Gender in Aquaculture and Fisheries: Engendering Security in Fisheries and Aquaculture
*Asian Fisheries Science Special Issue **30S** (2017): 145-162*

ISSN 0116-6514
https://doi.org/10.33997/j.afs.2017.30.S1.007
Technical Paper

A Model for Gender-Based Post-harvest Fisheries Technology Transfer Initiatives in the Philippines

ENCARNACION EMILIA S. YAP[1*], ERNESTINA M. PERALTA[1], RUBY P. NAPATA[2], LIBERTY N. ESPECTATO[2] and GENNA N. SEROFIA[2]

[1]Institute of Fish Processing Technology, College of Fisheries and Ocean Sciences, University of the Philippines Visayas, Miagao, Iloilo, Philippines
[2]Institute of Fisheries Policy and Development Studies, College of Fisheries and Ocean Sciences, University of the Philippines Visayas, Miagao, Iloilo, Philippines

Abstract

A study on a gender-based post-harvest fisheries technology transfer scheme was conducted to come up with an alternative intervention model that can provide more effective and responsible livelihood activities to capacitate women in coastal communities in the Philippines. The study included a rapid resource and needs assessment of the coastal community and the design of appropriate skills training modules for the women of Carles, a coastal town in northern Iloilo, Philippines. Results reveal the recent status of the coastal resources in the area, the roles that men and women play in a coastal community, the opportunities and constraints in introducing alternative livelihood activities in a coastal community, and the viability of a model for gender-based post-harvest fisheries technology transfer project that aims to uplift the economic conditions of women in these communities. This model that focuses on women may be replicated in other coastal communities in the country.

Introduction

The social and economic developments of the coastal fishing communities are highly dependent on the status of the coastal resources in these

*Corresponding author. Email address: esyap@up.edu.ph

communities. In the Philippines and elsewhere, the implementation of new and innovative management strategies and interventions is a response to the increasing problems that impede these developments in the coastal areas. These management interventions ranged from establishment of protected areas, stock enhancement, implementation of closed and open seasons, ecotourism, regulations of fishing gears and methods, provision of alternative livelihood, and others.

In providing alternative livelihood activities, in particular, finding the most appropriate sustainable activity has always been a challenge especially when a fishing community refuses to completely detach from the marine environment as a source of livelihood. In addition, women in most communities tend to assume the supporting role as their husbands' helpers in livelihood activities. As a result, intervention strategies become limited to basic skills training of women. However, most of this trainings, if not all, is not translated into viable alternative livelihood activities for these are mainly based either on the available fish processing methodologies being widely used elsewhere or based on the requests of the beneficiaries or their local leaders, or simply, they just serve as one time skills training activities with no intention to allow women to gain control in livelihood activities. There is a need to change this approach so as to make the fisheries technology transfer activities more effective, sustainable and appropriate to the status and needs of the communities, most especially to the needs of the women in these communities.

Hence, this study was designed to use an intervention model for a gender-based post-harvest fisheries technology transfer in the Philippines. Specifically, the study aimed to test a model for technology transfer that uses a more holistic approach – from a rapid resource and needs assessment to training on alternative livelihood projects. Using the gender analysis framework (March et al. 2005), in particular, this study aimed to assess the roles of women, and to determine the factors that may mainstream these roles in the coastal community.

The information from this study can serve as a template on how to do post-harvest fisheries technology transfer activities in coastal communities in the Philippines and elsewhere, with focus on the mainstreaming of the roles of women in more effective, sustainable, and responsible economic activities.

Methodology

The project focused on the women in some fishing "barangays" or communities in Carles, a coastal municipality in Northern Iloilo, Philippines (Fig. 1) that is known for its rich fishing ground.

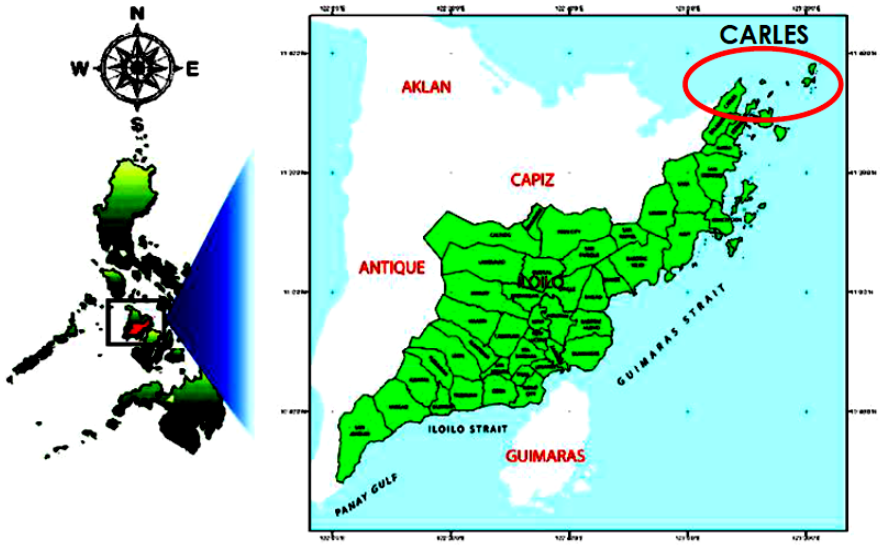

Fig. 1. The geographical location of the municipality of Carles, Iloilo in the Philippines

A gender-based model for fisheries technology transfer inititiatives in coastal communities was tested in the study. This model was patterned after the concept of social mobilization as noted by McKee (1992) in which activities in the model constitute the "process of bridging together all feasible and practical intersectoral social allies to raise people's awareness of and demands for a particular development program, to assist in the delivery of resources and services and to strengthen community participation for sustainabilty and self reliance". Hence, the study included the following activities.

Rapid Assessment of the Community

This was intended to rapidly evaluate the coastal resource availability and utilization, the production activities and the capacity of fishing communities, and their problems and needs. Focus group discussions (FGD) and key informant interviews of a total of 149 participants were conducted in 5 "barangays".

Alternative Livelihood Activities for the Coastal Communities

Using the results of the assessment of the communities, the following activities were conducted: development and implementation of training modules, product commercialization, and monitoring and evaluation. Development and implementation of training modules included 3 modules, namely Module 1 - fisheries processing, value addition, fish packaging, and labeling; Module 2 - food safety, hygiene and sanitation; Module 3 - enterprise planning and development, and record keeping. Using these modules, a total of 40 men and women beneficiaries were selected from the different coastal "barangays" of Carles. Product commercialization included the final activity of the project such as the exposure of the products in an agri-fishery fair. At the fair, the products were officially introduced in the market and were displayed and showcased for one week. Monitoring and evaluation including the conduct of the training were assessed by the participants a week after the product launch. The post training monitoring and evaluation were also conducted 8 months after the training.

Data Analyses

Both quantitative and qualitative methods were used to examine the data and to determine the viability of the intervention model.

Results and Discussion

Rapid assessment of the status of the coastal communities

The "Carles Municipal Fisheries Code of 2008" is an ordinance that recognizes the municipality's need for sustained fisheries production. The ordinance specifically includes provisions that limit the access of outsiders to the fisheries and aquatic resources of the municipality. The strict implementation and enforcement of laws and regulations related to fishing is also part of the provincial government's persistent campaign against illegal fishing activities. In recent years, a number of commercial fishing boats, e.g., Danish seines, were apprehended in Carles for violation of the ordinance (Nepomuceno 2016; 2015). The municipality has also institutionalized the establishment of 50,000 hectares of marine protected areas (MPA) through the

creation of the Municipal MPA System Management Council. Considering the observed decline in the volumes of catch in the area (Ferrer 2009), these strategies of protection in the municipality of Carles were expected to provide the enabling conditions for the revitalization of the coastal fisheries resources in the area.

In the present study, most of the 149 participants from 5 coastal "barangays" of Carles who were included in the survey believed that the resources in the area were still abundant. However, despite the efforts of the local government of Carles in maintaining the abundance of its aquatic resources, the participants noted that a number of fishing-related problems still existed. These included encroachment by commercial fishers into the municipal waters, overfishing especially of siganids or "danggit", cyanide fishing, and the use of the following destructive fishing methods and gears: zipper, a fishing gear that destroys the environment, and dynamite fishing, e.g., in Brgy. Barosbos; a dragging method, locally known as "taksay" to catch shrimp, that works like a trawl but is manually operated; fine meshed nets; and trawls, with most trawlers coming from nearby areas in northern Panay Island, Philippines, including Roxas City in the province of Capiz, and from the provinces of Negros, Cebu, and Masbate.

Most of the problems listed contributed to over-exploitation of the resources. For example, there seems to be an observed contrast between the perceived riches of the aquatic resources of Carles and the economic status of the fisherfolk, especially the women in Carles. Results of this study indicate that of the 149 participants in the survey, 108 of whom were males (72 %) and 41 (28 %) females (Table 1), most of them (66 %) have annual household incomes that range from PhP 2,000 to less than PhP 5,000 or roughly US$ 100.00 (Table 2), with men having higher incomes than women.

Table 1. Number of particpants in the KIIs and FGDs

Name of Barangay	Total	Male	female
Brgy Buaya	39	22	17
Brgy Alipata	30	17	13
Brgy San Fernando	27	25	2
Brgy Bancal	27	18	9
Brgy Barosbos	26	26	0
Total	**149**	**108**	**41**
% from total		**72.48**	**27.52**

Table 2. Annual household incomes of the 149 participants in the KIIs and FGDs

Annual Household Income (PhP)	Male	Female	Total	%
700-1999	0	7	7	4.70
2000-4999	65	33	98	65.77
5000-9999	30	1	31	20.81
10000-19999	11	0	11	7.38
20000-30000	2	0	2	1.34

This observed low income can be partly attributed to the respondents' educational attainment (Table 3). Most of the respondents were either elementary graduates (50 %) or high school graduates (40 %), with only a few college or vocational graduates (9 % and 1 %, respectively), with men generally having higher educational attainment than women. Most of those who had not gone beyond high school earned significantly less compared to those who had college or vocational degrees.

Table 3. Highest educational attainment of the 149 participants in the KIIs and FGDs

Educational Attainment	Male	Female	Total	%
College graduates	13	0	13	8.72
Vocational graduates	1	0	1	0.67
High School graduates	41	19	60	40.27
Elementary graduates	53	22	75	50.34

The study further revealed that, of the 149 participants, all of the men interviewed were engaged in fishing activities and were not involved at all in the marketing or processing of their catch (Table 4). These activities were mostly done by the women in their families. Although 16 women identified fishing as their main occupation, these women were primarily involved in gleaning of seashells, net/gear making, monitoring of fish pots, preparation of baits, and other fishing-related activities. The majority of the women who were interviewed were involved in either marketing/trading of fish, fish drying, and net mending, with a good number of them serving as housekeepers.

Table 4. Major occupations of the Key Informant Interview participants from 5 barangays in Carles, Iloilo (n=149)

Main Occupation	Male	Female	Total	%
Fishing	108	16	124	83.22
Fish / Food Vending	-	3	3	2.01
Net Mending	-	1	1	0.67
Fish Buying	-	1	1	0.67
Fish Drying	-	1	1	0.67
Other Activities				
Buy and Sell	-	4	4	2.68
Laundry women	-	1	1	0.67
Housekeeping	-	14	14	9.40

Clearly, in terms of production activities, the results of the study reveal that the role of women in the coastal communities of Carles, Iloilo was similar to that which had been reported in previous works (Siason 2000; Tietze et al. 2007; Macalagdag et al. 2014). Men were still the fishers, while women remained as the home makers and those involved in "light" fishing activities, fish processing, and other related activities (Table 3). Indeed, the roles of men and women were still sharply defined in most coastal communities. Such differentiation of gender roles had been in existence for a long time (World Bank 2012) where men are usually the catchers while women were delegated to repairing fishing nets and processing and marketing the catch. This scenario was still prevalent in most of the coastal areas in Carles.

Opportunities and constraints in introducing livelihood activities for the women in Carles

A significant number of development assistance projects, and to some extent local initiatives, traditionally involve provision of fishing boats and gears to help alleviate the economic conditions of fisherfolk. These efforts offer opportunities mostly for men and often place additional pressures on the aquatic resources of the coastal communities. An alternative strategy to this is the provision of opportunities for improving and diversifying livelihood activities, not only of men but of women too in the community *via* capacity building for better income and increased entrepreneurial activities in the coastal communities.

One opportunity that can be considered prior to the introduction of a livelihood activity in the community is the perception on the roles of men and women in fish processing activities. In the case of Carles, in terms of attitude, the majority of the respondents (68 %) believed that men should also be involved in fish processing; while 29 % of them believed that only women should be involved in these activities (Table 5). Only 5 out of 149 respondents (3 %) said that both men and women should be processing fish.

Table 5. Perception of the participants on who should engage in fish processing activities (n=149)

	Male	**Female**	**Total**	**%**
Men in fish processing	71	30	101	67.79
Women in fish processing	37	6	43	28.86
Both	-	5	5	3.36

This connotes changing views on the roles that men and women play in a community. The usual attitudes of most men in the Philippines about the division of labor in their households (Siason 2000; PSPD 2007; Lentisco and Lee 2014) appear to be slowly changing. Although men are still considered the heads of the households and should provide for the families by mainly engaging themselves in fishing activities, there could be changes in this attitude in future.

On the other hand, such changes in attitude on gender roles as noted in this study must be treated with caution. While it may appear that men would also like to engage in activities that were traditionally designated to women, this could also signal an attitude that men would like to assume the responsibility of earning more for their families via activities other than fishing. This is something to look into, for the access and control of resources in the coastal communities, as well as being the main earner in the family, may still be perceived to favor men, with women further getting relegated to primarily performing household tasks.

The case is different when access to resources, and therefore the ability to provide for the family, was also given to women. The attitude where women were not involved in jobs “designated” for men but instead continue to be the ones giving “light” to households, must be changed. For example, recent demographic data revealed that in the world’s two major fish producing countries, namely, China and India, women represent 21 % and 24 %,

respectively of all fishers and fish farmers in those countries (FAO 2012). In the Philippines, studies have shown women's significant involvement in "male-dominated" fishing activities (de la Cruz 2005; Santiago 2008 and Ferrer et al. 2014). These are concrete examples on how demographic changes are influenced by a shift in the attitude towards gender roles of both men and women in the community. In other words, communities need to get exposed to activities that are intended to mainstream the women in the economic activities in those communities.

In terms of specific activities that provide opportunities for alternative livelihood activities in Carles, the participants identified the following as potential livelihood activities for the municipality: fishing; fish drying; sweetened-dried fish "tapa" making; production of fish paste "ginamos/tabal"; net fabrication; and crab pot/fish pot fishing. They also noted the presence of post-harvest facilities and market support for any gender-based enterprise in the area. Accordingly, there is presently a centralized landing in "Barangay Bangkal" in Carles where every day trading of "compradors" or buyers from the municipalities of Estancia, Balasan, Barotac Nuevo, Pavia, and Concepcion (in the province of Iloilo), Roxas City (in the province of Capiz), and the municipality of Kalibo (in the province of Aklan) are being done.

The participants, however, noted seasonality of some fish species as the most limiting factor in choosing appropriate livelihood activities for them. In addition, they enumerated other factors, as listed in Table 6 that may influence their choice of any fish processing activity for the community.

Table 6. Factors that influence the choice of fish processing activities for the community (n=149)

Factors	#	%
Products are easy to sell	21	34.23
Can be a good livelihood activity	16	26.23
Sources are readily available	7	11.48
Good price	5	8.20
Products are more expensive than dried fish	4	6.56
Easy processing	3	4.92
Seasonality of species	2	3.28
No extra expenses, can get financing	2	3.28
Profitability	1	1.64

In addition to these, the study also showed other constraints in the community that are related to processing and marketing of fish and fishery products, such as strong involvement of the private sector in marketing and distribution of fish from Carles. Different private companies operate in the community and these include those from nearby municipalities, cities and elsewhere. There is also an absence of other important basic post-harvest facilities such as ice plants, cold storage facilities and solar dryers, absence of reliable freshwater sources for ice making, absence of a show room for the fishery products of the municipality, bad conditions of some access roads and problems related to transport and distribution of some of the products from the Island "barangays" directly to Manila.

These findings indicate that looking for the most appropriate sustainable livelihoods for women in a coastal community will always be a challenge. This becomes more apparent especially in areas where men in fishing communities refuse to completely detach from the marine environment as a source of livelihood for the family. Many programs and projects in the Philippines and elsewhere have attempted to complement conservation and protection strategies as well as regulations with alternative livelihood approaches which are mainly land-based (Tietze et al. 2007; Macalagdag et al. 2014). But purely land-based livelihood programs do not seem to be sustainable as many fishers and families would often fail to continue them. It is therefore opportune to examine sustainable supplemental livelihood options that are fisheries-based (Yap et al. 2013) and gender-sensitive. Decisions on the most appropriate gender-based fisheries technologies for any coastal community, however, depend on several influencing factors that tend to shape gender relations and provide different opportunities for both men and women in the communities.

The women of Carles even identified several problems and constraints that prevent them from engaging in fish prosessing and other livelihood activities. Although the need for training delivered in the municipality is acknowledged, access of women to these training oppotunities has been minimal in the past due to the following: limited funding for livelihood training in the local government's budget; lack of time to attend training because of household duties; difficulty in conducting training in the island "barangays; limited information on the benefits of training; and in most cases, after particular training, limited follow-up as to the usefulness and utilization of the training in the communities. This mindset is what needs to change. By making

women aware of their valuable contribution in shaping an economic activity, they can be capacitated to assume a greater role in the families and their communities.

In short, the information on the status of the resources and the activities in Carles suggests that a more appropriate community-based coastal resource management approach to decrease poverty-driven over-exploitation of the coastal resources is needed. Such an approach must not only consider the bio-physical aspects of resource management but also the socio-economic aspects. Sustainable development can be achieved through appropriate education and organization of the coastal communities to improve their livelihoods while protecting their coastal resources. The results of the assessment of the status of the resources in the area as well as the roles that both men and women play in the communities, together with the results of our comprehensive review of all potential community-based fisheries technologies that could be used in Carles, are all necessary elements for developing an appropriate intervention that will help women realize their invaluable contribution to their community.

Alternative Livelihood Activities for the Coastal Communities

Using the results of the assessment of the communities, training modules were developed. Training workshops were then successfully conducted with a total of 40 beneficiaries of the men and women who were selected from the different coastal "barangays" of Carles. Nearly 78 % of the trainees were women and 23 % were men. Table 7. shows that the participants were mostly between 31 and 60 years old. With regard to their highest educational attainment (Table 7), the participants are mostly college graduates (50 %) and high school graduates (38 %).

To effect immediate utilization of the acquired skills generated from the project's on-site trainings, including that of entrepreneurship, and to establish linkages between the fishing communities and the private sector, the participants were initially organized into a women's cooperative, the "CARLES ISLES Multi-Purpose Cooperative (CIMPC)". Specific sessions were conducted for the formation of the cooperative. These activities were geared to exposure of the products in an agri-fishery fair in the municipality (Fig. 2). This event showed various products and by-products of Carles. Among the featured exhibits were the products of CIMPC, whose members were determined to

promote value-added products from local marine and aquatic resources. The official launch of the fishery products was held during the first day of the event. The products were displayed for 1 week.

Table 7. Profile of the training workshop participants (n = 40)

	Female	Male	Total	%
Age distribution				
21-30	5	1	6	15.0
31-40	7	2	9	22.5
41-50	10	2	12	30.0
51-60	7	3	10	25.0
61 up	2	1	3	7.5
Educational attainment				
Elementary	2	1	3	7.5
High School	11	4	15	37.5
Vocational School	2	0	2	5.0
College	16	4	20	50.0

The conduct of training was assessed by the participants a week after the product launch. The post training monitoring and evaluation were also conducted 8 months after the training. The results of the post training evaluation of the effectiveness of the training workshops revealed that the participants generally appreciated the training designed for them, as shown in Table 8.

Fig. 2. The activities for the preparation of fishery products and the exhibition and sales of these products during the Carles Agri-Fishery Fair

Table 8. Average score of the self-assessment of the participants on the levels of their knowledge and skills before and after the training (5=high; 3=medium; 1=low)

Topics	Before the training	After the training
Fish processing technologies	2.11	4.28
Product quality and safety	2.61	4.28
Good manufacturing practices	2.33	4.11
Smoking	1.72	4.11
Deboning	1.76	4.18
Bottling	1.65	3.78
Value addition	2.22	4.06
Product packaging and labeling	2.17	3.83
Enterprise development	2.55	3.94

Previous studies revealed that a few entrepreneurial projects have been successful in some Philippine coastal communities and these include seaweed farming, bird watching tours, and other forms of ecotourism and handicraft projects (DENR et al. 2001). In the present study, the participation in the training of women (77.5 % or 31 women out of a total 40 training participants) from the fishing communities indicated their willingness to have their own businesses that could help increase their household incomes. This training, coupled with an opportunity for them to get organized (via a cooperative), gave them a much needed boost to introduce their finished products in the market (Fig. 2). It likewise increased the awareness of these women of the potential for commercialization of their finished products. In fact, post-evaluation data revealed that a good number of the training participants regularly impart the skills they acquired to other women in the community, with a couple of them having ventured into their own businesses. Clearly, these activities made them aware of their ability to use not only the fisheries resources from the area but also the intangible resources, such as the community structures and networks (in the form of a cooperative), their time, and the knowledge from the training given to them, as noted in the results of the training evaluation (Table 8). These activities appear to have introduced to them the opportunities for positive changes for women and, perhaps, may have changed their attitude on gender roles in the process.

Indeed, this observation, coupled with information on women from other fishing communities elsewhere who manage to enter the modern and growing seafood export processing industry, suggest that women can no longer stay at home to assume the supporting role as their husbands' helper in livelihood

activities (PCPD 2007). These women can now manage to move outside their homes also to become wage earners.

However, caution must be exercised so as to prevent a situation where women, as in the case of those in export oriented companies, experience relatively poor working conditions and lower income as compared to their male counterparts (Tietze et al. 2007). Such appalling scenarios can be prevented if these women are capacitated to come up with their own business ventures rather than become just labor in the ventures of other larger operators. In having their own business, no matter how small, women can have their own income and their livelihoods can result in increased economic and social capital while providing more options for their families to meet their basic household needs, education for children, and others (Macalagdag et al. 2014). In more ways than one, these undertakings can help women attain self-actualization or self-worth as they are able to share their knowledge and skills to alleviate their family's economic status.

Use of a gender-based model for fisheries technology transfer in coastal communities

In the past, there have been a number of skills training courses on processing aquatic species in certain fishing communities. Most of these courses were designed based on either the perceived abundance of certain species of fish in a community, the exposure of the beneficiaries to certain commercially available fisheries products, the available fish processing methodologies being widely used, or the requests of the beneficiaries or their leaders for the conduct of specific training. Conduct of such skills training might not be particularly useful, especially when basic information on the actual coastal resource availability and the training and livelihood needs of the beneficiaries are lacking. There is a need to change the approach so as to make the skills training more effective and more appropriate to the needs of the communities (Yap et al. 2013). As shown in the present study, such a needs-based approach must likewise consider the bio-physical and the socio-economic aspects of the coastal communities to succeed and be responsive to the needs, most especially of the women in the community.

The use of a gender-based model for fisheries technology transfer initiatives in coastal communities, as presented in this study, agrees with the concept of social mobilization. McKee (1992) described this as "the process of

bridging together all feasible and practical inter-sectoral social allies to raise people's awareness of and demand for a particular development program, to assist in the delivery of resources and services and to strengthen community participation for sustainability and self-reliance."

The gender-based model for fisheries technology transfer initiatives in coastal communities, as tested in the present study, had a holistic approach in which all activities started with a rapid appraisal of the status of the aquatic resources in the community and the socio-economic activities of the fisherfolk, among others. The information from this appraisal, together with reported data from different sources was considered in the development of the training modules that were appropriate for the coastal community. The training modules included not only those on post-harvest fisheries technologies, but also others on fish marketing, budgeting, record-keeping, basic accounting, and entrepreneurship. These should be basic components of the modules. The present study proved that this approach was very well received by the stakeholders, especially the women in the coastal communities of Carles (Table 8). Membership in organizations, cooperatives or associations must also be encouraged for this can become an outlet for solidarity with other women in the community (Macalagdag et al. 2014). Clearly, these activities demonstrate the importance of the interconnectivity of the components of an effective community-based coastal resource management, as graphically shown in Fig. 3 (IIRR 1998; Rivera and Newkirk 1997).

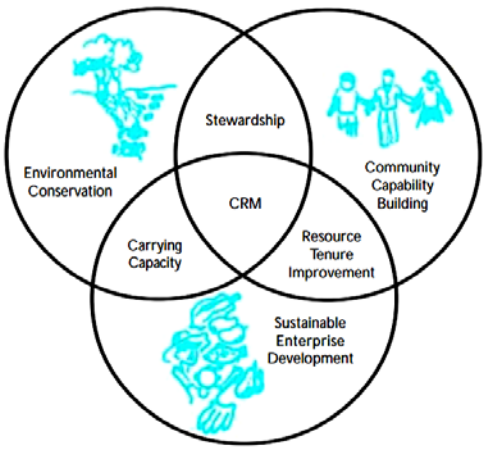

Fig. 3. Components of a community-based coastal resource management (IIRR 1998)

Conclusions

This study presents a plausible model for a gender-based approach in fisheries technology transfer programs for use in the Philippines, and possibly in other countries. Although more intensive efforts still need to be taken to achieve the top of the 5 levels of women empowerment (i.e., welfare, access, conscientisation, mobilisation and control), as described by Choo and Williams (2014) and March et al. (2005), the approach used in this study helped the women surpass the welfare and access levels. The use of the gender-based model and activities for fisheries technology transfer has proven an effective tool for the women in the coastal communities. This approach aims to engage more women and to mainstream their roles in the community as significant means to capacitate them to come up with and take control of their own business ventures. In so doing, women have their own income and can improve their purchasing power. Finally, this approach may likewise provide venues for women to break away from the usual stereotyping in traditional Filipino families (PCPD 2007), with the hope that these would bring changes in the division of labor in the home and for such practices to be replicated by their children and the other generations to come.

References

Choo, P.S. and M.J. Williams. 2014. Avoiding pitfalls in development projects that aspire to empower women: A review of the Asian Fisheries Society Gender and Fisheries Symposium papers. Asian Fisheries Science 27S: 15-31.

de la Cruz, M.T. 2005. Women are fishers too. Profile of women fishers in Eastern Samar, Philippines In Proceedings of the third conference on gender and fisheries: assessing gain, negotiating challenges in gender and fisheries development September 29-30, 2005. Organised by The National Network on Women in Fisheries in the Philippines Inc. (NNWFPI).UP Visayas, Iloilo City.

DENR (Department of Environment and Natural Resources), Bureau of Fisheries and Aquatic Resources of the Department of Agriculture, and Department of Interior and Local Government. 2001. Philippine Coastal Management Guidebook No.4: Involving Communities in Coastal Management. Coastal Resource Management Project of the Department of Environment and Natural Resources. Cebu City, Philippines. 84 p. http://oneocean.org/download/db_files/crmguidebook4.pdf. Accessed 27 November 2016.

Ferrer, A.J. 2009. Evaluation of fisheries management options for the Visayan Sea, Philippines: The Case of Northern Iloilo. Research Report No. 2009-RR5, Economy and Environment Program for Southeast Asia (EEPSEA), Singapore. 68 pp.

Ferrer, A.J., M.L. Perez, A.T. Roxas and E.M. Avila. 2014. Expanding roles of men and women in aquatic agricultural systems in the Philippines. Asian Fisheries Science 27S:185-194.

FAO (Food and Agriculture Organization). 2012. The state of world fisheries and aquaculture (SOFIA). FAO, Rome. http://www.fao.org/docrep/i2727e/i2727e.pdf. Accessed 27 December 2016.

IIRR (International Institute of Rural Reconstruction). 1998. Participatory methods in community-based coastal resource management (Module 3). International Institute of Rural Reconstruction, Silang, Cavite, Philippines. 103 pp.

Lentisco, A. and R. Lee. 2014. Beyond fish processors and care givers: Women as primary, secondary and tertiary fish users. Asian Fisheries Science 27S:33-42.

Macalandag, R., S. Virtudazo and G. Labrado. 2014. Case study: Maximizing women's participation in a fisheries livelihoods project: The Philippine experience. Regional Fisheries Livelihoods Programme for South and Southeast Asia. Food and Agriculture Organization and Minesterio de Asuntos Exteriores y de Cooperacion, Kingdom of Spain. 20 pp. http://www.fao.org/3/a-ar509e.pdf. Accessed 27 December 2016.

March, C., I. Smyth and M. Mukhopadhhyay. 2005. A guide to gender-analysis frameworks. Oxfam Publishing, Oxford, U.K. 144 pp.

McKee, N. 1992. Social mobilization and social marketing in developing communities: Lessons for communicators. Southbound, Penang, Malasia. 220 pp.

Nepomoceno, J. 2016. Fishermen nabbed for illegal fishing. The Daily Guardian, Iloilo City, Philippines. https://thedailyguardian.net/local-news/fishermen-nabbed-for-illegal-fishing/. Accessed 10 October 2017.

Nepomoceno, J. 2017. 18 illegal fishers nabbed in separate operations in Iloilo. SunStar Iloilo, Iloilo city, Phillpines. http://www.sunstar.com.ph/iloilo/local-news/2017/03/30/18-fishermen-face-illegal-fishing-charges-iloilo-533960. Accessed 10 October 2017.

PCPD (Philippine Council for Population and Development). 2007. The effect of livelihood activity on gender roles and fertility intention: Men and women in coastal areas in Mindanao. Project Code #06-055. http://www.pcpd.ph/index.php/project/the-effect-of-livelihood-activity-on-gender-roles-and-fertility-intention-men-and-women-in-coastal-areas-in-mindanao. Accessed 30 November 2016.

Rivera, R. and G. Newkirk. 1997. Power from the people: A documentation of non-governmental organizations' experience in community-based coastal resource management in the Philippines. Ocean and Coastal Management 36: 73-95.

Santiago, C. 2008. Philippines: Country gender profile. http://www.jica.go.jp /activities/issues/ gender/pdf/j03phi.pdf. Accessed 30 November 2016.

Siason, I. 2000. Women in fisheries in the Philippines (A Country Paper Presented Duringthe Fifth Asian Fisheries Forum in Chiang Mai, Thailand). Review of Women's Studies 10:112-125.

Tietze, U., S. Siar, S. M. Upare and M. A. Upare. 2007. Livelihood and micro-enterprise development opportunities for women in coastal fishing communities in India – Case studies of Orissa and Maharashtra. FAO Fisheries Circular. No. 1021. FAO, Rome. 69 pp.

World Bank. 2012. The Hidden Harvest: The Global Contribution of Capture Fisheries. Washington, DC © World Bank. https://openknowledge.worldbank.org/handle/10986/11873 License: CC BY 3.0 IGO. Accessed 28 December 2016.

Yap, E., M. Andalecio, E. Peralta, R. Napata, L. Espectato and G. Serofia. 2013. Community-based postharvest fisheries technology transfer program. Technical Report. University of the Philippines Visayas (UPV) - University of the Philippines Visayas Foundation, Incorporated (UPV-FI)-Department of Agriculture - Bureau of Agricultural Research (DA-BAR). 95 pp.