border influenced their way of doing business and their relations with other traders. The study interviewed fish traders both in Cambodia and in Thailand. Around 30 traders on the Cambodian side and 45 traders on the Thai side were interviewed. Discussions were held with custom officers, the Department of Fisheries (DoF), in both countries, as well as fishers and fish lot owners in Tonle Sap. A workshop that involved both Cambodian and Thai fish border traders, fishers in Tonle Sap, customs, immigration and DoF officers was organized to exchange ideas.

Fish Trade Network and the International Border

Markets distribute and allocate resources, and the allocation is done based on the power relationships that each actor in the trade chain has. The relationships between actors in the trade chains reflect and construct gender relations and create certain advantages and disadvantages for women traders. Polanyi's non-market exchange depicts redistribution and reciprocity, but many of the agricultural markets in the developing countries operate mainly on relations of reciprocity. Such market relations based on social relationships is what makes the market system gendered. Harriss-White (1998) studied the gender construction of non-labor, commodity markets, and described how grain markets are reinforcing institutional inequalities and social territorialization.

¹ This figure includes all exports. Thailand's customs statistics in Sa Kaew province shows that official trade of freshwater fish from Cambodia to Thailand was 8.8 million baht (around US\$225,640) in 2003. However, this is the amount imported by registered importers who import in large quantities. This is said to be grossly under-reported.

“Female traders tend to operate through personalised ‘network’ trading contracts and are price takers. By contrast, shop-based trade is controlled by men. Men control all derived markets (e.g., the rental markets for transport and storage) and all materially productive activity (mechanical milling). They are price makers and can and do practise collusive price formation.”

Crow (2001) in his study of South Asian grain trade also pointed out how the structure of grain and finance markets assists accumulation by the rich and the impoverishment of the poor. As Harris-White pointed out, the economic consequences of the gendering of the rice marketing system reduces both productive efficiency (in which outputs from given inputs are maximized) and adaptive efficiency (judgements about the flexibility of the norms and institutions shaping the way an economy develops) (North 1990 in Harriss-White 1998). Yim and McKenney (2003) in their study of fisheries in Cambodia pointed out that overexploitation of small traders can lead to the collapse of the trade and thus would not benefit the development of fish trade. Studies of regional trade of livestock in Africa similarly pointed out how institutional mechanisms, especially the state’s regulation, concretely hamper the viability of livestock trade. Sidibe (2003) argued that marketing policies and institutional systems are not clearly defined, allowing the imposition of illegal tax tariffs and corruption to be rampant. Amogu and Salisu’s study (2003) showed how the imposition of taxes by authorities is leading to business failure.

The market system that is dealt with in this study is further complicated because it also takes into consideration the effect of international borders. International borders are a relatively new concept in this region. In Southeast Asia, the traditional state was defined by its center and not by its boundaries (Anderson 1983; Winichakul 1994; Carsten 1998), and the power of the ruler was revealed not by its territory but by the number of people that they controlled. With the concept of modern states being introduced to the region, international borders, with their symbols of national identity and control, have exerted “real” changes on the capabilities and well-being of women and men living along the borders. The special feature of borderlands is that people directly face different economic and political systems at the same time. They juggle with the hegemony of the two states, and utilize the differences to turn them into their opportunities. Thus, the phenomenon of borderlands gives a vivid picture of the effect that the centerlands will face under globalization in a more direct way. The geographical location sets certain culture, social norms, family structures and gender ideology, because of the history, topography, physical infrastructure, religious influence, natural resources, livelihood and economic systems, and state and political structure in the area. This study focuses on a certain geographical area, that is, a borderland. National borders are areas where two or more states come into direct contact with each other. This creates a margin for the hegemony of nation states, but a center for a dynamic movement of goods, people and information that strives to take advantage of this particular geographical location. Especially with a global move towards market liberalization and free trade, cross-border movements of people and goods have not only increased in volume, but also changed forms and actors. In order to demonstrate such changes, the study will specifically set the focus on the border areas between Cambodia and Thailand, and examines a trade of one commodity, that is, inland fish.

History of Fish Trade since 1980

During the DK regime (the so-called Pol Pot regime) until 1979, commercial fisheries were banned and individual fishing was restricted. Trade between Thailand and Cambodia was nonexistent. After 1979, with the exodus of refugees to the Thai borders, commercial activities emerged in the border areas. In 1981, the Kampuchea Fish Import Export Company (KAMFIMEX), a state-owned enterprise managed by the Ministry of Agriculture, Forestry and Fisheries in Cambodia, was established to collect fish from fisheries solidarity groups and state fishing enterprises (Touch and Todd 2002). KAMFIMEX was the sole licensed exporter of fish products and all fish destined for export had to be sold to KAMFIMEX. In 1990, KAMFIMEX was officially established to manage marketing, distribution and export of fisheries products through agents stationed at landing sites, provincial and border offices (Yim and McKenney 2003).

The first official border checkpoint, between Poipet in Cambodia and Aranyaprathet in Thailand, was a war zone until the early 1990s. It was initially opened to supply daily necessities to Cambodia². In the 1980s, fish could be exported to Thailand only with the help of the military. Traders would contract military drivers to transport their fish to the border, and since they could not join the convoy, they would cycle across following their ware. In later days, traders were able to access *romoh* (modified tractors that transport people) and did not need to cycle. Traders paid a fixed price of 300-400 baht per trip to the military. Some traded in the refugee camps, while others sold to Thai traders. The trade was risky, but lucrative³.

KAMFIMEX collected 4% of the total sale as a commission from small companies, as well as bought fishes from provincial distributors who held licenses from the Ministry of Agriculture, Forestry and Fisheries (MAFF). As the civil war subsided, and more traders joined the border trade, traders could transport their fish to the border without the help of military personnel. In 1990, KAMFIMEX established a warehouse in Poipet town, and all fish needed to go through them and pay fees to them.

In the early 1990s, fish trade was carried out in Ra market in Poipet, Cambodia. This later moved to the newly constructed Akeak market. However, during 1994-1995, due to the war between Royal government forces and the Khmer Rouge, it became increasingly difficult to continue trade in Cambodia. With the coup d'état in Cambodia in 1997, the market was completely shifted to Rong Kluer market in Aranyaprathet, Thailand, and it remains there until today. Rong Kluer market is a modern market with a concrete floor, a high steel roof and with large concrete roads. Trade is done in Thai baht. In Poipet itself, most of the transactions are done in Thai baht⁴.

KAMFIMEX used to control the fish export market until 1997. But several factors led to the fall of KAMFIMEX. Internal conflict led to some managers leaving KAMFIMEX and establishing the Import Export and Civil Development Construction Company (CDCO)⁵. At the same time, the amount of fish going through Poipet and KAMFIMEX was decreasing. Before the establishment of CDCO, some unlicensed exporters had been changing their export route to other informal border openings to avoid paying high fees to KAMFIMEX (field interview). When CDCO was established, it wooed these unlicensed exporters, even asking them to be shareholders of CDCO to secure fish for trade. With the establishment of CDCO, unlicensed exporters either started working with it, or simply stopped paying fees to KAMFIMEX.

At the same time, a growing number of checkpoints and agents were collecting fees from fish traders. Yim and McKenney's study in 2002-2003 identified 27 payments done to 15 institutions in 16 locations to get from the landing site in Kampong Chhnang, Cambodia to Rong Kluer Market in Thailand. According to their study, 69% of the potential profit was paid for fees, and exporters were able to cash in only 31% of what they were supposed to earn. Of the payments, 68% was done in Cambodia, and of this, only 17.4% was for customs and duties; 9.5% went to KAMFIMEX, while payments without official basis amounted to 50.1%.

Because of such large and frequent payments involved in transporting fish from Cambodian landing sites to Thailand, transporting agents were contracted by exporters to manage all these payments. Exporters pay 3 baht/kg to transport fish from a landing site to the border town of Poipet, and 2 baht/kg to transport fish across the border to Rong Kluer Market⁶.

² The characteristics of the early market remain in the present name of the market "Rong Kluer" (salt warehouse).

³ One Thai respondent reported that the price was 10 times less if they bought fish inside Cambodia.

⁴ This is different in other smaller checkpoints. In the checkpoint of Ban Laem (Chanthaburi, Thailand) – Komrieng (Battambang, Cambodia), transactions were mainly in Thai baht, but Cambodian riels were also accepted in the Thai side of the border. This was not the case for Aranyaprathet. Although all the sellers and many buyers were Cambodians, Cambodian riels were not accepted in Rong Kluer Market.

⁵ One of the high-level managers of KAMFIMEX had a sister who already had a registered construction company. He used her company to register as an exporter of fish as well, thus CDCO's company name showed this history of establishment.

⁶ Large-scale traders hire fee brokers to negotiate with authorities. Small traders depend on transporters who are not as well-connected as fee brokers. The payment is higher for smaller-scale trade. The exact cutting point of the amount is not clear, but for micro-scale traders, the payment to transporters is 2.5 baht/kg, making it more cost-effective if the shipment is combined and done together for smaller traders.

The traders did not passively accept such charges. In 2001-2002, small-scale transporters and traders came together and demonstrated against the fee charged by KAMFIMEX⁷. They demanded free trade for fish exports, and state support in stabilization of prices and markets. The leader was one transporter/broker, who is a native of Poipet. He collected thumbprints from 96 traders and transporters, among whom more than half were women. They also went to make the demands in the Banteay Meanchey governor's house. The demand was finally approved in 2004, giving victory to the traders-transporters against KAMFIMEX. With their increasing bargaining power, the leader of the uprising said that the payment in Cambodia is much less than before.

At the same time as the Cambodian fees have decreased, the Thai fees have increased dramatically. Before 2001, only the Thai customs were collecting fees. Other payments included water and sanitation fees to the Rong Kluer Market. In 2001, a DoF booth and a Department of Livestock booth were established in the border checkpoint, and all imported aquatic animals needed to go through the checkpoint. At the same time, import registration was strictly enforced. Only Thais can register as importers, and all fish that come into Thailand need to be under a registered importer. There are currently three importers registered at the Aranyaprathet border, and fish traders need to pay a fee to the registered company they use. This fee is not large, but coinciding with the period that the DoF set up their checkpoint, the amount charged at the Thai customs has increased 2-5 fold or more. Sophea⁸, a Cambodian woman exporter, said that before 2000, she paid 6,000 baht to Thai customs. Now she pays 10,000-15,000 baht per cart. Neary, a Cambodian woman small trader, said that before 2000, she paid 20 baht per basket. Now she pays 100 baht and sometimes 200 baht depending on the "mood (*arom*)" of the customs officer. According to Pany, a Cambodian small trader, Thai customs used to ask for a lump sum payment per pushcart. Nowadays, they are stricter. The exporters said that nowadays, payment on the Thai side is the largest of all the costs.

Along the Thai-Cambodian borders, there are six official checkpoints (where they have customs offices). During the time the Poipet-Aranyaprathet border was closed due to the bilateral political conflict, other smaller checkpoints were operating as usual. So, some of the traders sent their fish through other border checkpoints. However, road conditions in Cambodia are very bad around the other checkpoints, and there is no large market like Rong Kluer Market on the Thai side, making it difficult for exporters to send their fish in bulk.

The official data that show fish trade in the border cover only the amount that the registered companies declare for import. These do not cover the small-scale fish trade which comprises a significant part of the trade. The data that we were able to collect through the cooperation of the Thai DoF officers at the border checkpoint were able to capture the trade by these small traders that has been invisible till now. It shows large seasonal fluctuation as well as yearly fluctuation (Figure 1). The figure shows that whenever the import amount from Cambodia to Thailand decreased, the export of fish (cultured fish) from Thailand to Cambodia increased. The trend has increased in the past year.

The price fluctuation is also significant, and is one of the largest problems that the traders faced. Figure 2 shows the price fluctuation of snakehead in three areas: Poipet, Cambodia; Rong Kluer Market, Thailand; and Angthong, Thailand. Angthong is located in central Thailand, in the heart of the Thai territory. The traders who are the focus of our study are trading across Poipet to Rong Kluer Market. This figure only shows one week's price fluctuation. Fish lot owners are able to stock fish in cages in the Great Lake to sell during the off-season, when the price is much better. Large traders in Rong Kluer Market are able to stock fish in freezers for months to take advantage of the fluctuating price. However, small traders do not have access to these facilities. They only use ice in order to store fish. When the negotiation with authorities and Thai traders takes time, fish can rot very fast. This squeezes their already small

⁷ Small-scale traders and transporters refer to those who trade around 200-500 kg/day on average. There is a large seasonal fluctuation in the traded amount.

⁸ The names are changed in order to maintain anonymity.

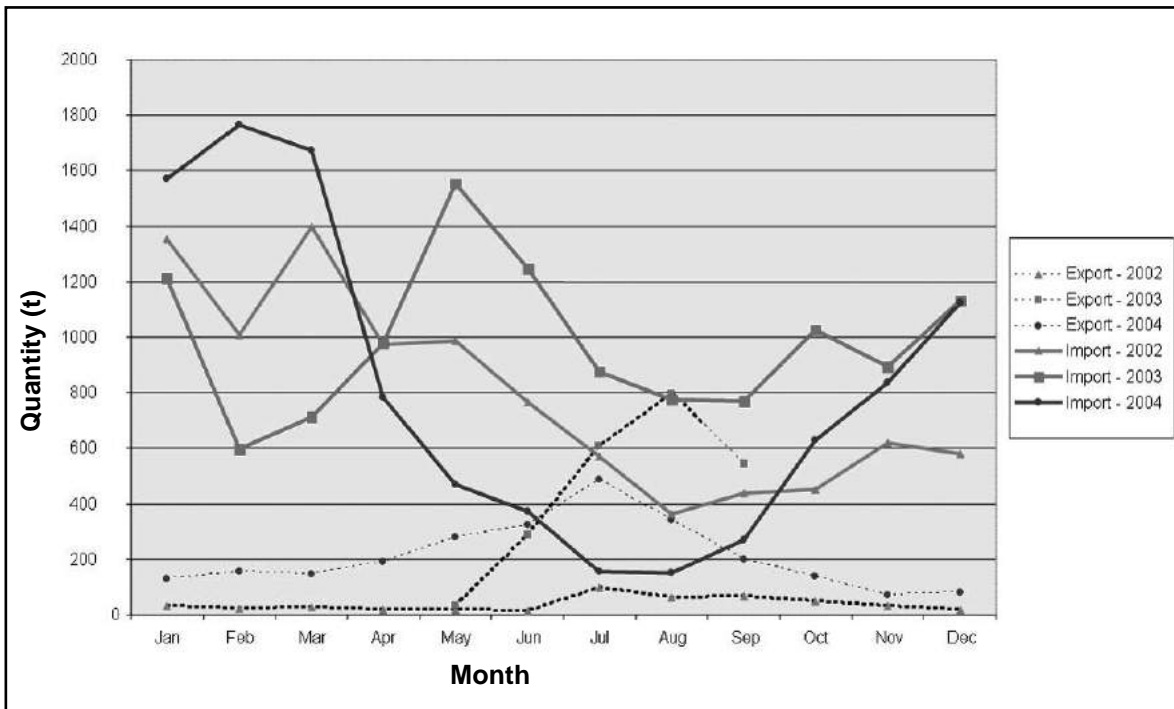


Figure 1. Amount of trade by year.

profit margins. They need to cover all the price fluctuations, and if they encounter several days of losses, it can take them out of business. It was also noted that the price difference between Rong Kluer market and Angthong market is larger than between Poipet and Rong Kluer. Even though geographically, Rong Kluer and Angthong are farther, there are more places to pay fees between Poipet and Rong Kluer. Seen in this light, traders in Poipet would have smaller profit margins than traders between Rong Kluer and Angthong. However, this study was able to get only one week's price data and testimonies from traders. More investigation and data collection on this issue are needed in the future.

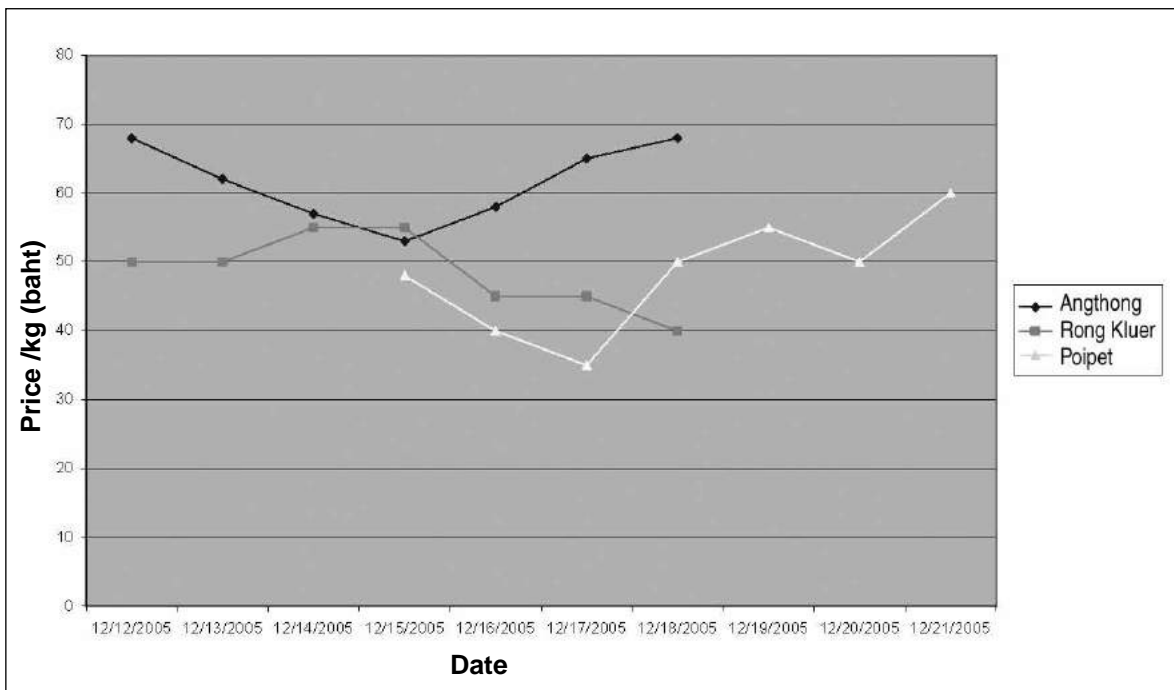


Figure 2. Price of snakehead in three areas over one week.

Market Route and Actors Involved

Figure 3 shows the market route of the fish trade from Tonle Sap Great Lake to markets in Thailand. The following are brief descriptions of the major actors along the route.

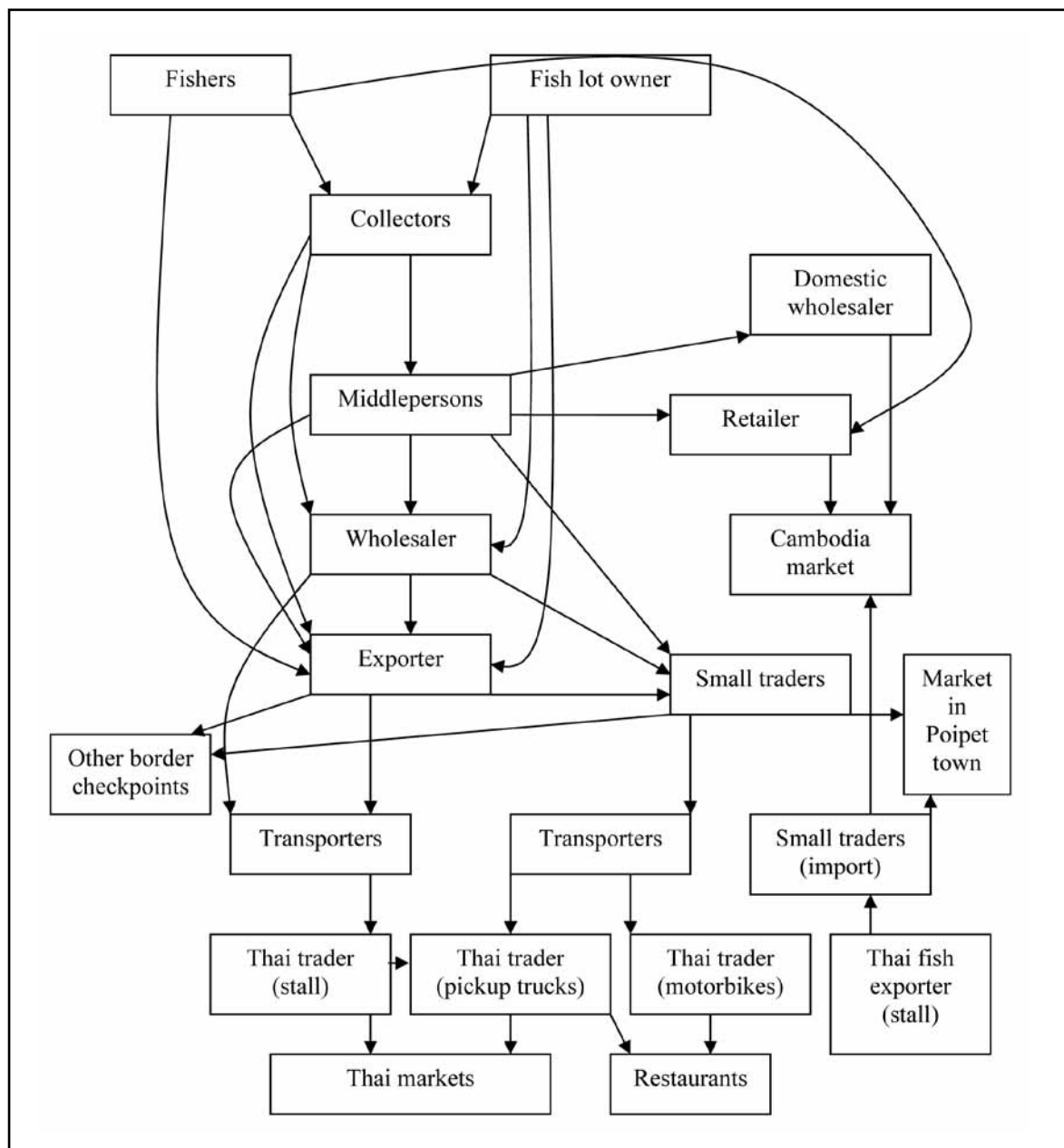


Figure 3. Market route of fish between Cambodia and Thailand.

Lot owner

Since the reforms in late 2000, there are 83 fishing lots in Cambodia. Lot owners buy conditional fishing rights in a state auction. The owner is usually an individual or close family/friend group. Lot owners are generally registered under men's names, since the man is the head of a household. Women mainly deal with financial management and the clients. Lot owners have control over the fish product and of selling fish to clients. Wholesalers, collectors

and exporters buy fish from them at the farm gate. Lot owners never export fish to Thailand directly by themselves, but, in some cases, lot owners take stock fish to sell in Phnom Penh.

Collector

Collectors buy fish, directly or through their network, from fishers or lot owners at fishing villages. They have one or several boats containing several iceboxes for fish storage during the fish collection period. Collectors extend credit to fishers, and fishers are required to sell to collectors. Some collectors get loans from wholesalers, middlepersons and exporters. Collectors sell their fish collected from fishers to middlepersons, wholesalers, retailers and exporters at fish landing sites. There are about 1,000 collectors around Tonle Sap River and the Great Lake. Most of the collectors operate as a family business. Generally, one collector has around 30-70 regular fishers who are his own clients.

Middleperson

Middlepersons buy fish from one or several fish collectors at landing sites and sell to wholesalers, exporters and retailers. They also sell to domestic fish sellers. Both women and men are found working as middlepersons. Those who sell to exporters have their own trucks and boats, since they need to collect large amounts of fish. It is estimated that more than 1,000 middlepersons trade fish to domestic and cross-border market.

Wholesaler

Wholesalers have permanent fish stalls at fish landing sites or floating village where they can stock several tons of fish. They buy fish from middlepersons, collectors, fishers or lot owners and resell fish to exporters, retailers and restaurant owners. Often wholesalers operate as family businesses.

Transporter

Transporters provide fish transportation services to fish traders. They do not engage in direct buying and selling of fish, and they provide services with a fixed price per quantity of fish. Some transport fish from fish landing sites, while others only offer transport across the Thai-Cambodian border. All transporters are men.

Exporter

Exporters buy fish from fish landing sites and domestic markets. They have permanent stalls at fish landing sites. In order to get a sufficient quantity of fish for external markets, exporters often advance funds to collectors for them to buy fish. They sometimes collect fish directly from fishers and lot owners. In Cambodia, 29 large fish exporters were counted during our survey. Some exporters get advance payments from Thai traders. Smaller exporters are often managed only by women. Larger exporters often operate as family businesses.

Small-scale trader

Small-scale traders buy fish from exporters and wholesalers, and bring the fish to the Thai side. Sometimes, they buy fish from the domestic market. They normally do not have credit relations with others. All of them are women, although often their husbands or other male kin will help out.

Intermediary or broker

Brokers negotiate on behalf of exporters at the border gate, with Cambodian and Thai custom offices for tax payments in bringing fish across the border. There are four brokers at the Aranyaprathet border gate. All of them are Cambodian men and were ex-officials in

government, military or military police. They established special relationship with customs authorities and officials dealing with fish export procedures to hasten the process of passing the border checkpoint and lowering fees.

Thai trader in Rong Kluer

Thai traders in Rong Kluer are mostly women. Most operate as family businesses, but women are the ones who manage the business. Many of the traders that have stalls in the market have been traders since the 1980s. There are some temporary traders who come by pickup trucks and motorbikes. These are also usually family (husband and wife) teams.

Gender Segregation in Fish Trade

Along the fish trade chain, women are concentrated in small-scale trading, men more in transportation. There are several reasons why women are in small-scale trading. First, women dominate the domestic fish retail trade, and small-scale export is seen as the extension of such a role. Second, women small-scale traders normally have little capital. They also have less connection with government officers or with fishers/fish lot owners, and they have less capital to extend credit to fishers to ensure their supplies of fish. To become exporters and wholesalers, they need to build up relations with fishers and fish lot owners as well as other traders in order to secure enough fish. Transporters need to build connections with government officers in order to get favorable treatment from them. Small-scale traders are poor in both financial and social/political capital, and thus remain small. Third, small-scale trade is considered unsuitable for men. According to women traders, small-scale traders need to be subservient to all other actors. "We beg others (*som ke*)" for the trade. Women traders said "men will soon start fighting" since they cannot tolerate (or are conditioned not to tolerate) degrading attitudes from others such as government officers and police officers to whom they have to pay fees. Combined with the expected behavior that women are (or should be) not aggressive but obedient, and are subjects for pity and sympathy, women can use strategies such as acting out subservience to authorities without being sensitive about what others will think about them. During the time traders depended on soldiers, Sokha, an old-hand woman trader, said that it was better if women did the business and talked to the soldiers. It was easier to ask for their favor. Even after they were free to travel to the border, it was still the women who were in the forefront negotiating for fees with economic police, soldiers and other government officers. "It is better if women negotiate. If men negotiate (with authorities for petty amounts of fish), they will start fighting soon because both sides think that the other is looking down on him." For women, this is not the case, Sokha says.

Such sex segregation in fish trade, which keeps women in the small-scale border trade, makes women vulnerable in several ways. First, women small-scale border traders have difficulty in securing fish. Since they do not have capital to extend credit, their fish supply is controlled by exporters/wholesalers/middle traders who give credit to fishers. Small-scale traders are at the mercy of these actors in terms of access to fish supply.

Second, because small-scale traders are not able to stock fish, and have little money to invest in ice, they need to sell their fish as soon as possible. Considering that fish prices fluctuate, small-scale traders are vulnerable to the fluctuations and are not able to cushion large changes. This makes their businesses riskier.

Third, because they have less connection with government officers and are not able to hire brokers because of their small quantities of fish, they are more vulnerable to fee collections by officers and others at the border. They are not able to predict beforehand the amount that they have to pay. Combined with the unpredictability of fish prices, this also adds to their business risks since they cannot foresee the selling price or the cost for their business. They also need to pay higher prices per kilogram to transporters compared to larger traders when crossing the border. It is also noted that the profit margins for Cambodian traders would be

smaller than those for Thai traders considering the price difference as well as the costs that they have to bear in order to carry the fish across border (see Figure 2).

Fourth, even though they share similar problems, the small traders are scattered geographically, making it difficult for them to unite. They are actually better linked vertically (with exporters and with Thai traders) rather than horizontally (with other small-scale traders), making it even more difficult for them to construct a sense of fellowship and deal with common problems.

The physical area of the international border makes their marginalized position even more invisible. The borderland is already a marginalized area from the centerland perspective, where rules and regulations are formed. The Thai border trade tariff rules say that only imports of less than 20,000 baht are able to make the tax payment at the border. For larger amounts than this, the traders need to go to the district customs office for payment. This regulation is impractical for small-scale traders, who have too small an amount to go through the official process, but too large to pay officially at the border. This mismatch between practice and regulation creates a fuzzy space where the amount of fees and taxes can be decided arbitrarily.

Towards a Gender-sensitive Fish Trade Chain

This study showed how the fish trade chain is currently working as a tool to strengthen present gender inequality by maintaining the social/gender relations of the actors involved. It also highlighted how the existence of small-scale traders is made more invisible by the trade being located in a marginalized geographical region—the international border. In order to improve the situation of women small-scale traders in the border area, this study suggests the need to review the tariff regime of the border trade to be more realistic and practical for the traders operating in the border area, and through the review to establish clear procedures for fee payments. Small-scale traders also need access to fish storage places in order to cushion themselves against the large fluctuations of fish price. This study argues the importance of encouraging fair grounds for small traders so that they can fully contribute to the development of fish trade and also for the economic development of the border area.

Acknowledgements

The authors would like to thank the Swiss National Centre for Competence in Research North-South which has supported this study.

References

- Amogu, U. and A.Y. Salisu. 2003. Improving the competitiveness of small holders in Nigeria: challenges and opportunities, p. 61-66. In: S. Ehui, M.B. Barry, T.O. Williams, M. Koffi-Koumi and Zeleka Paulos (eds), Policies for improving the competitiveness of smallholder livestock producers in the central corridor of West Africa: implications for trade and regional integration. Proceedings of a workshop held in Abidjan, Côte d'Ivoire, 17-18 September 2001. International Livestock Research Institute, Addis Ababa, Ethiopia.
- Anderson, B. 1983. *Imagined Communities: Reflections on the Origin and Spread of Nationalism*. Verso, London, UK.
- Carsten, J. 1998. Borders, boundaries, tradition and state on the Malaysian periphery, p. 215-236. In: M.W. Thomas and D. Hastings (eds), *Border Identities: Nation and State at International Frontiers*. Cambridge University Press, Cambridge, UK.
- Crow, B. 2001. *Markets, Class and Social Change: Trading Networks and Poverty in Rural South Asia*. Palgrave, New York, USA.
- Harriss-White, B. 1998. Female and male grain marketing systems: analytical and policy issues for West Africa and India, p. 189-213. In: C. Jackson and R. Pearson (eds), *Feminist Visions of Development: Gender Analysis and Policy*. Routledge, London, UK.
- Leepayakoon, P. 2004. The study on the control of aquatic animal importation at Klong Laeok boundary post, Srakaew province. Fisheries Administration and Management Bureau, Department of Fisheries, Ministry of Agriculture and Cooperatives, Thailand. Tech. Pap. No. 3/2004.
- MAC (Ministry of Agriculture and Cooperatives). 2004. Thailand data in National Statistics Office. Accessed in July 2004 from www.nso.go.th/eng/stat/subject/toc2.xls

- MAFF (Ministry of Agriculture, Forestry and Fisheries). 2004. Cambodia. Accessed in August 2004 from www.maff.gov.kh/fisheries.html
- Sidibe, S. 2003. Le commerce du bétail dans le sous-espace centre d'Afrique de l'Ouest: contraintes et perspectives, p. 7-11. In: S. Ehui, M.B. Barry, T.O. Williams, M. Koffi-Koumi and Z. Paulos (eds), Policies for improving the competitiveness of smallholder livestock producers in the central corridor of West Africa: implications for trade and regional integration. Proceedings of a workshop held in Abidjan, Côte d'Ivoire, 17-18 September 2001. International Livestock Research Institute, Addis Ababa, Ethiopia.
- Touch, S.T. and B.H. Todd. 2002. The inland and marine fisheries trade of Cambodia. Oxfam America, Phnom Penh, Cambodia.
- Winichakul, T. 1994. Siam Mapped. University of Hawai'i Press, Hawaii, USA.

THE INVOLVEMENT OF FEMALE LABOR IN SEAFOOD PROCESSING IN SRI LANKA: IMPACT OF ORGANIZATIONAL FAIRNESS AND SUPERVISOR EVALUATION ON EMPLOYEE COMMITMENT

D.A.M. DE SILVA

Department of Food and Environmental Economics
Graduate School of Biosphere Sciences
University of Hiroshima, 1-4-4 Kagamiyama
Higashi Hiroshima, 739-8528, Japan

M. YAMAO

Department of Food and Environmental Economics
Graduate School of Biosphere Sciences
University of Hiroshima, 1-4-4 Kagamiyama
Higashi Hiroshima, 739-8528, Japan
yamao@hiroshima-u.ac.jp

Abstract

The expansion of fish exports has been associated with the feminization of the fisheries labor force. This paper addresses women's roles in the fish processing sector in Sri Lanka. The impact of organizational fairness and supervisor evaluation perceptions on worker commitment were the central themes examined in the study. Data were gathered from a 35-item questionnaire based on the 7-point Likert scale questions. Fifty randomly selected women workers from 10 seafood processing firms located in the west and north-west provinces of Sri Lanka were canvassed to assess their perceptions of fairness, the evaluations of their supervisors and their commitment levels. The impact of organizational justice and supervisor evaluation scales on employee commitment was subject to hypothesis testing. Results of the multiple regression analysis indicate that fairness is a significant predictor of commitment to the organization. The correlation between commitment and supervisor evaluation had the highest positive value. Perceptions of the supervisor have an important impact on commitment. Employment in the fish processing sector provides women with some degree of economic autonomy, improved status and influence within their households. The seafood processing industry opens up new avenues to Sri Lankan women to redefine their position in fishing communities.

Introduction

Sri Lanka has significant pockets of fisheries activity although the sector makes only a small overall contribution to the economy. In Sri Lanka, a key issue in the fisheries sector is the role and status of the wives and other women in fishing families. There is evidence of positive

developments from the women's perspective. Fish handling, grading and processing for local markets principally involve women and there is some evidence that they are becoming more active in these activities. Women's position in seafood processing in the developing world is remarkably similar to that of women in seafood processing in developed countries, albeit at a very different economic level (MacAlister Elliott and Partners Ltd. 2002) Women's involvement in fisheries seem to be similar all the world over, in spite of the wide cultural, social, political and economic differences.

Time line of women's employment in fisheries in Sri Lanka

Earlier shore-based post-harvest fisheries activity provided certain opportunities for women. Their roles were traditionally important because they were the processors and handlers of fish for the domestic market, including commonly along the west and northwest coasts of Sri Lanka, although rarely along the south and southwest coasts. Especially in the southern parts of the island, women's involvement in any kind of fishing activity other than household work was rarely observed. Throughout Sri Lanka women's traditional roles in fishing families have been to support the male fishers, mainly through managing the shore-side elements of the business and as economic partners to their spouses. Religious barriers also significantly affect female participation in fishing activities. Female participation in fishing activities is rare among Buddhist communities. For the Christian and Muslim communities within Sri Lanka, women's participation is high in fish handling, grading and marketing. The majority of the fishing communities located in the west (Moratuwa – Negambo) southwest (Payagala – Moratuwa) and northwest (Negambo – Puttlam) are Christians. Especially among these communities, women play important roles in fish grading, handling and fish marketing in local markets. Traditionally they have a good reputation for home-made salted fish. Muslim communities are located in scattered areas around the coast, mainly in the north-west (Puttam), south-west (Beruwala), south (Hambantota and Kirinda), and south-east (Ampara to Baticaloa). Shore-based activities and local marketing are rarely carried out by women in Muslim communities. Their participation is important in home-made dry, salted and smoked fish production along the south-east coast. In contrast, Buddhist women in fishing communities rarely participate in shore-based activities, fish marketing and processing. Cultural barriers have strictly controlled the women's behavior and participation. Women are also highly affected by collapses in the industry but have very little role in resource management.

The emergence of shrimp processing during the late 1980s opened up new avenues for women as wage earners. However, women were expected to retain their domestic roles and duties, while the new jobs redefined their positions in the fishing communities and led to changes in the previous social balance. One of the forces behind the growth of the female workforce is the increasing presence of the Export Processing Zones and the subsequent promotion of the food processing industries. Women, especially younger, educated women, have been drawn into paid work for the first time. This employment, however, is associated with low levels of job security, harassment at work and usually marginally paid production-line work. Job security is affected by cost cutting at the expense of employees; given the fiercely competitive nature of the sector. The shutting down of processing plants leads inevitably to large-scale unemployment (Sharma 2003). Often required to work at low plant temperatures and under poor working conditions, the women can also suffer long-term health problems. Very few women are decision makers or are active in trade union activities. Although very active in the productive sector of the seafood industry, women are still shouldering virtually all the domestic work in their homes (Swanrangsi 2003).

Competitive advantage: the Sri Lankan way

Sri Lanka's seafood exports consist to a large degree of whole fresh, chilled and frozen products. The fishing industry contributed 3% to the gross national product (GNP) of the country (Central Bank of Sri Lanka 2003). With the expansion of trade in fish and fishery products, there is a need for good quality infrastructure if Sri Lanka is to become internationally

competitive in the fish export trade. The process of globalization has definitely led to an improvement in the export quality of the Sri Lankan fish and fishery export products. To be a market leader in seafood exports in the South Asian region, Sri Lanka has decided to follow strict quality assurance procedures under the European Union (EU) directives. With low-cost labor and relatively good access to resources, Sri Lanka enjoys a competitive edge (see Figure 1). An important achievement for Sri Lanka was to be named an EU list 1 country for seafood exports. Human resources and infrastructure are crucial factors which influence the success of quality assurance. For a firm and a country to experience a long-term sustained competitive advantage, they must invest in human resources and deploy scarce assets in the core areas that can most effectively provide the underpinning of a sustained competitive advantage (Central Bank of Sri Lanka 2003). In Sri Lankan seafood processing firms, more than 90% of the plant workers are women. Providing better working conditions and understanding the workers' needs are crucial to achieving the target of a high quality product. Profitability of the seafood industry depends on keeping the cost of production low and a major part of this is the labor cost. To achieve better quality while enjoying good profit margins, the companies require better management to improve productivity and to minimize labor costs (see Figure 2).

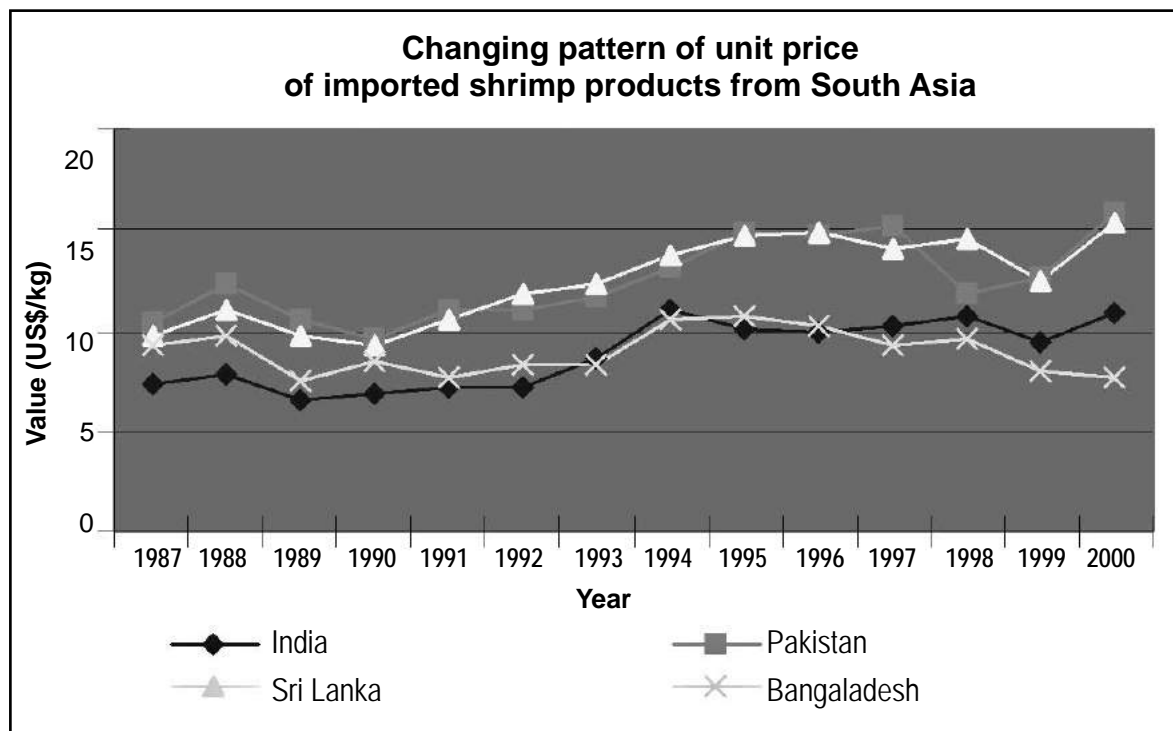


Figure 1. Analysis of competition for the South Asian shrimp exporters by unit prices in export market. (Source: Customs Bureau - Japan).

Women's role in the seafood processing industry

The Central Bank of Sri Lanka (2003) recorded that the overall female participation in the labor force is 32.5% in Sri Lanka. In the traditional fishing sector, division of labor is replicated within the seafood processing industry. Traditionally, women's roles are not significant in fisheries. However, women play their main roles in post-harvest and processing activities. This gender segregation was taken as natural, and health and safety issues dominated the agenda of the government-based programs for women's welfare. Some jobs have inherent gender connotations, i.e., some jobs require patience and diligence, which in Sri Lanka are seen as primarily female attributes, and led to women playing a major role in the seafood processing industry. However, this assumption also tends to label monotonous jobs as "female", with the attendant disadvantage that these jobs have limited career potential and women are relegated to lower rankings in the plants. Although women regularly perform all the processing tasks on

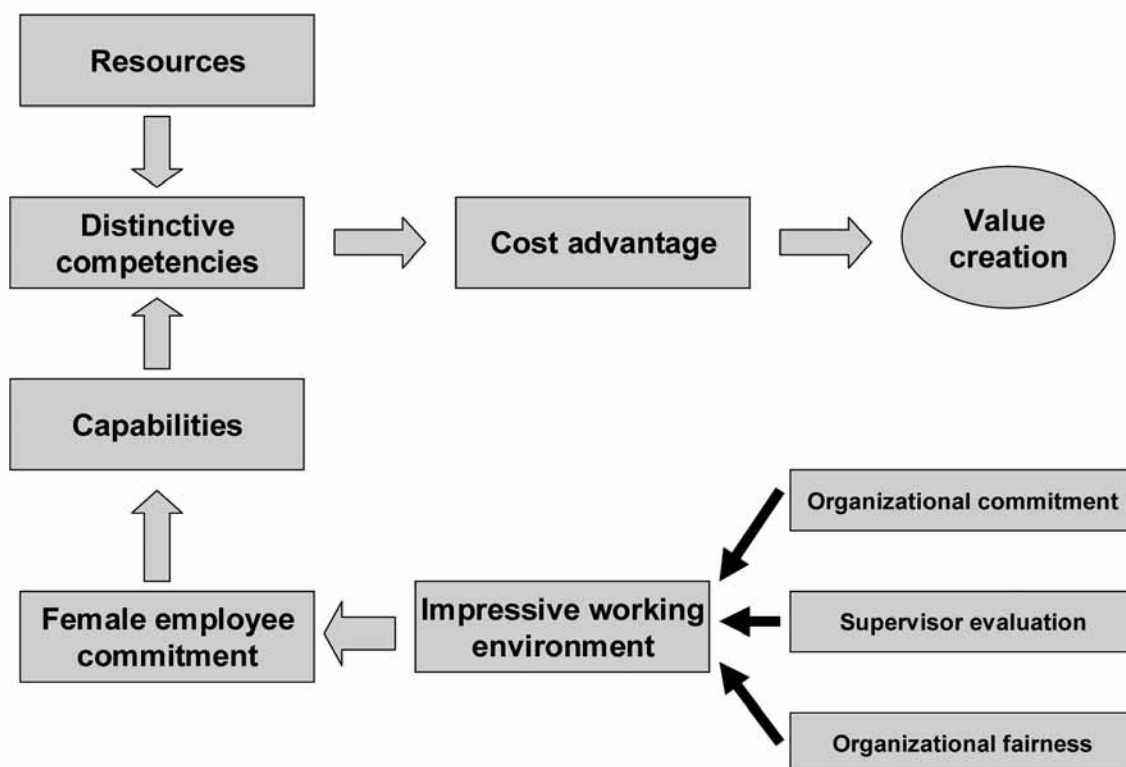


Figure 2. Conceptualization of employee commitment to quality products.

the shore in traditional fisheries, the range of tasks they perform in the frozen fish production plants are more limited. Men predominate in filleting, skinning and de-boning tasks in the tuna processing plants. The jobs where females are dominant are weighing, grading, packing and trimming. These are the lowest paid occupations in the plants. Supervisory and plant manager positions are held overwhelmingly by men (Table 1). Knowledge gained from on-the-job experience, high levels of education (the female literacy rate at 89% is the highest in the South Asian region), multiple skills and good judgment are critical assets of the Sri Lankan female workers (Central Bank of Sri Lanka 2003). Women workers in developing countries have limited opportunities to grow their critical assets as they tend to be concentrated in jobs which bring low earnings, are irregular and insecure and are beyond the effective reach of labor and social protection laws (Nishchith 2000).

Table 1. Ratio between men and women of different occupations in a processing plant.

Occupation group	No. of female employees	Male : Female
Laborers (prawn processing)	1,535	2:10
Supervisors	45	10:2
Quality controllers	04	10:5
Administrators	21	10:5
Directors	06	10:2
CEOs	01	100:1

Source: Survey findings, March/April 2004.

Of the sample of 10 seafood companies, 1 woman chief executive officer and 6 women directors were found among the Sri Lankan fish processing enterprises. The only woman CEO was better educated than her male counterparts and most of the directors were the wives of top managers. But in the quality control sections female participation is equal compared with the other plant sections. Gender differences exist in wages and historically male workers have been paid more than their female counterparts. Gender discrimination is officially outlawed in Sri Lanka but discrimination against women still exists illegally. The average level to which women's earnings are discounted below those of men lies between 19-24% (Central Bank of Sri Lanka 2003). Average monthly wage for unskilled female workers is US\$47.95 (Central Bank of Sri Lanka 2003). Paid employment provides Sri Lankan women with some degree of economic autonomy, improved status and influence within their households.

Objectives of the Study

This study was designed to explore the factors that affect the performance of female labor in the seafood processing industry. The impact of organizational fairness, organizational commitment and supervisor evaluation perceptions on worker commitment was the central theme. The discussions on the rapid change in the industry and emerging issues of women's roles in fish processing are based on a combination of literature reviews and interviews with individuals in the industry. The methodology used follows previous studies by Mowday et al. (1979); Cammann et al. (1983); Folger and Konovsky (1987); Moorman (1991); Moorman et al. (1993); and Schappe (1996).

Materials and Methods

Theoretical framework

Organizational science literature implies that the antecedents of organizational commitment can be influenced by management, and that the outcomes of commitment are favorable (Witt 1993). Researchers believe that committed workers contribute both motivation and creativity to the organization (Kimmel 1997). Aven et al. (1993) also suggested that committed employees contribute more to the organization in positive ways than less committed workers do. Organizational commitment is more than passive loyalty to the organization (Kimmel 1997). It involves an active relationship with the organization such that individuals are willing to give something of themselves in order to contribute to the organization's well-being (Greenberg 1990). Further, the perception of fairness in work assignments can also play an important role in organizations. It is likely that this perception in how the assignment of current work is made is related to a desire to remain in the organization, whereas unfairness may contribute to a desire to leave. Witt (1993) examined the relationship between two reactions to work assignment satisfaction with initial work assignment and perceived fairness in current work assignment and organizational commitment. Results indicated that individuals reporting the highest levels of satisfaction with initial work assignment and fairness in the assignment of current work tasks expressed greater commitment to the organization. In general, a positive relationship was found between organizational fairness perceptions and commitment (Kimmel 1997). More specifically, it is procedural justice that best predicts commitment.

The attempts to describe and explain the role of fairness in the workplace resulted in a growth of literature on the topic which was labeled "organizational justice" (Greenberg 1990). Theorists have distinguished between conceptualizations of justice that focus on content or outcomes, and deal with the fairness of the ends achieved (Kimmel 1997)—these are the distributive justice approaches, and those that focus on the process, and deal with the fairness of the means used to achieve the ends—these are the procedural justice approaches. Interactional justice is a third form of justice proposed by Bies and Moag (1986). They noted that to large extent individuals make justice appraisals based on the interpersonal treatment they receive and interactional justice refers therefore to a social exchange between two participants (Cropanzano and Randall 1993).

Hypothesis testing

Fifty female workers were randomly selected from 10 seafood processing companies operating on the west and northwest coast of Sri Lanka. Primary data were collected from these 50 workers (see Table 2).

Table 2. Demographic analysis of the sample: level of education.

Level of education	No. of laborers
Primary education	04
GCE ordinary level	18
GCE advanced level	26
Degree/diploma	02

Note: GCE - General Certificate of Education
Source: Survey findings, March/April 2004.

Compared with other developing countries, the gender disparity in formal education is not significant in Sri Lanka (Fontana et al. 1998). Educational attainment levels of both men and women have shown a persistent upward trend and the female literacy rate is only marginally lower than that for males in fishing communities. Female workers in the fish processing sector have better levels of formal education than those in other fisheries sectors. Female workers in fish processing plants are not only from fishing communities, but also from other agriculture and industry-based communities.

Table 3. Demographic analysis of the women sampled: age distribution.

Age group (years)	No. of laborers
20 – 24	16
25 – 29	28
30 – 34	05
> 35	01

Source: Survey findings, March/April 2004.

Demographic statistics for the sample showed that the majority of the female workers belonged to the age group of 25-29 years (Table 3) and most had completed their secondary education. The majority of female workers are in their mid-20s. Younger and older female workers are not so common in the fish processing sector, the main reason being that these women cannot tolerate the long, shift-based working hours and the uncomfortable factory environment (e.g., the ambient temperature is -4°C) and, if married, they have other duties that bind them to the family. For married workers, the job places significant burdens on them due to role conflicts as worker, wife and mother.

The impact of fairness in the workplace and supervisor evaluations on employee commitment was identified by testing the following hypotheses:

1. Organizational justice has a positive impact on organizational commitment. Specifically, the distributive justice factor will be the most predictive of affective commitment.

2. The supervisor's evaluation has a positive impact on organizational commitment. The degree of fairness of the supervisor will affect the commitment measures.

The survey questionnaire consisted of scales measuring justice, commitment and supervisor evaluation. The items on the survey were measured using the Likert 7-point response format, ranging from 1 –strongly disagrees to 7 –strongly agrees.

Evaluation of supervisor

This variable was conceptualized as the degree to which one supports or endorses a leader (Schaubroek et al. 1994). Cammann et al. (1983) used the Michigan Organizational Assessment Questionnaire (MOAQ) for measuring the adaptation scale. MOAQ was used previously in procedural justice research to measure the evaluation of supervisors (Alexander and Ruderman 1987; Schaubroek et al. 1994). The scale asks respondents to mark the extent of their disagreement or agreement with six statements about their supervisor.

Organizational commitment

The organizational commitment questionnaire (OCQ) developed by Moorman (1991) was used. The OCQ is regarded as a measure of affective commitment as opposed to normative or continuance commitment. Respondents had to mark the degree to which they disagree or agree with nine statements about their feelings toward the organization.

Organizational fairness

The scale used by Moorman et al. (1993) and Price and Muller (1986) was applied to measure perceived organizational justice. The scale consists of three dimensions, distributive, procedural and interactional justice. Distributive justice was measured with items based on the distributive justice index developed by Schappe (1996). Five statements from the questionnaire were used to assess the fairness of different work outcomes, including pay level, work schedule, workload and job responsibilities. The scale is valid in discriminating scales of job satisfaction and organizational commitment (Moorman 1991). Procedural justice was measured with items designed to tap both formal procedures and interactional justice. Dimensions are consistent with recent multidimensional models of procedural justice (Moorman et al. 1993). Formal procedures (six statements) measured the degree to which job decisions included mechanisms that insured the gathering of accurate and unbiased information, employee voice and an appeals process. These statements originated from the rules of procedural justice developed by Moorman et al. (1993) and Folger and Konvosky (1989). Interactional justice was measured using nine statements that assessed the fairness of the interactions between manager and employee that enacted the formal procedures. The items measured the degree to which employees felt their needs were considered and adequate explanations were given for job decisions.

Results and Discussion

In Sri Lanka, women are consistently paid less (by about 10%) than men in similar jobs. In the Sri Lankan context wage differences are due to the level of skill or physical output required. In the sample of female workers surveyed, the majority worked between 46 and 49 hours per week. Weekly salaries were somewhat more attractive than those for other jobs in the fisheries sector and the jobs were also convenient for women. The survey findings attempted to reveal the female workers' feelings about the top management, administration, company, remuneration, workload, dedication to work for achieving product quality, and relationship with the immediate superior.

The majority of the women plant workers "slightly agree" with their level of compensation, rewards and workload. But they "slightly disagree" with top management's attitudes on

administrative decisions. Decisions were perceived to lack transparency and workers felt that they had minimal rights to raise their voices against the decisions. The majority felt happy about having their position in the company and to stay with the company. They “partly agree” that supervisors were helping them to perform well in their positions and to develop their skills, but women workers were “partly unhappy” about their involvement in decision making with top management. Most of the companies provide accommodation facilities within the company premises for the women workers. On the one hand, workers feel comfortable and tend to be devoted to their work, but on the other hand, the plants tended to have long working hours. Providing meals and other benefits for the workers during the long working hours were part of the compensation by the employer.

Means, standard deviations, minimum and maximum scores for the organizational justice scales, the commitment scale and the supervisor evaluation scale are presented in Table 4 below.

Table 4. Means, standard deviations and minimum and maximum scores for the organizational fairness scales, the organizational commitment, and supervisor evaluation scores.

Measures	Mean score	Standard Deviation	Minimum score	Maximum score
Distributive justice (pay scales, work levels, job responsibility, etc.)	25.02	3.37	18.00	33.00
Procedural justice (employee voice, appeals processes, etc.)	16.06	4.18	9.00	23.00
Interactional justice (manager and employee interaction fairness)	13.34	4.41	9.00	22.00
Commitment scale (feelings towards organization)	50.02	6.73	41.00	63.00
Supervisor evaluation scale (satisfaction with immediate supervisor)	24.04	2.73	19.00	30.00

In Table 5, the majority of the correlations are positive and significant at $p=0.001$. There is a high positive relationship between organizational justice and commitment, $r = 0.608$ ($p = 0.001$). The correlation between commitment scale and supervisor evaluation scale is the highest, $r = 0.670$ ($p = 0.000$) and is positive. This is consistent with previous findings that indicate that distributive justice is the justice factor that is more relevant to organizational attitudes such as commitment. Although the relations found in this study replicate previous findings regarding these variables (Konovsky et al. 1987; Nishchith 2000; Sharma 2003), the correlations found here between distributive justice and commitment are higher than in most previous studies. Evaluations of supervisors were found to be highly correlated with commitment, $r = 0.670$ ($p = 0.000$). Specifically, the correlations among distributive justice, interactional justice and supervisor evaluation are much higher than the one with procedural justice, $r = 0.608$, $r = 0.626$ ($p = 0.000$) and $r = 0.509$ ($p = 0.000$), respectively. But findings highlighted that procedural justice and supervisor evaluation also have high positive correlations, similar to the levels in previous research (Mowday et al. 1979; Alexander and Ruderman 1987; Schaubroek et al. 1994).

Table 5. Bivariate correlation among organizational fairness scales, supervisor evaluation scale and commitment scores.

	Distributive justice	Procedural justice	Interactional justice	Commitment scale	Supervisor evaluation scale
Distributive justice	—				
Procedural justice	—	—			
Interactional justice	—	0.655**	—		
Commitment scale	0.607**	0.407**	—	—	
Supervisor evaluation scale	0.608**	0.509**	0.626**	0.670**	—

** Correlation is significant at the 0.01 level (2-tailed).

Table 6. Multiple regression analysis for the effect of organizational fairness on commitment.

Model	Un-standardized coefficients		Standardized coefficients	t	Significance
	B	Standard error	Beta		
Constant	28.272	5.076	—	5.570	0.000
Organizational justice	00.399	0.092	0.531*	4.341	0.000

p= 0.001.

A positive high correlation was found between supervisor evaluation and commitment, $r = 0.670$ ($p = 0.000$) which is much higher than found in other studies that looked at this connection, where the correlation was in the ranges of 0.3–0.4 (Mowday et al. 1979; Schaubroek et al. 1994). The correlation between supervisor evaluation and commitment is even higher than the correlation between commitment and procedural justice, suggesting that supervisor perceptions are an important variable to consider when looking at commitment in the seafood processing plants. The correlation between procedural justice and distributive justice is small, $r = 0.251$ ($p = 0.000$) and this indicates that the measures are not very similar.

A multiple regression analysis was conducted to assess the predictive contribution of organizational justice (composed of procedural and distributive justice) to organizational commitment. Tables 6 and 7 present the results of the regression analysis. The results indicate that the effect of fairness is a significant predictor of commitment which accounts for 28.2% of the variance in organizational commitment (see Table 7 [$R^2 = 0.282$, $F = 18.84$, $p = 0.000$]).

One purpose of this study was to further examine the role of the supervisor perceptions in the context of the fairness-commitment relationship in organizations. Fairness issues have been recognized as very important to effective functioning of organizations, influencing various

important organizational outcomes: such as trust in management, intention to stay or leave, evaluation of supervisor, conflict/harmony and job satisfaction (Alexander and Ruderman 1987), citizenship behaviors (Moorman 1993) and commitment (Folger and Konvosky 1989). Commitment is an important outcome leading to further favorable outcomes (Witt 1993) such as motivation, creativity and satisfaction. Considered with the fairness perceptions, the perceptions of the supervisor have important impacts on commitment. In the Sri Lankan seafood processing plant context, distributive justice has a direct impact on commitment. The supervisor evaluation plays an important role behind the interactional justice. The effects of the immediate leader remain an important issue for commitment. The findings show that distributive justice perceptions are the important predictors of commitment. The supervisor evaluations have moderating effects on the procedural justice-commitment relation. The greater commitment is a result of the higher supervisor evaluation and supervisor perceptions which play a key role in motivation. A positive high correlation which was much higher than in other studies (for example the study on nurses in southern USA in 1996 of Schappe) was found. This indicates that the supervisor evaluations are an important variable to consider in the commitment context.

Table 7. Model summary of the multiple regression analysis.

Model	Change Statistics				
	R ² change	F change	df1	df2	Sig. F change
Organizational justice	0.282	18.842	1	48	0.000

a. Predictors: (constant), organizational justice.

Conclusions and Implications

In Sri Lanka, women’s participation is rare in traditional fisheries activities (5% of the fisheries workforce) but importantly constitutes 63% of the fish processing workforce. Despite the resistance by cultural norms to their involvement, many women now work in the seafood processing plants that supply international markets. Growth of the export orientation for the seafood sector has benefited Sri Lankan women. The current and prospective labor demand for female workers in the fish processing industry has become important. However, in Sri Lankan society, women’s reproductive and domestic responsibilities are generally perceived to be their primary function. This perception reinforces structural barriers to women’s mobility for productive work and limits their choice of income-earning activities. Increased manufactured exports are strongly associated with feminization of the industrial labor force. Sri Lanka belongs to the four countries which were named as the “East Asian Tigers” where the largest increases in both export orientation and the female intensity of manufacturing have occurred (Fontana et al. 1998). Women play significant roles in assuring the quality of the processed product—a critical factor in export competitiveness. In the Sri Lankan seafood processing industry, female workers enjoy somewhat better remuneration packages and work-related conditions (e.g., with factory-owned accommodation which is lacking in other sectors such as the garment manufacturing and agricultural processing sectors). A special feature of the seafood processing industry is that young single women are preferred as workers because they are more likely to be able to tolerate shift-based, long working hours under uncomfortable plant environments.

Findings of the study also provide new insights into the importance of fairness and commitment in these organizations. Supervisor perceptions emerged as an important variable to consider in relation to organizational commitment. Employees placed importance on the quality of their interactions with their leaders, supervisors and the key representatives of the organizational justice processes. Expectations of the evaluations of the supervisor will act as a moderator in the procedural justice-commitment relation. The results replicate the previous

findings of the study on full-time and part-time employees in the United States of America carried out by Kimmel (1997). The present studies highlighted that justice perceptions are the important predictor of commitment, especially, distributive justice perceptions and confirmed hypothesis 1. On the other hand, it was found that evaluations of the supervisor have a moderating effect on the procedural justice-commitment relationship and confirmed the hypothesis 2. Findings also highlighted that the higher the supervisor is evaluated by the worker, the higher is the worker's commitment level. The supervisor perceptions were influential when procedural justice was low.

Organizational fairness issues have been recognized as very important to effective functioning of organizations. We found in this study that organizational fairness is also significant in the labor-intensive seafood processing factories in Sri Lanka, influencing trust in management, intention to stay or leave, evaluations of supervisors, conflict/harmony and job satisfaction. Commitment improves the motivation, creativity and satisfaction of workers. The perceptions of supervisors play an important role in influencing other organizational variables. The supervisors' roles as immediate bosses of the grass-root level factory workers and as company personnel in frequent contact with them must therefore be a key factor in maintaining the quality of the plants' outputs. The effects of the leaders remain as important influential factors. Superiors are highly influential in the organizations' treatment of workers regarding issues such as pay (increments), training, schedules, maternity leave, food arrangements and leave.

An important implication of this study is that organizations should identify the employee's level of commitment and especially recognize the committed employees, and reward them according to their performances. This will lead to making a company a more comfortable place for its employees and ensure that their contributions towards productivity are high. Companies must pay attention to the way supervisory staff treat employees. It is important that leaders in the plants are perceived positively by the workers. Finally, Sri Lankan female workers in the seafood processing industry play a significant role in assuring seafood quality while personally benefiting from the economic autonomy provided by their employment.

References

- Alexander, S. and M. Ruderman. 1987. The role of procedural and distributive justice in organizational behavior. *Soc. Justice Res.* 1(2): 177-198.
- Aven, Jr. F.F., B. Parker and G.M. McEvoy. 1993. Gender and attitudinal commitment to organizations: a meta-analysis. *J. Bus. Res.* 26: 63-73.
- Bies, R.S. and J.S. Moag. 1986. Interactional justice: communication criteria of fairness. In: R.J. Lewicki, B.H. Sheppard and M.H. Brazerman, (eds), *Res. on Negotiations in Org.* 1: 43-55. JAI Press, Connecticut, USA.
- Cammann, C., M. Fichman, G.D. Jenkins and J.R. Klesh. 1983. Assessing the attitudes and perceptions of organizational members. p.71-138. S.E. Seashore, E.E. Lawler, P. Mirvis and C. Cammann (eds), *Assessing Organizational Change.* John Wiley and Sons, New York, USA.
- Central Bank of Sri Lanka. 2003. Annual report. Central Bank of Sri Lanka, Colombo, Sri Lanka.
- Cropanzano, R. and M.L. Randall. 1993. Injustice and work behavior: A historical review. p. 147-163. R. Cropanzano (ed.) *Justice in the Workplace: Approaching Fairness in Human Resource Management.* Lawrence Erlbaum Associates, Hillsdale, New-Jersey, USA.
- Folger, R. and M.A. Konovsky. 1989. Effects of procedural and distributive justice on reactions to pay raise decisions. *Acad. Manage. J.* 32(1): 115- 130.
- Fontana, M., S. Jokes and R. Masika. 1998. Global trade expansion and liberalization: gender issues and impacts. Institute of Development Studies, University of Sussex, Brighton, UK.
- Greenberg, J. 1990. Organizational justice: yesterday, today and tomorrow. *J. Manage.* 16(2): 399-432.
- Kimmel, M. 1997. Fairness and commitment in the workplace, the moderating effects of the supervisor. M.A. thesis, San Francisco State University, California, USA.
- Konovsky, M.A., R. Folger and R. Cropanzano. 1987. Relative effects of procedural and distributive justice on employee attitudes. *Rep. Re. Soc. Psychol.* 17(1): 15-25.
- MacAlister Elliott and Partners Ltd. 2002. The role of women in fisheries sector. Tender Fish/2000/01-LOT No.1, European Commission Directorate General for Fisheries, Macalister Elliot and Partners Ltd., Hampshire, UK.
- Moorman, R.H. 1991. Relationship between organizational justice and organizational citizenship behaviors: do fairness perceptions influence employee citizenship? *J. Appl. Psychol.* 76(6): 845-855.

- Moorman, R.H., B.P. Niehoff and D.W. Organ. 1993. Treating employees fairly and organizational citizenship behavior: sorting the effects of job satisfaction. Organizational commitment, and procedural justice. *Employee Resp. Rights J.* 6(3): 209-225.
- Mowday, R.T., R.M. Steers and L.W. Porter. 1979. The measurement of organizational commitment. *J. Voc. Behavior* 14: 224-247.
- Nishchith, V.D. 2000. Role and status of women employed in seafood processing units in India. p.127-135. In: M.J. Williams, N.H. Chao, P.S. Choo, K. Matics, M.C. Nandeesh, M. Shariff, I. Siason, E. Tech and J.M.C Wong (eds), *Proceedings of the Global Symposium on Woman in Fisheries, Sixth Asian Fisheries Forum, 29 November 2001, Taiwan.* WorldFish Center, Penang, Malaysia.
- Price, J.L. and C.W. Muller. 1986. *Hand Book of Organizational Measurement.* Pittman, Massachusetts, USA.
- Schappe, S.P. 1996. Bridging the gap between procedural justice knowledge and positive employee attitudes. *Group Organ. Manage.* 21(3): 337-364.
- Schaubroeck, J., D.R. May and F.W. Brown. 1994. Procedural justice explanations and employee reactions to economic hardship: a field experiment. *J. Appl. Psychol.* 79(3): 455-460.
- Sharma, C. 2003. The impact of fisheries development and globalization processes on women of fishing communities in the Asian region. *Asia-Pac. Res. Network J.* 8: 1-12.
- Swanrangsi, S. 2003. Technological changes and their implications for women in fisheries. Fish Inspection and Quality Control Division, Department of Fisheries, Bangkok, Thailand.
- Witt, L.A. 1993. Reactions to work assignment as predictors of organizational commitment: the moderating effect of occupational identification. *J. Bus. Res.* 26: 17-30.

THE WOMEN FISH TRADERS OF TARAWA, KIRIBATI

M. TEKANENE

Kiribati National Council of Women
South Tarawa, Kiribati

Abstract

On the urbanized island of South Tarawa in Kiribati, a population of more than 36,700 people resides on a land base of only 15.8 km². The people depend greatly on fish and shellfish for protein. Women's work in handling and distributing marine products is critical to the food security of Tarawa. This paper explores the working conditions, supporting infrastructure, legal framework and workers' attitudes in the fish trade of South Tarawa. Information for this study was collected in 2003 through structured interviews with female fish vendors and others involved with the fish trade. Fish vendors working for their families or for fishing enterprises cluster on roadsides in particular places where customers congregate. The available fish markets are poorly sited and insufficiently developed to suit the needs of the vendors. Female fish vendors of Tarawa are often poorly educated. The fish trade is tenuous and poorly paid, vendors' working conditions are often difficult and unsanitary, and the women are unaware of their labor and civil rights. Female fishworkers also lack empathetic advocates on decision-making bodies, so their needs and concerns are not addressed.

Women's Contributions to Fisheries in Kiribati

Women occupy important but scarcely recognized positions in the inshore fisheries of Kiribati. They gather a variety of inshore resources for family consumption and are key laborers in the inshore commercial shellfisheries (Fay-Sauni and Sauni 2005). Women predominate in the labor force that sells finfish in domestic markets (Mitchell 1994; Tekinatiti and Wichman 1995). In Kiribati, fishing is of central social, economic and cultural importance and while the sale of fish is now commonplace, it is a relatively recent development and therefore reflects changing socioeconomic conditions. Women's work in fish trading is crucial to distributing the catch in Tarawa, a densely populated atoll where ever-smaller numbers of the population fish for a living.

This paper explores women's work in the fish trade in Tarawa and provides an understanding of its importance for maintaining food security and generating income.

Methods and Objectives

This study is a focused inquiry into working conditions and other factors that influence the fish trade in Tarawa, Kiribati. The study is action research for it seeks to identify opportunities for advocacy to improve the working conditions of women involved in the fish trade. Town officials were interviewed both to gather information about regulations and policies and to begin the process of encouraging them to pay attention to conditions of work in the fish trade. Fish traders were interviewed with assistance from two members of the Kiribati National

Council of Women (KNCW). The purpose of involving the KNCW was to expose the council members to issues in the informal fish trade, where the majority of employees are women. The survey process also sought to raise awareness among female fish traders concerning what they can do for themselves to improve their working conditions.

Data were gathered in August and September 2003 through a series of structured interviews conducted with 15 small-scale fish sellers, 3 town council officials, 1 fisheries officer, 1 chief councilor, 1 officer from the Kiribati Provident Fund and 1 owner of a small fisheries business. The areas covered were South Tarawa's main towns of Betio, Bairiki and Bikenibeu.

The KNCW volunteers met to finalize the interview questions and were assigned geographic areas and a target number of women to interview. Interviews were designed to document the socioeconomic position of women engaged in the fish trade, their conditions of work, knowledge of workers' rights and employers' responsibilities, and the social and environmental factors that influence their ability to gain a livelihood.

South Tarawa, an urban atoll

The total land area of Kiribati, 822.8 km², is spread over 13 million km² of ocean and supports a population that rose from 72,335 in 1990 to 84,494 in 2000. South Tarawa, the capital of Kiribati, occupies a land area of 15.76 km² (Kiribati census 2000). It is home to 36,717 people, or 43% of the national population. Households are large, with an average of 8.1 people living in each home (Kiribati census 2000). The main three towns in South Tarawa, where government offices were set up during colonial British rule, are Betio, Bairiki and Bikenibeu.

Increasing population on Tarawa, including immigration from outer atolls, has filled much of the free space between villages in the atoll. With urbanization, land has become increasingly monetized and privatized. Many people indigenous to South Tarawa have sold their land to outer islanders who have come in search of cash employment, better education and access to health services.

The rapidly increasing urbanization of South Tarawa is linked to the increasing importance of and reliance on the cash economy. There appears to be a growing preference for an urban life among young people and among adults unable to make enough money from their traditional activities on outlying islands. This represents a significant shift in attitudes to paid employment. In the 1960s and 1970s, people were not prepared to work for a private business. Today, as the need for money increases, the reluctance to work for a private business or another family has diminished. Along with this changed attitude is a willingness to work for money alone, without demanding other financial benefits and work entitlements such as those which are enjoyed by members of the public service.

Fisheries

Women in Kiribati are very active fishers of inshore areas. Gleaning shellfish is women's major fishing activity because it can be done close to home, takes relatively little time, requires no costly fishing equipment and may be done in the company of children. Men typically go fishing in the deep sea or along the outer edge of reefs. Tending to the catch and distributing shares to the nearest kinfolk (normally living as neighbors) form part of the woman's role. If a husband has borrowed a canoe or fishing gear, the wife ensures that the canoe owner is compensated with a share of fish that is equal to that taken by the fisher. This is known as the canoe share or *tibwan te wa*.

Small-scale fishing businesses employ men as crew. The fishers each get a share of the cash from the sale of fish. The money¹ earned per week may be as little as \$60.

¹ All values given in US\$.

Development of the Tarawa Fish Trade

Prior to about 1960, inshore fishing on Tarawa was exclusively for home consumption and for meeting family obligations; fish were not publicly sold. Since the 1960s, women have become involved in selling fish from home and walking around the village with their handcarts of fish. In the mid-1970s, the first fish market was set up in the central part of Betio to cater for fish traders. Funds for building the market were provided by the Government of Kiribati, which gave the Betio Town Council the responsibility for operation and maintenance. The building had proper sanitation when it was first set up. Water was available for washing hands and drainage was installed in an open area in front of shops that shared the same building. Tables made of flat concrete slabs raised on layers of concrete bricks were used to display the fish because at that time few people owned ice boxes (locally called *eskys*). Fresh fish were spread on the tables and women would sit on stools also made of concrete, encircling their tables and waiting for customers. At that time, fresh fish was in high demand and generally sold out. In the early 1990s, the Betio Town Council allowed some new businesses to close part of the fish market and use it as a garment factory and retail shop. This reduced the once spacious area and forced women to crowd into one side of the market facing the main road.

In the late 1980s, the government built a second market at a ferry station at the end of Bairiki facing Betio. This location used to have the advantage of crowds of people waiting for the ferry. Since the construction of a causeway to Betio, the area is now much less popular and thus is no longer a good site for marketing fish.

The Bairiki market building is enclosed and its interior was properly furnished with tables that drained water to one side. When this building was completed, the Tarawa Urban Council (TUC) announced to all fishmongers that their market was ready and that all those selling fish were required to use it. Despite various reminders, not many women took interest in the new facility. They stubbornly remained on the roadsides, believing that this was more convenient to their customers. The TUC failed to pass any official bylaw to enforce its plan, and they have never carried out a community consultation to encourage support for the venture.

In the early 1990s, a third market in Bikenibeu was built, complete with an outside toilet, an office for council personnel, and tables and seats made of concrete. However, there was no drainage, the water tank developed a leak and it was not repaired. Women selling fish here must bring water with them. On the front of the market building there is a signpost saying TUC Fish Market, but selling fresh fish is not permitted inside the building.

Tarawa's fishmongers

Women sell most of the finfish sold on Tarawa. In total there are perhaps 60 fishmongers active in the municipality of Tarawa during periods when fish catches are high. In our sample of 15 fishmongers, most came from families that lacked formal employment. Their ages ranged from 25 to 60 years old. On average, they were caring for households that contained 10 members, including 3 children. One woman had no formal schooling, half had only primary education, 1 had lower secondary schooling and the remaining third had reached upper secondary school. It was common for a woman to be selling fish for the same small company that employed her husband as a fisher. In other cases, the spouse had only a temporary job, or there was no other breadwinner in the household. More than 80% of the respondents claimed that much of their income was spent on food and other basic family needs. All said they enjoyed what they were doing mainly because of the reward, i.e., being able to support the daily needs of their family. Despite poor financial returns, the women stated that they keep working because they have no other choice and because at times, the owner of the business gives them free fish.

To ply their trade the women require handcarts to move their *eskys* and fish around. Some women own their handcarts while others borrow from their employer. The owners of better-developed businesses provide truck transport and ice cubes. The *eskys* belong to the business owners.

Women's work in the fish trade is characterized by poor and unequal remuneration, but they do not know the minimal pay that an employer is legally supposed to provide for their services. There are no signed contracts. Especially in the case of women who are relatives of the business owner, work conditions are never questioned and women choose to continue despite the small earnings.

Pay varies for the women and pay increases are rare. More than a third of the women interviewed were earning 10 cents per dollar of fish sold and two were given 20 cents per dollar of fish sold. Three of the women were earning a flat rate of between \$10 and \$20 a day. One woman did not receive her pay personally as it was included as part of her husband's income from fishing. In another case, the employer habitually neglected to pay the woman at all, and in one case the pay scale varied. Because daily earnings generally depend on the amount of fish sold, women are encouraged to maximize sales and to work long hours. On most occasions, the women report that they earn at least \$10 per day and for this they work for more than 8 hours, 6 or 7 days a week. At times when there is no fishing, fish sellers have no income. Women remain in the fish trade because they have few or no alternatives for making the money they need.

Kiribati Provident Fund

The Kiribati Provident Fund (KPF) was set up in 1977 to cover wage employees. Both workers and employers contribute to the fund, which then provides certain long-term financial benefits to workers who experience unemployment, as well as some savings for their dependents should a worker meets an untimely death. Workers who are not automatically covered by the KPF may elect to voluntarily pay into the KPF scheme as a form of personal savings plan.

The so-called bonus payments, overtime and allowances paid to fishworkers are not regarded by the business owners as wages, and therefore they say there is no need to pay into the KPF. However, according to the Acting General Manager of the KPF, if a fishworker laid a complaint against an employer, the employer could face legal charges.

Many people in the informal sector are not aware of their entitlements. In interviews with 15 female fishmongers on South Tarawa, not one of them had knowledge of the KPF or of the voluntary KPF payment scheme. No one showed any interest in following up any problems with their employers. Most did, on the other hand, take more interest in the voluntary payment scheme, which does not involve the employer. According to the KPF, these women need only to become registered as employees of any company before they can join the voluntary KPF scheme.

Regulations affecting the fish trade

The municipal councils demand fees from all fish traders but the fees are not uniform. In Bairiki and Bikenibeu, located within the Tarawa Urban Council, the fee that is charged for each business is \$5 per day while in Betio it is \$3 per day. While confused about these differential rates, the women interviewed have never asked why these charges are variable or even required, since their employer already pays for an annual business license.

As we have seen, each of the three main markets has major flaws which limit their utility to women. Not one of the interviewed fish sellers is using the structures that are meant to be fish markets. The fishmongers do not have basic facilities, such as water, access to a toilet, ice storage, drainage and shelter. Some bring their own water but in general, the lack of access to proper washing and drainage facilities is a major problem. In the late 1990s, women fish traders were given several evacuation orders because they were blamed for draining the water they used onto the ground at the roadsides. Given the general lack of facilities, it is not known why payments to the Council are required.

Education and training support

The women selling fish have had no access to training opportunities. They have little formal education and from observing their work practices it is apparent that they lack information on basic sanitation and proper handling of fresh fish. The fish sellers also need more information on post-harvest fish processing so that they can preserve their fish when their employer distributes excess catch to his workers. There have been several post-harvest fish processing and “start your business” workshops conducted by various governmental institutions, but except for one small workshop conducted by the Secretariat for the Pacific Community in 1997, these have never targeted the women in the informal fish trade.

Women’s place in decision making

In Kiribati, society is based on kinship and place, and councils of older men have traditionally ruled. Access for women to education came late in Kiribati, owing to the cultural belief that daughters need to stay at home and be looked after. In recent years, as they gained greater access to education, some women have managed to secure high ranking positions in the public service. Yet, at decision-making levels, women’s representation is still relatively minor.

In the 1970s and early 1980s, only men took up higher education in fisheries. However, since the late 1980s, some women have entered fisheries studies and several have become employees in the Ministry of Natural Resources and Development. The limited number of women in the Department of Fisheries is important because, owing to their experience, women may look at fisheries from a perspective that is different from men. Having women making decisions in the fisheries area could improve the chances of having issues related to women in fisheries discussed. Another important issue, where women’s involvement in decision making is important, is the pollution of Tarawa Lagoon. Communities on South Tarawa still lack awareness of how to keep their inshore clean and women, if involved, could play a key role because this problem affects them directly.

At present, the Tarawa Urban Council, the decision-making body controlling the fish trade, is composed of 17 men and only 1 woman. The one seat occupied by a woman is reserved for the representative of a women’s nongovernmental organization (NGO) that is affiliated with the council. There is a history of complaints and enquiries lodged at the national women’s NGO office, Aia Maea Ainen Kiribati (AMAK), which suggests that women either are not aware that they have a representative on the council to whom they can go, or perhaps they are shy to approach her. Normally, Kiribati women think they have no legitimate say in decision making; men are still regarded as the natural decision makers. But for women in the fish trade to improve their position, they will need to be empowered to at least voice their concerns and seek assistance. Better representation of women on municipal councils and on other decision-making bodies would help to bring neglected issues of fishmongers and other women working in the informal sector to the attention of those who have the power to assist.

Improving Conditions for Women in the Fish Trade

This case study was undertaken as action research with a view to identifying the key issues affecting fish traders and taking action to improve their situation. The information compiled will be used to design further interventions by the national women’s umbrella organization, AMAK.

Knowledge of women’s roles in the fisheries needs to be extended, particularly to government bodies and NGOs that could help fishworkers exercise their rights to food security and livelihood. In recognition of the importance of fisheries to women, fisheries issues have to become one of the priorities of the Kiribati National Council of Women.

One of the important findings of this study is that women often work for many years selling fish even though their hours are long and their remuneration is low. As a point of comparison, Kiribati office cleaners, who are mostly females with limited education, earned an annual salary of \$2,500 in 2003. This works out to about \$50 per 5-day working week. In contrast to this, fishmongers work 6 or 7 days a week. Work days are much longer: from early in the morning until after 7 p.m. and working conditions are both uncomfortable and unsanitary. On a very good day, fishmongers may earn \$75-150 but most of the time their income is much less (\$7-15) or even nonexistent.

Regardless of what type of employment one has, a person should be provided with the regular entitlements of an employee. Women, who form a large labor force in informal economic sectors, need relevant information and training so that they can help themselves.

Previous research conducted on Tarawa has shown that fish and food poisoning is relatively common on the atoll, while standards of sanitation, hygiene, and awareness of the dangers of poor handling of fish are particularly low on South Tarawa (Novaczek and Chamberlain 2000). Fishmongers are charged with the responsibility of maintaining the fish in good and healthful condition. This is difficult in Kiribati because not only is ice not readily available but also the women lack knowledge on safe post-harvest handling and sanitation.

To better the conditions of female fishworkers, the KNCW should advocate for training that will cover the gaps identified in this study. AMAK is already looking for funds to provide training for fishmongers. The intent is to improve market facilities and standards of hygiene. The first step will be completion of a needs assessment funded by the Canada-South Pacific Ocean Development Program.

Others who could become involved in developing programs for fishmongers include the graduates from the Community Education Training Center (CETC) based in Suva, Fiji. Women who have been through the CETC program are meant to share their new knowledge and skills when they return to their countries. Seafood handling and sanitation are among the subjects they learn, so they represent a human resource asset that could be tapped for program development in Kiribati.

In addition to the lack of adequate representation, training and information, the facilities now offered to women for marketing are inadequate. Because women's work in handling and distributing fish is vitally important to local food security, they ought to be more effectively supported.

References

- Fay-Sauni, L. and S. Sauni. 2005. Women and the Anadara fishery: a case study in South Tarawa, Kiribati. In: I. Novaczek, J. Mitchell and J. Veitayaki (eds), *Pacific voices: equity and sustainability in Pacific Islands fisheries*. Institute of Pacific Studies, University of the South Pacific, Suva, Fiji.
- Mitchell, M.J. 1994. Subsistence, surplus and seaweed: women's fishing and marine work in Kiribati. 174 p. (Unpublished).
- MOFEP (Ministry of Finance and Economic Planning). 2000. A report on the 2000 census. Government of Kiribati, Tarawa, Kiribati.
- Novaczek, I. and A. Chamberlain. 2000. Needs assessment and strategic approach for the post-harvest fisheries development project. Mar. Stud. Tech. Rep. 00/1, 36 p. University of the South Pacific, Suva, Fiji.
- Tekinatiti, T. and V. Wichman. 1995. Materials from focus group meeting, Fisheries Division, representatives of fisherwomen, and Atoll Research Programmes/USP research staff; (unpublished SPC report).

GENDER STATUS IN INDIAN FISHERIES EDUCATION, RESEARCH AND DEVELOPMENT ORGANIZATIONS

M.C. NANDEESHA
College of Fisheries
Central Agricultural University
Lembucherra -799210
Tripura, India
mcnraju@yahoo.com

Abstract

In India, with more than 50% of the over one billion people depending on fish as an important source of protein, heavy emphasis has been placed on the development of the fisheries sector. Some of the institutions dedicated to fisheries education, research and development have completed their silver or golden jubilee years. The first professional four-year undergraduate degree program was started in 1969 under the agricultural university system. Today, there are 12 fisheries colleges established under that system and a National University of Fisheries established directly under the Indian Council of Agricultural Research (ICAR). These fisheries educational institutions provide the required human resource to the fisheries sector. In the research sector, there are seven large national fisheries research institutions established to address varied research problems encountered. At the state level, fisheries departments have been established to undertake fisheries development activities. Fisheries colleges have produced thus far 3,206 graduates, but of this, only 13.8% were females.

Introduction

Gender issues in the fisheries sector in India have attracted the attention of policymakers at various levels. In many institutions, a gender cell/women cell has been established with the purpose of providing an opportunity for women to bring up any special issues that need attention. The fisheries sector is an important part of the Indian economy and it provides livelihood to millions of fishers both in the coastal areas and in inland regions. Since the attainment of independence in India in 1947, greater emphasis has been placed on the development of the fisheries sector through the creation of fisheries educational, research and development institutions throughout the country. Several of these institutions have completed either their silver or golden jubilee years since their establishment. In this paper, a preliminary effort is made to present the gender status and issues confronting the major fisheries institutions of the country.

India has a population of one billion people from a varied cultural diversity. Various experts predicted that it would emerge as one of the global economic superpowers, if certain measures are taken to address the key issues like gender inequality. The literacy rate of the female population in India is still low, with an average of 60.4%; in some states like Bihar and Jharkhand, the female literacy level is lower than 40%. However, even in regions where a

high level of literacy is seen, if the region is characterized by social norms such as the dowry system, an imbalanced gender ratio is observed. States like Kerala where the literacy level of both men and women remains high, it is shown that good policies and governance can bring greater benefits to humanity over a period of time (Anon. 2004). In contrast, Haryana, Punjab and some other states, which have contributed enormously to India's success to achieve a green revolution, are suffering heavily from the high imbalance in gender ratio with female feticide becoming common, largely owing to the prevalence of the dowry system or other preconceived thoughts about the female child. A glimpse of the existing scenario on gender ratio and literacy level in some of the Indian states and union territories is presented in Table 1. The gender ratio of the large population of fishers who depend on aquatic resources to earn their livelihood is not known.

Among the one billion people, more than 50% are dependent on fish as an important source of protein and the number of people eating fish is increasing with the change in lifestyle, cultural liberalization and awareness of the health benefits of fish. Although India is the second largest producer of fish globally, there is a huge gap between supply and demand. Aquatic resources have yet to be optimally utilized to produce an adequate amount of fish on a sustainable basis. In this context, it is considered that the gender demography of the fisheries institutions, which have the key responsibility of developing the sector to meet the needs of the population, will have enormous influence on establishing sustainable productivity levels. This study describes the structure and performance of these institutions from a gender perspective.

Table 1. Literacy and gender ratio among Indian states.

	State	Gender ratio (women:1,000 men)	Literacy (%)		
			Overall	Male	Women
1	Andhra Pradesh	978	61.11	70.85	51.17
2	Arunachal Pradesh	901	54.74	64.07	44.24
3	Assam	932	64.28	71.93	56.03
4	Bihar	921	47.53	60.32	33.57
5	Chattisgarh	990	65.18	77.86	52.40
6	Goa	960	82.32	88.88	75.51
7	Gujarat	921	69.97	80.50	58.60
8	Haryana	861	68.59	79.25	56.31
9	Himachal Pradesh	970	77.13	86.02	68.08
10	Jammu and Kashmir	900	54.46	65.75	41.82
11	Jharkhand	941	54.13	67.94	39.38
12	Karnataka	964	67.04	76.29	57.45
13	Kerala	1,058	90.92	94.20	87.86
14	Madhya Pradesh	920	64.11	76.80	50.28
15	Maharastra	922	77.27	86.27	67.51
16	Manipur	978	68.87	77.87	59.70
17	Meghalaya	975	63.31	66.14	60.41
18	Mizoram	938	88.49	90.69	86.13
19	Nagaland	909	67.11	71.77	61.92

20	Orissa	972	63.61	75.95	50.97
21	Punjab	874	69.95	75.63	63.55
22	Rajasthan	922	61.03	76.46	44.34
23	Sikkim	875	69.98	76.73	61.46
24	Tamil Nadu	986	73.47	82.33	64.55
25	Tripura	950	73.66	81.47	65.41
26	Uttaranchal	964	72.28	84.01	60.26
27	Uttarpradesh	898	57.36	70.23	42.98
28	West Bengal	934	69.22	77.58	60.22
National Capital Territory Delhi		821	81.82	87.37	75.00
Union Territory					
1	Andaman and Nicobar	846	81.18	86.07	75.29
2	Chandigarh	773	81.76	85.65	76.65
3	Dadra and Nagar Haveli	811	60.03	73.32	42.99
4	Daman and Diu	709	81.09	88.40	70.37
5	Lakshadweep	947	87.52	93.15	81.56
6	Pondicherry	1,001	81.49	88.89	74.13
All India average		920.63	70.05	78.76	60.51

Methodology

This study covered three major types of fisheries institutions existing in the country: fisheries educational institutions established under the state agricultural universities; research organizations established under the control of the ICAR; and the Department of Fisheries (DoF) established by the state governments for the development of the fisheries sector. It should be noted here that there are several general universities in India that offer fisheries as a special paper in the department of zoology and these have not been covered due to time and resource constraints. However, the three types of institutions covered are largely responsible for fisheries education, research and development in the country.

Survey formats appropriate to each of these institutions were designed and the basic information about the gender status and activities were gathered from the heads of these organizations. The information gathered from the surveys is presented in the form of tables. In order to understand the perception of women working in these institutions, efforts were made to reach these women working as teachers, scientists and development personnel to gather their views. The following three questions were commonly asked to women from all the three categories:

- What factors have helped you to make the best possible contribution to fisheries science?
- What are the gender issues that confront women to make the best possible contribution to the fisheries sector?
- What factors are responsible for creating the enabling environment for women to take an active part in fisheries education, research and development activities?

A reasonably good response was received from about 60% of the respondents who were approached for an opinion and the summarized views are included in the paper for further discussion.

Fisheries Educational Institutions

There are 12 fisheries colleges in the country established by the state governments under the agricultural universities. A thirteenth fisheries college has also recently been established in the state of Rajasthan, but this institution is not covered by this study. The first fisheries college was started in Karnataka in 1969 on an experimental basis and the success of this institution has gradually resulted in the emergence of other colleges.

Women constitute only 13.7% of the total staff strength of 670 working in the 12 fisheries educational institutions (Table 2). Further examination of the gender status in the teaching,

Table 2. Gender status in fisheries colleges.

	College	Gender	Teaching	Administration	Support	Total
1	Andhra Pradesh	Total	13	15	10	38
		Female (%)	15.38	6.67	20.00	13.16
2	Assam	Total	14	2	25	41
		Female (%)	0.00	0.00	4.00	2.44
3	Bihar	Total	4	4	2	10
		Female (%)	25.00	25.00	0.00	20.00
4	Gujarath	Total	6	10	0	16
		Female (%)	0.00	10.00	0.00	6.25
5	Karnataka	Total	41	30	30	101
		Female (%)	2.44	23.33	0.00	12.87
6	Kerala	Total	36	46	10	93
		Female (%)	33.33	30.43	27.28	31.18
7	Maharashtra	Total	34	8	5	47
		Female (%)	2.94	50.00	0.00	10.64
8	Orissa	Total	9	11	9	29
		Female (%)	22.22	0.00	0.00	6.90
9	Tamil Nadu	Total	44	35	80	159
		Female (%)	6.82	14.29	12.50	11.32
10	Tripura	Total	15	38	20	73
		Female (%)	6.67	18.42	10.00	13.70
11	Uttaranchal	Total	12	5	19	36
		Female (%)	16.67	20.00	0.00	8.33
12	West Bengal	Total	22	3	2	27
		Female (%)	4.55	0.00	0.00	3.70
		Total	250	207	213	670
		Female (%)	10.40	19.81	10.80	13.43

administration and support sector (Figure 1) indicated that a good percentage of the women were in the administrative section (19.8%) with the lowest number in teaching (10.4%) followed by the support services section (10.8%). There were colleges like the one in Assam which had only 1 female staff member in the entire college. However, interestingly, the Kerala Fisheries College stood out as an institution with the highest percentage of female staff (31.2%) followed by Tripura (13.7%) and Tamil Nadu (11.3%). This can be directly attributed to the importance attached to providing education to girls in these states and not because of the gender-conscious policies adopted by these organizations. In Kerala, women comprised 33.3% of the teaching faculty and all of them secured the position through the competitive selection process. Well-educated women were able to compete in an open environment and secured good positions through their superior qualifications.

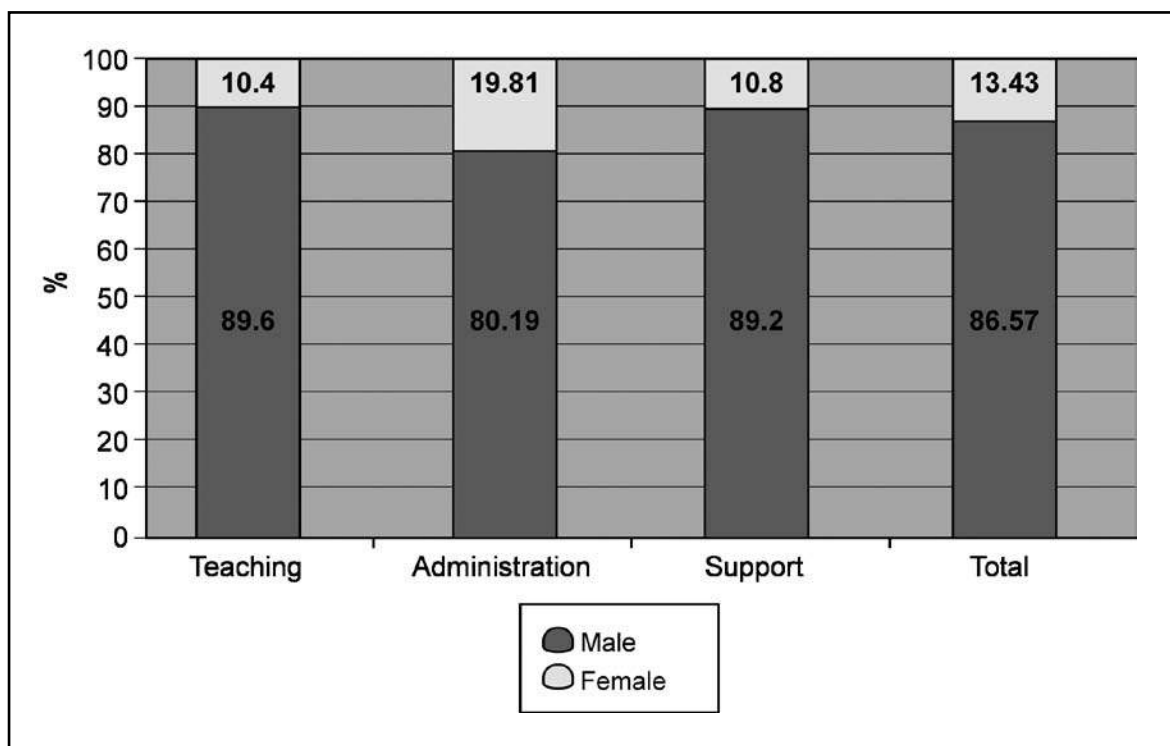


Figure 1. Gender status in fisheries colleges.

Although there was only a small percentage of women in these teaching institutions as teachers, their contributions to teaching and research were considered to be significant in a large majority of the cases. Some of them had been recognized internationally for their contribution to the sector and had been entrusted with additional responsibilities. Dr. Indrani Karunasagar from Mangalore Fisheries College, for example, heads the United Nations Educational, Scientific and Cultural Organization Centre on Biotechnology as Director. She was invited to chair a session on fish disease in the Seventh Asian Fisheries Forum held in Penang, Malaysia, in November 2004. While it would be difficult to highlight the contribution of many women teachers working in fisheries colleges, in most cases, they were respected and recognized for their contributions. Most of them had been engaged in several projects funded by various agencies.

Fisheries Colleges

Information was gathered from all the colleges on the number of men and women graduates since their inception until the year 2002. Altogether, 3,206 graduates have been produced from 12 colleges, but among them only 13.8% were women. Kerala State Fisheries College topped the 12 colleges with 200 women graduates (Table 3). Next to Kerala, in Tamil Nadu State

Fisheries College, a good number of women graduated. Assam was the only state wherein not a single female student was admitted since its inception. It was reported that the lack of hostel facilities was the major reason for not admitting female students to the college. It should be noted here that Assam is one of the states with the richest fishery resources in the country; it has a separate corporation for the development of fisheries and aquaculture in the state, besides the DoF. The state has also taken a lead to change the recruitment rules to ensure that qualified fisheries graduates are absorbed into various vacancies in the fisheries sector. With no female fisheries graduates from the college, long-term implications in terms of gender imbalance in the department and its impact on fisheries development will be enormous. It is recognized that urgent measures are needed to rectify this situation. Many other colleges also do not have hostel facilities or adequate accommodation for the female students, although they admit women. Overall, the number of female students graduating was limited and hence the need was expressed to attract more such students to the fisheries colleges to pursue fisheries as their career.

Table 3. Number of male and female graduates from fisheries colleges.

State	Male	Female	Total
Andhra Pradesh	115	28	143
Assam	184	0	184
Bihar	70	10	80
Gujarat	108	3	111
Karnataka	858	46	904
Kerala	304	200	504
Maharastra	341	44	385
Orissa	210	12	222
Tamil Nadu	329	75	404
Tripura	13	2	15
Utaranchal	156	14	170
West Bengal	89	14	103
Total	2,762 (86.2%)	444 (13.8%)	3,206

Among the 12 colleges, 7 offer a post-graduate program in different disciplines. Information was gathered on the number of women and men who graduate from the colleges that have started post-graduate educational programs. Kerala topped again in terms of the number of women Master of Fisheries Science (MFSc) graduates; the least number was from the Orissa Fisheries College. Overall, among the 1,071 graduates from the country with MFSc degrees, only 16.3% were women (Table 4).

With the large number of women graduates from the Kerala Fisheries College, an investigation was conducted to find out the percentage of women graduates in the top 10 during the past 9-year period. Out of the 89 graduates, more than 70% of the top 10 positions were secured by women (Table 5). For 7 years, women graduates secured the first position. Even in the second rank category, 6 positions were taken by women, and for 2 years, the position was shared between men and women graduates (Table 6).

Although efforts were made to gather information on these women graduates and their occupation after acquiring undergraduate/post-graduate education in fisheries, it was not possible to get the complete picture. However, we understand that a good percentage of the graduates have taken up fisheries as a profession and have made significant contributions, and that the Alumni Association of that college is now trying to keep track of the employment pattern of the graduates. Several of the women graduates from the Kerala Fisheries College and the Tamil Nadu Fisheries College were working as teachers in fisheries colleges. Some had passed the Indian competitive examination and were working as scientists in research organizations under ICAR or as development personnel in the DoF and the banking sector.

Table 4. Number of male and female MFSc graduates from fisheries colleges.

College/Institute	Starting Year	Total	Male	Female
Karnataka	1975-1976	408	379	29
Kerala	1985-1986	71	46	25
Tamil Nadu	1982-1983	206	170	36
Utaranchal	1996-1997	27	20	7
West Bengal	1999-2000	82	63	19
Orissa	1989-1990	80	77	3
Maharastra	1996-1997	52	42	10
CIFE, Mumbai	1989-1990	145	100	45
Total		1,071	897 (83.75%)	174 (16.25%)

Table 5. Top ten positions secured by male and female graduates during the past nine years at Kerala Fisheries College.

Year	Male	Female	Total	Women in Top Ten	%
1995	3	6	9	6	67
1996	13	7	20	4	40
1997	17	2	19	2	20
1998	21	12	33	7	70
1999	15	13	28	9	90
2000	21	10	31	8	80
2001	9	17	26	9	90
2002	13	24	37	10	100
2003	23	21	44	8	80
Total	135	112	247	63	70

Table 6. Rank distribution among male (M) and female (F) graduates in Kerala Fisheries College during the past nine years.

Year	First Rank	Second Rank
1995	F	F
1996	M	F
1997	M	M
1998	F	F and M (shared)
1999	F	F
2000	F	F
2001	F	F
2002	F	F and M (shared)
2003	F	F

All India ranking of professional fisheries graduates and the status of women graduates

In India, a Professional Fisheries Graduates' Forum has been established with the objective of setting up the Fisheries Council of India (like the Medical Council) which will have an authority to regulate the quality of fisheries education in the country and enhance the professionalism of the graduates. Since 2003, this organization has initiated a process that will help in ranking the graduates from Indian institutions. All the graduating students from the various colleges are permitted to participate in this ranking process. The process involves a first round of written test with objective-type questions equivalent to 200 marks covering all subjects studied in the four-year degree program. In addition, there is another paper worth 100 marks, to test the general knowledge and reasoning ability of graduates. Due weight to the marks secured during the four-year degree program is also given. Based on the ranks secured, the top 10 graduates and the top ranking student from each of the 12 colleges not represented in the top 10 based on the all-India ranking are invited for the second round of written test. Once again, graduates have to write a paper on fisheries for 100 marks and a general knowledge paper for 50 marks. The marks scored during the first round of tests are given 25% weight during the second round of ranking. Based on the marks secured in this combined assessment, the top ranking 10 graduates are invited for the third round of selection. During this round, graduates are asked to write an essay on the spot on a topic chosen by lottery from among the list of 10 topics announced 6 hours earlier. Then they have to make a public presentation on the list of topics announced 6 hours earlier, but each topic is selected again through a lottery system just 10 minutes before the public presentation. In the last phase, graduates have to appear before an interview panel. Each of these rounds will be given 25% weight with the addition of 25% of the marks scored from the written test during the second round. Among the top-ranking 10 graduates, 5 are given the gold medal with certificates, while others are given ranking certificates. It is interesting to note here that although only 13.6% of the graduates were women, in 2003, the first and fourth ranks were secured by women, and in 2004, all the first three ranks were secured by women.

Gender issues encountered by students in various fisheries colleges

In academic institutions, there was a gradual increase in the number of women students owing to the support provided by parents to pursue fisheries as a specialization. However, it is necessary to understand the needs of female students and to provide facilities to make their stay and study rewarding.

In several colleges there were no accommodation facilities available for girls. This was recognized as the major problem which must be given priority and addressed urgently. As there are several programs initiated by the government to support education for girls, it is felt that there should not be a great difficulty to obtain funding if the leadership takes the initiative.

In some fisheries colleges, male staff members and students were reported to have been harassing female students. Approved gender policies were nonexistent in most colleges. Though such incidences were not frequent, gender awareness among staff and students must be given more priority to prevent the occurrence of such cases.

The establishment of an independent body such as the Professional Fisheries Graduates Forum to monitor the progress in each of these institutions and to enhance gender equity should also be given priority. Members interested in gender issues within the organization should form a group to address these to ensure long-term benefits to the society.

Gender Status

In fisheries research institutions

Under the umbrella of ICAR, seven research institutions have been established to address varied research problems encountered in the field. These are the: Central Institute of Freshwater Aquaculture (CIFA); Central Institute of Brackishwater Aquaculture (CIBA); Central Institute of Fisheries Technology (CIFT); Central Inland Fisheries Research Institute (CIFRI), Central Marine Fisheries Research Institute (CMFRI); National Bureau of Fish Genetic Research (NBFGR) and National Research Centre for Coldwater Fisheries (NRCCF). These fisheries research institutes with branches in several of the major locations in the country provide research support for the rational exploitation of the resources.

Under the ICAR system, a major institution to meet the educational needs of the country has also been established and it is called the Central Institute of Fisheries Education (CIFE). This institution has been accorded university status by the government and hence it is the country's first fully-fledged national university for fisheries. At present, the institution has post-graduate programs in some major disciplines and has centers in different parts of the country to meet the educational necessities as well as to address the research issues through staff and post-graduate research programs. Although CIFE is an educational institution, it has been included under the ICAR research institutions since the staff structure and administrative procedures follow the ICAR system.

In these 8 institutions, altogether, there were 2,649 staff and among them only 20% were women (Table 7). The highest percentage of women staff was found in the administrative division (39%) and the least in the support service category (10%). Among the scientists, only 16% were women, while in the technical staff category, the percentage was higher (see Figure 2).

The survey focused only among the scientific category staff to gather information on gender issues. Although, there were 80 women scientists at the time of the survey, more than 77% of them originated from the State of Kerala, followed by those from Tamil Nadu. A large percentage of these women scientists were working in the CMFRI and the CIFT, the headquarters of both of which are in Kochi, Kerala. Once again, it should be stated here that Kerala state has a higher level of literacy and a good educational system for both men and women. It remains as the major state for the provision of trained human resource in the fisheries sector. This trend is likely to continue for several more years with the Kerala Fisheries College attracting almost equal percentages of both men and women, unlike other fisheries colleges where the percentage of women students is very small.

The information provided by the respective institutions was used to assess the publication trend by women scientists and also the training programs attended by them. However, since not all the institutions provided the information, the data included here came from a recent paper by Gopal and Thomas (2003). As could be seen from the publication trend (Table 8), CIFT, CMFRI and CIBA, where a large number of women scientists were working, had also published a good number of papers. The same trend was observed in the participation of women in human resource development programs (Table 9). This clearly reflects that women scientists have been performing equally well, though in most cases, the dual responsibility of family care and doing justice to the job has increased the stress level in women. The management has been providing support to women by upgrading their skills and knowledge and encouraging them to participate in various scientific events.

Table 7. Gender status in research institutions.

Institutions	Gender	Category				Total
		Scientific	Technical	Administrative	Support	
CIFA	Total	52	63	40	145	300
	Female (%)	3.85	6.35	10	4.14	5.33
CIBA	Total	49	30	21	76	176
	Female (%)	18.37	3.33	42.86	3.95	12.50
CIFE	Total	92	128	68	101	389
	Female (%)	8.70	12.50	38.24	6.93	14.65
CIFT	Total	71	144	93	85	393
	Female (%)	21.13	17.36	41.94	14.12	23.16
CIFRI	Total	65	96	75	177	413
	Female (%)	7.69	12.50	25.33	10.17	13.08
CMFRI	Total	122	337	143	251	853
	Female (%)	30.33	9.79	53.85	14.74	21.57
NBGRI	Total	25	26	15	14	80
	Female (%)	1	3.85	20	0	8.57
NRCCF	Total	11	11	9	14	45
	Female (%)	9.09	0	33.33	7.14	11.11
	Total	487	835	464	863	2,649
	Female (%)	16.42	11.02	38.8	9.73	16.46

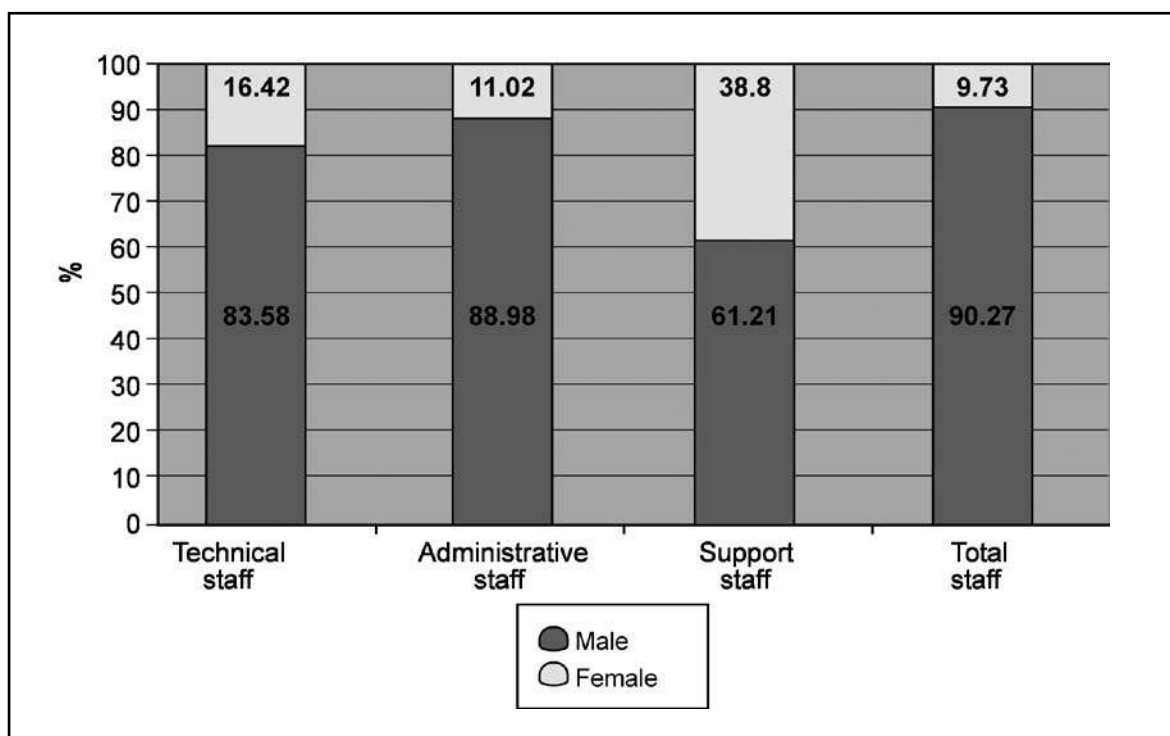


Figure 2. Gender status in research institutes.

Table 8. Contribution of women scientists to scientific publications.

Institute	Publications		
	Total	By women scientists	Percentage of women scientists
CIBA	57	6	10.53
CIFRI	149	3	2.01
CIFA	166	9	5.42
CIFE	201	34	16.92
CIFT	83	22	26.51
CMFRI	87	21	24.14
NBFGR	62	7	11.29
NRCCF	29	5	17.24
Total	834	107	12.83

Source: Gopal and Thomas (2003).

Table 9. Number of training programs attended by women scientists.

Institute	Scientists		
	Women	Total no.	Percentage of women
CIBA	1	13	7.69
CIFRI	0	1	0.00
CIFA	4	27	14.82
CIFE	2	7	28.57
CIFT	5	17	29.41
CMFRI	2	10	20.00
NBFGR	1	14	7.14
Total	15	90	16.67

Source: Gopal and Thomas (2003).

In the state fisheries departments

In all the states and union territories, fisheries departments have been established, although in some places, they fall under the Department of Livestock and Animal Husbandry. DoFs are the major development institutions in the fisheries sector of the country. These departments derive the benefit of trained human resource from the educational institutions and utilize the research output from various institutions in the area to drive the development efforts in the fisheries sector.

Table 10. Gender status in Indian Fisheries Departments in the Southern States.

State	Gender	Category				Total staff
		Technical	Administrative	Office support	Field support	
Karnataka	Total	268	244	174	326	1,012
	Female (%)	1.49	33.20	17.24	0.31	11.46
Kerala	Total	264	4	487	35	1,942
	Female (%)	26.14	25.00	24.23	0.00	23.80
Maharashtra	Total	235	237	164	232	868
	Female (%)	3.40	21.52	11.59	0.00	8.99
Pondicherry	Total	38	66	40	52	196
	Female (%)	18.40	22.70	15.00	11.50	17.35
Overall	Total	805	551	865	645	4,018
	Female (%)	12.36	25.61	17.02	2.96	15.40

The basic information provided by the DoFs on men and women staff strength is presented in Tables 10-12. Several states have yet to respond and even this simple information, which will form the basis to address gender issues, is not readily available in all the states. However, the states which have provided the information have been classified into the Southern States

(Table 10), Northern States (Table 11) and Northeastern States (Table 12). Four categories of staff were identified in these institutions: technical staff who provide technical input to development activities; administrative staff who provide administrative support for program implementation; office support staff who provide support to administration at the office; and field support staff who provide support to technical staff for program implementation at the field level. Overall male and female staff strength in India is presented in Table 13.

Table 11. Gender status in the Indian Fisheries Departments in the Northern States.

State	Gender	Category				Total staff
		Technical	Administrative	Office support	Field support	
Haryana	Total	95	1	203	262	561
	Female (%)	3.16	0.00	19.21	0.38	7.66
Jharkhand	Total	18	4	64	133	219
	Female (%)	5.56	0.00	9.38	3.76	5.48
Himachal Pradesh	Total	96	11	78	122	307
	Female (%)	1.04	0.00	21.70	0.00	5.80
Orissa	Total	1,035	2	587	225	1849
	Female (%)	9.90	0.00	11.70	1.70	6.17
Gujarat	Total	213	216	141	222	792
	Female (%)	8.92	17.13	11.35	0.00	9.09
Punjab	Total	0	18	122	299	439
	Female (%)	0.00	0.00	37.70	1.00	11.10
Overall	Total	1,457	252	1,195	1,263	4,167
	Female (%)	5.72	3.43	14.67	1.17	7.55

Table 12. Gender status in Indian Fisheries Departments in the Northeastern States.

State	Gender	Category				Total staff
		Technical	Administrative	Office support	Field support	
Assam	Total	582	64	587	464	1,697
	Female (%)	2.06	6.25	11.41	0.93	5.24
Tripura	Total	377	272	92	187	928
	Female (%)	2.12	15.44	10.87	2.65	7.17
Nagaland	Total	58	67	164	64	353
	Female (%)	1.72	47.76	4.20	1.56	12.66
Arunachal Pradesh	Total	250	5	75	243	573
	Female (%)	0.40	20.00	16.00	1.60	3.14

Mizoram	Total	66	20	23	11	120
	Female (%)	4.50	80.00	17.39	0.00	19.49
Meghalaya	Total	31	4	50	73	158
	Female (%)	25.80	75.00	66.00	5.40	30.38
Manipur	Total	371	121	84	247	823
	Female (%)	19.84	49.22	5.48	10.45	24.20
Sikkim	Total	22	1	9	51	83
	Female (%)	0.00	0.00	33.33	0.00	3.61
Overall	Total	1,757	554	1,084	1,340	4,735
	Female (%)	7.06	36.71	20.89	2.82	13.24

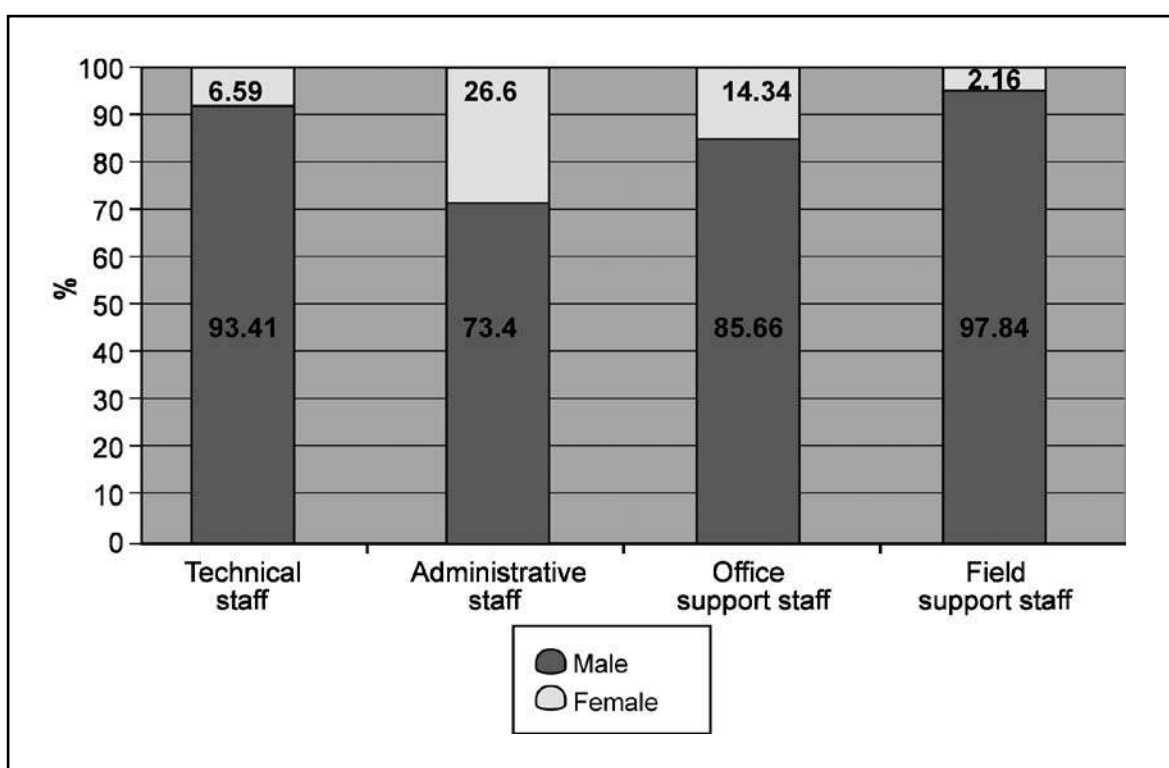


Figure 3: Gender status in State Fisheries Department

Table 13. Overall male and female staff strength in India based on the responding states.

Gender	Category				Total staff
	Technical	Administrative	Office support	Field support	
Total	4,019	1,357	3,144	3,248	11,668
Female (%)	6.59	26.60	14.34	2.16	8.96

In the Southern States, the percentage of women employed was slightly higher in Kerala and Pondicherry. In Kerala, compared to the research and educational institutions, the percentage of women staff in the fisheries departments was small. As compared to the Southern States, in the Northern States, the percentage of women in the fisheries departments was small at all categories and the overall percentage was less than 10%, except for Punjab. Among the Northeastern States, Meghalaya had the largest percentage (30.4%) of women staff and this was followed by Manipur (24.2%). However, with several other Northeastern States having a very small percentage of women staff, the overall staff strength of women in the region was less than that of the Southern States (13.2%).

In several of the states, most of the women worked in the office administration and support staff sections. A very small percentage belonged to the technical and field support sections. Jobs in the field support section were more manual and field-based in nature. Women did not prefer such jobs which were traditionally held by men. If the social security system is improved, it is likely that more women would opt for these types of job. The low percentage of women in the technical section indicated the need to focus on increasing their strength in this section so as to achieve better impact on fisheries development at the field level.

Although in some states, there were special schemes that focus on the empowerment of women, complete details were not available. In addition, it was also not possible to contact women staff working in the State Departments to get their feedback on the gender issues that confront them. As fisheries development is directly managed by these state fisheries departments, it is necessary to place major emphasis on mainstreaming gender in these departments.

Gender Issues in Educational and Research Institutions

Some women working in the educational and research establishments were requested to answer three common questions aimed at gathering additional information about gender issues experienced by them. From the large number of responses received, the information has been summarized as shown below:

- 1. What factors have helped you to make the best possible contribution to fisheries science?**
 - Encouragement from supervisors, inspiration derived from dedicated scientists and teachers.
 - Cooperation and support from the family.
 - Easy and best access to information through Internet and library.
 - Good education in the subject and participation in scientific events.

- 2. What are the gender issues that prevent women from making the best possible contribution to the fisheries sector?**
 - Insecurity in the society—for fieldwork, laboratory work during night hours, overnight stay.
 - Ill treatment of working women in the society.
 - Women are always considered good for home-based work.
 - Field-based work involving many days are a major hurdle.
 - Many places do not have even basic sanitary facilities and hence for women, field travel is very inconvenient.
 - In some of the institutions, research topics are allocated based on gender; even if women like to break the traditions, organizational system and society customs do not easily allow such path-breaking approaches.
 - Work pressures both at the workplace and at home; as a result, women encounter higher levels of stress.
 - Overstressed with the dual-place workload, women tend to take easy projects or avoid leading projects.

- Women are expected to show the same level of accomplishment like men, irrespective of the level of stress they are undergoing.
 - Family responsibilities are not shared by men in many instances.
 - Sentimental binding of women to family prevents them from taking projects that call for intensive investment of time.
 - Even when men desire to share family responsibilities, society does not encourage them to undertake such.
 - Women are kept out of the project when it demands physical labor even when they are willing to participate.
 - Even when women desire to undertake field-based projects, supervisors discourage them as these involve a certain amount of risk.
 - Even for farm and hatchery jobs, women are excluded.
 - Banks are skeptical about financing projects for women entrepreneurs.
- 3. What suggestions do you offer that would help to create an enabling environment for women to take a more active part in the fisheries education, research and development sectors?**
- Women always excel in studies, but marriage in India retards their progress with additional burdens and prevailing notions. When women are given good support by the family, they have always excelled. Hence, attitude should change in the large majority of people.
 - Provide facilities for women in every college/institution.
 - Education in colleges should give good knowledge and skills to make them confident and successful in their careers.
 - Ensure job reservation for women in education, research and development sectors; relax the age limit for jobs.
 - Allocate project grants, specifically for women and ensure flexibility in project implementation strategy.
 - Introduce flexible working hours to allow women to carry out work at home when necessary, without compromise on quality of the work.
 - Relax age limit for jobs and introduce research schemes for qualified unemployed women.
 - Provide separate awards, travel grants, etc., to encourage women scientists.
 - Ensure women inclusion in all policymaking bodies.
 - Women should believe in themselves and work sincerely to the best of their ability.
 - Create a gender-sensitive environment.

Conclusion

This study has brought out some issues for immediate action. Many of the issues identified as constraints relate to attitude. To change attitudes, it is not only the support of rules and policies that are necessary, but equally important is the understanding of why change is necessary. Based on the discussions held with various men and women in the present study, the following actions are recommended:

1. There is an urgent need to develop organizational gender policy to mainstream gender and bring gender equality.
2. Fisheries colleges should aim at creating adequate accommodation facilities for women students. This need is seen in many colleges and it would be appropriate for a body like ICAR to provide support for the establishment of such facilities in colleges.
3. There is a need to attract women students to fisheries courses in various states. This can be achieved by providing special scholarship support as well as increasing job opportunities by explicit reservation.
4. The possibility of introducing a course (to begin with a nonload course) on gender issues in fisheries should be examined in all fisheries colleges. The initiative made by the Kerala Agricultural University and the M.S. Swaminathan Research Foundation to develop a complete course manual for agricultural university students can be adopted with suitable

additions to address specific issues in the fisheries sector. The introduction of such a course is likely to have far-reaching impacts with an increase in gender awareness among fisheries students who will later work in various departments and agencies.

5. Working women with the dual responsibility of keeping home as well as pressure at the workplace are confronted with a variety of problems. This is an issue that should be carefully examined and appropriate policies should be developed, particularly taking advantage of the emerging communication technology options.
6. There is an urgent need to understand the gender issues prevailing in institutions and specifically to make research and development strategies to be gender-sensitive.

The Indian branch of the Asian Fisheries Society organized the first one-day workshop in 1990 on Women in Indian Fisheries and this workshop provided a stimulus for discussion on this important issue. A special session was held during the Sixth Indian Fisheries Forum in Bombay during 2002 and another session is planned during the Seventh Indian Fisheries Forum to be held in Bangalore in 2005. It is necessary that an organization in India should initiate discussion on gender mainstreaming and the mechanisms that will help in measuring the level of mainstreaming and provide regular stimulus for the process.

References

- Anon. 2004. Manorama Year Book, 2004. Malayala Manorama, Kerala, India. 846 p.
- Gopal, N. and M. Thomas. 2003. Women professionals in ICAR fisheries institutes. *Fishing Chimes* 22 (10/11): 114-116.

LEGAL RECOGNITION OF WOMEN'S CONTRIBUTION IN FISHERIES AND AQUACULTURE IN THE EUROPEAN UNION

K. FRANGOUEDES

UBO/CEDEM 12, rue de Kergoat, CS 93834
29238 Brest Cedex, France
katia.frangoudes@univ-brest.fr

J. O'DOHERTY

31 Granshaw Close, Kings Norton
B38RD, Birmingham, UK
fishpoly@aol.com

Abstract

European women participate actively in the fisheries and aquaculture sectors. Women's contribution is more important within the small-scale enterprises in both sectors. A great number of European fishing boats and shellfish aquaculture vessels are small-scale units. In the small-scale enterprise, women's work is important for the survival of the family and of the business. Women play diverse roles: they can be directly involved in the production (fisheries and aquaculture); in mending nets (Spain, Greece and Portugal); selling fish or shellfish (France, Portugal and Spain); processing fish (Finland, France); and operating restaurants. Nowadays, women are also responsible for the management and the administration of their husband's enterprise. Women's contribution is rarely paid and never appears in statistics. Their work remains informal and without legal recognition. In 1986, a European Council adopted the Directive 816/613/EEC on "the application of the principle of equal treatment between men and women engaged in an activity, including agriculture, in a self-employed capacity, and on the protection of self-employed women during pregnancy and motherhood". This directive asked member states to recognize a spouse's contribution within self-employed activities. Fisheries and aquaculture can be included in the category of self-employed activities. A few years later, European fisherwomen submitted claims to national authorities for the legal recognition of their contribution. Some of the European Union (EU) member states, like France, recognize women's work. From 1997, French women contribute, if they wish, to the social and pension funds. But until today only a few of them opt to contribute. More recently, Portuguese women also have the possibility to pay social and pension contributions. This paper presents the tasks carried out by women and discusses the issues related to the legal recognition of women's contribution to fisheries in some European countries. The data used for this paper were from the FEMMES Programme, financed by the Fifth Framework Programme of the European Union.

Introduction

In Europe, only a few women are involved in the capture fisheries sector but this does not mean that women do not play an important role in the European fisheries industry. Women play an important shore-based supporting role and are responsible for activities such as book-keeping, marketing and keeping track of employment regulations. The term “collaborating spouse” taken from the French, is often used to describe women who play an important supporting role in the fisheries sector. The number of women who participate in fisheries harvesting or in shore-based fisheries enterprises is unknown. Statistics are not available on women’s employment or participation for both the sectors. This is due to the fact that gender-disaggregated statistics are not available in the fish harvesting sector. Women also seldom pay social contributions to the state and nobody knows how many women work in the fisheries sector. But the following quotation gives an idea on the number of women involved in the fishing enterprise: “behind each fishing boat, there is a woman”. This is especially true for fishing enterprises managed on a family basis.

The only disaggregated data on the employment of men and women in the fisheries sector in the European Union (EU) are found in a study conducted by MacAlister and Partners (2001) and financed by the European Commission Directorate General for Fisheries (DG-FISH). Table 1 gives the gender patterns of those employed in the fisheries sector in the EU. The numbers do not include collaborating spouses and women who work on fishing boats without any salary. This paper focuses on the role of women in the fisheries sector, especially in small-scale enterprises. The legal recognition of fishers’ wives contribution within the fishing enterprise is also discussed.

Table 1. Gender patterns in the EU fisheries sector in 2000.

	Women	Men	Total	Percentage of women
Fishing overall	4, 711	147, 890	156, 661	3.0
Aquaculture overall	6, 487	19, 182	25, 669	25.3
Processing overall	42, 162	38, 218	80, 396	52.4
Administration and management*	7, 897	12, 179	20, 075	39.3
Sample totals	61, 317	217, 469	278, 801	22.0

*E.g., government and producer organizations, trade unions, scientists, trainers and fisheries NGOs. Source: McAlister Elliott and Partners Ltd. (2001).

Women’s Role in the Fisheries Sector

Historically, European women were more involved in shore-based activities than activities at sea. Women collected shellfish, seaweeds or fish on the shore during low tides. They also contributed to the development of oyster and mussel farming. Nowadays, apart from these activities, a few of them are even working on board fishing boats. Women’s participation in fisheries differs from country to country. Women are more active in the small-scale fishing enterprise and the aquaculture industry. Enterprises based on family management need more help from women than the larger commercial enterprises.

Fisheries at sea

Women, together with their husbands, work on the small, family fishing boat. This arrangement offers the women some flexibility and allows them to take care of the children, when the need arises. Among the European countries, Portugal has the highest number of women involved

in fishing. They work on boats which operate close to the coast, particularly in estuaries and bays. Women make daily fishing trips and have the opportunity to return home every day. Women said they carry out more tasks on board the vessel than their husbands. They set and pull in the nets, sort and auction fish, while men's only task is to steer the fishing boat. The majority of women possess the necessary qualifications to operate fishing boats, but allow the men to handle the boat because according to them, "Men enjoy driving the boat so we leave them to do it." Women also have to take charge of the administrative work related to the boat such as accounting, auctioning and payment of invoices. They also need to do domestic chores. While women are cleaning the house and looking after the children, men spend the rest of the day in the coffee shop.

In some fishing communities, close to Lisbon, not only women but also children are on board the fishing boats. During the fishing trips in the estuary, family members fish together. This is the traditional way of life in those communities and women learned how to fish from their parents. Fishing boats are small, between 7 and 10 m, and living conditions are hard. In these cases, women have the same knowledge and capability to operate boats and possess the same fishing skills as men. But for many years, women were not considered professional "fishers" because they did not have the necessary diploma required for such recognition. In Portugal, women were not registered as fishers until the end of the 1990s. In another Portuguese fishing village, the women traditionally did not fish. It was the lack of other employment opportunities in the area which pushed them to work as crew in their husband's boat. The family boat was their only employment solution.

In France, women fish with their husbands on small boats. This family enterprise offers some flexibility. As the enterprise involves only the two of them, the couple has the flexibility to choose the scale of the fishing they prefer. The work can be organized in a way that the wife has the time to take care of the children.

In Europe, one category of women works on bigger fishing boats. These women are usually young and have just graduated from fisheries schools. They have the necessary qualifications to work as crew or skipper but boat owners do not want to employ them since they think that women are not strong enough for jobs at sea. Women who have gained employment in the bigger vessels have to deal with other difficulties, for example, the lack of facilities on board the vessels, including the absence of toilets. Young women sometimes cannot get employment on fishing boats even when boat owners complain about the difficulty of filling job vacancies. Unlike the younger women, older women take on a fishing career because they did not have other options or because it is a family tradition.

Shellfish collection on shore

There are more women collecting shellfish on the shore than those working at sea. Women practising shellfish fishing originate from the southern regions of Europe: Galicia (Spain), Algarve (Portugal), Bretagne (France) and Italy. In these countries raw shellfish consumption is common. In Galicia, fishers from shallow waters are exclusively women known as *mariscadoras*. Collecting shellfish on the shore at low tides is done only by women. Men collectors operate from a boat. In Algarve, women are the main shellfish collectors, too. They use more or less the same fishing techniques as *mariscadoras* from Galicia; the only difference is that in Algarve, women use boats to get to the shellfish beds.

In both countries, women collect shellfish because it does not require any special skills. This activity is easily combined with domestic chores and children. A few years ago, shellfish collection was done in an informal manner. Women collected shellfish when they had the time or when they needed to increase the family income. Access to the shellfish beds was free and the number of *mariscadoras* was high, putting the shellfish stocks at risk from collapse. In Galicia, women obtain their fishing license through the fishers' organization. Licensees are required to follow regulations and to sell their catches through the auction system. Women

attend training courses organized by the regional authorities, and they learn the importance of shellfish stock management and why they should pay social security contributions.

In Portugal, women shellfish collectors are not formally organized. Informal organizations exist and often women operate in groups or share the same fishing boat to get to the shellfish beds. They consider themselves professionals because they possess a fishing license and pay social security contributions. In France, women shellfish collectors also have a fishing license and they are members of a fishers' organization.

Aquaculture

Oysters and mussels have been cultivated for several centuries in Europe. French women have contributed their labor extensively to shellfish farming but they have no legal right to lease concessions for farming under their names. Historically, only men have this right. For centuries, French fishermen were obliged, during the wars, to join the Royal Navy. As a reward for their service, the kings gave some privileges to them. They have the right to use the public maritime waters for shellfish storage. From that time onwards, only fishermen registered as "sea men" had the right to lease the shores and the adjacent waters. As women could not join the Royal Navy they did not have access to this right. However, in 1983 with the implementation of the new legislation concerning shellfish farming, women could become co-leaseholders of a shellfish farm. In practice, only a few of them are using this legal right (Gouillet 2000).

Fish farming is more recent than shellfish farming but here too, women play an important role in its development. Fish aquaculture in Norway was started by fishermen as a family enterprise. At the beginning, women participated in all the activities and there was no distinction between women's and men's tasks. Some tasks that required more physical strength were usually done by men. Later, when fish farming was taken over by big international companies, women saw their roles reduced.

Today the organizational structure is changed. All tasks performed at sea are done by men as these tasks are physically demanding. Women are confined mainly to activities on land. For example, women are perceived to be better workers in the hatcheries. They are considered better than men in feeding and looking after small fish (Pettersen 2004).

EU Directives Towards Equality between Men and Women

The EU, through the Council Directives (CD), called on member states to provide a national legal framework for the equal treatment of men and women (including spouses who are not employees or partners but who assist a self-employed worker) in matters pertaining to employment such as salary structures, working conditions, social security and vocational training. Table 2 provides the key EU decisions concerning equality between men and women in employment regulations and working conditions.

All CDs are aimed at women with a salaried position working in the fisheries sector and not the collaborating spouse who rarely receives any payment. Only the Directive 86/613/EEC is directly related to collaborating spouses and the recognition of their contribution.

Equal rights for men and women working in fisheries

Today in the EU, all women working as crew on fishing boats have the same rights as men. But differences exist from country to country. French women obtained the right to be fishers only in 1963. Since then, French women have the same working rights as men. Spanish women have the right to contribute to the social security systems from 1970. Portuguese women obtained this right in 1999, but usually women helping their husband do not have any personal salary.

Table 2. Main EU directives towards equality between men and women.

<p>1975: CD on the approximation of the laws of the member states relating to the application of the principle of equal pay for men and women (75/117/EEC).</p> <p>1976: CD on the implementation of the principle of equal treatment for men and women as regards access to employment, vocation training and promotion, and working conditions (76/207/EEC).</p> <p>1979: CD on the progressive implementation of the principle of equal treatment for men and women in matters of social security (79/7/EEC).</p> <p>1986: CD on the implementation of the principle of equal treatment for men and women in matters of social security (86/378/EEC).</p> <p>1986: CD on the application of the principle of equal treatment between men and women engaged in activity and their spouses who assist the self-employed, including agriculture, in a self-employed capacity and on the protection of self-employment during pregnancy and motherhood (86/613/EEC).</p> <p>1992: CD on the introduction of measures to encourage improvement in the safety and health at work of pregnant workers and workers who have recently given birth or are breastfeeding (92/85/EEC).</p> <p>1996: CD on the framework agreement on parental leave concluded by UNICE (Union des Industries de la Communauté Européene), CEEP (European Centre of Enterprises with public participation and of enterprises of general economic interests) and ETUC (European Trade Union Confederation) (96/34/EC).</p> <p>1997: CD on the burden of proof in cases of discrimination based on sex (97/80/EC).</p>
--

Collaborating spouse's contribution on shore

European fishers' wives play an important role in onshore activities. Wives carry out all the administrative work of the fishing enterprise: they go to the bank, oversee harbor administrative duties and take charge of fish auctions and book-keeping. They also sell fish or mend fishing nets. Women's contributions to the fisheries enterprise increase when the industry or the family business is faced with a crisis. Women see their contribution as a good way to save money because the husband does not need to employ somebody else to do the job. Women do not perceive this contribution as a real job because they can do it at home while they look after the children.

Today, three possibilities exist for women working in the fishing enterprise. They can be employed by the fishing enterprise, and be entitled to a salary with all the social benefits; they can work without a salary and social benefits; they can also be registered as self-employed and achieve some social protection in this manner. This paper discusses how and why EU member states harmonize their national legislation to the EU legal framework.

Legal recognition of informal contribution of fishers' wives

In some member states, wives who actively contribute to their fisher-husband's business have a recognized status. This means that national authorities recognize that without the efforts of the wife or partner attending to the accounts and other administrative work, it would be difficult for the fishermen to run a successful business. These member states recognize the role that the fishermen's partners perform and permit the partners to benefit from the social welfare insurance in their own right. By doing this, the member state gives recognition to the status of the partner as someone who makes a valid and independent contribution to its society.

Directive 86/613 of the Council is particularly pertinent, as it focuses on *the application of the principle of equal treatment for men and women working in a self-employed capacity, including agricultural workers.*

First and foremost, this directive is aimed at equal treatment for both men and women who work in a self-employed capacity, and second, it is about recognition for work carried out by a spouse. The directive specifies what it means by “self-employed worker” in Article 2. A self-employed worker is somebody who carries out a paid job on a self-employed basis, and includes farmers and other professions. The directive also takes into account “*their spouses, not being employees or partners, where they habitually, under the conditions laid down by national law, participate in the activities of the self-employed worker and perform the same tasks or ancillary tasks*” (Article 2). Through its directive, the Council requests member states to take into consideration the role played by the spouse in a self-employed enterprise and furthermore, to study the conditions necessary for her legal recognition. Initiatives for this aspect are also requested (Article 7). The same directive requests member states to take the necessary steps to encourage the replacement of independent workers in the case of pregnancy or maternity leave (Article 8). Article 6 states: “*where a contributory social security system existed, to take measures to ensure that the spouses of such workers who assist them in their work and who are currently not protected under the self employments scheme have the opportunity of joining such a scheme.*”

In 2003, the EU Parliament recognized that some but not all member states had responded in a positive fashion to this directive. The EU parliament, by 74 to 8 adopted a resolution, which among other things, called on member states to be *obliged* to register assisting spouses and called on the Commission to revise and strengthen Article 6 of the directive. This was to be strengthened to ensure that it covered all the risks faced by the assisting spouse particularly in relation to social security, health care, old-age pension, maternity benefits, replacement services, disability and incapacity benefits. The resolution called on the amended directive to be more binding in all its aspects on member states. The resolution was passed in June 2003.

The next section reviews the current situation in different EU member states. The main difficulty faced is the lack of a comparative study on the different European fisheries social systems, which is related to national histories and policies.

The Situation in Different EU Member States

Ireland

In Ireland, since 1893 there have been a number of court actions to determine whether a fisher is a share fisher or an employee. The latest court action was in 2001, and it ruled that fishers, who are self-employed and pay taxes and social security cover will be classified as share fishers. Such a ruling does not prevent a vessel owner from employing crew as employees but in doing so he must comply with employment law, redundancy notice, payments, etc. as applied to all other workers. However, if the vessel owner opts for his crew to have self-employed status, they are eligible for capital tax allowances. No special status for fishers exists in the Irish tax and social welfare systems.

Irish fishers’ wives have never thought about their own status in the same way as the Irish farmers’ wives. The latter have and are still campaigning to secure benefits under the social security system. Currently, only their husbands have cover and protection and then only on the limited self-employed status level. A recent improvement is the partnership route, which also applies to fishers. If the husband and wife become a partnership, then once each partner’s reckonable income exceeds €3,174 this income would be reckonable for pay-related social insurance purposes and contributions would be payable at a rate of 3% or €253 minimum payment (5% if over €18,512). Not all fishers or farmers are interested in the partnership route. The official response of the Irish government 5/5/04 was: “*There are no special provisions in social welfare legislation to provide for social insurance cover for collaborating spouses of a sole trader who is not a partner in the business. Nor, are there any immediate proposals to provide it*” (O’Doherty and Frangoudes 2005).

United Kingdom

In Britain, fishers' wives are not accorded legal status as in other EU countries. In the United Kingdom (UK), fishers are recognized as a special category. Self-employed people in the UK pay a basic contribution of £2.05 per week plus Class 4 National Insurance contributions if their income goes above a certain limit. This means in effect they pay 4% of their profits over a base level. The special category for fishers requires them to pay £2.70 per week plus Class 4 National Insurance contributions if their income goes above a certain limit. For the extra 65 pence per week, UK fishers have the potential to apply for unemployment benefits.

In practice this benefit is becoming increasingly difficult to access due to more rigorous interpretation of the written rules governing the circumstances under which a share fisher is deemed "unemployed". A share fisher is not deemed to be unemployed if he is doing essential work on the boat or gear but is deemed to be unemployed if he is engaged in "maintenance work which is not essential at the time" or if he is working on spare nets, lines, pots or other equipment and was not part of the work which had to be done at the start or end of a season.

It would appear that the easiest way for a fisher's wife to achieve legal recognition in the UK system is to be registered as self-employed and pay the weekly rate of £2.05. For that, provided her income does not exceed £4,095 per year, she will receive a state pension, maternity rights, incapacity benefits and bereavement benefits all in her own right. Her pension entitlement will be £79.60 per week. Many fishers' wives, however, do not know about this possibility. The question is why are so few fishers' wives interested in claiming this protection?

France

The sea-people's social insurance system, call ENIM (Etablissement National des Invalides de la Marine) is administered by the Maritime Affairs Department under the Ministry of Transport and Equipment. All fishers (owners, skippers and crew), shellfish or fish farmers, sailors of merchant and leisure boats, contribute to the ENIM insurance fund. There are 20 different categories classified according to a person's diploma and the type of boats s/he possesses. The collaborating spouse falls under the third category, and members in this category do not pay a full contribution as they do not have any income.

In 1996, while the Fisheries Act, Law No. 97-1051 (dated 18 November 1997) was being discussed, women rallied together and demanded a legal status recognizing their informal role within the fishing enterprise. During parliamentary debates on the proposed law, women met with members of parliament from all political parties, with ministers and with the relevant authorities and put forward their demands. This law, supported by all parliamentary groups, partially accepted the demands made by the women's associations.

To qualify for the collaborating spouse status, fishers' wives must meet two conditions: they must be married, and they must play a genuine role in the company. She can act on behalf of the enterprise manager on administrative matters without being paid for this contribution. She can also be employed part-time in another job. Since 1998, fishers' wives can apply for a collaborative spouse status if they meet the conditions. But the collaborative spouse status can only be obtained at the husband's request.

The status enables:

- the right to a personal retirement plan, if contributions are made in the person's own name; the amount of the contribution is 3.57 Euro per day or 1,303 Euro per year; women contribute a percentage of this amount under the third category;
- financial compensation for replacing women during maternity leave;
- the right to training;
- the right to represent the company, and also to participate in meetings of the board of directors of banks and cooperatives, as well as in professional elections to local fisheries

committees and producers' organizations, as long as the husband does not delegate powers to somebody else.

Since its introduction, only 410 out of the 3,500 eligible women have taken up the status of "collaborating spouse", either because they have not understood the benefits that it could bring them, or because their company does not have the financial means to pay for their social insurance. For small vessels (less than 12 m), it is financially impossible to pay the women's social contribution, even if it is advantageous for them.

Spain

Fishers have their own social security system. In the past, the sea-people social security system was managed by the Social Marine Institute. Today, this institute is the responsibility of the national social security system but the former still retains some autonomy. The social security system covers sickness allowance, old-age pension and 1% of the health system. The remaining health coverage is provided by another fund (income tax) and all Spanish citizens have access to it. Fishers' social security can cover the following categories:

- all persons working with salary on a share system in the merchant navy, fisheries, shellfish farm, leisure or transport boats, administrative office and fishers organizations associated with the above activities;
- owners of boats more than 10 t or if they employ more than 5 crew;
- self-employed persons under the following categories: owners of boats less than 10 t with less than 5 crew members, including the owner, persons collecting shellfish, persons mending nets on self-employed basis.

This system is extended to the wives and members of the self-employed fishers' families who work in the family enterprise. Wives have benefited from the social security system since 1970.

Portugal

In Portugal, the fishers' social security system is recent and it is an independent system. The social security subscription is based on the sales realized in the auction. Docaspesca, the organization in charge of the auction management, collects 10% of the amount of the total daily sales from each boat. About 3.5% of the 10% is for insurance and working accidents, and the rest is for social security. This system covers the old-age pension, sickness allowance and the pension for work accidents. The amount of the old-age pension is proportional to the contribution as well as the sickness pension. One hundred fifty-one working days must be declared per year to qualify for the benefits of the old-age pension. If the catches are not sold through the auction system, crew members are not eligible to become members of the social security system. In Portugal, all citizens have access to the health system, which is independent of the social security system. The health system is financed by the income tax and not by individual contributions.

Fishers' wives contribute significantly in the fisheries enterprise, either by taking charge of the administrative tasks, or by involvement in chores like sorting and selling fish. Boat cleaning is also a task performed by owners' wives and crew members' wives.

Since 1999, Portuguese fishers' wives contribute to fishers' social security system not as collaborating spouses but as members of the crew. This does not mean that women have a salary or a share of the business like the crew members. The contribution permits women to have an old-age pension. By giving women access to the system, it can be considered a positive action in response to the European Council directives asking for equal treatment between men and women concerning employment.

Finland

Fishers are covered by the Agricultural Pensions Act (LFÖPL). The compulsory LFÖPL insurance scheme includes accident insurance. Fishers or their family members employed in the family business are required to hold LFÖPL insurance if they are aged between 18 and 64 and the value of their work or earnings is at least €2,628 per annum. The insurance scheme therefore covers all fishers aged 18–64, their wives or partners, and working members involved in the family business.

The LFÖPL insurance scheme will pay fishers for sickness or incapacity benefit, rehabilitation allowance, disability pension, early-retirement pension, part-time pension, unemployment pension, early old-age pension or standard old-age pension. The scheme also includes family pension entitlement for surviving relatives and group life insurance cover. As well as fishing, LFÖPL applies to activities such as fish processing (gutting, salting and smoking), repairing and maintaining fishing gear, and marketing the catch.

There are two complementary pension systems: the state pension and the occupational pension. The normal retirement age is 65. Fishers are covered by the Agricultural Pensions Act, which provides them with the statutory occupational pension. The size of the occupational pension depends on the length of time and amount of income for which the fisher was insured. Each year's working income is reflected in the amount of occupational pension.

An independent status of collaborating spouses does not exist in Finland. Fishers' wives must take out their own LFÖPL insurance if they take part in fishing or associated activities (e.g., processing the catch, repairing fishing gear, marketing), irrespective of whether they receive a wage, provided their earnings or the estimated value of their work exceeds €2,628 per annum. If the value is lower, they can take out insurance voluntarily. This insurance provides them an old-age pension and also coverage for incapacity to work, unemployment or death. In the case of illness, it also entitles them to sickness allowance. The amount of benefits or pension payable depends on their working income. The annual premium is around 10% of taxable net income. The amount payable in accident compensation, sickness allowance and future pension depends on how long the members have been insured and the size of their working income throughout the insured duration. Many fishers fail to optimize the benefits from their contribution, preferring to pay as little as possible. But the problem is that a fisher's wife, even though entitled, may not be insured.

All residents of the country are insured under the Health Insurance Act, which entitles them to reimbursement of the costs of necessary medical treatment, a daily allowance in the event of incapacity for work, maternity, paternity and childcare allowances. The Social Insurance Institution of Finland handles the payment of these benefits.

Discussion and Conclusions

In theory, women working with their husband and doing similar work enjoy the same rights as men. These rights are enshrined in the working laws, especially in countries with strong welfare benefits like in Finland, Norway, Sweden and France. This does not apply, however, in countries like Portugal where laws do not permit boat owners to employ their wives. In this country, the only personal benefit for women is the contribution to the social security system.

Fishers' wives working in the family business do not have access to any personal economic or social benefits. Women do not realize that their contribution deserves a wage. French fishers' wives claimed recognition of their contribution during the fisheries law discussion in 1996. Subsequently the state gave women the status of a collaborating spouse. For the first time, women's invisible contribution to fisheries became visible legally.

But the access to the social security system cannot be interpreted as total success because in practice many fishers' wives choose not to pay social contributions. In France, for example only few women had opted for the collaborating spouse status. One of the reasons may be that the operation lacks the money to pay two social contributions. This reason may apply to the very small companies but it cannot be the reason for the others. The main reason may be that many women still do not perceive their contribution as work and they do not understand why they should pay a social contribution for something which they willingly undertake, usually within their home environment. On the contrary, Portuguese women understand why they should contribute to the social security system, and they would like to have their own retirement pension. For women to improve their present status, they need to view their efforts in fisheries as work and not as part of the marriage contract, for their own sake as well as for the sake of the industry. It is important that women's work in fisheries is recorded; that women become statistics, that they have rights, responsibilities and protection. When women's contributions to the fisheries and aquaculture sectors are fully recorded statistically, then and only then will women be able to participate fully and at all levels in decisions affecting the industry that shapes their lives.

References

- Gouletquer, C. 2000. *Femme de la côte*. Geste éditions/ témoignages, La Crèche.
- O'Doherty, J. and K. Frangoudes. 2005. The Legal Status of Collaborative Spouses in some Member States. In: K. Frangoudes and J. Pascual (eds), *Women in Fisheries and Aquaculture*. Proceedings of the International Conference AKTEA, 10-13 November 2004, La Laguna, Spain.
- MacAlister Elliott & Partners Ltd. 2001. The role of women in the fisheries sector. Final Rep. 1443/R/03/A, March 2002. Directorate General for Fisheries, European Commission.
- Pettersen, L.T. 2004. The role of women in Norwegian fish farming. Paper presented at the Workshop on Women and Sustainability in Coastal Cultures, 11-12 May 2004, University of Tromsø, Norway.

WOMEN'S PARTICIPATION IN FISHERIES ACTIVITIES IN MANIPUR VALLEY IN INDIA WITH TRADITIONAL FISH-BASED BELIEFS AND CUSTOMS

S.D.GURUMAYUM

Uripok Gopaljee Leirak, Imphal
Manipur, India

G.A. DEVI

College of Fisheries
Central Agricultural University
Lembucherra -799210
Tripura, India
champut@yahoo.co.in

M. C. NANDEESHA

College of Fisheries
Central Agricultural University
Lembucherra -799210
Tripura, India
mcnraju@yahoo.com

Abstract

Manipur, a land-locked hilly state in the northeastern part of India is known for its rich fisheries resources through the well-known Loktak Lake (included under the Ramsar Convention) along with several other forms of freshwater fisheries resources. For generations, the dependence of the valley population on fish has been so high that several fish-based beliefs and customs have evolved. Active participation of women in capture, culture, processing and marketing activities is witnessed throughout the valley. Unlike in many other parts of India where women's movement and activities are restricted, in Manipur such restrictions are not commonly seen. In the capture fisheries sector, activities that do not require great strength like the use of the Chinese dip net, push net and trap are operated by women. In the aquaculture sector, which is now emerging as a major activity, participation of women in all stages of aquaculture is noticed. Special programs to help women in aquaculture have been made. In the processing sector, fish are preserved by using various methods like drying and fermentation, and most of these activities are carried out by women. In the marketing sector, women play a major role and there are markets where only women are involved in the trading of fish. Although women are better placed in this valley as compared to other parts of India, there are many issues that need to be addressed to improve their involvement in the fisheries activities.

Introduction

Manipur is a small state located in the northeastern part of India bordering Myanmar. It is situated between 23° 83' N and 25° 68' N latitude and between 93° 02' E and 94° 98' E longitude, at an altitude of 790 m above mean sea level. The state has a distinct zoo-geographical identity. The total area of the state is 22,327 km² with hilly areas covering about 92% of the landscape that enclose a central valley of about 1,800 km². The *Meitei* community and the tribal population are indigenous to this region. The *Meitei* community, being largely the plain dwellers, inhabits the valley, while other tribes like *Nagas* and *Kukis* live largely in the hills.

In Manipur, people enjoy eating fish and believe in its extraordinary properties as health food. Fish have always played a central role in Manipuri culture and over a period of time several customs and beliefs have evolved and passed on from generation to generation (Table 1). There are so many rituals that involve fish as a component and as a result, there is a high demand for it throughout the year. In addition, since several of the Manipuris follow Sanatana Dharma, a Hindu sect, they generally avoid all other forms of meat items except fish.

Table 1. Fish-based customs and beliefs in Manipur.

Customs and beliefs (and their literal meaning)	Observation period	Purpose
<i>Ushilshinba</i> (ritual to cure maladies)	During bad times/ sick period	This ritual is marked by the release of <i>Channa</i> spp., mainly <i>C. orientalis</i> , to cure an ailing or sick person. Manipuris believe that the released fish will take away the illness with them. When a person is going through bad times, this ritual is also conducted to free them from ill luck. When a person is believed to have been possessed by spirits, this kind of ritual is again performed by <i>maiba</i> and <i>maibis</i> (traditional local priest and priestess).
<i>Meitei ngamu thaba</i> (release of <i>Channa</i> fish)	During marriage ceremony	This is a ritual performed on the marriage day by the elderly relatives of the bride and groom, to know the future life of the married couple. On this day, a healthy pair of fish, mainly <i>Channa orientalis</i> sp., is released into the water and as the fish move together, it is assumed that the wedding couple also will live together happily.
<i>Lamtagee-thangja</i> (celebration of first Saturday of the traditional spring month)	During March–April	On the first Saturday of <i>Lamta</i> , a spring month according to Manipuri calendar, a ritual is performed for the whole locality/population to ward off any evil spirit bringing misfortunes by offering food items involving fish, vegetables and rice. Children are also made to bathe on this occasion using water which contains slime from the skin of the eel, <i>Monopterus</i> spp.
<i>Ngakra pijaba</i> (feeding of walking catfish)	Morning of marriage ceremony	On the morning of the marriage ceremony, the bride is offered a dish made with catfish especially <i>Clarias batrachus</i> with the belief that it will bring strength and health immediately.

<i>Epaan thaba</i> (offering for a newly born child)	Sixth day after a child is born	The child birth ceremony is marked by a ritual on the sixth day after the child is born. On this day, <i>Channa orientalis</i> and seven smoked <i>Puntius</i> spp. are offered to the god for the good health and well-being of the child.
<i>Maning-kunba</i> (confinement during child birth)	After childbirth	After childbirth, the mother is offered smoked snakeheads or climbing perch for good health. She is also not given any oily and spicy food during the first few weeks.
<i>Nganap thongba pijaba</i> (feeding of sticky fish)	On the night of the marriage ceremony	On the first night, the newly wedded couple is fed with a dish made with <i>Acanthopthalmus pangia</i> locally called as <i>nganap</i> which literally means “sticky fish”. The notion is that it will keep the couple together for life.
<i>Mangani chakouba/ mapaam chakouba</i> (fifth day of grand feast)	On the fifth day after the marriage ceremony	The biggest ceremony conducted five days after the marriage is called <i>mangani chakouba/ mapaam chakouba</i> . In this gala festive day, the newly married couple and its families are invited for a sumptuous feast with as many varieties of fish dishes as possible. In the past <i>Wallago attu</i> was a common fish item for such a ceremony, in all families. However, nowadays, only rich families can afford that fish and poor families depend on other species like grass carp.
<i>Chaphu-uyan thinba</i> (gifting of cookerries)	During the seventh month of pregnancy	When a married daughter reaches the seventh month of pregnancy, smoked fish, salt and pine (wood) are received from the mother along with necessary utensils.
<i>Shareng makok pijaba</i> (feeding of head portion of <i>Wallago attu</i>)	Before the child's delivery, after nine months of pregnancy	When the daughter is in her ninth month of pregnancy, her mother offers a dish made with the head of <i>Wallago attu</i> . It is believed that eating such will help in her safe delivery.
<i>Ningol chakouba</i> (grand feast with daughters and sisters)	During October and November	This is one of the biggest and most important annual festivals of the <i>Meitei</i> community. Parents/brothers invite the married daughters and sisters along with their children for a grand feast involving several varieties of fish preparations. A large amount of fish is harvested to meet the demand for this festival.

Aquatic Resources

The state has various types of water resources in the form of torrential, fast-flowing hill streams in the valley, and quiet and calm flowing rivers. There are more than 15 meandering rivers covering a length of 2,000 km. The valley has many floodplains locally known as *pats* which are associated with the livelihood of many people in very many ways. There are 153 floodplain wetlands covering a large area (Table 2), and accounting for 28.34% of the total valley area. The Loktak Lake is covered with a floating mat vegetation (*phum*) and is also the biggest lake in northeast India covering an area of 24,672 ha. It forms the lifeline of Manipur. Some important *pats* are Pumlentpat (8,022 ha), Kharungpat (6,520 ha) and Loushipat (1,864 ha). The ubiquitous floodplain wetlands of Manipur form an important habitat for flora and fauna, including a number of prized fish species.

The many *pats* that blotch the state's landscape play an important role in the life of the valley's inhabitants and are deeply entwined with the socioeconomic and cultural ethos of the people. The main fishery resources are the *pats*, which despite the accelerated deterioration still form the backbone of the state's fisheries. These *pats* contribute significantly to the state's revenue. People living near these waterbodies have access to these *pats* to meet their daily family needs for fish or to make a livelihood through fishing. Almost every household has a Chinese dip net along with other fishing gears.

Table 2. Resource production and potential of the waterbodies in Manipur.

Resource	Estimated water area (ha)	Current production (t)	Rate of production (kg/ha/year)	Production potential (t)
Pond (intensive)	8,550.00	12,397.00	1,450	34,200.00
Pond (extensive)	1,389.00	695.00	500	555.60
Lake	2,500.00	250.00	100	212.50
Reservoir	500.00	25.00	50	25.00
Marshy swampy lake	11,536.23	577.00	50	576.80
Submerged cropped land	3,480.00	191.42	55	
River/stream	13,888.27	127.10	9	173.60
Water-logged areas converted into agricultural lands	1,738.10	87.00	50	86.90
Low-lying paddy fields suitable for piscicultural purposes	4,000.00	1,700.00	425	2,000.00
Total	56,461.05	16,050.00	-	37,830.40

Source: State DoF (2001).

Fish production in the state was 16,050 t during 2000-2001. The per capita availability of fish, however, is only 6.8 kg per year which is lower than the World Health Organization's recommendation of 11.5 kg/person/year.

Women of Manipur

In most parts of India, women are largely confined to household activities. However, in Manipur, both in the rich and poor households, women are engaged in field-based supportive activities, but their contribution to the family economy is yet to be evaluated. In any case, women's position and participation in Manipur portray a different picture. Manipur is a state where the role of women is recognized, and their contribution to the economy is increasing significantly. The cultural traditions provide opportunities and incentives for the equal participation of women in every activity. They do not share the legacy of hierarchical traditions in which women are seen as dependents and undertake the supportive role to the male as normally observed in the rest of the country. They are not only active and equal partners in both indoor and outdoor activities; they are also, in many cases the main breadwinners for the family. As a result, many productive activities are taken up by them in addition to the traditional gender-based household activities.

Despite the important role of women, their literacy rate is significantly lower compared to that of men (Table 3). The low level of importance of education attached to a female child contributes to the low literacy level of women. This trend is similar to that seen in the rest of India. In contrast to this, the gender ratio in the state is almost 1:1 (Table 4) unlike in other parts of the country, such as in some of the northern states, where the ratio has declined drastically due to female infanticide. The gender ratio of 978 females: 1,000 males in the state is highest in the northeastern part and cases of female infanticide are uncommon in Manipur.

Table 3. Female population, literacy rate and gender ratio of four valley districts of Manipur.

Category	Bishnupur	Imphal east	Imphal west	Thoubal	Manipur
Female population (%)	50.08	49.79	50.18	49.95	49.45449.46
Male population (%)	49.92	50.21	49.82	50.05	50.54550.54
Female literacy rate (%)	61.09	66.3	72.24	55.34	59.70
Male literacy rate (%)	82.25	86.44	89.40	80.50	77.87
Gender ratio	1,004	992	1,007	998	978

Source: Statistical Handbook of Manipur (2002).

Table 4. Females per 1,000 males in four valley districts of Manipur.

District/Year	1951	1961	1971	1981	1991	2001
Bishnupur	1,019	1,010	981	992	984	1,004
Imphal east	1,033	1,018	990	981	966	992
Imphal west	1,024	1,014	980	997	979	1,007
Thoubal	1,024	1,014	988	994	980	998
Manipur	1,036	1,015	980	971	958	978

Source: Statistical Handbook of Manipur (2002).

According to the 2001 census, 43.2% of the total workforce of the state was composed of women, compared to 32.2% in urban areas (Table 5). The total male workforce outnumbered the female, but in the agriculture and household industries the female workforce is larger in number. About 25% of the total unemployed youths in the valley were female (as of late July 2004; Imphal east: 25.79%; Imphal west: 29.10%; Thoubal: 20.30%; and Bishnupur: 26.20).

Table 5. Total workforce available and the categories by residence and gender.

Area	Gender	Total workers	Cultivators/ laborers	Agricultural workers	Household industry workers	Other workers
Rural	Male	464,790	250,410	43,650	13,300	157,410
	Female	381,800	202,420	55,890	55,870	67,600
Urban	Male	129,840	27,170	9,570	6,290	86,810
	Female	93,130	12,680	11,860	22,470	46,100
Total	Male	594,640	277,580	53,220	19,600	244,220
	Female	474,930	215,100	67,760	78,350	113,700

Source: Statistical Handbook of Manipur (2002).

Role in fisheries

The fisheries activities in Manipur are largely dominated by women. They play multiple roles; apart from the traditional role of managing household activities from cooking to taking care of the elders and children in the family, they are involved in outdoor-related tasks. The many waterbodies in the valley provide a wealth of fishery resources and a variety of aquatic plants that are used as food by the people. In many ways, the role of women in fisheries activities reflects the situation in Cambodia (Nandeesh and Hanglomong 1997). Women are involved in capture and culture fisheries, fish processing, fish marketing and fish transport. During the season when fish are available in abundance, women spend several nights working to preserve them in various forms for use during the off-season.

Role in capture fisheries

The most common sight one would see in Manipur is the active involvement of women in fishing using various types of fishing gear that can be easily operated by them. Chinese dip nets are most commonly used by women to collect fish from areas where these are reasonably abundant. Women are also involved in handpicking different types of snails. Different types of bamboo gears are also used for collecting fish and other animals from the water. Fishing in ponds using a scoop net or drag net is also common.

Issues confronting women

Discussions with women have revealed a number of issues affecting them. As women are involved in household activities, spending long hours in the field has increased their work burden. As women stay in water for a considerable length of time, they encounter different types of health problems, such as worm infestation, fungal and other water-borne diseases. As the state law and order situation has been poor, women cannot travel long distances for fishing purposes.

Ongoing political problems resulting in insurgency, frequent strikes and increasing incidence of HIV are causing additional burdens to women. As the waterbodies are choked with weeds, in some cases extending up to 40% of the water area, fishing has become a major problem (Table 6). Construction of dams for electricity generation, which leads to increased siltation of riverbeds and other waterbodies, has impaired the ecology of natural resources and as a result, the fish production has stagnated (Table 7). More than all these, with no mesh size regulation in place, fish of all sizes are caught by using small mesh size net. While many are thinking of only today and catching fish of all sizes, elderly women recall the abundance of fish and see their gradual decline due to overfishing.

Women have suggested some measures to overcome the above constraints. Main suggestions pertain to the development of strategies to prevent further damage to fisheries through community participation. Along with regulations to control fishing activities, bringing awareness to the community to safeguard the natural resource should be given priority. Provision of knowledge of fish culture and of ways to increase productivity through culture-based fishery is suggested to reduce pressure on the natural resources.

Women in Aquaculture

Aquaculture is a major activity carried out in the state and women are most actively involved in it. Integrated aquaculture like fish culture in paddy fields, integration of animals with fish culture and horticulture are commonly practiced. Involvement of women in all stages of aquaculture is a common phenomenon observed throughout the state. Digging ponds along with men, preparing ponds for stocking fish seed, procurement of seed, routine pond management like fertilization, feeding, harvesting fish, marketing of harvested fish, have all been carried out by women along with men. Recognizing the interest of women in aquaculture and the hardship confronted by them, women's associations, such as the Nupi Ngayok Marup (Women Fish Culture Group), have been established. In the state, there are now 696 such groups that undertake fish culture activity with the support of the Department of Fisheries (DoF). The members of the organization are provided with fish seed from the DoF on a credit basis, and the payment is made to the DoF after the harvest of fish. The scheme which started in 1983 has been quite successful in introducing improved methods of fish culture. Fish ponds are commonly seen in homes in the Manipur Valley. In places where there is no drinking water supply system, families maintain two ponds—one to meet family water necessities and another to culture fish.

Table 6. Area of open water and area covered by aquatic weeds in wetlands during different seasons. Figures in parentheses indicate percentage of wetland area.

Wetland category	No.	Area (ha)				
		Wetland	Water spread		Aquatic vegetation covered	
			Post-monsoon	Pre-monsoon	Post-monsoon	Pre-monsoon
Natural						
Lake	21	43,358	14,548 (33.6)	10,584 (24.4)	29,532 (68.1)	33,708 (77.7)
Oxbow lake	2	35	35 (100.0)	20 (57.1)	35 (100.0)	35 (100.0)
Waterlogged area	130	9,466	8,563 (90.5)	-	8,726 (92.2)	9,466 (100.0)
Subtotal	153	52,859	23,146 (43.8)	10,604 (20.1)	38,293 (72.4)	43,209 (81.7)
Artificial						
Reservoir	2	100	100 (100.0)	57 (57.0)	-	43 (43.0)
Subtotal	2	100	100 (100.0)	57 (57.0)	-	43 (43.0)
Total	155	52,959	23,246 (43.9)	10,661 (20.1)	38,293 (72.3)	43,252 (81.7)

Table 7. Capture fisheries production in Manipur.

Year	Fish production (t)
2003-2004	10.56
2002-2003	9.96
2001-2000	9.90
2000-2001	9.63
1999-2000	9.30

Source: DoF (2001), Manipur, Imphal.

Issues confronting the sector

Discussions with women revealed that they are yet to derive significant benefits from training in terms of increasing their fish production. They noted that the training provided had helped them increase their productivity level but not beyond a certain point as they are not able to provide the necessary inputs. Many of them are faced with the problem of locally procuring pond inputs like seed, feed, lime, fertilizers and fish harvesting nets. Even when the items are available in nearby markets, they do not have the money to buy them, and thus they are prevented from adopting improved aquaculture practices. Insurgency problems in the state also prevent women from undertaking commercial-scale activities since the increase in their income may attract the attention of insurgents. The lack of transport facilities is a problem and sometimes prevents the fish from reaching the market place in a good condition. The increasing weed infestation in waterbodies is also recognized as a major problem that is hindering aquaculture development in the state; the development of technologies to utilize these weeds for aquaculture purposes will bring benefits to the aquaculture industry. Development of aquaculture techniques for several of the native species that have high market demand is considered a useful strategy that will help families increase their income.

Among the 7,621 beneficiaries trained by the Fish Farmers Development Agency in the Imphal district, women constituted only 13.1%. This could be due largely to the "one person per family" training approach used. To ensure sustainability to the activity, it is essential that both husband and wife are trained.

Women in fish transportation and marketing

Unlike in other places where men play key roles in transportation of fish and women in marketing, in Manipur, women carry out both activities efficiently. Although men do assist in large-scale operations, in general women independently undertake the smaller-scale activities, thereby allowing men to attend to other tasks. Fish marketing is generally undertaken by women and is an exclusive domain of women in the retail trade sector. There are markets that are known as *Nupi Keithels* or *Emu Keithels*, which means women's or mother's market, and only women are allowed to trade in these markets. In the central market of Imphal, there are about 300 women fish traders. All these women are allocated a regular trading place by the Municipal Council on a rental basis. Women come to the market very early in the morning, after collecting fish from the farmers.

As women are involved with fish trading during the major part of the day, they are hard pressed for time to accomplish other activities. Women face enormous problems in the transportation of fish in the early hours of the day. The most severe problem is frequent strikes by various groups which result in the loss of several days a month. With no trading on strike days, women face severe hardship. With no cold storage facilities in place, women are not able to preserve fish. Women expressed the need for cold storage and ice production facilities. Improving the hygienic condition of the market is also essential.

Gender Status in the State Department of Fisheries

Although in Manipur women have been playing key roles in all fisheries activities, they constitute only 15.1% of the total staff strength in the DoF (Table 8). Although women in this state enjoy better freedom as compared to the other states in India, their low level of literacy has not helped them to secure good jobs. As in the other parts of the country, it is the men who are encouraged to acquire higher qualifications, thereby securing a large percentage of government jobs. It is necessary that emphasis is laid not just on literacy, but in providing a higher level of education to women and recruiting them to ensure gender balance to carry out the work efficiently. As they are the most active participants in the fisheries sector, any effort to bring gender equity in the staff structure of the DoF is likely to benefit women and the fisheries sector.

Table 8. Details of staff of Manipur state DoF.

Staff category	Male	Female	Total	Percentage of females
Technical	298	73	371	19.68
Administrative	58	63	121	52.07
Office support	76	8	84	9.52
Field support	217	30	247	12.14
Total	649	174	823	15.06

Source: DoF (2001), Manipur, Imphal.

Conclusion

Women contribute immensely to the Manipur economy and culture through fish. They acquire a special status in the society and much of the discrimination seen against women in other parts of the country is not seen here. However, many problems common to other areas do occur. In particular, education for a female child has not received priority. With low literacy levels, women tend to confine themselves to household activities and move on to field-based activities which do not require a high level of education. It is essential that awareness is brought not just on providing literacy to a female child, but also on the provision of a higher level of education.

Training for women on the various aspects of fisheries is yet to receive priority attention, although some progress has been made by women's groups. It is useful to fix numerical targets in the provision of training for women. However, it is necessary that training contents and timing should be prepared based on the convenience of women. The major problem encountered by women is the transport of fish to the market site. It would be advisable for the DoF to explore the possibility of providing organized support for the transport of fish. Technology improvement in the processing and preservation of fish, taking women's needs into consideration, will support them in many ways. In the aquaculture sector, it is essential that aquaculture technology for the native species is developed as that would help women to earn extra income. Aquatic weeds can become a major resource of the state, if suitable technologies for their use are developed. Research investigation into various beliefs might help in unearthing several of the nutritional benefits of the fish that are yet unknown. It is suggested that further detailed study be conducted on the gender issues confronting the fisheries sector in Manipur and suitable development strategies be made to empower women.

Acknowledgements

The authors are grateful to Mr. Biramani Singh, Director of Fisheries; Mr. K. Sarat Kumar, Additional Director; Mr. S. Ingoba, Farm Manager; and Mr. E. Shyam, Fishery Inspector; and other staff for their cooperation during the study. The authors are also thankful to Suresh Singh, Technical Officer of the Indian Council Agricultural Research Center in Manipur, and to several other staff and fishers for their help and cooperation during the course of this study.

References

- DoF (State Department of Fisheries). 2001. Report on Fishery Resources of Manipur. Department of Fisheries, Imphal, Manipur, India.
- Government of Manipur. 2002. *Statistical Handbook of Manipur*. Publication of the Government of Manipur, Imphal, Manipur, India.
- Nandeeshha, M.C. and H. Hanglomong (Eds). 1997. Proceedings of the Seminar on Women in Fisheries in Indo-China Countries, 6-8 March 1996. Bati Fisheries Station-PADEK, Phnom Penh, Cambodia. 167 p.

WOMEN IN FISHERIES IN BANGLADESH: LEVEL OF INVOLVEMENT AND SCOPE FOR ENHANCEMENT

S. HALIM

Department of Sociology
University of Dhaka
Dhaka-1000, Bangladesh
sadeka@bangla.net

M.K. AHMED

Department of Fisheries
University of Dhaka
Dhaka-1000, Bangladesh
kawser_du@yahoo.com

Abstract

Small-scale aquaculture development is increasingly considered as a means by which the livelihoods of the poor, including women, can be improved. The present study focused on the involvement of women in fish production in five projects sponsored by the Department for International Development (DFID) UK, in Bangladesh, under the Support of the University Fisheries Education and Research (SUFER) Project. The findings revealed that most of the projects involved men as full-time workers while women's role remained in most cases insignificant and gender equity was overlooked. Nevertheless, women in three projects were directly or indirectly engaged in activities such as making fish nets and gear, preparing fish feed, fish processing, digging ponds and sorting offingerlings. Women in some areas were also found to be catching, transporting and marketing fish. Although their contribution to income has increased, their role in decision making in the family has not increased significantly. This decision-making role though has slightly increased in such matters as purchase, lease or sale of land, sharecropping, changes in occupation, marriage and children's education.

Introduction

Bangladesh is experiencing feminization of its labor force. This is quite visible from the increase in female labor force participation in the export-oriented sector. Fisheries is the second largest subsector in agriculture in Bangladesh and more than 1.2 million people are engaged in it, which ranks second highest in export earnings. Fish provide 63% of the animal protein consumption. Inland aquaculture, together with coastal shrimp culture, accounted for 40% of the total production during 1990-2000 (Hasan 2001). The fish production in Bangladesh involves both men and women. Women are important productive workers in the world economy. In fishing communities, they also play an important role. The development of the fisheries sector is vital in the enhancement of production and economic well-being of the people of Bangladesh.

In some developing countries, such as Ghana and the Philippines, and in certain areas in India, Thailand, Sri Lanka, Cuba and most of West Africa, there are probably as many women engaged in fisheries as men. In shrimp farming activities, women help empty the nets and sort the catch. They gut, clean and sell the fresh fish at the beach, and handle all the processing, which includes smoking, salting, drying, fermenting or a combination of these. For example, in Tombo, Sierra Leone, 75% of the village women are directly involved in fish processing (FAO, n.d.).

In many developing and developed countries with an export-oriented fishing industry, it is the women who work as low-paid laborers in the processing lines to sort and pack shrimp and to dress fish for canning and freezing. Management and supervision are very much a male preserve. In some countries, fish marketing forms the greatest single source of income for women. In some places, such as Cape Verde, women are responsible for all the marketing stages, starting from landing of fish to vending. In Latin America and the Caribbean, women handle most of retailing. A look at the FAO (1990) report on the organization of fish marketing in Madras fishing harbor gives a good idea of the various marketing activities performed by women in India. Women can be auctioneers, retailers, trash fish vendors and dealers for export (FAO 1990).

In Bangladesh, fishing is the most important occupation in the non-farm sector, but only 3% of the total female population of Bangladesh is involved in fisheries as a primary occupation (BBS 1996). The role of women in fisheries encompasses social and economic tasks both within and outside the family (Sultana et al. 2001). Various studies conducted in Bangladesh showed that 43% of rural women contribute to agriculture and fisheries-related activities as secondary and tertiary occupations, besides performing their household responsibilities (Shelly and Costa 2001). Rural women also contributed to seasonal fish drying, an occupation that was largely restricted to them. They spent a major part of the day doing household chores. Some were involved simultaneously in fisheries-related work. Also, women's involvement in income-generating activities to supplement the family income enabled their husbands to work elsewhere (Shelly and Costa 2001).

While fishing is traditionally perceived to be a full-time occupation of men, the involvement of women is also significant, although seldom acknowledged adequately. Along with men, women are engaged in activities such as making fishing nets, repairing and maintaining other fishing equipment, sorting of fingerlings, processing, transportation and marketing of fish. Women in Bangladesh are also involved in aquaculture production and cage/pen culture activities in floodplain beels (marshy lands). They play a crucial role in aquaculture in Bangladesh and in many Southeast Asian countries. For example, in Cambodia, higher yields are obtained from fishponds managed mainly by women. In Thailand and China, women often bear the sole responsibility of aquaculture production, because of male migration to cities. However, women's contribution is often unrecognized and the actual extent of the benefits from their involvement in such activities is seldom acknowledged or assessed. This is quite disheartening because small-scale aquaculture development is increasingly considered as a means by which the livelihood of the poor, including women, could be addressed in a substantive way.

For women, the inability to access property, especially land, is a major problem in terms of participation in economic activities. It could be pointed out that policymakers do not take rural women's absence of right to land into consideration. Policymakers assume that male members in the family would allow their womenfolk to use the land. Research findings, however, show that many women are handicapped in agricultural and forestry programs where land is required to become participants (Agarwal 1992; Halim 2000).

In Bangladesh, socioeconomic changes triggered by the increasing rates of landlessness and an unequal access to development benefits have affected and influenced the lives of the rural poor and women significantly. All the development plans of the Government of Bangladesh (GOB) tried to involve women in different types of income-generating activities. The Fourth

Five-year Plan (1990-1995) used terms like “gender” and adopted the objectives of Women in Development policy which included increasing their participation in public decision making, raising productivity and income, improving nutrition and health, reducing population growth, infant and maternal mortality, and the male-female literacy gap, and ensuring the participation of the “poorer 50%” in development. The Platform for Action emphasizes the strategy of gender mainstreaming to ensure gender equity in government policies and programs. Many rural women are involved in various project-based activities, including those on fisheries.

Methodology

This paper focuses on women’s involvement in fish production and assesses the involvement of women by reviewing five projects in Bangladesh sponsored by DFID, Bangladesh. The study areas were Norshingdi, Bhairab (Cage Culture Project), Tangail (Conservation of Small Indigenous Species [SIS]), Cox’s Bazar (Fish Drying Project), Netrokona (Beel Management Project) and Panchagarh (The Potential for Self-recruiting Species [SRS] in Aquaculture Project). The goals of all these five projects were aimed at addressing issues related to sustainable livelihoods for the poor.

The findings presented in this paper are based on case studies, focus group discussions (FGD) and semi-structured interviews. A total of eight FGD sessions, conducted by researchers and research assistants, were organized to provide in-depth information on economic and social issues and women’s involvement in projects.

A total of 67 semi-structured interviews were conducted in 5 project areas. All the women respondents came from the fisheries communities and some were direct participants in the project. These respondents were selected purposively and the interviews were mostly unstructured. The interviewer developed a mental checklist covering a broad framework for the inquiry. The primary focus of these interviews was to collect information on women’s involvement, socio-cultural barriers, economic situation and whether they have any organizational support.

Results and Discussion

Women’s involvement in Support of the University Fisheries Education and Research projects

It could be said that in projects where women were participating, they were mere observers. They were hardly allowed to participate in the project design and planning. They were not given any central role in defining the project design, in identifying problems which women might encounter and in providing possible solutions to these problems. External operators were there to facilitate, listen and respond. Women did not participate in the conservation of the SIS project in Tangail (see Table 1). Women did not play the same role in the five Support of the University Fisheries Education and Research (SUFER) projects.

Table 1. Participation of women in the fiveSUFER projects.

District	Frequency	%
Cox's Bazar	19	28.4
Panchagar	21	31.3
Norshingdi	16	23.9
Netrokona	11	16.4
Tangail	0	0
Total	67	100.0

Gender diagnosis of the DFID SUFER projects: missing gender concern

Gender equity was overlooked in all the five projects. The projects were designed to involve the community; however, many development planners recruited household heads, which were mostly men, as participants. The projects did not take into account the role women play in agriculture and in fish production. The project design did not provide any gender-sensitive guidelines and failed to address the traditionally important role of women in assisting their male counterparts in various fish-related activities.

Socioeconomic background of women in the project area

More than 50% of the participants belonged to the bottom layer of the economic category of households in rural Bangladesh. There were also participants from the poorest of the poor category. Table 2 shows that 35.8% of the respondents came from poor families, while another 22.4% from extremely poor families. These women mentioned that their economic independence was limited by the fact that they did not possess valuable assets or land. It could be argued that control over any form of assets will lead women to have wider access to economic, social and political power. There were some participants from the middle-income category. Regarding the classification of economic category, we have followed the subjective identification. In Table 2, the respondents themselves have identified the economic status of their households against other households in their neighborhood.

Table 2. Economic category of women respondents' households in the DFID SUFER projects.

Category	Frequency	%
Upper middle	7	10.5
Middle	10	14.9
Lower middle	11	16.4
Poor	24	35.8
Extremely poor	15	22.4
Total	67	100.0

Table 3 depicts the number of years that women were involved in the fisheries projects. More than 50% of the respondents were involved for one or less than one year. The number of women involved in fisheries activities was dependent on the seasons. Their involvement hinged on the nature of the project with the majority (35.8%) engaging themselves in project activities during the monsoon season (Table 4).

Table 3. Duration of involvement in the project activities.

Duration	Frequency	%
Less than 1 year	28	41.8
1 year	22	32.8
2 years	4	6.0
3 years	11	16.4
Not available	2	3.0
Total	67	100.0

Table 4. Women's involvement in SUFER projects during the different seasons.

Season	No. of women	%
Monsoon (June-August)	24	35.8
Winter (November-January)	10	14.9
Summer (March-May)	14	20.9
Not available	19	28.4
Total	67	100.0

Women in some areas, such as Panchagarh, Cox's Bazar and Norsinghdi, were directly involved in the fisheries projects. For instance, in the cage fisheries project in Norsinghdi, women operated 6 out of 20 cages. Although both women and men were involved in the cage fisheries project, their responsibilities were different. For example, it was the women who prepared food for the fish, while the men only took the feed to the cages by boat. Therefore, stereotypical gender division of labor was being practiced. These norms were only challenged when women had no male members in the family to support them in such activities. Table 5 indicates the number of respondents from female-headed households.

Table 5. Head of households involved in SUFER projects.

Head	Frequency	%
Male	59	88.1
Female	8	11.9
Total	67	100.0

Only one woman, a widow, was supplying food to her cage. Women in the cage fisheries project were also responsible for the safety of the fish. It was possible for them to keep guard because the cages were located just beside their homestead. However, women participants faced some problems in collecting fish food. Fish food like *kolapata* (banana leaves) and *naillapata shaowla* (algae) had to be collected at the vicinity or from the river. The *shomaj* (society) looked down on women who collected fish food from the river. They usually spent 3-4 hours feeding the fish in the cages. However, women reported that for this task they received lower wages than the men. Women identified marketing of fish as the major problem. They were prohibited from selling their own products in the local market. Thus, the fish had to be sold through the men. The other factor was the market and price control of fish exercised by the local middlepersons. A mechanism that would enable the fishermen and fisherwomen participating in the projects to obtain a fair price for their fish has not been developed.

The SRS project in Panchagarh involved women to a certain degree as equal partners with the men participants. The Fish Drying Project in Cox's Bazar also involved women quite effectively. Here, they worked for 2 hours in the morning and 3 hours in the afternoon. Women and men received equal wages, which was Tk¹ 100 a day. In this project, all the women participants were from the minority Buddhist Rakhaing community. These indigenous women reported that during the rainy season, they failed to get a profitable price for the dried fish. They did not know how to overcome the unavoidable losses and they had no financial strength to cover them. These women would like the local market to take into account the impact of rain and other natural calamities on the production cost of drying fish.

Some problems identified by women respondents from Cox's Bazar are as follows:

- Many women lacked technical skills and basic understanding on ecological and biological requirements of the commercial fish culture system; those are crucial in many cases to the success of commercial fish farmers.

¹ Tk or Taka, unit of currency where 1 Bangladesh Taka is approximately equal to 0.015 US \$, or 1 US\$ is equivalent to 66.7 Tk (February 2006).

- There is no separate space in the local market for indigenous women to sell their products.
- Most of the women had no access to capital; they therefore demanded more financial assistance to enable them to generate extra income from other activities in order to supplement the household income.
- Indigenous women living on *khas* land (wasteland) did not feel secure since they were often threatened by powerful local groups belonging to other communities, and therefore they demanded their own “settled land”.
- Women worked with bare hands which were sometimes injured by fish bones; these injuries interfere with their household chores.

In Cox’s Bazar, women were involved in the post-larvae nursing activities. Women’s responsibilities were to prepare the feed for the post-larvae and to nurture them for a certain period. In the beginning, it was difficult to involve women; however, the project officials included women in meetings with their families. Subsequently, women were keen to participate.

Women members of the beel management project in Netrokona had not been treated as equal participants alongside their male counterparts. These women were members of the various nongovernmental organizations (NGO) in the locality and were involved in various income-generating activities. Their participation in NGO activities has exposed these women to the outside world. According to them, this opportunity could bring meaningful changes to their lives. They reported that they made fish nets and sold these in the local market and were able to make economic contributions to the family.

Impact on women’s livelihood status

Table 6 shows the use of women’s income for various purposes. About 80% of the respondents allocated their income on food and clothes for household members; 34% on educational expenditures for their children; 8% on health care. Only 1% had the capacity to save some money. If women were given more opportunities to participate in income-generating activities like fisheries they would be in a position to improve the overall standard of living of the household. Furthermore, employment in fish-related activities was seasonal (see Table 4).

Table 6. Use of women’s earnings.

Sector	Frequency	%
Food for household member	51	79.7
Clothes for household member	52	81.3
Education	22	34.4
Occasional luxury for women and children	13	20.3
Petty cash formation	1	1.6
Health expenditure	5	7.8
Total*	144	225.0

* The total in columns 2 and 3 will not be 67 and 100, respectively, due to multiple responses.

Table 7 reflects the level of economic hardship experienced by the respondents’ families dependent on fisheries-related activities. About 80% of the respondents’ family belonged to the “low hardship” category. However, it should be noted that low hardship does not imply that they are in an advantageous economic position. Table 7 provides only a subjective reality of the economic situation.

Table 7. Level of economic hardship.

Economic hardship	Frequency	%
Low	53	79.1
High	10	14.9
None	4	6.0
Total	67	100.0

To improve their cash situation further, some women took credit from various sources. Table 8 depicts the credit situation of women in fishing communities. It shows that only 13% (8 out of 67) of the total respondents have taken credit. Among them, 62.5% arranged for a credit limit of Tk 3,000-5,000; 12% had a credit limit of less than Tk 3,000 and only 25% took an amount of Tk 5,001-10,000. Semi-structured interviews revealed that 19.4% of the women had taken credit from NGOs, 32.8% had no access to credit (47.8% did not provide a response).

Table 8. Distribution of credit taken by respondents.

Amount (in Tk)	Frequency	%
Less than 3000	1	12.5
3,000 – 5,000	5	62.5
5,001 – 10,000	2	25.0
Total	8	100

Discrimination in the wage rate

In rural Bangladesh, women faced serious discriminatory practices in terms of wages for similar types of work done by men and women. The male employers in rural areas perceive that women put in less effort for the same work than their male counterparts. However, this argument is far from the reality. The practice of unequal wages is shown in Table 9. More than 50% of the women respondents who participated in the labor market said that they faced wage discrimination. The FGD findings in Table 9 also confirmed the unequal wage distribution. The amount of salary per day per labor depicts the extent of the wage discrimination (see Tables 10 and 11). The lowest wage rate for male labor was Tk 40 whereas for female labor it was Tk 25, which means there was a 37.5% difference. The mean wage rate also confirmed this differential practice. The mean wage for male labor was Tk 71 per day whereas for female labor, it was Tk 52.75.

Table 9. Wage discrimination faced by women.

Response	Frequency	%
Yes	36	53.7
No	4	6.0
Do not work as wage earners	27	40.3
Total	67	100.0

Table 10. Wage distribution for men (per day).*

Wage (in Tk)	Frequency	%
40	2	5.0
50	14	35.0
60	8	20.0
80	1	2.5
100	15	37.5
Total	40	100.0

*Mean wage was Tk 71/day.

Table 11. Wage distribution for women (per day).*

Wage (in Tk)	Frequency	%
25	8	20.0
30	7	17.5
40	4	10.0
50	2	5.0
60	13	32.5
100	3	7.5
120	3	7.5
Total	40	100.0

*Mean wage was Tk 52.75/day.

Control over resources

In rural Bangladesh, women were being deprived of their rights over economic resources. Although this situation is slowly changing, the respondents in the study area mentioned that they had very little control over household economic resources, including their own income. Table 12 shows that 74.6% had limited control of their income, 17.9% significant control, and 3% no control.

Table 12. Extent of women's control over their income.

Extent of control	Frequency	%
None	50	74.6
Limited	2	3.0
Significant	12	17.9
Not available	3	4.5
Total	67	100.0

Although women's contribution to family income has increased, their role in decision making in the family has not increased commensurately. The positive aspect of the change is that

women now have a slightly larger role in decision making in family affairs. Unfortunately, very little of this ability finds expression in major decisions such as on the purchase, lease or sale of land, sharecropping, changes in occupation, marriage and children's education. Some women did not have the power or the freedom to spend their earned income; but they nevertheless preferred to work outside, ignoring social and religious barriers. Women who were direct participants in projects felt that their position in the family as well as in the community was better than that of women not involved in the project.

Women's workload

Table 13 shows women's involvement in the project activities: 43% spent 2-4 hours/day; 10%, more than 7 hours/day. The FGD findings showed that despite women's involvement in the fish production-related activities outside the house, they still had to carry out their routine household chores. This has led to a net increase of their total workload. The increasing shortage of drinking water, fuel wood and biomass has also added to their workload. If they failed to prepare meals on time, their husbands would usually harass them.

Table 13. Time spent (per day) in the project activities by women respondents.

Time (in hours)	Frequency	%
Less than 2 hours	23	34.3
2- 4 hours	29	43.3
5-7 hours	5	7.5
7 hours +	7	10.4
Not available	3	4.5
Total	67	100.0

Social and cultural aspects and organizational support

The project areas were considered as socially conservative areas. Women were most deprived in the community. Participants in the projects constitute Muslim, Hindu and indigenous women (for example, in Cox's Bazar). However, these encountered different cultural barriers. The indigenous women had few socio-religious barriers with regard to fish-based activities. In the Hindu communities, for example in the Netrokona beel management project, women were not encouraged to work outside by their menfolk. However, these types of negative attitudes did not stop poor women from seeking outside employment.

The prevailing social and cultural norms prevented women from having a public role. Therefore, in the study areas, there was no such incidence of women collectively protesting against wage discrimination. The FGD women participants in the various project areas mentioned that they had little means to seek for justice to violence or other forms of abuse. Most were taken as beneficiaries but not as active participants. In the Netrokona beel management project, women pointed out that the political leaders in the committee deprived them of a share of the fish during the harvesting season.

Policy Recommendations

This paper argues that if women are given access to critical resources, such as land, and are part of the planning, design and management process, the efficiency, profitability and sustainability of fish production will be enhanced, and their socioeconomic and political

status will be upgraded. The following suggestions are offered to help enhance women's participation in fish-related projects:

- Develop gender-sensitive project design and planning in consultation with women.
- Provide training and information on fish-related activities.
- Make market information and complex marketing mechanisms accessible to trainees and rural women.
- Give women access to own property, and use of existing resources in the family.
- Use the most effective didactic approach (training, briefing, weekly consultation, one-on-one discussion with the participants) for information dissemination.
- Identify relevant documentation and training materials; clearly present information to ensure productive discussion of gender issues.
- Review outcome of this exercise and upgrade training materials, as necessary.
- Establish appropriate monitoring mechanisms to measure the impact of training on improved performance.

Active participation in projects by women and men requires changes in project implementation procedures. In many parts of the world, women have less access to education than men. In addition, women are less likely to be exposed to information because of various barriers. Even where efforts are given by the planners to integrate women in development activities, such as through participation in meetings, domestic responsibilities often prevent them from attending. If they are asked to attend mixed meetings comprising men and women, the latter generally take a back seat, because they feel socially constrained against speaking out. Effective consultations with women often require house-to-house interview, separate meetings in small groups, rather than in large meetings.

The capacity of women to be involved in such participatory processes requires changes in the ways in which participatory consultations are conducted. Issues include not only logistical problems but also the more fundamental problems relating to differences between men's and women's perceptions of personal and family issues. For women especially, they have often to choose between personal goals and family welfare. Women participants should be given the chance to "speak their minds".

It is important that projects develop monitoring and evaluation mechanisms to continuously assess progress. It is also important to ensure that different gender-related safeguards are operating as envisioned. In this context, it is essential that responsibility for the implementation and enforcement of safeguards be given to a gender-aware project officer.

References

- Agarwal, B. 1992. The gender and environment debate lessons from India. *Feminist Stud.* 18(1): 119-158.
- BBS (Bangladesh Bureau of Statistics). 1996. Statistical year book of Bangladesh 1995. BBS, Dhaka, Bangladesh.
- FAO (Food and Agriculture Organization). 1990. Bay of Bengal Programme: small-scale communities. FAO, Rome, Italy.
- FAO (Food and Agriculture Organization). n.d. The role of women in small-scale fisheries, FAO, Rome, Italy.
- Halim, S. 2000. Invisible again: women and social forestry in Bangladesh. Ph.D. thesis. McGill University, Canada.
- Halim, S., D. Mallick and O. Reza. 2001. Women and children study, feasibility study for the shrimp component of the Fourth Fisheries Project, Department of Fisheries and Department for International Development. Submitted by Bangladesh Centre for Advanced Studies, Dhaka, Bangladesh.
- Hasan, M.R. 2001. Demand-led research and management of wild freshwater fish in Bangladesh. Support of University Fisheries Education and Research, Dhaka, Bangladesh. 76 p.
- Shelly, A.B. and M.D. Costa. 2001. Women in aquaculture: initiatives of CARITAS Bangladesh. p. 77-87. In: M.J. Williams, N.H. Chao, P.S. Choo, K. Matics, M.C. Nandeesh, M. Shariff, I. Siason, E. Tech and J.M.C. Wong (eds), Global Symposium on Women in Fisheries, Sixth Asian Fisheries Forum, 29 November 2001, Taiwan. WorldFish Center, Penang, Malaysia.
- Sultana, P.A., P.M. Thompson and M. Ahmed. 2001. Women-led fisheries management: a case study from Bangladesh, p. 89-96. In: M.J. Williams, N.H. Chao, P.S. Choo, K. Matics, M.C. Nandeesh, M. Shariff, I. Siason, E. Tech and J.M.C. Wong (eds), Global Symposium on Women in Fisheries, Sixth Asian Fisheries Forum, 29 November 2001, Taiwan. WorldFish Center, Penang, Malaysia.

VALUING LOCAL KNOWLEDGE IN THE CANADIAN ARCTIC: HOW THE INVOLVEMENT OF LOCAL PEOPLES RESULTS IN RELEVANT RESOURCE MANAGEMENT DECISIONS¹

J. KAFAROWSKI

University of Northern British Columbia
and the Canadian Circumpolar Institute
429 Berg Road, Gabriola Island
British Columbia, Canada VOR 1X2
gypsy_four@shaw.ca

Abstract

Within a socioeconomic context, sustainable Arctic fisheries can be attained through the full participation of indigenous peoples, including women. Even though indigenous women are involved in fisheries—both directly and indirectly—they are often poorly represented and are seldom included in formal decision-making processes with regard to fisheries management. This limited involvement may result in a lack of diversity of perspectives represented in decision making and a lack of recognition of women's knowledge and considerable experience where fisheries are concerned. Effective fisheries management is enhanced when knowledge and experience of both women and men are valued.

Introduction

Fisheries pose unique challenges for resource managers who must deal with declining species populations caused by habitat loss, climate change, pollution, technological advances and overfishing (McCay and Finlayson 1995; Young 1999). Increasingly, managers are finding that what Shindler (1999) referred to as "wicked" natural resource problems cannot be adequately addressed through solutions generated solely through scientific analysis. Rather, resource managers must identify and utilize a variety of tools in dealing with the diverse contemporary resource management issues that exist.

In Canada, shifting socioeconomic factors in coastal communities and legislation supportive of the public participation process have resulted in greater input from local residents and other concerned citizens into fisheries management (Butler et al. 2001; McCool and Guthrie 2001). Greater public involvement and the very nature of the resource engenders further managerial challenges including jurisdictional disputes. For example, a Fraser River sockeye salmon in British Columbia may pass through 2 countries, 3 provinces and/or states, over 200 communities and over 100 traditional First Nations territories (Lewis 1991). Sustainable

¹ This paper is based on earlier research presented in Angell, E., A. Heilmann, J. Kafarowski, A. Karlsdottir, L. Sloan and M. Uden. 2004. Women's participation in decision-making processes in Arctic fisheries resource management. Forlaget, NORA, Nordfold, Norway.

development in the Arctic depends on democracy in decision making processes that affects the management of natural resources. This is supported by international agreements, including the Rio Declaration on Environment and Development and the Agenda 21. In particular, the Johannesburg Declaration on Sustainable Development emphasizes gender equality and the role of indigenous peoples in achieving sustainable development and specifies that sustainable development “requires broad-based participation in policy formulation, decision making and implementation at all levels”. Gradually, fisheries management in Canada is being redefined as managers recognize that solutions to fisheries crises lie equally within the realms of social and natural sciences and that public involvement in decision-making processes is critical. Ultimately, the involvement of local peoples, including women, results in fisheries management decisions that are more relevant to the community and its needs and that are more likely to be managed effectively over the long-term.

Background to the Project

Following the 2002 Taking Wing Gender Equality and Women in the Arctic Conference in Finland, the Northern Feminist University in Norway initiated the Gender and Decision-making in Arctic Fisheries Project. This project was supported by the Arctic Council which is an international organization composed of the eight circumpolar nations. The project (2002-2004) involved Canada, Norway, Iceland, Greenland, Sweden and the Faeroe Islands. This paper presents the results of the Canadian project.

The aim of the project was to document and analyze women’s roles in Arctic fisheries in order to promote and support their participation in decision-making processes in this sector. This initiative investigated gender distribution and Inuit women’s access to, and participation in, decision-making processes in regional, territorial/provincial and national institutions such as wildlife management boards, hunters and trappers organizations (HTOs), territorial/provincial departments related to fisheries and the Department of Fisheries and Oceans Canada. Thus, the project adds to existing knowledge about the role of Inuit women in Arctic fisheries, contributes to informed public discussion within northern communities and key institutions and is part of a longer-term strategy for action to advance Inuit women’s equality in Arctic fisheries. This initiative increases public understanding in order to encourage action on women’s equality issues.

Objectives

The specific objectives of the Canadian project were:

1. to document the distribution of Inuit women in decision-making roles in Arctic fisheries;
2. to document Inuit women’s contributions to Arctic fisheries and identify barriers to a more significant participation in all aspects of the fishery; and
3. to develop a strategic action plan to mobilize Inuit women and to increase their access to and participation in decision-making processes related to Arctic fisheries.

Field site

In Nunavut, Canada, the project was designed to learn more about women’s roles in decision-making in fisheries organizations and also to be of greatest benefit to the communities and to Nunavut as a territory. The majority of residents in Nunavut are Inuits. As a newly created political jurisdiction since 1999, Nunavut faces a number of socioeconomic challenges, including high unemployment rate, high dropout rate from school, and limited support, health and educational services especially in the remote communities. Nunavut residents are highly dependent on marine resources as 25 out of 26 Nunavut communities are located on the coast. Fisheries provide the mainstay of a traditional lifestyle for residents and their viability will help to ensure that this lifestyle is maintained.

Methodology

Over the last century, much of the research that has been conducted regarding indigenous peoples in North America has been exploitative and paternalistic. In many cases, researchers flew into Northern communities, gathered data that were often collected without consent and then left without providing results or benefits to the community in any way. Mindful of this disturbing relationship between Arctic communities and academics, this initiative was designed as a community-based research project. Community-based research was based on the following:

1. Formal community permission was sought and secured prior to commencing research.
2. A research license was gained from the Nunavut Research Institute.
3. Project development occurred with the involvement of community residents.
4. Primary fieldwork was conducted by an Inuit woman who lived in the community; training and capacity-building remained critical aspects of the project.
5. Project evaluation occurred throughout.

Fieldwork was based on a combination of qualitative and quantitative methods. An Inuit woman was hired as a research assistant in each community in which fieldwork was conducted. She was primarily responsible for identifying appropriate participants and conducting in-depth personal interviews with approximately 15 women in the community. In all cases, the research assistant was herself an experienced fisher with extensive knowledge of women who also participated in this activity. Because of this, she was able to contribute substantively to the development of the interview questions and to the evaluation of the research process. Qualitative data were also collected regarding gender distribution within decision-making organizations at the community, regional, territorial and national levels. Additionally, interviews were conducted with women in decision-making positions within formal fisheries organizations.

Results

Inuit women are actively involved in fishing at the community level in Nunavut. Currently, this is primarily at the subsistence level but this may be due to lack of economic opportunities. In particular, the expansion of commercial fisheries and the potential increase of fishing quotas in Nunavut may offer future opportunities for Inuit women. Membership of the board of the local fisheries committee (called HTOs) offers the greatest scope for assuming decision-making powers within the community. However, with the exception of a few communities, women have had limited formal involvement on the committee boards of these organizations in Nunavut (see Table 1).

Table 1. Percentage of female board members in Nunavut HTOs.

Female board membership of HTOs in Nunavut		
Region (including total number of board members)	Year and percentage of female board members	
	2002 – 2003	2004 – 2005
Baffin (n=102)	6.8	9.1
Kivalliq (n=50)	18	18.8
Kitikmeot (n=150)	14	14.2

This limited involvement may result in a lack of diversity of perspectives at the board level and a lack of recognition of women’s considerable experience where fisheries are concerned. The failure to consistently involve youth members on a formal basis at the board level also results in lost opportunities for young women and men to gain valuable experience that

would help to prepare them for an education and future career in fisheries management. However, women may be involved in decision-making processes at the community level on an informal basis through influencing husbands, brothers and sons.

Inuit women are also poorly represented at the board level of fisheries co-management boards including the Nunavut Wildlife Management Board (NWMB) in Nunavut. All board members of the NWMB are appointed or elected by the HTOs. Therefore, women's lack of representation on HTO boards directly impacts on their lack of representation on co-management boards including the NWMB.

Inuit women are represented at the staff level of formal organizations although, in many cases, the staff role is to support the decisions of the board. Women are relatively well-represented in decision-making positions in the Department of Fisheries and Oceans Canada in both territories but are not as visible at the territorial level. However, the implementation of gender-based analysis in a review of federal and territorial programs, policies and practices would be effective in approaching the goal of gender equality as specified in the Federal Plan for Gender Equality in Canada, 1995.

Conclusion

This first phase of the Canadian project establishes a knowledge base that can be used for promoting gender equality in decision-making processes of the marine sector throughout the Arctic region; developing tools and strategies that can be used to encourage participatory values and practices; and promoting international cooperation on issues relating to women's participation in fisheries. The second phase of the project will focus on increasing gender distribution at the community level particularly at the board level of local HTOs. Further participation of women will contribute to the continued democratization and sustainability of Arctic fisheries.

Acknowledgements

The author acknowledges generous funding provided by the: Department of Foreign Affairs and International Trade (Circumpolar Affairs Division); Pauktuutit Inuit Women's Association/Status of Women Canada (Women's Program); Indian and Northern Affairs Canada (Circumpolar Liaison Directorate); Walter and Duncan Gordon Foundation; NWMB; Canadian Circumpolar Institute; Department of Sustainable Development (now the Department of Environment), Government of Nunavut; Department of Health and Social Services, (Women's Initiatives), Government of Nunavut; Baffin Fisheries Coalition; Aurora Research Institute; Kakivak Association and the Institute of Social and Economic Research, Memorial University of Newfoundland. Thanks are also given to the following for their participation and co-operation: Nunavut Arctic College; City of Iqaluit; Hamlet of Pangnirtung; Pangnirtung Hunters and Trappers Association; Nunavut Research Institute and Pangnirtung Fish Plant. Special thanks to all the organizations and community participants who supported and took part in this project.

Bibliography

- Angell, E., A. Heilmann, J. Kafarowski, A. Karlsdottir, L. Sloan and M. Uden. 2004. Women's participation in decision-making processes in Arctic fisheries resource management. Forlaget, NORA, Nordfold, Norway.
- Butler, M., L. Steele and R. Robertson. 2001. Adaptive resource management in the New England groundfish fishery: implications for public participation and impact assessment. *Soc. Nat. Resour.* 14: 791-801.
- CARC (Canadian Arctic Resources Committee). 1987. Arctic fisheries: new approaches for troubled waters. *N. Perspectives (Spec. Issue/Nov)* (15) 4.
- Kellert, S. and S. Ebbin. 1993. Empowerment and equity of indigenous peoples of North America: emerging co-operative institutions for fisheries management. Report prepared for US Man and the Biosphere. High Latitude Ecosystems Directorate, Yale University, USA. 25 p.
- Lewis, R. 1991. Can salmon make a comeback? *Bioscience* 41: 6-10.

- McCay, B. and A. Finlayson. 1995. The political ecology of crisis and institutional change: the case of the Northern cod. Paper presented to the Annual Meeting of the American Anthropological Association, 15-19 November 1995, Washington, DC, USA.
- McCool, S. and K. Guthrie. 2001. Mapping the dimensions of successful public participation in messy natural resources management situations. *Soc. Nat. Resour.* 14: 309-323.
- Reist, J. and M. Treble. 1998. Challenges facing Northern Canadian fisheries and their co-managers. In: J. Oakes and R. Riewe (eds). *Issues in the North* (3): 155-165; Edmonton, Alberta: Canadian Circumpolar Institute, University of Alberta.
- Reynolds, J.B. 1997. *Fish ecology in Arctic North America*. American Fisheries Society, Maryland, USA. 345 p.
- Senate of Canada. 1998. *The Nunavut report*. Report of the Standing Committee on Fisheries and Oceans, Senate of Canada, Canada.
- Standing Committee Report. 1999. *Government response to the Seventh Report of the Standing Committee on Fisheries and Oceans (Nunavut Report)*.
- Shindler, B. 1999. Shifting public values for forest management: making sense of wicked problems. *W. J. Appl. For.* 14 (1): 28-34.
- Young, K. 1999. Managing the decline of Pacific salmon: metapopulation theory and artificial recolonization as ecological mitigation. *Can. J. Fish. Aquat. Sci.* 56: 1700-1705.



ISBN 983-2346-51-7



9 789832 346517