

Farmed Fish Market in Svay Rieng Town, Svay Rieng Province

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ABSTRACT

The fisheries sector in Cambodia plays an important role in the economic, security, food, and nutrition sectors, including freshwater, seawater, and aquaculture. This study aims to 1) understand the type and size of farmed fish in Svay Rieng town, 2) understand the farmed fish market chain in Svay Rieng town, and 3) analyze the economic efficiency of selling farmed fish in Svay Rieng town. As a method, a survey was conducted by selecting 40 samples (fish vendors) from Veal Yun Market and Rong Bonler Market in Svay Rieng town by face-to-face interviewing. The results found that the activities of selling and consumption of farmed fish in the market are very active. Fish vendors sold many types of farmed fish. The fish types that the vendors sell the most are *channa striata*, *clarias macrocephalus*, *channa micropeltes*, red tilapia, *pantius gorionothus*, *puntioplites*, and other types. The fish market chain in Svay Rieng town is traded and trafficked from brokers to traders and fish vendors in the market and resold to wholesalers, retailers, and consumers. For the economic efficiency analysis of farmed fish sales in Svay Rieng town, there is a majority of vendors who are prosperous. To encourage local fish farming, the government should step up its efforts to support farmers who raise fish as a family and those who depend on fishing for their livelihood by educating and training them to cut back on imports.

INTRODUCTION

Today, in agriculture, fish farming is an important part after rice and fruit crops. Especially for farmers who live far away from fishing areas such as fishing lots, lakes, rivers, streams, or natural areas, fishing is an important asset for the people of Cambodia. Raising fish provides many benefits besides cooking; people sell it in the market or in any area in order to earn income to meet other needs for daily life (Men Kimseng, 2020). The fisheries sector has long played an important role for the Cambodian people. It is the main and necessary source of nutrition in the daily diet, an important source of income, and also important in the field of culture, especially in providing the most important jobs to more than 6 million people, equivalent to 45.5% of the national population, 10.5% for professional fishing, and 35% for subsistence fishing, including people living along the rivers around the Tonle Sap Lake and in the coastal areas (Fisheries Administration, 2017). Climate change has created irregularities, droughts, rains, and off-season floods that affect farmers' livelihoods. However, fish, a natural resource in streams, lakes, rivers, and streams, is declining and unable to supply enough people in all seasons. At the same time, fish is being farmed everywhere, whether at home or on farms, to meet the needs of the people and also for the purpose of earning income, so fish farming is present on the market is busy and popular and also has the support and participation of users from all walks of life. In Svay Rieng, there are also a large number of fish sellers, and the sale of fish has helped some farmers reduce their living expenses in part. This study aims to 1) understand the type and size of farmed fish in Svay Rieng town, 2) understand the farmed fish market chain in Svay Rieng town, and 3) analyze the economic efficiency of selling farmed fish in Svay Rieng town, Svay Rieng province.

LITERATURE REVIEW

Today, in agriculture, fish farming is an important part after rice and fruit crops. Especially for farmers who live far away from fishing areas such as fishing lots, lakes, rivers, streams, or natural areas, fishing is an important asset for the people of Cambodia. Raising fish provides many benefits besides cooking; people sell it in the market or in any area in order to earn income to meet other needs for daily life (Men Kimseng, 2020). The fisheries sector has long played an important role for the Cambodian people. It is the main and necessary source of nutrition in the daily diet, an important source of income, and also important in the field of culture, especially in providing the most important jobs to more than 6 million people, equivalent to 45.5% of the national population, 10.5% for professional fishing, and 35% for subsistence fishing, including people living along the rivers around the Tonle Sap Lake and in the coastal areas (Fisheries Administration, 2017).

METHODOLOGY

As a method, a survey was conducted by selecting 40 samples (fish vendors) from Veal Yun Market and Rong Bonler Market in Svay Rieng town. Face-to-face interviews were used to conduct the study's data collection, use of questionnaires, and question-answer sessions. Based on the amount of fish

vendors who were available for interviews in both marketplaces, samples for this study were chosen non-randomly. The data were analyzed by using descriptive statistics, frequency, and percentage.

RESULTS AND DISCUSSION

The Type and Size of Farmed Fish in Svay Rieng Town

Period of Fish Sales

In Cambodia, 61% of the population works as farmers. In addition to farming, individuals also engage in a variety of other vocations and businesses to support their daily lives, including the sale of fish. The result from the survey found that the period of fish sales is separated into four periods: less than five years (10%), between 5 and 15 years (60%), between 16 and 20 years (17.5%), and over 20 years (12.5%).

Sources of Fish Sold in The Market

The fish vendors can get fish from as many different sources as possible, such as fish obtained from natural sources, and negotiate with the traders in order to resell, such as fish bought from within and outside the province, imported fish from neighboring country, and others. The result from the survey found that imported fish and fish purchased from both inside and outside the province accounted for a comparable percentage of the fish that dealers offer in the market: imported fish (67.5%), fish purchased from both inside and outside the province (65%), and only 10% of the fish were taken from other sources.

Types of Fish Sold in The Market

There are many different varieties of fish that vendors offer, and each variety varies in abundance depending on the region. However, there are now methods for raising and bringing fish to market so that vendors can sell a range of fish. Our vendors provide a wide variety of fish in Svay Rieng province.

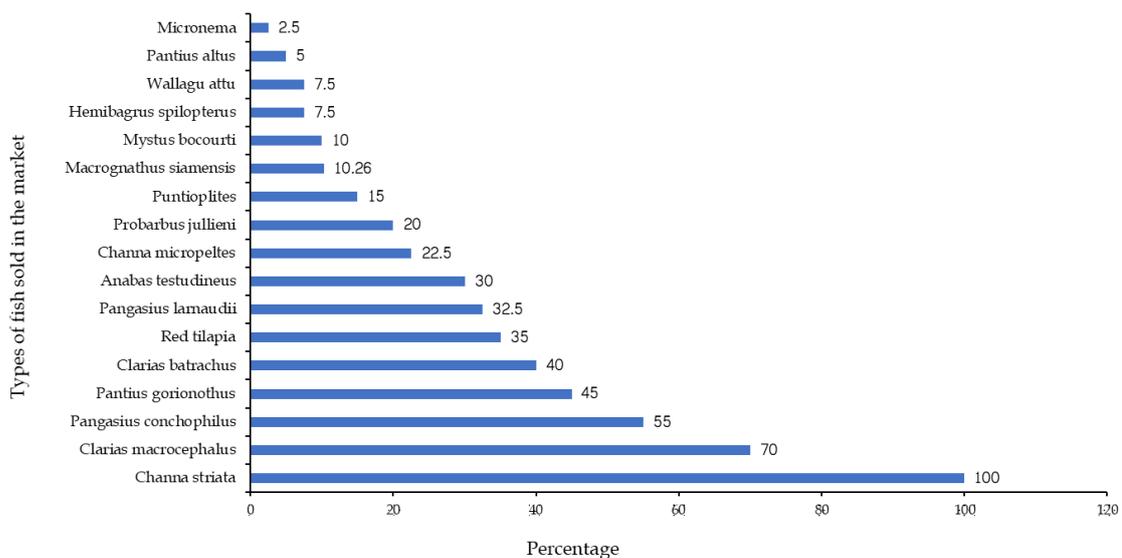


Figure 1. Types of Fish Sold in the Market

Fish Processing of Fish Vendors

There are always some extras; some are common, some can be recycled more or less individually, and fish are more likely to be recycled if they are not in high demand. It can be kept for resale depending on the trader's current circumstances. According to research, if there are any leftover fish after the transaction, all vendors will resale them (100%) for live fish. The proportion of dried fish spots that could be frozen was likewise high (70%) (37.5%), and the percentage of prahok that could be frozen was also high (up to 30%).

Total Amount of Fish that Vendors Buy and Sell

Fish vendors acquire and sell fish in different quantities depending on the daily demand, and there are less and fewer merchants overall. According to size and price, the total number of fish that vendors buy and sell each day is as follows: under 20 kg (35%), between 20 and 50 kg (45%), and between 50 and 100 kg (20%).

Fish Purchased in Quantity by Type of Fish

There are many types of fish that vendors sell in the market to meet the needs of buyers because each person's preferences are not the same. The quantity and type of fish, more or less, depend on the consumers. The graph below shows that the amount of each type of fish vendors purchase and sell per day is less than 20 kg, including *clarias macrocephalus* (60%), *channa striata* (58%), *pangasius conchophilus* (53%), *pantius gorionothus* (43%), *pangasius larnaudii* (30%), red tilapia (28%), *clarias batrachus* (28%), *anabas testudineus* (28%), *channa micropeltes* (20%), *probarbus jullieni* (18%), *puntioplites* (15%), *mystus bocourti* (10%), *macragnathus siamensis* (10%), *wallagu attu* (8%), *hemibagrus spilopterus* (8%), *pantius altus* (5%), and *micronema* (3%). For the amount between 20 and 50 kg, there are 4 fish types: *channa micropeltes* (3%), *clarias batrachus* (8%), red tilapia (10%), *clarias macrocephalus* (10%), and the highest rate was *channa striata* (30%). For quantities from 50 kg up, there is only about 10%, including three fish types: *pangasius larnaudii* (3%), *channa striata* (10%), and *clarias macrocephalus* (5%).

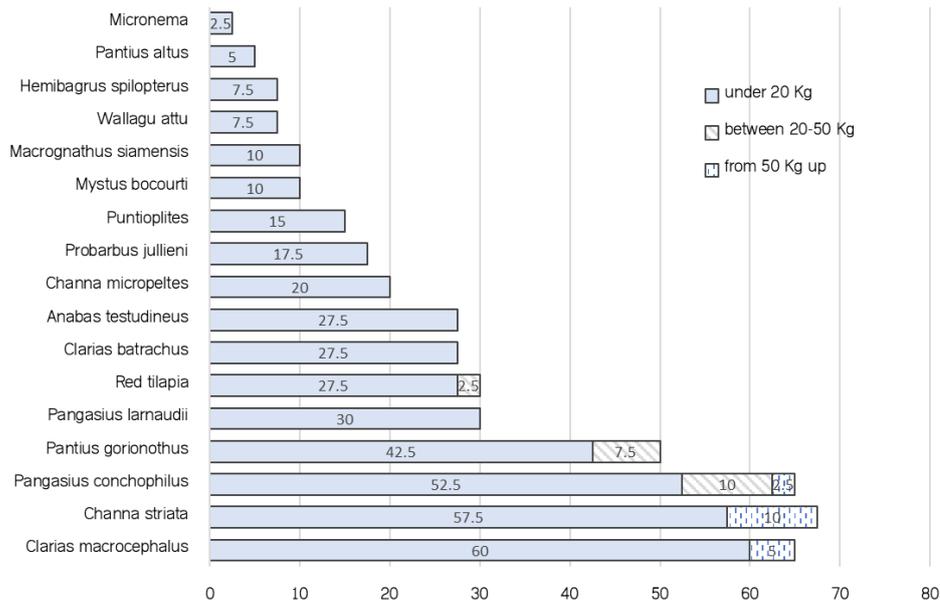


Figure 2. Fish Purchased in Quantity by Type of Fish

Weight of Each Type of Fish Sold in the Market

The weight of the fish depends on the different types of fish. Several fish types, such as probarbus jullieni, pangasius conchophilus, and channa striata, are large fish and weigh heavier than anabas testudineus and clarias which are light fish. The results showed that the weight of each type of fish sold in the market is divided into three parts, including the weight of fish under 500 g (channa striata 97.5%, probarbus jullieni 17.5%, pangasius larnaudii 25%, and hemibagrus spilopterus 5%), the weights between 500 g and 1 kg (channa striata 90%, probarbus jullieni 20%, pangasius larnaudii 30%, and hemibagrus spilopterus 5%), and the weight over 1 kg (channa striata 32.5%, probarbus jullieni 7.5%, pangasius larnaudii 20%, and hemibagrus spilopterus 2.5%).

The Farmed Fish Market Chain in Svay Rieng Town

Fish Customer Agents

Fish customer agents are individuals or businesses that act as intermediaries between fish vendors and fish buyers. They may be responsible for finding buyers for fish, negotiating prices, and managing logistics. Before reaching the customers, the fish were passed through various agents, such as fish collectors, fish processors, wholesalers, retailers, or fish farmers. The results of the study showed that 100% of fish were sold to consumers, 75% of fish were sold to processors, and 22.5% were sold to retailers.

Quantity of Fish Sold to Each Agent Per Day (Kg)

Before the fish is consumed, each link in the chain of the farmed fish market is crucial. Most of the fish has been supplied to consumers and to different agents, such as retailers, consumers, and processors. The result showed that 12.5% of less than 20 kg of fish's weight, 7.5% of 20-30 kg of fish's weight, and 2.5% of 30-50 kg of fish's weight has been sold to retailers.

Anyway, 35% of less than 20 kg of fish's weight, 52% of 20–30 kg of fish's weight, and 10% of 30–50 kg of fish's weight has been sold to consumers. Additionally, 60% of less than 20 kg of fish's weight, and 17.5% of 20–30 kg of fish's weight has been sold to processors.

Quantity of Each Type of Fish Sold Per Day (Kg)

In terms of the amount of fish per day (kg) that vendors buy and sell, there is no specific quantity because sometimes it depends on the activity or situation in the location of the sale. More or less, this may be due to changes in income situation, customer preferences and seasons. According to the research results, each type of fish sold in less than 10 kg per day includes probarbus jullieni (18%), anabas testudineus (33%), pangasius conchophilus (55%), pantius gorionothus (43%), micronema (3%), mystus bocourti (10%), channa micropeltes (23%), puntioplites (15%), pangasius larnaudii (28%), red tilapia (30%), and panties altus, wallagu attu, and hemibagrus spilopterus (8%). Each type of fish sold from 10-20 kg per day includes red tilapia (3%), clarias macrocephalus (68%), channa striata (60%), and clarias batrachus (35%). Each type of fish sold up from 20 kg per day includes clarias batrachus and clarias macrocephalus (5%), and channa striata (40%).

Transportation Methods Used in Supplying and Selling Fish

The various transportation methods used in supplying and selling fish are very important to bring and transit fish to the market along with some materials and equipment, such as cutting boards, knives, bags, trays, plastic basins, and batteries. The results showed that 75% of fish vendors used motorbikes to transport fish for sale in the market, 23% of them were delivered to the place where they bought fish for resale, and 2% used bicycles to transport fish for sale.

The Volume of Fish Sales

The volume of fish sales here refers to the supply of vendors to consumers that is sufficient and appropriate in a timely manner. The results showed that the daily demand of fish sellers (85%) is those who sell enough, 12% are not selling enough, and 3% is more than the needs of customers.

The Demand of Farmed Fish in the Present Time

The current demand for farmed fish is not stable because sometimes there is a high demand and sometimes it decreases, depending on the actual situation. The results showed that the demand situation for farmed fish is slightly increasing (45%), highly increasing (8%), remaining the same (25%), and slightly decreasing (22%).

The Demand of Farmed Fish Categorized by Fish Types

In Cambodia, a country rich in fish resources, the demand for fish species increases or decreases depending on consumer preferences. In Svay Rieng province, there are many types of fish that our vendors sell. The results showed that channa striata is 88% meeting the most of farmed fish demand,

followed by *clarias macrocephalus* (8%), *clarias batrachus* (3%), and *pangasius conchophilus* (3%). However, other fish types are also demanded at different rate in the market.

The Time at Which Vendors Sell More Fish than Usual

Normally, the sales of every vendor are sometimes sold out and sometimes not sold out because customers have a lot of demand for the fish types. Although fish is an indispensable food, there are still many other dishes that our people like to eat. However, for fish vendors in Svay Rieng province in the Veal Yon market and Rong Bonler market, there are more sales days than usual. In accordance with the study's findings, fish vendors sell more fish during 90% of the weekends, 80% of salary-paying days, and 47.5% of national festivals and other holidays.

Problems that Vendors Have Encountered in Selling Fish

Whatever the profession or occupation, there will always be problems, no matter how minor or enormous they may be based on the nature and scope of the problem. Meanwhile, the problems fish vendors in Svay Rieng town faced during their selling are as follows: dead fish (97.5%), low sales (92.5%), high price of fish purchased for sale (30%), and the problem of having competitors (12.5%). However, the problems of having competitors and the high price of fish purchased for sale are not obstacles for them because these are common.

Customers Who Buy Fish in the Market

People from Svay Rieng, those around the Veal Yun market and Rong Bonler market, as well as those from other districts who are required to travel to this city, come to Svay Rieng to buy fish after they leave. Through the study's findings, there are three kinds of customers who come to buy fish in the market, including 92.5% of people living in Svay Rieng town, 87.5% of people selling together in the same market, and 40% of people from other districts traveling pass-by.

The Economic Efficiency of Selling Farmed Fish in Svay Rieng Town

Average Expenses Per Day

The expenses of each business are more diverse or different according to different occupations, while selling fish in Svay Rieng market also has many expenses, such as expenses from buying fish to sell, expenses on transportation, expenses on tax payments, expenses on renting a selling stall, etc. The results showed that the average expenses per day of fish vendors are between 500,000 and 550,000 Riels (equal to USD 125 and 135). Within a month, the average expenses of fish vendors are between 15,000,000 and 16,500,000 Riels (equal to USD 3,750 and 4,125).

Table 1. Average Expenses of Vendors Per Day in Both Markets

No.	Item of expense	Amount of expenses	Percentages
01	Buying fish to sell	500,000 – 1,000,000 Riels	50%
02	Transportation	3,000 – 9,000 Riels	22%
03	Tax payments	1,000 Riels	65%
04	Renting a stall	5,000 Riels	40%
Total expense per day		500,000 – 550,000 Riels	52%
Total expense per month		15,000,000 - 16,500,000 Riels	52%

Average Income Per Day

Although selling fish requires a lot of money, vendors can still earn from 1,000,000 to 1,500,000 Riels per day from selling fish. This income is dependent on the cost of buying and selling fish. The results showed that the average income per day of fish vendors is between 1,000,000 and 1,500,000 Riels (equal to USD 250 and 375). Within a month, the average income of fish vendors is between 30,000,000 and 45,000,000 Riels (equal to USD 7,500 and 11,250).

Average Profit Per Day

Profit is an important metric for fish selling because it shows how much money this occupation is making after all expenses have been paid. To calculate profit per day, fish vendors need to subtract their total expenses from their total income. The results showed that the average profit per day of fish vendors is between 350,000 and 500,000 Riels (equal to USD 87 and 125). Within a month, the average profit of fish vendors is between 10,500,000 and 15,000,000 Riels (equal to USD 2,600 and 3,750). If looking at the vendors' standard of living, it showed that 93% of vendors are prosperous, 5% of vendors are medium, and 2% of vendors are still challenged by poverty.

CONCLUSIONS AND RECOMMENDATIONS

According to the results of the study, we can conclude that the activities of selling and consumption of farmed fish in the market are very active. Fish vendors sold many types of farmed fish, such as *clarias macrocephalus*, *channa striata*, *pangasius conchophilus*, *pantius gorionothus*, *pangasius larnaudii*, red tilapia, *clarias batrachus*, *anabas testudineus*, *channa micropeltes*, *probarbus jullieni*, *puntioplites*, *mystus bocourti*, *macragnathus siamensis*, *wallagu attu*, *hemibagrus spilopterus*, *pantius altus* and *microneme*, and other types of fish available on the market. Besides farmed fish, there are also fish that are found in nature, such as canals, streams, lakes, and rivers which do not meet the needs of people in all seasons. And the fish types that the vendors sell the most are *channa striata*, *clarias macrocephalus*, *channa micropeltes*, red tilapia, *pantius gorionothus*, *puntioplites*, and other types. The farmed fish market chain in Svay Rieng is traded from brokers to fish vendors in the market and resold to wholesalers, retailers, processors, and consumers. The average amount of fish that vendors sell per day is between 20 and 50 Kg. In the economic efficiency analysis of the sale of farmed fish in Svay Rieng town, there is a majority of vendors who are prosperous, and the average profit per day of fish vendors is

between 350,000 and 500,000 Riels, and per month, the average profit is between 10,500,000 and 15,000,000 Riels.

To encourage local fish farming, it is advised that relevant institutions examine, modify, and enhance the policies, plans, norms, laws, institutions, and infrastructure of the fisheries industry. They should also limit the import of fish from abroad. Farmers should take advantage of the chance to restart fishing and increase fish growing operations. On the other side, the government should step up its efforts to support farmers who raise fish as a family and those who depend on fishing for their livelihood by educating and training them to cut back on imports. The price differential between domestic and imported fish should be improved by the government, expanding the market for fish farms. Fish species that have a strong demand for production should be chosen by farmers. In particular, increase family and community production levels by developing aquaculture and fish processing skills more effectively, ensuring sustainable use of fishery resources, and enhancing the role of fish in food security, employment, and income generation.

FURTHER STUDY

This research still has limitations so further research on the topic still needs to be done “Farmed Fish Market in Svay Rieng Town, Svay Rieng Province.”

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