

Fish Marketing Studies at Nam Houm and Nam Souang Reservoirs



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And

Management of River and Reservoir Fisheries in the Mekong Basin

By

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Abstract

Up till now a detailed survey of fish marketing in Nam Houm and Nam Souang Reservoirs is yet to be implemented. Few data and information on fish marketing have been collected. It is necessary to understand insightfully the fish marketing systems in the reservoirs, as they are the potential main source of income for Reservoir Fisheries Management Committees (RFMC). This fish marketing survey was implemented with collaboration of Challenge Program on Water & Food (CPWF), Management of River and Reservoir Fisheries (MRRF) and Living Aquatic Resources Research Center (LARReC) in 2005. The result shows that the fish marketing systems in Nam Houm and Nam Souang Reservoirs are in transition of change from the private company contractor to the public sectors i.e. RFMCs. The new fish marketing systems appear to be different from the previous ones in the way that RFMCs will act as contractors and sub-contractors (wholesalers) at the same time. Follow-up study is required to monitor how the fish marketing systems in Nam Houm and Nam Souang Reservoirs change. One challenge question would focus on how RFMCs create and administrate the funds collected from the fish marketing so that they can use these funds effectively and sustainably in supporting reservoir fisheries management activities in the near future.

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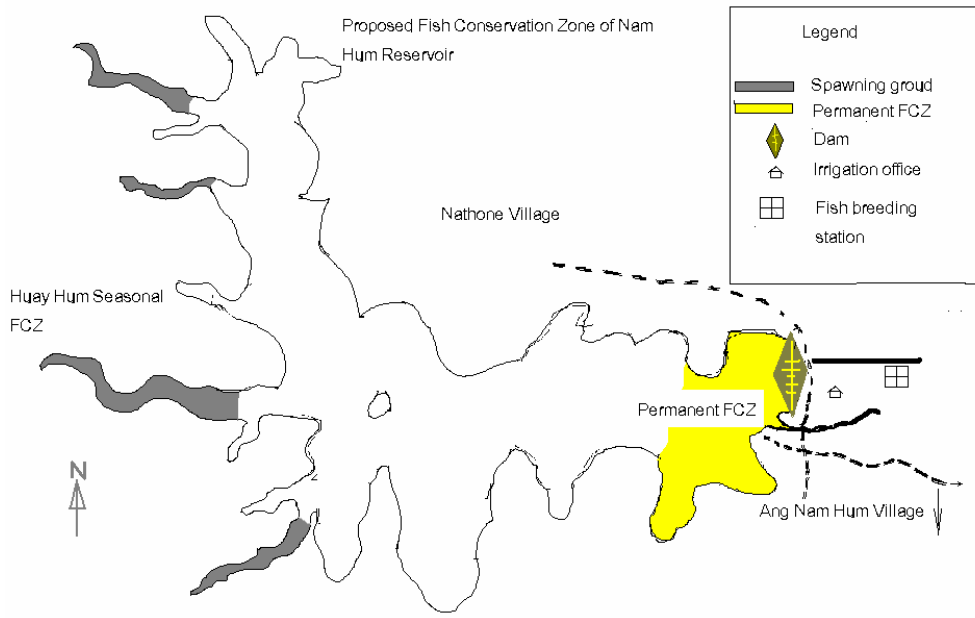
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Abbreviations

CPWF	Challenge Program on Water & Food
DAFO	District Agriculture and Forestry Office
DFMC	District Fisheries Management Committee
FCZ	Fish Conservation Zone
LARReC	Living Aquatic Resources Research Center
MRRF	Management of River and Reservoir Fisheries
NFCC	Naxaythong Foodstuff and Cereals Company
RFMC	Reservoir Fisheries Management Committee

Lao and Scientific Names of Fish

No.	Fish species	Scientific name
1	Pa Fa	<i>Amphotistius laosensis</i>
2	Pa Sieum	<i>Ompok bimaculatus</i>
3	Pa Kot	<i>Hemibagrus nemurus</i>
4	Pa Kha Yeang	<i>Mystus sp.</i>
5	Pa Khao	<i>Puntius brevis</i>
6	Pa Sout	<i>Hampala dispar</i>
7	Pa Ka	<i>Pristolepis fasciata</i>
8	Pa Douk	<i>Clarias batrachus</i>
9	Pa Khor	<i>Channa striata</i>
10	Pa E Thai	<i>Osteochilus lini</i>
11	Pa Ket Lap	<i>Hypothalmichthys molitrix</i>
12	Pa Hua Ngai	<i>Aristhichthys nobillis</i>
13	Pa Nin	<i>Oreochromis niloticus</i>
14	Pa Nai	<i>Cyprinus carpio</i>
15	Pa Kin Gnar	<i>Ctenopharyngodon idella</i>
16	Pa Pak	<i>Puntius spp</i>
17	Pa India	<i>Catla spp.</i>
18	Pa Tong	<i>Notopterus notopterus</i>
19	Pa Nouan Chan	<i>Cirrihinus mrigala</i>
20	Pa Khi larm	



Map of Nam Houm Reservoir (MRRF, 2003)

I. Introduction

Up till now a detailed survey of fish marketing in Nam Houm and Nam Souang Reservoirs is yet to be implemented. Few data and information on fish marketing have been collected. It is necessary to understand insightfully the fish marketing systems in the reservoirs, as they are the potential main source of income for Reservoir Fisheries Management Committees (RFMC).

This fish marketing survey was implemented with collaboration of Challenge Program on Water & Food (CPWF), Management of River and Reservoir Fisheries (MRRF) and Living Aquatic Resources Research Center (LARReC). In the survey, different stakeholders involving in fish marketing in the reservoirs were identified. The survey covers some qualitative and quantitative information on fish trading in the reservoir. This includes fish species, trading price, amounts of trade and their operating costs. Trading relationships between different traders and fishers and their perception on improvement of the fish marketing system in the reservoirs were also obtained.

In the first section, general backgrounds on Nam Houm and Nam Souang Reservoirs are presented. This is followed by a description of the research strategy and methodology of this survey. The third section presents reservoir fisheries management in these reservoirs. The fourth and fifth sections present the results of fish marketing surveys in Nam Houm and Nam Souang Reservoirs respectively. These sections present identification of stakeholders involved in fish marketing, fish marketing channels, quantities, species and prices of fish, operating costs relating to fish marketing, and their perception on the improvement on the fish marketing systems in these reservoirs. In the sixth section, the involvement of RFMCs in fish trading activities at Nam Houm and Nam Souang Reservoirs is discussed. Conclusion is drawn in the last section.

II. Background

a) Nam Houm Reservoir

Nam Houm Reservoir is situated in Naxaythong District, Vientiane Municipality, Lao PDR. It is approximately 30 kilometers from the capital city in the direction of route No. 13 North. Its water surface area is about 500 ha with an average depth of approximately 5 to 10 meters. The reservoir is mainly used for irrigation, but fisheries remain to be a significant provider of protein and income for local people in the area.

There are four villages surrounding Nam Houm Reservoir. These are Houi Nam Yen Village, Ang Nam Hum Village, Sisa Vat Village and Nam Thone Village. According to MRRF (2003), there were 70 registered half- to full-time fishers operating in the reservoir in the year 2000, with an average of 12 fishing days per month. Within two years the number of fishers had increased to 82. However, there are other uncounted people who come to fish irregularly in the reservoir.

Referring to MRRF (2003), it is estimated that total catches is at 57 tons per year, with a market value of 43,800 USD. In addition, fish production from cage culture in

the reservoir is estimated at 22.5 tons. In 2002, catches were estimated at 4-5 kg per fisher per day.

According to a discussing paper by MRRF (2004) on fishing and fish marketing system in Nam Houm Reservoir, fish were traded from local fishers to wholesalers (sub-contractors). With a profit of at least 2000 Kip/kg, these wholesalers then sold fish at the dam sites to small traders (retailers) who then brought fish to sell in the local markets. Furthermore, fish from the wholesalers, using buses and vans, were also traded on city markets in Vientiane Municipality. Operating costs for trading fish of the wholesalers included marketing concession fee of 15,000-20,000 Kip per day or 1,000 Kip per kg. This fee was collected by ‘Fish Marketing Concessionaire’ contractor who then had to pay administrative fee to District Government and District Fisheries Management Committee (DFMC). It is reported that local fishers were unsatisfied with the current fish marketing system in the reservoir as they received less profits from selling fish to the wholesalers. This led to fish being illegally traded directly to small retailers or directly to local markets by the fishers themselves (see Figure 1).

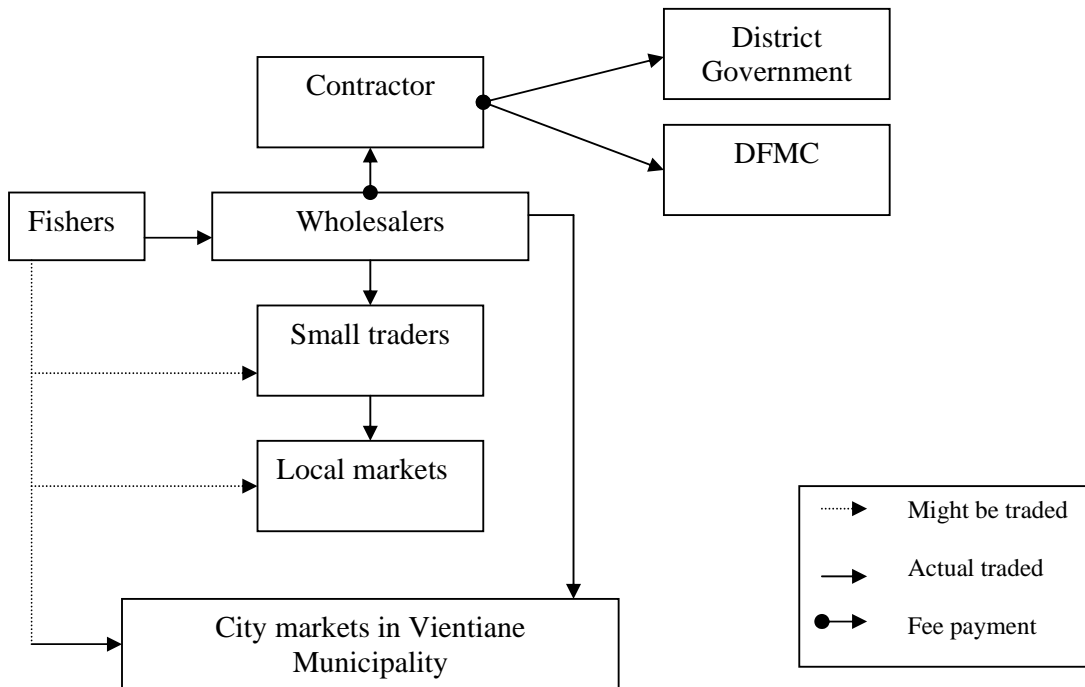


Figure 1. Previous fish marketing system in Nam Houm Reservoir (MRRF, 2004)

Although a general idea of fish marketing system in Nam Houm Reservoir was generated, details on fish marketing, for example, species, prices, quantities and operation costs etc. have not previously been obtained. To understand the fish marketing system, it is necessary to identify various stakeholders involved in fish trading activities and their social and trading relationships with other stakeholders.

b) Nam Souang Reservoir

Nam Souang Reservoir, also located in the administration of Naxaythong District, was completely constructed since 1978. It is approximately 36 kilometers from Vientiane Municipality in the direction of rout No. 13 North. Its catchment area is about 2,500 hectares and its capacity of serving water for irrigation is about 1,500 hectares during dry season and 3,300 hectares during wet season.

There are five villages surrounding Nam Souang Reservoir. These are Sivilay Village, Phosy Village, Phosay Village, Phonthong Village and Tham Village. The main fishing gears used in fishing activities include gill net, cast net, lift net, hook, spear and others. District Agriculture and Forestry Office (DAFO) estimated that there were tons of fish caught from the reservoir (MRC, 2000). However, the fish trading activities at Nam Suang Reservoir have not been comprehensively studies yet.

III. Research Strategy/methodology

The main aim of this report is to focus on factors of the fisheries marketing systems that are likely to change. As such the previous market information provides general view of trading activities in the reservoirs; this report indicates the current market situation in the reservoirs.

The research strategy and methodology of this survey is similar to the fish marketing survey made by Phonvisay and Bush (2001). Specific and relevant questions are constructed to suit various stakeholders involving fish trading activities such as:

1. wholesalers;
2. small traders;
3. local fishers;
4. district government;
5. DFMC and RFMC who involve in fish marketing.

Previous data and information on fish marketing in the reservoirs will be used as a checklist so that additional information can be obtained speedily.

The primary procedures in this fish marketing survey in Nam Houm and Nam Souang Reservoirs are to:

- Recheck and create the comprehensive maps of production flow of fish marketing systems in the reservoirs;
- Identify various stakeholders involving in fish trading activities;
- Quantitative information on fish trading;
- Identify social and trading relationships among various stakeholders;
- Understand traders' and fishers' perception on the current fish market systems as well as their perception on how to improve these systems.

The following methodology was thought to be most appropriate given the limited time. The first task of the study was to determine the main market and fish-landing site in the reservoir area. Primary information was obtained from MRRF staff¹ and Naxaythong DAFO² officers. This information includes current government documentation relevant to fisheries and general fish trading activities in the reservoirs. The officers also helped to identify wholesalers and full-time and part-time fishers in the area. In addition, a local market, Song Pieu Market, was visited for interviewing of some small fish vendors.

The survey covered three days (5th, 6th and 11th of April). Two days were spent at Nam Houm Reservoir and one day at Nam Souang Reservoir. In Nam Houm Reservoir, interviewing wholesalers and some small fish vendors was taken place in the landing site and Song Pieu Market respectively in the first day. As the district officer informed the heads of four villagers to appoint one full-time and one part-time fisher per each village in the first day of visit, interviewing fishers was made in the second day. In Nam Souang Reservoir, a deputy head of RFMC, Mr. Kouï Kinnala, guided the survey team to identify wholesalers and full-time and part-time fishers.

IV. Reservoir Fisheries management

There are three main management organizations at Nam Houm and Nam Souang Reservoirs. These are the DAFO of Naxaythong District, the District Fisheries Management Committee (DFMC), and the Reservoir Fisheries Management Committee (RFMC).

1. DAFO is legally and administratively in charge of fisheries management.
2. DFMC, established under the District Governor's Decree Number 175/District Naxaythong on 26 February 2001³, has responsibility in:
 - Encouraging and extending aquaculture in the district area, specifically in natural water bodies;
 - Making surveillance on fishing activities in all natural water bodies, and preventing uses of illegal fishing such as booming, shooting, applying toxic chemicals etc.
 - Provide rules and regulations related to fisheries management in various water bodies, for example, setting up permanent and seasonal Fish Conservation Zone (FCZ), establishing fisher and fish collector groups, and encouraging people to find funds for buying fish to the annual fish leasing day in each village group in appropriate condition.
3. RFMCs of Nam Houm and Nam Souang Reservoirs were established under the District Governor's Decree Number 794/District Naxaythong on 17

¹ Mr. Khamla

² District Agriculture and Forestry Office, Mr. Konglae and Miss. Soudsada

³ Translate from the Lao original paper

September 2001. At that time, 15 members (4 women) from four surrounded villages were selected. In 2005, the number of members of RFMC in the reservoir was expanded to 20 in which six members are women (Number 055/District Naxaythong, dated 31 March 2005). In Nam Souang Reservoir, there are 17 members (four women) in RFMC at the present.

Their responsibilities include 1) formulating and implementing an improved set of fishing regulations; 2) identifying, demarcating and implementing no-fishing zones; 3) stocking; 4) enforcing regulations such as patrolling and educating; and other (MRRF, 2004).

According to the meeting of RFMC in Nam Houm Reservoir dated 18 March 2005⁴, the Committee made the memorandum to establish the roles, rights and duties for each member in the Committee. There are six main duties assigned to different committee member. These duties are:

- i. Management and patrolling activities (8 members);
- ii. Negotiation and communication activities (4 members);
- iii. Economic activities (3 members);
- iv. Data collection activities (2 members);
- v. Marketing fish activities (6 members and 2 non-members);
- vi. Processing activities (3 members and 1 non-members)

With reference to this memorandum, it means that RFMC will involve in fish marketing activities in the reservoir. According to Mr. Konglae, DAFO officer, in the near future RFMC will act as a wholesaler who collects/buys fish from fishers and distributes fish through market channels.

In Nam Souang Reservoir, RFMC has not made the memorandum on establishing roles, rights and duties for each member yet. According to the deputy head of RFMC, in the future there will be a RFMC meeting which aims to establishing those activities. This memorandum will be similar to the one made in Nam Houm Reservoir.

RFMCs in Nam Houm and Nam Souang Reservoirs also set up fisher groups in the reservoir so that RFMC can inform any notice to fishers more easily. However, formulation of all fisher groups has not finished yet.

⁴ Memorandum of roles, rights and duties of RFMC Members, dated 21 March 2005

V. Fish marketing system in Nam Houm Reservoir

i. Stakeholders

Fish marketing system in Nam Houm Reservoir has been changed frequently over the last few years. At the present, four major stakeholders who involve in fish marketing were identified in this survey. These are:

- 1) Local fishers: fishers are the primary suppliers who compulsorily sell their fish at the Nam Houm landing site. Fishers can be classified into two groups i.e. full-time fishers and part-time fishers. Some full-time fishers, however, seem confused about this clarification as they argued that they could also be part-time fishers because they did not go fishing every day. Some fishers are busy during rainy rice farming season. A number of fishers start fishing from 1-2 AM to 6-7 AM, and from 3 PM to 6 PM. This is a time that they are likely free from other activities.
- 2) Wholesalers: wholesalers play an important role in distributing fish through various market channels. Currently, there are two wholesalers operated in Nam Houm Reservoir. They are temporarily granted the fish marketing concession by District Government to buy fish from local fishers. A market fee is paid directly by the wholesalers to District Office daily. Previously, the fish marketing concession was awarded to the Naxaythong Foodstuff and Cereals Company (NFCC), and the wholesalers had to pay the market fee to NFCC. At the present, NFCC's contract has been terminated, and soon RFMC will act as a contractor as well as wholesaler in fish marketing system in Nam Houm Reservoir.

The two wholesalers usually sell fish either small traders or local consumers. Sometimes, when they collect enough fish which can cover all their operating costs, they are likely to bring fish using their own vehicles to sell them at city markets.

By interviewing two wholesalers, apart from buying fish from fishers, one wholesaler also provides fishing gears, mainly gill nets and sometimes boats to some local fishers who are lack of fund. In return, the wholesaler would be able to buy fish cheaper from those fishers. In addition, those fishers establish themselves as the trade members of the investing wholesaler. This can be called 'Kha Pa Cham' (Phonvisay and Bush, 2001). However, fishers who are not Kha Pa Cham of the 'investing' wholesaler prefer to sell their fish to the other wholesaler because of offering higher price.

- 3) Small fish traders: small fish traders act as dispersal distributors of fish in the fish marketing system. They are highly active in searching for fish from any source such as reservoirs and natural ponds. In Nam Houm Reservoir, they can only buy fish from the two wholesalers. According to the interviews of two small traders and local fish vendors, some small traders also sell the reservoir fish at the local market, Song Pier Market. However, if they have enough fish (mostly at least 20-30 kg); they prefer to sell their fish at the city markets.

- 4) District Government/DFMC: District Government of Naxaythong District acts as the agent who awards the fish marketing concession to the contractors. At the present, the two wholesalers are temporarily granted the contracts. Fund collected from the market fee are entirely contributed to District Office and DFMC.

ii. Fish marketing channels

A current fish marketing channel in Nam Houm Reservoir is shown in Figure 2. Fishers are compelled to sell their fish to the wholesalers. However, according to the interview fish vendors at Song Pier Market, it is reported that fishers also sometimes sell their fish at Song Pier Market themselves in the late afternoon.

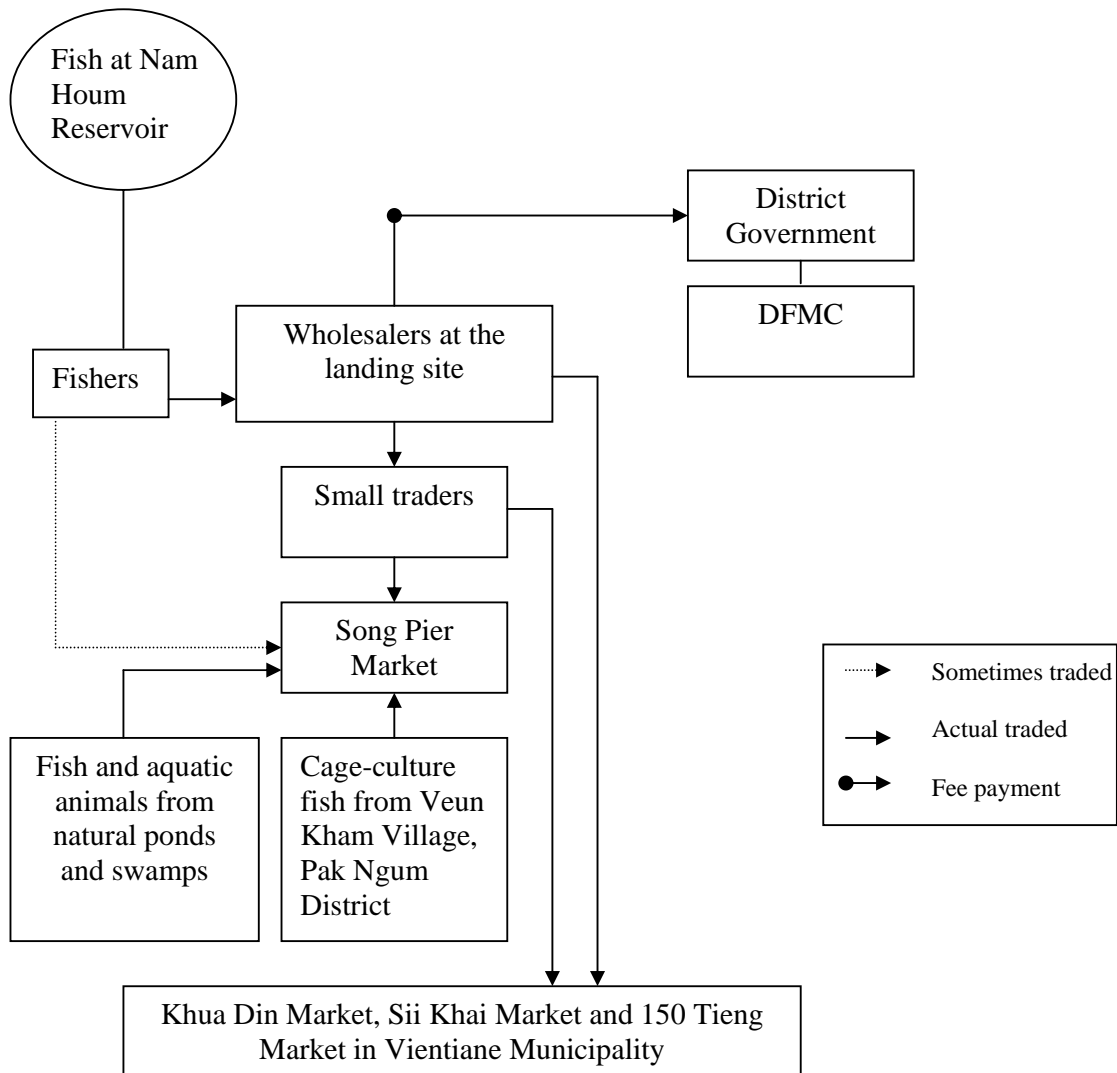


Figure 2 Current fish marketing channel in Nam Houm Reservoir

After buying fish from fishers, the wholesalers tend to keep fish in ice containers for selling them at the city markets, and also sell some fish at the landing site. Small

traders come to buy fish from the wholesalers. If small traders get only small amount of fish, they are likely to sell at Song Pier Market due to low transportation cost. In contrast, if they get enough fish, they sometimes go to sell fish at the city markets such as Khua Din Market and 150 Tieng Market. To cover the transportation cost, small traders often bring vegetables and fruits along with fish so that they can cover their transportation cost and make more profits.

Full-time fish vendors at Song Pier Market do not sell fish from Nam Houm Reservoir, this is possibly due to inconsistent supply of reservoir fish. They tend to buy fish and other aquatic animals from local people who fish at natural ponds and swamps nearby. Some fish vendors also sell cage-culture fish, Tilapias. Tilapias are mostly from Veun Kham Village, Pak Ngum District, and Vientiane Municipality. According to the interviewed full-time fish vendors, many part-time fish vendors are identified as some local fishers and small traders who bring fish from Nam Houm Reservoir.

iii. Aquaculture (cage culture)

Fish from cage culture are not sold through the wholesalers. Cage-culture fish tend to be sold straightforwardly at the cage sites. According to the statistic of fish cage culture collected by DAFO, in Nam Houm Reservoir there are 11 cage culture owners with 252 cages in total. The size of the cage is 4 m x 4 m with a stocking rate of 200 fish/cage.

Fish species in cage culture in Nam Reservoir include Tilapia (*Oreochromis niloticus*), Ket Lap (*Hypothalmichthys molitrix*), Pa Nai (*Cyprinus carpio*) and Pa Pak (*Puntius spp*).

iv. Quantities

In this survey, it is very difficult to estimate the total amount of fish marketed through Nam Houm Reservoir due to high fluctuations in daily and seasonally fish catches. In addition, the exact number of full-time and part-time fishers operating this year is not known exactly. The previous number of registered fishers, collected in 2001 (MRRF, 2003) was 82.

According to interviewed fishers, it is estimated that about 2 kg of fish are caught daily per fisher from October to May. Between June and September, at least 10 kg of fish are caught daily per fisher. During this time, more fish is caught due to spawning season.

By interviewing two wholesalers, it is estimated that the two wholesalers collect 60-70 kg of fish daily from October to May. From June to September, at least 100 kg of fish are collected daily. According to these figures, annual total fish catch in Nam Houm Reservoir would be almost 28 tons⁵. Although this figure seems highly biased, it does give a general view of total fish production in the reservoir. More daily-recorded data on trading fish at the landing site are undoubtedly required to estimate

⁵ simply calculated by using Daily Quantities x No. Days

reliable figure. Previous estimation of total catches ranged from 26.4 tons to 87.5 tons per year (MRRF, 2003).

v. Species and prices

The wholesalers and fishers recognized about 19 fish species during the interviewed day. Prices are varied according to fish species, their sizes and seasons. In Table 1, fish species and selling prices from fishers are shown. Price margins among fishers, wholesalers and small traders are about 1000-2000 Kip/kg. For example, when a fisher sells Pa Kot (*Hemibagrus nemurus*) at 10,000 Kip/kg, a wholesaler and small trader will sell this fish at a price of 12,000 Kip/kg and 14,000 Kip/kg respectively.

During wet season from June to September, fish price may dramatically drop about 1,000-3,000 Kip/kg. This occurs only in some days when too many fish are landed at the landing site.

Table 1 Species and Prices

No.	Fish species	Scientific name	Fisher's selling price* (Kip/kg)	Wholesaler's selling price^ (Kip/kg)	Small trader's selling price (Kip/kg)
1	Pa Fa	<i>Amphotistius laosensis</i>	50,000	52000	54000
2	Pa Sieum	<i>Ompok bimaculatus</i>	10000	12000	14000
3	Pa Kot	<i>Hemibagrus nemurus</i>	10000	12000	14000
4	Pa Kha Yeang	<i>Mystus sp.</i>	10000	12000	14000
5	Pa Khao	<i>Puntius brevis</i>	6000-7000	7000-8000	8000-9000
6	Pa Sout	<i>Hampala dispar</i>	7000-8000	10000	12000
7	Pa Ka	<i>Pristolepis fasciata</i>	3000-7000	5000-9000	7000-11000
8	Pa Douk Ngai	<i>Clarias batrachus</i>	25000	27000	29000
9	Pa Khor	<i>Channa striata</i>	20000-25000	22000-27000	24000-29000
10	Pa E Thai	<i>Osteochilus lini</i>	7000-8000	9000-10000	11000-12000
11	Pa Ket Lap	<i>Hypothalmichthys molitrix</i>	7000-9000	10000	12000
12	Pa Hua Ngai	<i>Aristichthys nobillis</i>	10000	11000	13000
13	Pa Nin	<i>Oreochromis niloticus</i>	8000	10000	12000
14	Pa Nin Ngai	<i>Oreochromis niloticus</i>	10000	12000	14000
15	Pa Nai	<i>Cyprinus carpio</i>	12000-13000	14000	16000
16	Pa Kin Gnar	<i>Ctenopharyngodon idella</i>	10000	12000	14000
17	Pa Nin (cage-culture)	<i>Oreochromis niloticus</i>			16000
19	Pa Pak	<i>Puntius spp</i>	10000	12000	14000
20	Pa India	<i>Catla spp.</i>	10000	12000	14000
21	Pa Tong	<i>Notopterus notopterus</i>	10,000	12000-13000	14000

* can be regarded as wholesaler's buying price

^ can be regarded as small trader's buying price

Profit margin ranges from 1000-3000 Kip/kg

vi. Operating costs

a. Fishers

Fishers appear to spend their money on buying fishing gears, mainly gill nets. For example, Mr. Bounmee, a fisher from Houi Nam Yen Village, spent about 500,000 Kip on buying gill net. This gill net may last for a year or less depending on numbers of uses. If their gill nets can be used up to one year, it can be stated that a fisher spends almost 1,400 Kip/day.

Some fishers use fishing boat without engine while some use boat with engine. For the boat with engine, a fisher tends to spend about 12,000 Kip/day⁶. Assuming that a fisher catches fish at 2 kg/day with the average selling price of 10,000 Kip/kg, and their operating costs are about 13,400 Kip/day, their net profit is about 6,600 Kip/day. This does not include the expenditure of buying boats. The engine powered boat costs about 600,000 Kip (excluding engine) while the paddle boat costs 400,000 Kip.

b. Wholesalers

The wholesaler's main costs in fish trading activities are:

- market fee at the landing site (10,000 Kip/day);
- transportation costs (25,000 Kip/day) if they bring fish (at least 20 kg) to sell at the city markets;
- market fee at the city markets (about 5,000 Kip/day)
- ice (10,000 Kip/day) and plastic bags (6,500 Kip);
- investing in fishing gear to some fishers.

Assuming that the wholesaler sells fish at the landing site at 20 kg/day with the average profit of 2,500 Kip/kg, the wholesaler's total revenue would be 50,000 Kip/day. At the landing site, the wholesaler's operating costs include market fee, ice and plastic bags which are mounted to 26,500 Kip/day. Therefore, the wholesaler's net profit would be 23,500 Kip/day. Such net profits seem to fluctuate each day, depending on a number of factors, especially quantities of trade.

c. Small traders

The main expenditures of small traders include transportation cost (15,000 Kip/day) from the reservoir to the city markets such as Khua Din Market, and the city market fee (5,000 Kip/kg). Small traders have to get fish at least 20-30 kg when they sell at the city markets so that they can cover all expenditures.

vii. Stakeholders' perception on improvement of the fish marketing system

In Table 2 stakeholders' perception on improvement of the fish marketing system is presented. These comments are extracted from some interviewed fishers, wholesaler and district officer. By interviewing five fishers, only two fishers had comments on the fish marketing in Nam Houm Reservoir. Their comments focus on low and

⁶ about 2 litres per day, and assuming 6,000 Kip per litre

sometimes highly fluctuated prices of fish. Only one wholesaler had comments on the fish marketing. The wholesaler commented on fish being traded outside the landing site. She also preferred to compete for a fish marketing concession. By interviewing Mr. Konglae, in the next few months, RFMC will involve in trading fish. This means that they will act like a wholesaler who sells fish to small traders and distributes the reservoir fish to the city markets.

Table 2 Perception on improvement of fish marketing system

No.	Stakeholders	Identification of problems	Perception on improvement
1.	Fishers - Mr. Bounmee (Houi Nam Yen Village) - Mr. Khamnoon (Houi Nam Yen Village)	- low price of fish - high fluctuations in fish price	- organize negotiation of fish price between the fisher groups and the wholesalers and inform fishers about the price in a fixed time period - prefer constant price
2.	Wholesalers - Mrs. Xay	- some fishers sell their fish to 'outside' traders. These traders are able to offer higher prices because they do not invest anything in gear and do not pay tax to a district officer - uncertain future	- wants fishers to land at the landing site only - wants to compete for a fish marketing concession
3.	District officer/RFMC - Mr. Konglae	- lack of funds for fisheries reservoir management	- create fund by involving in trading fish

viii. Conclusion

In Nam Houm Reservoir, local fishers, wholesalers, small traders and District Government/DFMC are the main stakeholders involved in fish marketing. Fish are distributed from the fishers to the wholesalers and then to small traders or sometimes to the city markets in Vientiane Municipality. The price margins of fish are ranged from 1,000 to 3,000 Kip/kg.

Most fish are caught between June and September with the estimation of 100 kg/day at the landing site, and 60-70 kg/day during the dry season (January – May). As a result, the draft estimation of total fish trade in Nam Houm Reservoir is about 28

tons/year. In the next few months, as the memorandum of rights, roles and duties with RFMC is created, RFMC will play an important role in the fish marketing in Nam Houm Reservoir.

VI. Fish marketing system in Nam Souang Reservoir

i. Stakeholders

In Nam Souang Reservoir, the fish marketing system is quite different from the system operated at Nam Houam Reservoir. There are three main stakeholders who involve in the fish marketing in Nam Souang Reservoir. They are:

1)Local fishers: a number of fishers often use gill nets during the afternoon from 2 to 5 PM, and in the next morning they come to visit the fishing site and collect fish caught in the nets. Within Phoxay, Sivilay, Tham, Phosy and Phonthong villages that surround the reservoir, only Tham Village has not fully established fisher groups yet. Apart from Phonthong Village, there are about 10 fishers in each group. Table 3 shows numbers of fisher groups in the five villages.

Table 3 Numbers of fish groups in the five villages

No.	Village Name	No. fisher groups	Remarks
1	Phoxay	2	10 fishers in each group
2	Sivilay	3	10 fishers in each group
3	Phosy	1	10 fishers in each group
4	Phonthong	3	7 fishers in each group
5	Tham	-	3 fishers

2)Wholesalers: three wholesalers operate in Nam Souang Reservoir. These wholesalers are from the villages surrounding the reservoir. They have agreed amongst themselves on a division of fish collecting sites. During the morning from 7:00 AM to 8:30 AM, the wholesalers use their boats to collect fish. They then land all collected fish at the landing site, and transport fish using the same bus to Khua Din Market.

The wholesalers have to pay a monthly sub-contractor fee (100,000 Kip/month) to the contractor Naxaythong Foodstuff and Cereals Company (NFCC). The contract will be terminated in June.

Trading relationships between fishers and wholesalers in Nam Souang are similar to those in Nam Houm Reservoir. The wholesalers often tie their trading relationships by investing in fishing gear to their regular fish suppliers.

3) District Government/DFMC: District Government of Naxaythong District granted the fish marketing concession to NFCC. NFCC has to pay 1.5 million Kip/Year to the District Government.

ii. Fish marketing channels

A current fish marketing channel in Nam Souang Reservoir is shown in Figure 3. The wholesalers sail around the reservoir to collect fish from fishers and then sell all fish only at Khua Din Market. Sub-contract fees are daily paid by the wholesalers to NFCC. NFCC then pays 1.5 million Kip/year to Naxaythong District Government.

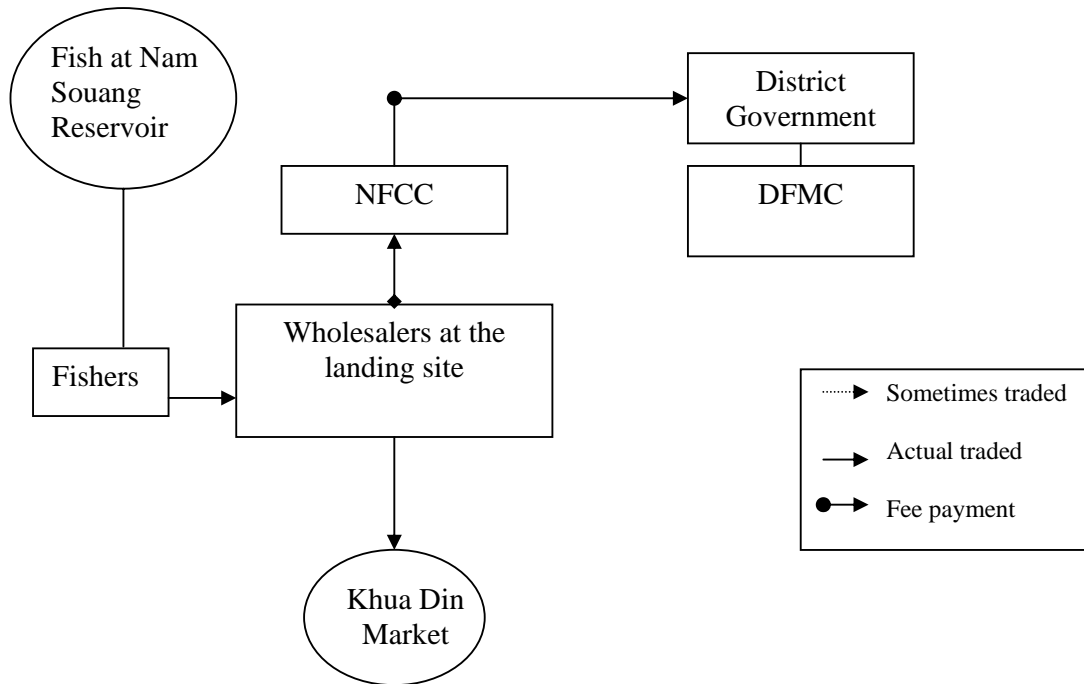


Figure 3 Current fish marketing channel in Nam Souang Reservoir

iii. Quantities

In order to attempt to estimate the quantity of fish traded in Nam Souang Reservoir, the survey team interviewed both fishers and wholesalers. Two out of three wholesalers were interviewed to give the estimated quantities. It is suggested that about 15-20 kg of fish per wholesaler per day during the dry season. In August and September, it is estimated that about 150 kg of fish are collected daily by the three wholesalers. From October to November, the quantities of fish collected by the wholesalers reduce to 70 kg per day. Therefore, simply using calculation, annual production of fish traded in Nam Souang Reservoir is estimated at almost 29 tons. This figure, however, gives only a general view of the quantities of fish traded in the reservoir.

iv. Species and prices

There are about at least 12 fish species recognized by the interviewed wholesalers and fishers. The profit margins range from 1,000 to 3,000 Kip/kg. In the wet season from August to September, fish price may dramatically drop about 1,000-3,000 Kip/kg.

Table 4 Species and Prices

No.	Fish species	Scientific name	Fisher's selling price* (Kip/kg)	Wholesaler's selling price (Kip/kg)
1	Pa Nouan Chan	<i>Cirrihinus mrigala</i>	12,000	14,000
2	Pa Sieum	<i>Ompok bimaculatus</i>	15,000	17,000
3	Pa Kot	<i>Hemibagrus nemurus</i>	15,000	17,000
4	Pa Kha Yeang	<i>Mystus sp.</i>	16,000	18,000
5	Pa Khao	<i>Puntius brevis</i>	7,000	9,000
6	Pa Sout	<i>Hampala dispar</i>	9,000	11,000
7	Pa Ka	<i>Pristolepis fasciata</i>	7,000	9,000
8	Pa Douk	<i>Clarias batrachus</i>	15,000	17,000
9	Pa Khor	<i>Channa striata</i>	15,000	17,000
10	Pa E Thai	<i>Osteochilus lini</i>	9,000	11,000
11	Pa Khi larm	<i>Dangila sp. Cf. Lineata</i>	7,000	9,000
12	Pa Tong	<i>Notopterus notopterus</i>	9,000	11,000

* can be regarded as wholesaler's buying price

Profit margin ranges from 1000-3000 Kip/kg

v. Operating costs

a. Fishers

Operating costs of fishers at Nam Souang Reservoir are similar to those in Nam Houm Reservoir. A number of fishers have spend about 350,000 to 500,000 Kip on buying gill net.

b. Wholesalers

The wholesaler's main costs connected to fish trading activities are:

- Sub-contract fee to NFCC (100,000 Kip/month = nearly 3,500 Kip/day);
- Other costs such as ice, plastic bags, bus fee, fuel and Khua Din Market fee (40,000 Kip/day)

Assuming that the wholesaler sells fish at the landing site at 20 kg/day with the average profit of 2,500 Kip/kg, the wholesaler's total profit would be 50,000 Kip/day. The wholesaler's operating costs are about 43,500 Kip/day. Therefore, the wholesaler's net profit would be 6,500 Kip/day. Such net profits seem to fluctuate each day depending on a number of factors such as quantities of trade and prices. For example, Mr. Sao/Mrs Doi collected about 37.5 kg of fish during the interview day. With the average profit of 2,500 Kip/kg, their total revenue would be almost 94,000 Kip. Thus, Mr Sao's net profit would be about 50,000 Kip

Sometimes wholesalers invest in fishing gears and fuel for some fishers. In return the wholesalers get regular fish supply from these fishers.

vi. Stakeholders' perception on improvement of the fish marketing system

In Table 5 stakeholders' perception on improvement of the fish marketing system is presented. Two wholesalers and one RFMC member are asked to give the comments on the improvement of fish marketing system in Nam Souang while the two interviewed fishers had no comments on the marketing system. The main problem of the wholesalers is the high operating costs in selling fish to Khua Din Market. Thus, they prefer to have someone to buy their fish at the landing site.

Table 5 Perception on improvement of fish marketing system

No.	Stakeholders	Identification of problems	Perception on improvement
1.	Wholesalers - Mr. Sao/Mrs. Doi - Mrs. Ep/Mr. Sao	- time and cost consuming to reach Khau Din Market - high sub-contract fee - time and cost consuming to reach Khau Din Market	- prefer to have someone to buy their fish at the landing site - want to ask for lowering of the fee during dry season - prefer to have someone to buy their fish at the landing site
2.	District officer/RFMC - Mr. Konglae	- lack of fund for fisheries reservoir management	- create fund by involving in trading fish at the end of June

vii. Conclusion

The fish marketing system in Nam Souang Reservoir is quite different from the system in Nam Houm Reservoir. At Nam Souang Reservoir, the wholesalers sail their boats to collect fish from fishers, and sell to Khua Din Market only.

NFCC is still a contractor until June. After that, RFMC will play the role as contractor and sub-contractor collecting and trading fish themselves. It is interesting that these wholesalers are also members of RFMC.

It is found that there are high operating costs, especially transportation costs, in fish trading activities in Nam Souang Reservoir. This is the reason why the wholesalers prefer someone to buy their fish directly at the reservoir.

VII. Discussion on the involvement of RFMCs in fish trading activities at Nam Houm and Nam Souang Reservoirs

With the assistance of MRRF, RFMCs of Nam Houm and Nam Souang Reservoirs were established in 2001. By using Participatory Rural Appraisal (PRA), RFMCs have identified various problems, and then outlined their reservoir fisheries management plans and activities. However, lack of fund to support their management

activities (e.g. patrolling, administration etc.) is the main constraint for RFMCs in both reservoirs. In 2004-2005, RFMC of Nam Souang Reservoir suggested the district to involve in collect/buy fish as a part of the activity for establishing a fisheries reservoir development fund (MRRF, 2005). In this marketing survey, it is found that RFMCs in both reservoirs have made agreements among themselves to involve in fish marketing activities. In the next few months, they will buy fish marketing concessions from Naxaythong District Government, and take charge of the fish trading activities in the reservoir. However, at present, only the memorandum on establishing the roles, rights and duties for each member in RFMC has been made in Nam Houm Reservoir. Plans for administration and distribution of fund for fisheries reservoir management activities are yet to be made.

At the present, it can be said that the fish marketing systems in Nam Houm and Nam Souang Reservoirs are in transition of change from the private company contractor (NFCC) to the public sectors (RFMCs). The new fish marketing systems appear to be different from the previous ones in the way that RFMCs will act as contractors and sub-contractors (wholesalers) at the same time. The benefit of RFMCs in charge in the fish marketing may be that income generated from selling fish not only distributes to the district government/DFMC but also supports RFMCs members. In addition, fishers may be able to negotiate on price of fish with RFMCs more easily than to negotiate with the wholesalers⁷. On the other hand, one may question the effectiveness of the RFMCs in exercising fish trading activities. As RFMCs would act as a single wholesaler, lack of competition among traders in buying fish would place doubt to an issue of market efficiency. Marketing fish may also create conflicts on the received income among RFMC members. Furthermore, the most important point is that RFMCs is the community organizations that implement the reservoir fisheries management activities. They do not specialize in trading fish. Therefore, marketing fish may place further difficult in the management plans and activities in RFMCs.

In order to increase and obtain more funds for supporting fisheries reservoir management activities, MRRF suggests in the proposal for the reorganization of fish marketing activities that RFMCs should act as contractors by buying the fish marketing concessions from the District Government. RFMCs then would not involve in fish trading activities. They only collect contract fees from the wholesalers (sub-contractors). These wholesalers should remain in the fish marketing systems. In summary, the fish marketing systems in Nam Houm and Nam Souang Reservoirs should remain the same apart from the replacement of NFCC by RFMCs. Funds for buying the fish marketing concessions may be collected from RFMC members and/or local people who are interested in buying fish marketing shares. However, this concept of the fish marketing has not been introduced to RFMCs yet. There will be a consultation meeting on the improvement of fish marketing system and fisheries management at Nam Houm Reservoir in early May 2005.

VIII. Conclusion

The fish marketing surveys at Nam Houm and Nam Souang Reservoirs were implemented with collaboration between CPWF, MRRF and LARReC. The main

⁷ Elaborate from Mr. Konglae's comment

objective of these surveys is to understand how the fish marketing systems in these reservoirs operate.

Fisheries management in Nam Houm and Nam Souang Reservoirs is similar. At the local level RFMCs have responsibilities in implementing reservoir fisheries management activities. The survey found that fish marketing systems in Nam Houm and Nam Souang Reservoirs appear to be in the process of transition from the single private company to the community sector (RFMCs).

In Nam Houm Reservoir, the main stakeholders who involve in the fish marketing are local fishers, wholesalers, small traders and District Government/DFMC. Fish are sold from the fishers to the wholesalers at the landing site. Then small traders buy fish from wholesalers and sell at the city markets in Vientiane Municipality. Sometimes, the wholesalers bring fish directly to sell at the city markets. It is reported that most fish are caught between June and September. The draft annual estimation of total fish traded at Nam Houm Reservoir is about 28 tons. In contrast, the fish marketing system in Nam Souang Reservoir is quite different from the system in Nam Houm Reservoir. The wholesalers use their boats to collect fish from fishers around the reservoir, and sell fish directly to Khua Din Market everyday. NFCC is still a contractor until June. It is found that there are high operating costs, especially transportation costs in fish trading activities in Nam Souang Reservoir. This is the reason why the wholesalers prefer someone to buy their fish directly at the reservoir.

In the next few months, it will be very interesting to see how the fish marketing systems in Nam Houm and Nam Souang Reservoirs change. One challenge question would focus on how RFMCs create and administrate the funds collected from the fish marketing so that they can use these funds effectively and sustainably in supporting reservoir fisheries management activities in the near future.

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