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Characteristics of operations at fish-landing sites managed by private owners in Thailand

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Abstract

This study presents the results of a survey on the operation characteristics of landing sites managed by private owners in Thailand. The survey was conducted by interviewing private landing site owners, managers of fishery wholesale markets managed by a government enterprise, managers of fishery wholesale markets managed by fishery cooperatives, middlemen, and fishers. The results of interviews were summarized with respect to scale of business, fisheries, transaction, types of people associated with landing sites, location, and daily schedule. Landing sites were located along canals in coastal provinces. The scale of businesses was variable, depending on the type of middlemen; local retailers, processing factories, export companies, etc. We visited landing sites for commercial fishing boats. The main fishing boat types were trawlers and purse seiners. The most common characteristic in the operation of private landing sites was the reliance of almost all transactions on individual relationships between fishers, landing site owners, and middlemen. Private landing sites were essential for fishers to land fish near fishing grounds and played the role of wholesaler for middlemen to acquire fishery products as per amounts and species needed. The management system of landing sites and fishery wholesale markets is now in the transition period in Thailand.

Key words : Landing site, Fisheries wholesale market, Thailand

Introduction

Thailand is an important fisheries nation in the world pertaining to its fishing industry. Japan imports many fishery products (e.g., shrimps, squids, tunas) from Thailand (Japan Fisheries Agency, 2013). To assure the safety of products with stable prices for consumers, it is important to know the characteristics of the operation system of landing sites as the starting point in fishery products flow. Landing sites can be categorized into three types: those managed by private owners; those organized by the Fish Marketing Organization (FMO), a state enterprise under the Ministry of Agriculture and cooperatives; and those managed by local governments. Among these types, we focused on private landing sites because the volume of fish catches landed in Thailand was 1,719,628 tons in 2012 (FAO, 2014), whereas the total volume of trade of fish through the FMO was only 48,435 tons that same year (FMO, 2014). Furthermore, part of the fishery products landed at private landing sites was transported to the FMO and sold. Thus it can be said that most fishery products are transported through private landing sites. As a case study, we visited landing sites to understand

their operation systems and interviewed people associated with these sites. We also surveyed fish wholesale markets without landing sites, including the Bangkok fish market and the Maeklong fishery cooperative, to understand the fisheries products flow.

Materials and Methods

The surveys were conducted by interviewing for 4 private landing site owners in Samut Prakan, Sattahip, and Pran Buri. The interviews focused on four topics: (a) scale of business (amount of fishery products handled, number of middlemen, location, and time of opening of the landing site); (b) fisheries such as product amount and gear type of boat landed; (c) transaction such as deciding price and products flow; (d) people (Background of people working at the landing site); (e) location of landing site, and (f) daily schedule (when fishers contact the landing site owner and middlemen and the time of transaction). In addition to private landing sites, surveys were also conducted at the FMO's wholesale markets in Bangkok, Samut Sakhon, and the Phuket and Maeklong fishery cooperative in Samut Songkh-

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Table 1. Survey schedule by type of landing site.

Type of landing site	Place	Date
1.1 Private market	Samut Prakan	June 21, 2012
1.2 Private market	Samut Prakan	June 22, 2012
1.3 Private market	Sattahip	January 28, 2013
1.4 Private market	Pranburi	January 28, 2013
2.1 FMO fish market	Bangkok	June 25, 2012
2.2 FMO fish market	Samut Sakhon	June 28, 2012
2.3 FMO fish market	Phuket	August 5, 2013
3.1 Local government	Si Racha	January 13, 2013
3.2 Local government	Sattahip	January 13, 2013
3.3 Local government	Hua Hin	January 31, 2013
4. Maeklong fisheries cooperative market	Samut Songkhram	June 28, 2012

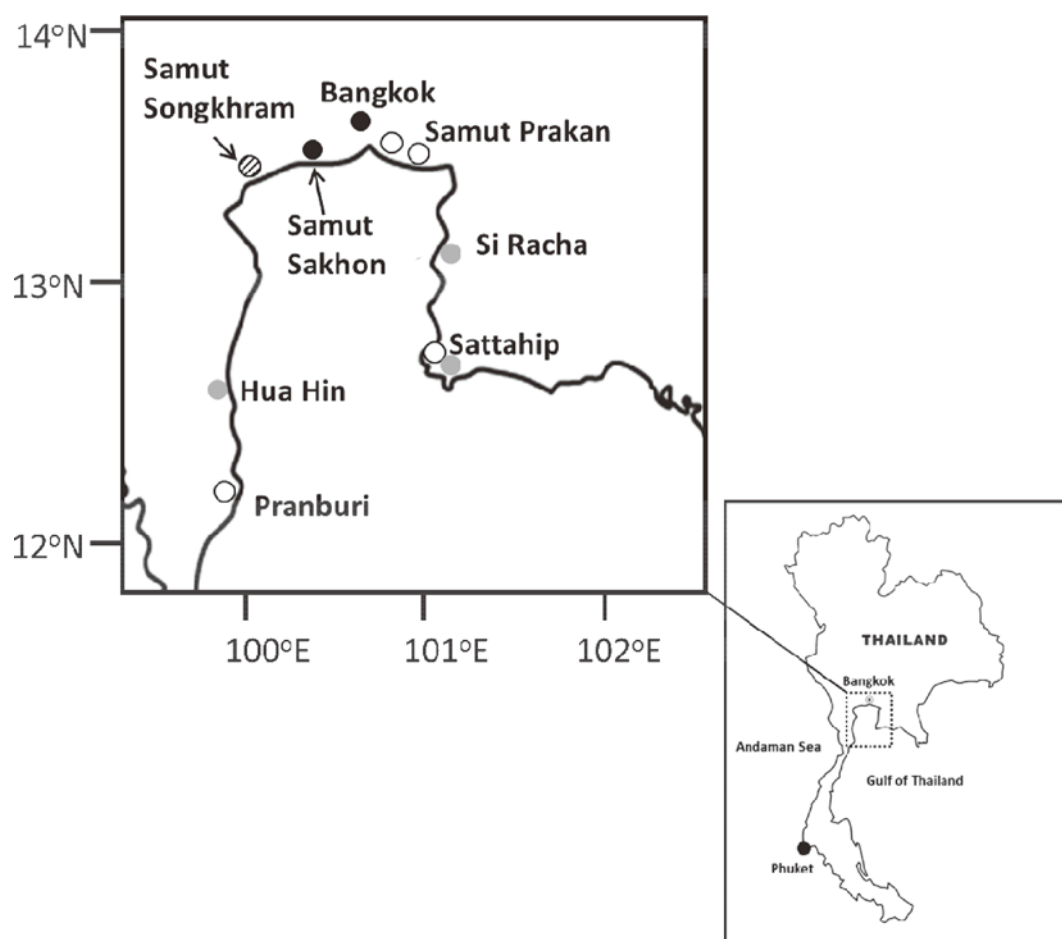


Fig. 1. Map of landing sites and wholesale markets.
 ○ Landing site managed by private owner
 ● Landing site and wholesale market managed by FMO
 ● Landing site managed by local government
 ⊗ Wholesale market managed by Fishery Cooperative

ram by interviewing the managers and middlemen there. At these sites, the interviews focused on three topics : (A) background of establishment, (B) transaction, and (C) product

flow. Among landing sites owned by local governments, three sites were surveyed at Si Racha, Bang Sarai, and Samut Songkhram.

The study was conducted at 11 sites between 2012 and 2013 (Table 1). Figure 1 shows the locations of the landing sites. In this report, the word “middleman” denotes a customer who came to a landing site to obtain fishery products from the landing site owners or fishers. For private landing site 1.4, there was only limited information because of a limited schedule.

Results

Table 2 shows the results of interviews of private landing site owners, focusing on four topics : (a)-(d). Topics (e) and (f) and other types of landing site and wholesale market are mentioned in the sections following the aforementioned topics.

Private landing site

(a) Scale of business

The scale of business varied depending on the site (Table 2). The owners of landing sites 1.1, 1.2, and 1.3 were local people. Most landing site's owners were originally fishers and continued to fish after they opened a landing site. At site 1.3, the owner's grandfather was originally fisher in Samut Songkhram. Many fishers in Samut Songkhram landed at Sattahip because its location near the fishing ground is favorable for landing and obtaining water and ice. Then

the owner's grandfather had started a landing business here 80 years earlier.

Workers were employed by landing site for sorting fish. Their working time depended on the amount landed. When a boat did not land or after sorting, they worked at processing factory operated by the landing site owner. The number of middlemen was not correlated with the amount landed. Most middlemen at site 1.1 were retailers ; they bought fishery products, processed them at their homes, and sold them in their small shops. At site 1.2, there was a middleman who was employed by a company bought fishery products and transported them to Malaysia for sale at company's shop in large supermarket. His company has many buyers like him at several sites near the landing site. At site 1.3, there were middlemen who processed and exported.

(b) Fisheries

The landing sites we visited in this study were for commercial fishing boats. Fishery products were landed by trawlers and purse seiners boats. There were boats for transportation from the fishing ground to the landing site. As these boats transport fishery products, fishers can continue fishing in the ocean. At every landing site, many species were landed (Table 2). Indian mackerel, king mackerel, short mackerel, and squid are representative economic species in Thailand. In particular, short mackerel is familiar as *pla thu* in

Table 2. Result of interviews (a)-(d) of private landing-site owners.

Type of landing site		Private 1.1	Private 1.2	Private 1.3	Private 1.4
(a) Scale of business	Operation period (year)	30	10	80	23
	Amount (tons/year)	45,000	72,000	ND	16,200
	Number of staff	25	50	30	3 (only accounting)
	Number of middlemen	20	10	ND	15
(b) Fisheries	Gear	pair trawler	purse seiner	pair trawler	purse seiner, otter board rawler
	Main species	King mackerel Short mackerel Squid Octopus Catfish Croaker	Indian mackerel Short mackerel Thread fin bream Barracuda Neritic tuna Hair-tail fish	Indian mackerel Threadfin bream Purple spotted big-eye Anchovy Lizard fish Goat fish Hair-tail fish	—
	Boat length (m)	30-40	20-25	30-40	14-25
	Type of transaction	negotiation and auction	negotiation and auction	negotiation	landing site owner decides
(c) Transaction	Main source of income	commission from middleman	sales to middleman	transportation supply of ice and water	sales to middleman
	The requirement for open landing site	Procedure for establishing a private company			
(d) People	Landing site owner, fishers, middlemen, workers, owners of mobile food stalls				

Thailand. Salted and deep-fried fishery products are commonly sold in all markets.

(c) Transaction

There were 2 types of transaction. In one, the landing site owner bought all products from the fishers, then the owner sold middlemen. In the other, middleman bought products from fishers and middleman or fishers paid a commission to the landing site owners. Thus, private landing site owners occasionally played the role of wholesalers after acquiring fishery products from fishers. Dealing with fishery products at the wholesale markets was freely conducted and occurred by a negotiation between middlemen and wholesalers. If the fishers had received a loan from the landing site owner, the fishers must agree to sell at the price set by the owner. If the fishers had not received a loan, they could negotiate with the owner. Each site transaction was supported by individual connections among fishers, landing site owners, and middlemen.

At landing site 1.3, the only income was from transportation to wholesale markets such as the Maeklong fishery market in central Thailand and from supplying water and ice. At other landing sites, boat owners themselves contacted ice manufacturers for their next fishing trip. Private landing sites had belt conveyors to unload ice.

(d) People

The landing site owners, fishers, middlemen, and workers were associated with a landing site. To become a landing site owner, a prospective owner needed to establish a private company. To do so, they must submit an application to the Central Business Registration Division at Department of Business Development. The contents of the application are shown in Table 3. Owners must pay a usage fee tax to the Marine Department at the local government office. Fishers must register their fishing boats at the Marine Department and fishing gear at the Department of Fisheries. Middlemen do not need licenses at the private landing sites. At landing site 1.1, all workers were Thai and relatives of the landing site owner. At the other landing sites, most workers were Burmese or Cambodian. Mobile food stalls came to landing sites to sell food, drinks and sweets to middlemen waiting for

boats and to fishers after finishing their work.

(e) Location

A landing site consisted of a landing space for boats, a transaction spaces, and a parking lot for middlemen. A landing space was like a back yard of the owner's house, located along the canal (Fig. 2). The depth of the canal was a criterion for the establishment of many landing sites.

(f) Daily schedule

A boat owner contacted the landing site owner by cell phone or radio to report the species and quantity usually by around 2 : 00 A.M. The middlemen contacted to the landing site owner around 6 : 00 AM to request the fishery products they wanted. The products were landed by the fishing boats starting around 7 : 00 AM. Transactions began around 8 : 30AM and finished around noon. When no boats landed fish, the landing site owner contacted middlemen at other landing sites to supply fisheries products to the site owner's customers.

The FMO

The FMO is a state enterprise under the Ministry of Agriculture and Cooperatives, which was established in 1953. It was established to maintain and promote prosperity. It man-



Fig. 2. Landing area at Private landing site 1.1.



Fig. 3. Sorting area at private landing site 1.2.

Table 3. Information needed in application to establish a private company in Thailand.

1	Name of company
2	Purpose of establishment
3	Place of main office and branch
4	Owner's age, nationality, occupation and address
5	List of assets
6	Range of responsibility of co-manager
7	Company seal

ages 4 fish markets without landing sites (Bangkok, Samut-sakhon, Samutprakan, and Nakhon Si Thammarat) and 14 fish markets with landing sites (Ang-Sila, Ranong, Hua-Hin, Songkhla I, Songkhla II, Pran Buri, Trat, Surat Thani, Pattani, Lungsuan, Phuket, Satun, Chumphon, and Narathiwat) (FMO, 2010). They record information about fish species, volume, value, and landing site. The FMO publish fisheries records every year. The information gathered by the FMO is sent to the Department of Fisheries (DOF) for fishery management.

Bangkok fish market

(A) Background

The Bangkok fish market was established in 1953, lies on the Chao Phraya River in Yanawa. It is a representative FMO wholesale market without a landing site. Until about 10 years ago, fishing boats directly landed here directly from the river side, but now all products are carried by truck, as the road infrastructure has developed.

(B) Product flow

The middlemen carry fishery products from local markets or landing sites by truck. They must declare their company's name, landing site, species, and total volume of their products to the FMO staff at the entrance of the markets. After that, the products are carried to the transaction space of the middle-wholesaler's company (Fig. 4). One middle-wholesaler's company has around three staff members in charge of negotiation for transactions, receiving calls and recording data. Most customers are retailers, factory owners, and restaurant owner. The ordinary consumer can also buy products, in quantities greater than 5 kg.

(C) Transaction

The most common transactions are carried out in a negotiation style ; however there is an auction for some aquaculture products such as shrimp, crab, and freshwater fish. Marine products were transacted from 1 : 00 AM, and aquaculture products were from 3 : 00 AM. Payment was by cash or credit. The FMO officer checked the middleman's compa-



Fig. 4. Middle-wholesaler's space in FMO fish market in Bangkok.

ny's products to confirm if their report was correct. The FMO was not involved in the transaction ; but only in data recording and inspection.

Samut Sakhon fish market

(A) Background

Samut Sakhon fish market was established in 1968 on the Tha Chin river in Samut Sakhon. It is a representative wholesale market with a landing site. Commercial fishing boats land at this site. Usually, 5 trawlers and 10 purse seiners land at this port per a day. There were 15 purse seiners on the interview day.

(B) Product flow

Products were carried by boat or truck. Before the arrival of the boat, middleman contacted fisherman directly and decided on the number of sorting workers. Most products carried to this site were transported to Talay Thai Market, a large new wholesale market nearby. And there were products carried to the FMO Bangkok fish market.

(C) Transaction

The market was open from 6 : 00 AM to noon. The transaction style was negotiation only. There was a strong connection between the boat owners and middlemen. Most boat owners sold to the same middleman. A middleman bought all products from one boat. The payment was in cash. There was no fixed place for middle wholesaler companies.

Phuket fishing port

(A) Background

The Phuket fishing port was established in 1978 along the Tha Chin river on the Andaman seacoast. The port covers 148.4 acres. It is located on Sri Suthat Road, Muang district, 2 km from Phuket City center and 30 km from Phuket International Airport. The objective of establishment was to solve the conflict about landing place and fish distribution among local fishers. The wharf, 860 meters long and separated into 5 landing sites providing services for local fishing boats, an electronic auction system, frozen fish transshipment, tuna long-liners and tourist boats. Phuket fishing port is a tuna longliner hub in the region. Thus, it is a useful landing site for not only local but also foreign fishing boats. There was huge parking area (Fig. 5).

(B) Product flow

The major types of fishing boats landing were trawlers, luring light squid boats, purse seiners, and tuna longliners. After landing, there were 2 types of products sorted and unsorted. Sorted products were distributed to local markets and Malaysia. Unsorted products were transported to other provinces such as Ranong because the landing costs in Phuket are cheaper.

(C) Transaction

The fishing boats land between 8 : 00 and 10 : 30



Fig. 5. Sorting area at FMO landing site in Phuket.

AM. Middlemen decide the products price depending on their quality. There is an electronic auction system. Payment is in cash and credit. Products are distributed to Phuket, Samut Sakhon, Krabi, Bangkok, and Hatyai and exported to Japan and Taiwan.

3.1-3.3 Landing site owned by local government

At these sites, the lands were just owned by local governments. Actually local government did not touch management and transaction. There were no buildings or managers. Everyone could use these landing sites without paying a fee. Fishers contacted middlemen directly. They landed their boats and sorted the fish by themselves, then middlemen arrived and transaction were completed by negotiation between fishers and middlemen. There were auctions only when several middlemen wanted the same products. The boat owners supplied their own water and ice.

Maeklong fishery cooperative

(A) Background

Fishers in Samut Songkhram formed a fishers's group for group purchasing to buy fuel cheaply in 1975 when the first oil shock occurred. It became the Maeklong fisheries cooperative with 154 members in 1981. Now, it is a very large cooperative pertaining to their stock and business scale in Thailand (Yamao, 1999). Maeklong Fish market is promoted from the Interior Tread Department, Ministry of commercial, availability services more than 100 fishery trucks per day. The motto of the cooperative is "Take care of both the sea and fishermen". It is also name of their publication. It said that history of Maeklong Fisheries cooperative was such as below.

1975...Maeklong fishermen group has been registered

1981...Fishery Cooperative was registered, 491,370 baht in share capital, continuously provided oil and the other necessary to members.

1989...Maeklong Fishery Cooperative operated the fish market by rent the building from Samut Songkhram



Fig. 6. Transaction site in Maeklong fisheries cooperative.

Governor.

1995...The fish market business was widely known, it created new fish market in the amount of 24 million baht (approximately 72 million yen) by themselves.

(B) Product flow

The fishers or middlemen transported fishery products from local markets or landing sites in various provinces in Thailand by cold-storage truck. There was an intermediate wholesaler's space in the market (Fig. 6). The truck directly enter each intermediate space, and products were unloaded. The fishers or middlemen hire 20 workers to unload one truck. The workers were paid 100 baht (approximately 300 yen) for 3 hours. There were 13 intermediate wholesaler companies selling marine products and 2 wholesaler companies selling freshwater aquaculture products. Each company has 100 workers for sorting. They wore different colored shirts depending on their company. Most workers were Burmese.

(C) Transaction

The products were carried to market and sorted starting at 2 : 30 AM. There was an announcement for cleaning at 3 : 55 AM. Transactions with retailers or restaurant owners started at 4 : 00 AM. Transactions with companies purchasing large amount of products, such as processing factories or exporting companies, started at 5 : 00 AM. The reason for having two sale times is that retailers or restaurant owners need high-quality products and must check them well and buy in the early morning before opening their shops, whereas processing factories or exporting companies focus on large amounts of products and not on quality. Intermediate wholesalers must obtain a license from the cooperative. The intermediate wholesalers' income is a 4.1% commission fee. They pay 170 baht per day to the cooperative as user fees for water, lighting and market maintenance.

Conclusion

In this study, the role of private landing sites in Thailand

were summarized as follows.

The role of private landing sites

In this study, it was clear that several private landing sites supported the fish flow in Thailand. As mentioned above in the Results section, there were only 14 FMO landing sites in Thailand. In areas without FMO's landing sites, most fishers used private landing sites. The fishery products were transported from local private landing sites to large commercial wholesale markets such as the Bangkok or Maeklong fish markets by middlemen (Fig. 7).

This system is useful not only for fishers to reduce on transportation costs but for consumers to obtain fresh fisheries products by rapid landing. Thus, private landing sites play a large role in connecting between fishers and transporters. Local restaurant owners or retailers can buy products in small amounts. Private landing sites create employment not only for sorting workers but also for local people. They contribute to regional vitalization as a place where people gather.

Price of fishery products

At landing site 1.1, there were negotiation and auction between fishers and middlemen. At landing site 1.2 and the FMO market, there were negotiations and auctions between middle-wholesalers and middlemen. At landing site 1.3, the private landing site owner did not take part in any transactions ; therefore, the middlemen decided prices or there were

negotiations between fishers and middlemen. At landing site 1.4, prices were set by the private landing site owner. Who did decide the price was different depending on the landing site. There were fishers who had received loans from the landing site owner at private landing site 1.1. In that case, fishers could not land in another landing site and the fishery product price was controlled by the wholesaler. Variation in the price of fishery products is small because fish species are similar through the year and do not differ by area in Thailand. Therefore, it is difficult to assign added value to seasonal, special fish. In Japan, the fishery cooperative system was promoted by government and fisher leaders in 1933 in order to develop the economics of fisher villages (Yamamoto, 2012). This allowed fishers to have selling power over fishery products collected by fishery cooperative associations. Most products are distributed through the local wholesale market and consumption-area markets. In the process, a suitable price is usually decided by auction with dealers. Usually, dealers belong to the fisheries company entrusted with the services by the local government. It might not be appropriate to introduce this system directly to a large number of private landing sites in Thailand. In fact, there were fishers who had received loans from landing site owners. Some of these fishers said that the product's price was enough for them and others said that it was too low. The price depended on the relationship between fishers and landing site owners. Thus, some third institution setting standard prices for fishery products would be needed for fish-

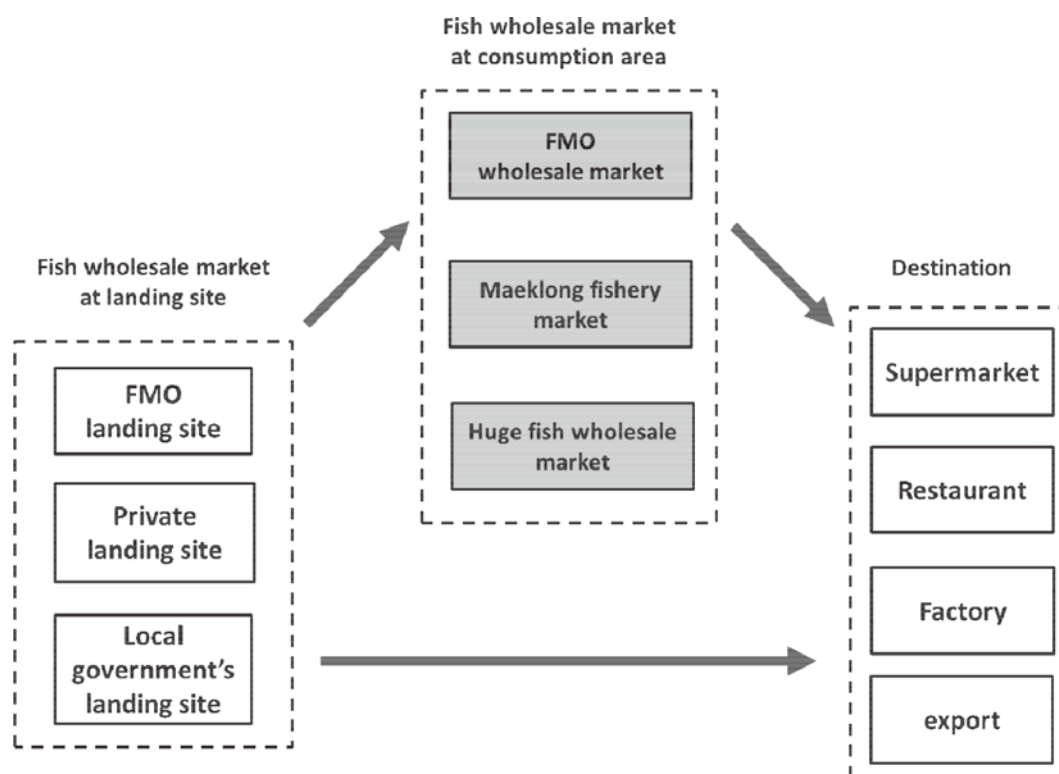


Fig. 7. Fisheries products flow from landing site.

ers to operate sustainably in the future. In Thailand there are several banks under the government, such as the BAAC (Bank for Agriculture and Agricultural Cooperatives). However, people still tend to rely on other people or local community groups when they need to borrow money because of the ease of the procedure. In this sense, private landing site owners play the role of local banks without complex documents.

Sanitation

Private landing sites were mostly cleaned well as part of houses or to attract customers, and site such as the new FMO landing sites in Phuket and the Maeklong fishery market were cleaned well. Of course, the situation was different depending on the period of use, but the Thai government has been promoting sanitation in these wet wholesale markets. Managers at the Maeklong fishery market had visited Japan to learn about improving sanitation. The Phuket landing site introduced a modern sanitation system. Landing sites owned by local governments and used by everyone were not clean. From private landing site 1.3 to the large wholesale market in central Thailand, fishery products were transported by refrigerator truck, but at other private landing sites, there were many vans carrying fishery products chilled with salt and ice. The middlemen were not only local people but also middlemen from other province who had to transport for more than 1 night. Originally, Thai people did not eat raw fish. Most fish dishes were fried, grilled, salted, or dried. So they did not place great importance on the freshness of fish. However, their food preferences have changed. If the number of refrigerator or freezer tracks increases, it will promote the development of new markets. The people's awareness of sanitary conditions for handling fishery products is in a transition stage.

Fisheries

Between 2012 and 2013, many fishers reduced the numbers of their boats in Thailand. The main reasons for this were decreasing fisheries resources, high fuel prices, and difficulty of finding workers. As the economy continues to develop, young Thai people do not want to be fishers. Therefore, many of the workers on boats were now from neighboring countries, including Burma (Myanmar), Laos and Cambodia. Furthermore it is difficult to keep employing them because of the complex political situations in these countries.

With respect to statistical data, the FMO market recorded the species, amount, and value of products, and sent this infor-

mation to the DOF, but private landing site owners are not required to report such information to the DOF. However, fishery products landed in private landing site were distributed not only to the FMO markets, but also to exporters, retailers, or factories as shown in Fig. 7. To determine the real catch amount, it is essential that fisherman's cooperatives independently record catches and report them to the DOF. A research institutes under the DOF has, for over 40 years, kept fishery products sampling data including species, amount, and length of each fish at some landing sites, and have used these data to estimate resources. Continuing such survey is very important for fishery management. Unfortunately, in Thailand most strategies are implemented depending on projects lasting for periods limited to 5 years owing to the politics at that time. If daily landing data for fishery products from all private landing sites are recorded for a long time in Thailand, they will be useful for fishery management in the future.

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