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Marketing strategies and market destinations of “Aramang” *Nematopalaemon tenuipes*, caught in Aparri, Cagayan

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Abstract

The study on marketing strategies and market destinations of “aramang” *Nematopalaemon tenuipes* caught in Aparri, Cagayan was conducted to determine and understand the supply chain of aramang. It aims to identify the key actors, problems, causes, probable solutions and other factors that affect the sustainable resource utilization. The research utilized a questionnaire in the conduct of the study including Participatory Rural Appraisal (PRA) and Focus Group Discussion (FGD) to validate the data. Around 99 gatherers, 47 consolidators, and 60 processors from the 7 coastal villages of Aparri, Cagayan, Philippines. The results of the study showed that women play a vital role in the marketing of the Aramang. Gathering were male-dominated, married, and age ranges from 31-40 years old. Consolidators and processors are dominated by females, married, age ranges from 41-50 years old and 51-60 years old. Market flow of *aramang*, were focused on dried form either in local and international. Consolidators especially the brokers or local buyers, received the highest income, by selling their product from P 350.00-400.00/kilo. Buying price ranges from P150.00-320.00/kilo. Due to its high market demand, overfishing and exploitation of the resources are the issues faced by the *aramang* fishers alongside the unstable price of the commodity.

Keywords: Resource utilization, supply chain, market flow, aramang

Introduction

Aparri is one of the first-class municipalities of Cagayan Province, located at the topmost tip of the country. Its strategic location made majority of the settlers derived their income from fishing and rice farming. A major resource that has a major contribution to the income and livelihood of the local residents and the municipality as a whole is “*aramang*”. It thrives at the estuarine area of Cagayan River and is harvested all year round. *Nematopalaemon tenuipes* topped the production in Babuyan Channel caught by the drift filter net and pair trawl in the mouth of Cagayan River in Aparri, Cagayan (Calicdan *et al*, 2018)^[2].

N. tenuipes is a kind of soft-shelled shrimp that has a lifespan of up to 18 months and can be harvested all year round. Its age at first maturity was estimated at 0.57 year for male and 0.59 year for female (Ramamirthan, 1979)^[16]. They are believed to spawn twice during their life span with minimum size of 50 – 52 mm for female. *Aramang* (*N. tenuipes*) is an endemic species of shrimp which abound in Aparri, Cagayan. For more than two decades, the economic contribution of the *aramang* industry to the economy has been significant both in the local and export market. However, resource depletion is still being experienced.

Decreasing trend was observed from 2014 to 2020 with the highest peak obtained in 2015 (209, 456 kg) and lowest in 2018 (33,801 kg). Fishing efforts are high in 2019 (236 boats) and 2020 with 114 boats, (NSAP, BFAR RO2).

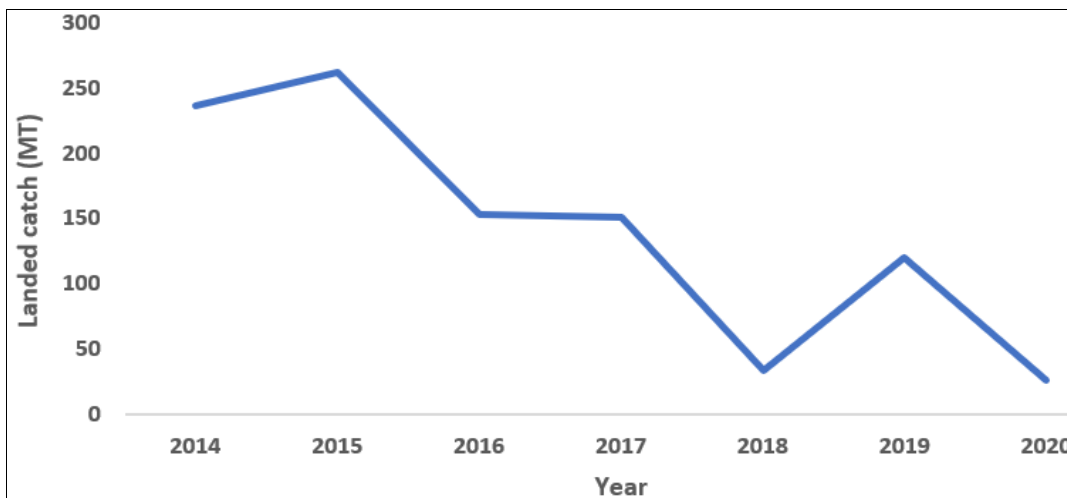


Fig 1: Catch trend of *Nematopalaemon tenuipes* in Cagayan River Basin

Marketing has an impact on fisherfolks ability to exploit. The urge of fishermen to fish increases as more commodities are marketed (Ame, *et al*, 2022) [1]. However, because the intermediates in the market chain receive the majority of the income, the fishermen are frequently put in a disadvantageous position.

The study's primary purpose is to create science-based information for use in the management of the resources, as well as for the government to initiate interventions that benefit all important key actors in the chain. Performing market analysis, thru the conduct of Participatory Rural Appraisal (PRA), survey questionnaire and conduct of Focus

Group Discussion (FGCD), aims to give insights on how products move from sources/destinations to end users, as well as the activities, possibilities, and constraints that come with it, and the beneficial contribution on each chain as it is being marketed (Kamaylo, *et al*, 2021) [12].

Materials and Methods

Study site

The study was conducted in Aparri, Cagayan near the estuarine area of Cagayan River Basin (18°27'55" N, 121°37'03" E). Aparri is the only producer of *Nematopalaemon tenuipes* in the Region.

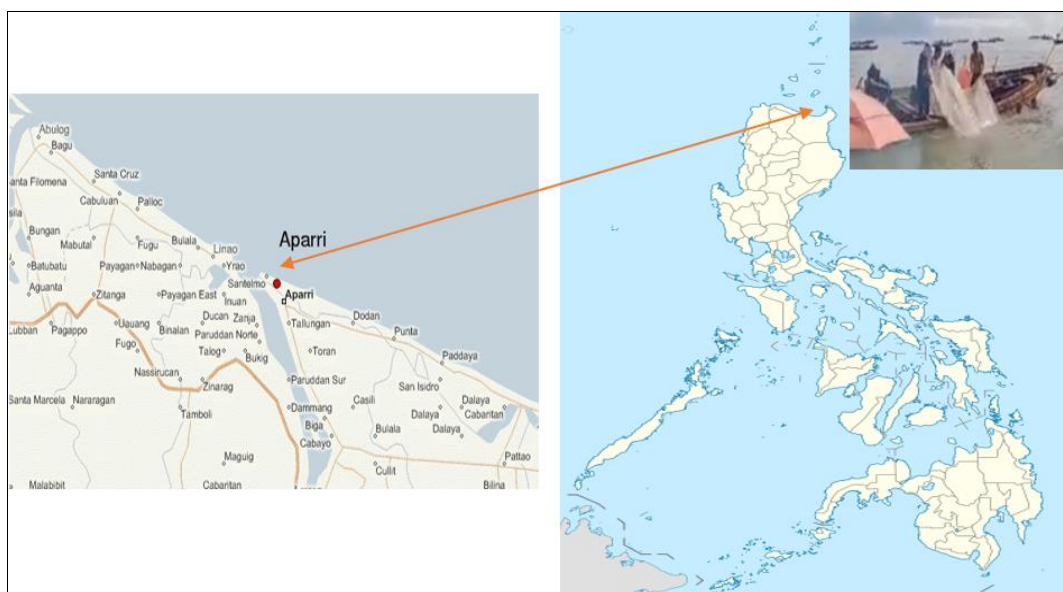


Fig 2: Map showing the location of study site, Aparri, Cagayan, Philippines

Identification of Respondents

The Local Government Unit of Aparri estimated around 2,000 persons involve in aramang fishing, thus 10% of the total population was identified as respondents. Purposive sampling was done.

A total of seven identified coastal barangay of Aparri, Cagayan, where majority of the residents are involve in aramang fishing were considered in this study namely: Macanaya, Punta, San Antonio, Bisagu, Maura, Minanga and Dodan.

Table 1: Breakdown of respondents per barangay (206 respondents)

Barangay	Gatherer	Consolidator	Processor	Total # of respondents
Macanaya	32	16	20	68
Punta	15	13	10	38
San Antonio	10	6	10	26
Bisagu	21	2	20	43
Maura	10	8	-	18
Dodan	10	-	-	10
Minanga	1	2	-	3
Total	99	47	60	206

Participatory Rural Appraisal (PRA) Calub, 2004.

The tools used were mapping, resource and market flow analysis, problem cause analysis and seasonal calendar. Participants comprises of fisherfolk leaders, gatherers, processors, traders, Local Government Officials of Aparri, and technical Staff of the Bureau of Fishery and Aquatic Resources Cagayan Provincial Office based in Aparri. Focus group discussion (FGD) will be done. Representatives from the *aramang* gatherers, traders/buyers, processors LGU-Aparri and BFAR participated in the activity.

Gathering of secondary data (Production of Aramang)

Production of Aramang for the past 8 years will be acquired to the National Stock Assessment Program (NSAP) of BFAR R02 and LGU-Aparri thru the Municipal Agriculture Office.

Results and Discussion

A. Socio-demographic profile of the respondents

In terms of their economic and social worth, women's engagement in pre- and post-production activities is considerable. Men and women played diverse roles at various stages of fish capture or cultivation (Mutia, *et al*, 2020) [14]. The table below shows the demographic profiles of aramang gatherers in the seven coastal barangay of Aparri (Macanaya, Punta, San Antonio, Bisagu, Maura, Minanga and Dodan). A total of two hundred six (206) *aramang* fishers (gatherers, consolidator and processor) were interviewed on various information including their sex, age, civil status, educational attainment, household size, source of income and monthly income.

Table 2: Socio-demographic profile of the respondents

Characteristics	Description	f	Percentage (%)
Sex	Male	108	52.43%
	Female	98	47.57%
Age	20-30 years old	28	13.59%
	31-40 years old	37	17.96%
	41-50 years old	54	26.21%
	51-60 years old	52	25.24%
	61-72 years old	35	16.99%
Civil Status	Married	164	79.61%
	Single	29	14.08%
	Widow	13	6.31%
Educational Attainment	Elementary graduate	89	43.20%
	High school graduate	62	30.10%
	College graduate	40	19.42%
	Vocational graduate	13	6.31%
	No response	2	0.97%
Household size	1-5	134	65.05%
	6-10	63	30.58%
	11-15	6	2.91%
	No response	3	1.46%
Source of income	Fishing	158	76.70%
	Fish Vendor	48	23.30%
Monthly income	Less than 10,000.00	190	92.23%
	11,000.00-20,000.00	11	5.34%
	21,000.00-30,000.00	2	0.97%
	31,000.00-40,000.00	1	0.49%
	No response	2	0.97%
Total		206	100%

Results of the study shows that, majority of the respondents were male 52.43%, in contrast of their female counterparts. Men and women played diverse roles at various stages of fish capture or cultivation (Mutia, *et al*, 2020) [14]. In the *aramang*

industry, wives trade and sell their products in dried form while their husbands are involved in the gathering of *aramang*.

Since there are no age restrictions and no training requirements for employment in the fishing sector, the majority of respondents have fished since their childhood. With the mean age of 41.20, majority of the respondents were between 41-50 years old (26.21%). And the bulk of them are married (79.61%), with a household size of one to five persons (65.05%).

The respondents' highest educational attainment varied amongst gatherers, processors, and consolidators. The gatherers and processors were responsible for 43.20% and 30.10% of elementary and high school graduates, respectively, while the consolidators accounted for 19.42% of college graduates.

Most of the fishers 76.70% primarily rely in aramang fishing, while the 23.30% is engage on fish vending. An income of less than 10,000.00 in a month, for the majority of them varied among the gatherers and processors (92.23%), while most of the consolidators (for both middleman 1 and middleman 2) have a monthly income of between P 11,000.00-20,000.00 (95.34%).

B. Market Flow of Aramang in Aparri, Cagayan

In Aparri, Cagayan, *aramang* has long been a major industry. Both fresh and dried varieties are available, however the dried kind is more preferred for both the local and export market. In the *aramang* chain, gatherers are the primary suppliers. They operate for 8-10 hours a day for 5 days continuously as long as the weather is favorable. In a month, they normally fish twice, five days of continuous fishing then 10 days rest, and then operate again for 5 days as long as the weather is good to avoid waste of catch. Small portion of fresh *aramang* were sold in the market. They sold their catch from 500.00 to 800.00 per can. There are 17 kilos in a can (spring oil can). The middleman 1 also the processors are the wives of the gatherers. They buy their catch on the agreed price, and will be in charged in drying the product since dried aramang has higher value in the market. They will dry the product for a day and sell it to the local buyers or the middleman 2. In every 17 kilos of *aramang* they only recovered a 3.5 kilos when dried (20.59% recovery rate).

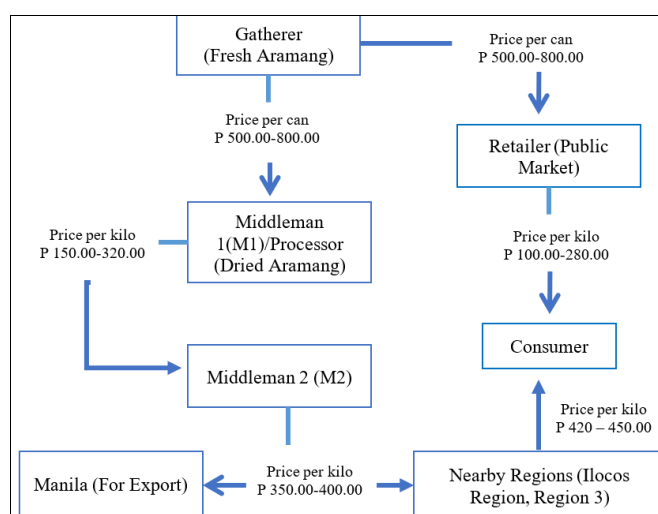


Fig 4: Market Prices and Destination of *aramang* (Resource Flow)

Price of dried *aramang* varies depends on the quality of the product. There are three classifications of dried *aramang*

being sold in the market. We have the first class, second class and third class and price range from Php 150.00-320.00 (see table 5).

The middleman 2 or the local buyers are the one who buy dried *aramang* in bulk and will sell to nearby regions (such as Region 1, Region 3 and NCR). Dried *aramang* were exported to other countries, but the local buyers don't have any idea or information on what particular country and how much per kilo they sell the product. Local buyers get their Local Transport Permit (LTP) to BFAR before transporting their product. Their goods is sold for a maximum price of 350.00–400.00. Due to the lengthy market channel before it reaches

customers, the existence of middlemen, which keeps the majority of the consumer-paid market price, causes fishermen to become impoverished (FAO, 2001).

Total weight of dried aramang sold by M1: 45 kilos (in a month).

Sold by M2: 1, 300 kilos (in a month).

Price per kilo of dried aramang

Php 300 middleman 1 (highest selling price for first class dried aramang): Php 400 middleman 2

Table 3: Estimated income and profit of consolidators during *aramang* season

	Middleman 1/Processor	Middleman 2
Gross Income	Php 13, 500.00	Php 520, 000.00
Less Expenses (Fuel & oil, Foods & drinks, *styrofoam, ice, sacks, & LTP)	Php 6, 000.00	Php 50, 000.00
Net Income	Php 7, 500.00 They have a minimum of 5 workers only to dry aramang	Php 474, 350 Workers are paid in daily basis (P 500.00/day, for 10 workers for 2 days)

Note: Only the Local buyers or the middleman 2 get LTP from BFAR and use ice, Styrofoam and sacks for transporting the product

Table 4: Estimated income and Profit of gatherer

	Amount
Total catch in a week (or 5 days)	150 cans
Price / can	Php 800.00
Gross income	Php 20,000.00
Less expenses (for 5 days operation) (Fuel & oil = Php 20, 000.00; Food & drinks = Php 18,000.00 Boat & Gears maintenance = Php 10, 000.00)	Php 48,000.00
Total Net income	Php 72,000.00
Divided to 16 shares (4 shares = boat owner; 2 shares = boat pilot; 1 share = *crew) *There is a minimum of 10 crews in 1 fishing boat	Php 4,500.00

Distribution of share was done every after five days of fishing operation. Most of the profit goes to the boat owner with 4 shares and 1 share for the crew and 2 shares for the pilot or boat captain (4:2:1).

Result of the study showed that local buyers/middleman 2 make more money than of the fishermen, where in fact they have the hardest work and contributions in the market chain. Outside buyers (or buyers from other municipalities) are not allowed to buy directly to the fishermen it should always be from the local buyers. During the FGD, fishers wish that the Local Government Unit of Aparri, allows buyers/exporter to come directly to them so that they can sell their product to higher price especially now that the investment/inputs (Fuel, gears,banca) in *aramang* is so high.

B.1 Market price structures of aramang sold in Aparri, Cagayan.

As *aramang* is valued higher when dried, processor/dryers play an important role in the market chain. They dried fresh *aramang* for 1 day (if the weather is good) to attain the first class or good quality of dried *aramang*. They use trays, and screens for drying, but unfortunately some of them just dry their *aramang* in concrete pavements and cement roads which make their products fall into third class/low quality because of the presence of sands, pebbles or other dirt in their product and this class is mostly sold in the public market only and not for export. In the table below it shows the differences of the three classifications of dried *aramang* in terms of number of days of drying, physical appearance, market price and the market place.

Table 5: Market Analysis of *Aramang*

Classification of Aramang	No. of days of drying	Physical Appearance	Market price (Dried)	Market Place
First Class	1 ½ days	Sweet and tasty Reddish in color Shiny Crispy No bad odour	Depend on the agreed price with the buyer (350-400.00 per kilo)	Local Market Export (FTI –Iguig)
Second Class	2-3 days	Orange to Pinkish color No bad odour Not so tasty and sweet Wrinkled	130-200.00 per kilo	Local Market Region I and other provinces of Region II (Isabela, Quirino, Nueva Vizcaya) Nearby municipalities
Third Class	Drying last until the shell dried	Brownish in color Crushed (headless) With unpleasant odour bitter taste	100-120.00 per kilo	Fish meal processors Local Market

First-class *aramang* is dried in direct sunlight for 1 ½ days and has a great physical appearance. It is generally exported to foreign nations. During the PRA with the aramang fishers, they indicated that buyers would occasionally buy and combine first and second class (because they were most likely the same) and offer them to consumers at the price of the first class. Sometimes, especially during the province's wet season (or when unexpected rain comes) and there is a large catch, they dry their *aramang* outside of Aparri (in the Ilocos region).

Conclusion

Results showed that most of the respondents engaged in gathering of *aramang* are males 98.99%, but in the marketing and processing aspects female dominates among the respondents which is 85.12% and 95% respectively. In terms of education, most of the gatherers dominates those who have completed their elementary education 51.51%, followed by those who have finished their secondary 25.25% and tertiary 13.13%. Meanwhile consolidators who finished their tertiary education dominates among the respondents with 42.55% followed by those who attended and graduated in secondary education with 31.91%. Lastly, processors who attended their elementary education dominates in this area with 50%, followed by those who attended and graduated in Highschool 36.67%. The mean household is 5. Moreover, most of the actors in *aramang* market chain depends in fishing as their primary source of income.

In the market chain of *aramang* the gatherers sell their product to the middleman 1/processors (mostly are wives of the gatherers) at 500.00-800.00/can (fresh *aramang*). The middleman 1 dry their product and sell it to the local consolidators for 150-320.00 per kilo. Then middleman 2 export it to nearby regions (Ilocos region, and Region 3) and in manila for export (350-400.00/kilo) to other countries. There is a recovery rate of 20.59% of fresh aramang to dried one. The local buyers/middleman 2 make more money than of the fishermen, where in fact they have the hardest work and contributions in the market chain. It makes the difference in the standard of life between fishermen and marketers greater, making the former less fortunate and impoverished than the latter.

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