

## **Marketing Appraisal of Aquatic Production Peri-urban Systems in Phnom Penh (Cambodia)**

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## **Glossary**

### **Acronyms and terms**

INCO : International Scientific Cooperation Projects  
PAPUSA : Production in Aquatic Peri-urban Systems in Southeast Asia  
RUA : Royal University of Agriculture

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## **Summary**

Peri-urban areas of Phnom Penh city, the capital of Cambodia, are very important sites for producing and supplying food produced from agriculture. The numerous aquatic food production sites located around peri-urban wetlands are one of the most important locations for cultivating aquatic plants and fish for the city and other areas of Cambodia.

This Marketing Assessment of Aquatic Production in Peri-urban Systems in Phnom Penh, Cambodia is primarily concerned with fish (Pangasius, clarius catfish and Big snakehead) and aquatic vegetables/plants (morning glory and water mimosa) which are frequently sold in the markets of Phnom Penh. The overall objective of this study is to better understand the marketing of peri-urban aquatic food products in Phnom Penh as well as the roles and activities of those people involved in it.

The Market survey was conducted between 21st July to the 5th September 2003 by using two questionnaires (see Appendix) one for all market traders eg wholesalers, retailers, and those who transport and sell the aquatic produce, and another questionnaire for consumers. In total 233 people were interviewed consisting of wholesalers/collectors, producers/wholesalers, retailers, and consumers. For the purposes of our study Phnom Penh's 13 markets were divided up into 4 levels.

The findings from our survey concluded that the commonest age range of the actors involved was 16-45 years old. It is mostly females who dominate the different activities within the markets, with a smaller proportion of males who mainly are involved in transportation. Besides consumers, half of the market actors we surveyed have been involved in working in/with the markets for between 1-5 years.

Wholesalers buy both fish and aquatic plants from producers and they sell to retailers, who then make them available to consumers. Besides selling to wholesalers collectors and retailers the producers also sell directly to consumers.

The majority of fish are sold fresh (alive) with a smaller amount sold dead. Transportation costs of sending products to the markets are higher for fish than for aquatic plants. The main problems which are encountered by all market actors are small profits, price fluctuation, and health. In addition, necessary recommendations from sellers are that the government actively looks for infrastructure improvement of the market, lower tax security and improved market/trading facilities.

## **I. Introduction**

### **1.1. Background**

This report is based on a marketing appraisal of aquatic production peri-urban systems in Phnom Penh (Cambodia). This research is part of Work Package1 of the PAPUSSA project, which is funded by The European Union (EU).

### **1.2. Objectives**

The overall objective of this study is to understand the market systems of peri-urban aquatic food production in Phnom Penh. Sub-objectives are as below:

- To understand the types of aquatic products which are frequently sold in markets
- To understand general information about market actors such as occupation, age, and experience/longevity in trading.
- To understand market structure or channels for selling aquatic products
- To understand markets administration relating to aquatic products
- To understand problems and recommendations addressed by market actors.

### **1.3. Kinds of products**

Marketing appraisal was focused on aquatic animals and aquatic plants from the peri urban area, which have been sold in the Phnom Penh's markets. The aquatic animals are made up of many categories, however the more frequently sold aquatic products sold in Phnom Penh's markets include fish such as pangasius, clarias catfish, and big snakehead and the aquatic plants primarily morning glory, and water mimosa.

### **1.4. Description of Market levels and locations**

In our study, 13 markets were selected which were divided into 4 levels depending on size, product sold of each market and also marketing structure.

#### **1.4.1. Market level 1**

Market level 1 are local markets which sell either Aquatic plants or fish close to the location where they are produced. Thus market locations were selected as below:

##### **a) Boeung Cheung Ek.**

Boeung Cheung Ek in Dangkor District, Phnom Penh, is a widespread area producing and selling aquatic plants such as morning glory and mimosa. Traders often sell the plants in front of their houses or close to where the harvesting from the lake takes place to wholesalers and collectors. However some producers bring their produce directly to sell in other markets.

##### **b) Boeung Kok**

Boeung Kok is an area located close to the center of Phnom Penh which produces and sells fish such as Pangasius. Normally the fish are raised in waste water from Phnom Penh city. These fish farmers always sell their fish directly from their farms or houses to wholesalers and middlemen/collectors from Phnom Penh as well as other provinces. Generally most of their fish production is sold outside of the city to the provinces such as Kompong Speu, Kampong Cham, Takeo and so on.

#### **c) Prek Phnauv**

In Prek Phnauv there are two locations for the markets. Fish farms produce and sell pangasius, walking catfish, and big snakehead. They generally sell these fish at their farms to collectors/middlemen, whilst some producers also take them to another nearby market close to the Tonle Sap river. Collectors who transport the fish also trade in local wild caught fish as well as fish originating from the provinces outside Phnom Penh. Prek Phnauv is located in peri-urban Phnom Penh, Prek Phnauv commune, Por Ngieieu district, Kandal province.

#### **d) Chba Ampov**

Normally middlemen/collectors obtain fish from both fish culture and the wild and take them to this market which is similar to Prek Phnauv above. This market is located in Sangkat Chba Ampov, Khan Mean Choeuy, Phnom Penh.

### **1.4.2. Market level 2**

Market Level 2 consist of medium sized markets: 3 markets were selected as following:

#### **a) Orussey**

Orussey market is located in the centre of Phnom Penh and sells both aquatic plants and fish. Here retailers sell products directly to consumers with some of the retailers also being involved in producing the fish or plants as well.

#### **b) Demkor**

Demkor market also sells both aquatic plants and fish. It is located in Sangkat Demkor, Khan Toul Kok, west of Phnom Penh city close to aquatic vegetable farming areas. Here there are many market actors such as producers, wholesalers, collectors, retailers and consumers. The market is popular for wholesalers where most kind of fresh vegetables and fruits are gathered there.

#### **c) Kandal**

Kandal is similar to Orussey market in selling both aquatic plants and fish also. It is located in Sangkat Phsa Kandal, Khan Daun Penh, Phnom Penh close to the Royal Palace.

### **1.4.3. Market level 3**

Market level 3 is smaller/lower in scale than market levels 2 and 1 above. Fish and aquatic plants are sold in these more district level markets. Retailers and consumers play an important role in each markets – 3 markets were selected at this level:

- a) Chash:** : located in Sangkat Phsa Chash, Khan Daun Penh, Phnom Penh, close to center of the city.
- b) Toul Tompoung:** : located in Sangkat Toul Tompong II, Kan Chamkarmon, Phnom Penh. It is about half way from the aquatic plant farming areas and the center of city.
- c) Sammaki:** : located in Sangkat Tektla I, Khan Toul Kok, Phnom Penh, about 2 kms northwest of the city.  
*(see map or location of markets in Figure 1)*



#### 1.4.4. Market level 4

Market level 4 are small street markets where both fish and aquatic plants are sold. Quantities of products sold are smaller since it is all individual household consumers who are buying. 3 markets were selected:

- a) **Kilo Lekbuon**: located in Sangkat Tek Sloak II, Khan Toul Kok, west of the city
- b) **Kab Kor**: located in Sangkat Tonleu Basacc, Khan Chamkarmon, Phnom Penh
- c) **Moin Aing**: located in Sangkat Boeung Kork, Khan Toul Kork, Phnom Penh

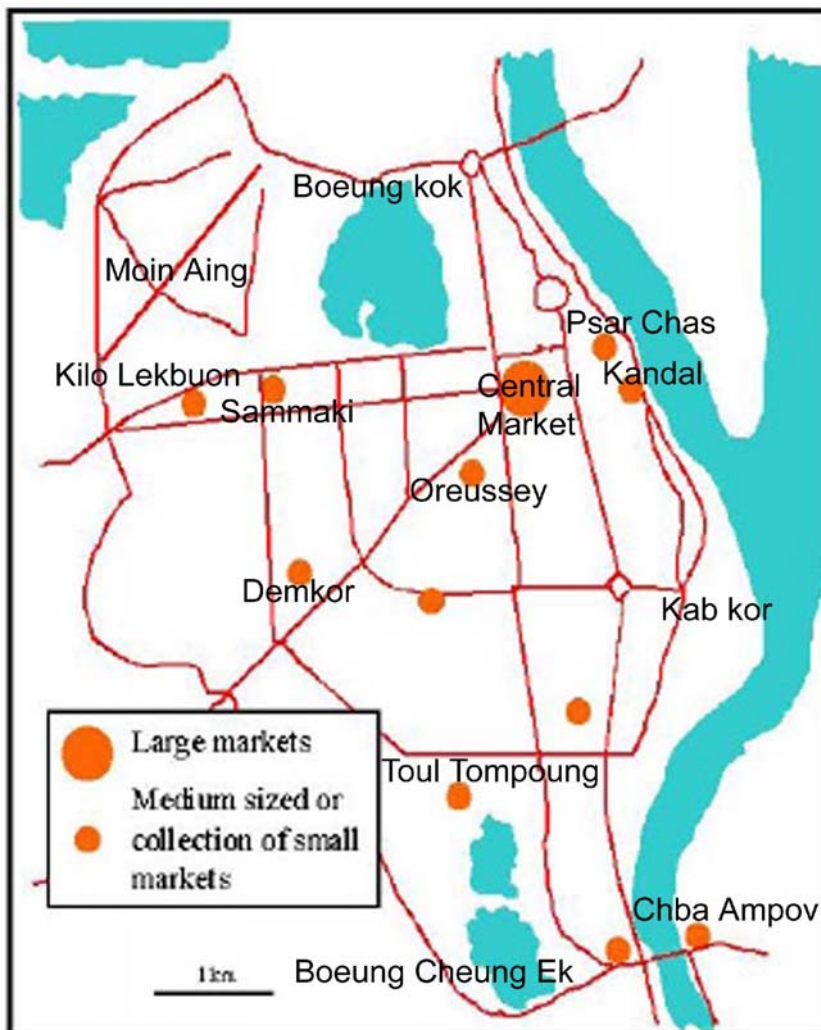


Figure 1.1. Map of location of market of aquatic products

## II. Methodology

The market survey was conducted at 4 market levels and consisted of 13 markets throughout Phnom Penh.

The market questionnaires were used to interview market actors consisting of wholesalers/collectors and wholesales/ producers, retailers and consumers who were involved in buying and selling of aquatic plant products (morning glory and mimosa) and aquatic animal products (Pangasius, clarias catfish and big snakehead fish).

The following numbers of persons were interviewed in the market survey:-

- **Market level 1** had 54 interviewees: 24 interviewees of Boeung Cheung Ek, 12 interviewees of Boeung Kok, 5 interviewees of Chba Ampov, and 13 interviewees of Prek Phnov.
- **Market level 2** had 72 interviewees: 16 interviewees of Orussey market, 36 interviewees of Demkor market, and 20 interviewees of Kandal market.
- **Market level 3** had 59 interviewees: 20 interviewees of Phsa Chash market, 17 interviewees of Toul Tompong, and 22 interviewees of Sammaki market
- **Market level 4** had 48 interviewees: 17 interviewees of Kilo Lekboug market, 15 interviewees of Kab Kour market, and 16 interviewees of Moin Aing

Therefore in **total 233 market actors** were interviewed.

**Table 2.1: Name of markets and number of interviewees**

<b>Market levels</b>	<b>Name of markets</b>	<b>Number of interviewees (<i>person</i>)</b>
Level 1	Boeung Cheung Ek	24
	Boeung Kok	12
	Chba Ampov	5
	Prek Phnov	13
Level 2	Oreussey	16
	Demkor	36
	Kandal	20
Level 3	Chash	21
	Toul Tompoung	17
	Sammaki	22
Level 4	Kilo Lekbuon	17
	Kab Kour	15
	Moin Aing	16
<b>Total</b>		<b>233</b>

## III. Data processing and analysis

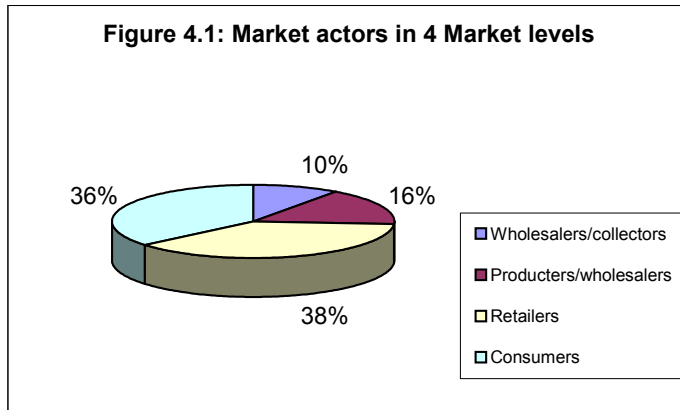
All data from the questionnaire were processed, entered and analyzed in Microsoft Excel program by using descriptive and cross tab statistics.

#### IV. Result

##### 4.1. General Information about market actors

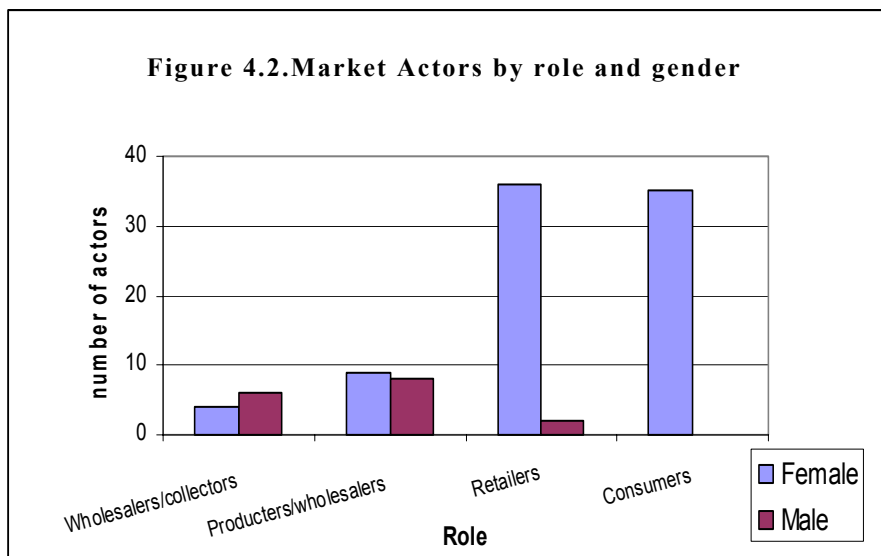
###### 4.1.1. Market actors interviewed

233 Market actors were interviewed of which 10% were wholesalers/collectors, 16% producers/wholesalers, 38% retailers and 36% consumers.



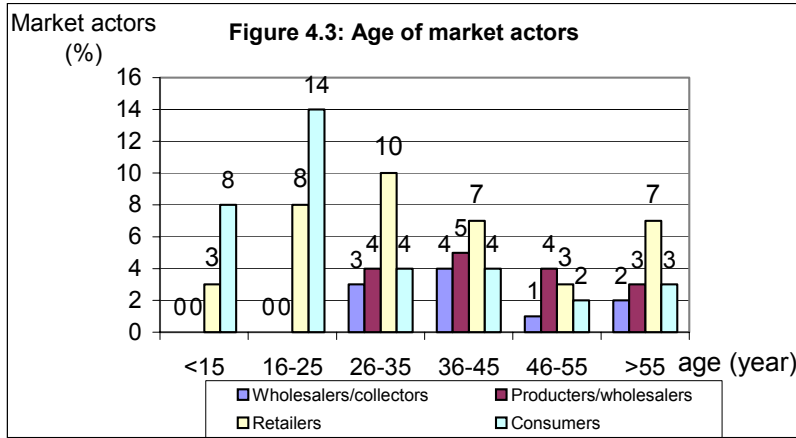
###### 4.1.2. Gender of market actors

Mostly it is women who are involved working in the markets. For instance consumers and most retailers are female compared to wholesalers/collectors and producers/wholesalers. Wholesalers/collectors and producers/wholesalers are more equally distributed between men and women.



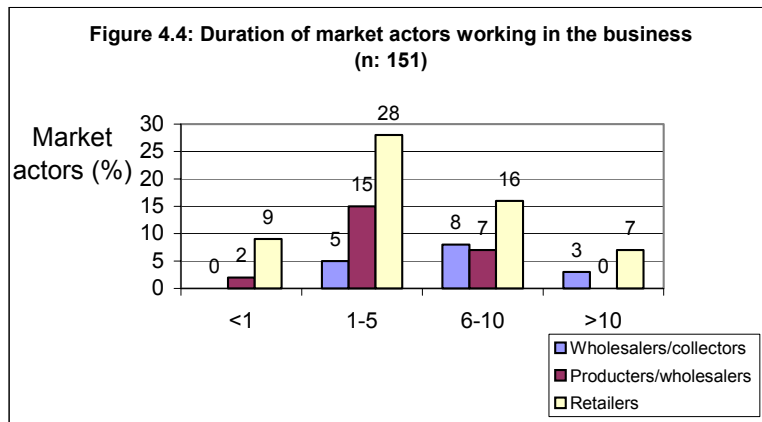
### 4.1.3. Age of market actors

Most people working in the market system range from 16-45 years old. Wholesalers are not less than 25 years old, but there some consumers and retailers



### 4.1.4. Experience of market actors working in the business

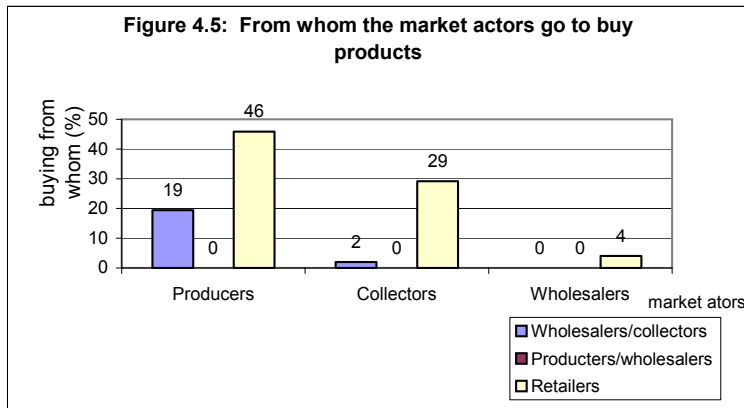
Other than consumers 151 market actors were interviewed. Most of them have been involved in the business from between 1-10 years. Most commonly retailers and producers/wholesalers have been involved in market trading from 1-5 years.



## 4.2. Market channels

### 4.2.1. Flows of goods within market actors

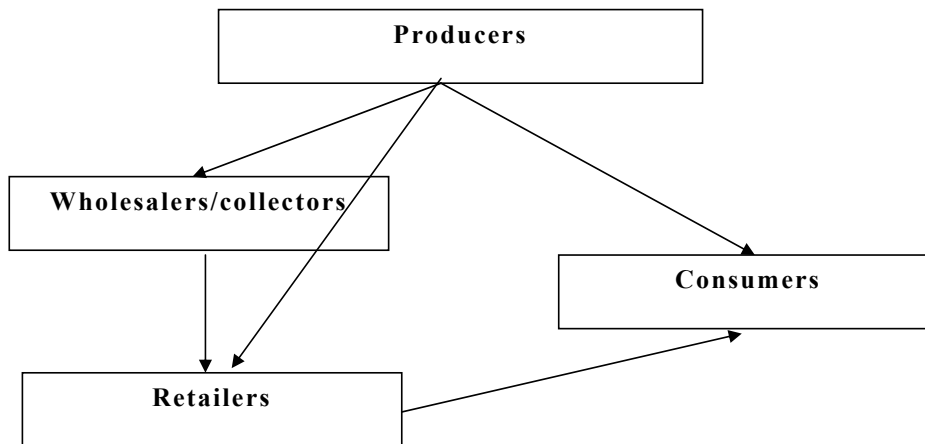
Most wholesalers/collectors buy their products from the producers/farmers themselves, but a small amount of wholesalers also buy from collectors who specialize in transporting goods. Retailers also buy directly from producers and collectors however they also go to buy small amounts from wholesalers.



#### 4.2.2. Buyers of market actors

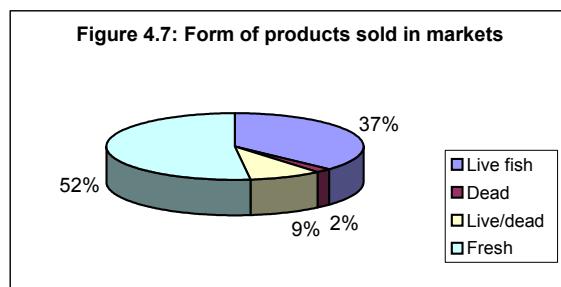
Normally retailers go to buy products from wholesalers and small amount of producers/wholesalers and sell these products directly to consumers. Moreover, consumers buy from producers too, because the products are grown nearby to their houses.

**Figure 4.6: Market channels – flows of aquatic produce**



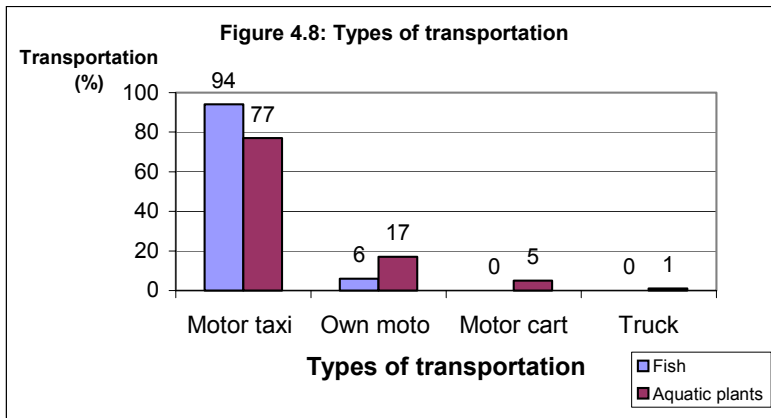
#### 4.3. Form of products

Most freshwater fish are sold live or freshly dead ( 90 % of market sales) in Phnom Penh markets.

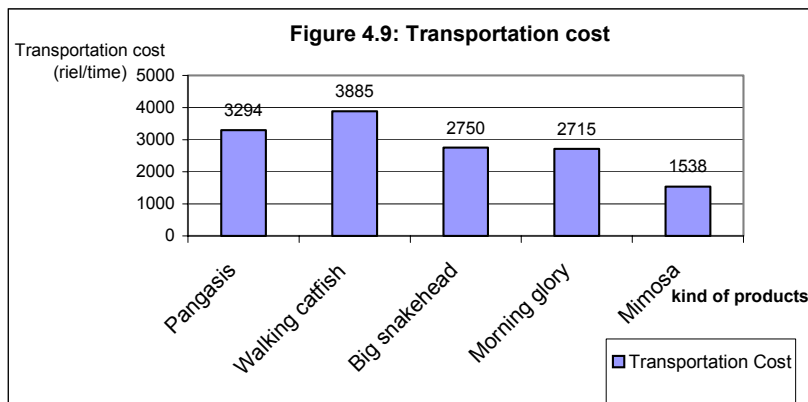


#### 4.4. Transportation

Most products are transported by motor bike taxi (94% for fish products and 77 % for vegetable products). There are 6% of collectors with their own motor bike to pick up the fish and 17% of those who own motor bikes to transport aquatic plant products especially morning glory. Motor cart and truck are found to be used only to transport aquatic plant products but not fish products.



Production areas for aquatic plants are not far from market places (5-6km). For fish products, Pangasius and walking catfish are cultivated about 9-10 km from market places, but big snakehead is grown closer to the markets at around 4 km. Transportation cost of pangasius and walking catfish is in the range of 3300-3900 riel/time, while it is about 2700-2750 riel/time for big snake head and morning glory, and about 1550 riel/time for mimosa.

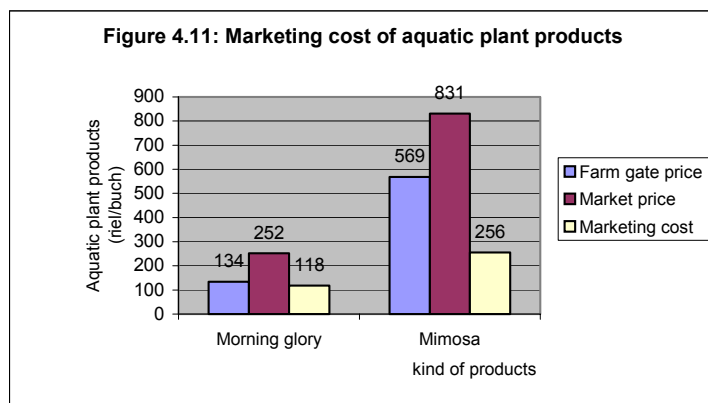
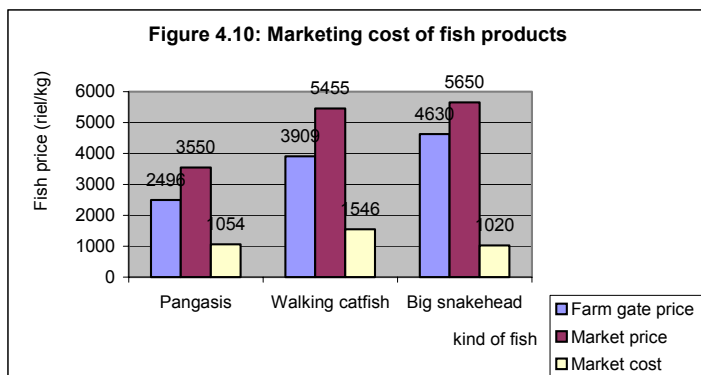


#### 4.5. Prices

For the fish products, snakehead have the highest prices but walking catfish have the highest mark up and pangasius have the lowest prices and mark up.

Water mimosa has a much higher price and also a higher mark up in riel than morning glory.

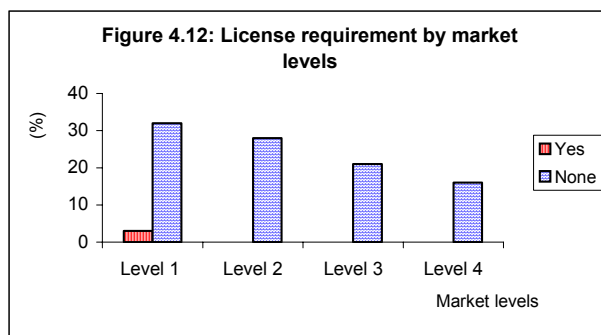
By comparing the mark up prices between fish and aquatic plants , fish have higher mark up (in riel) than aquatic plants – however the % increase compared to the original farm gate price between fish and plants are more similar ( 40-50%).

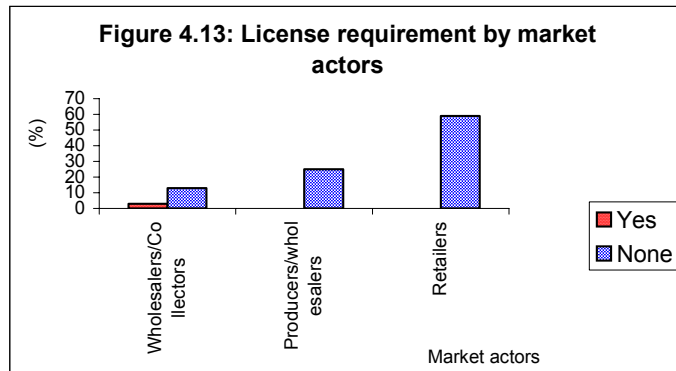


#### 4.6. Market administration

##### 4.6.1. License

Only 3 % out of the market actors we interviewed had licenses. These were wholesalers and collectors which were all at market level 1.

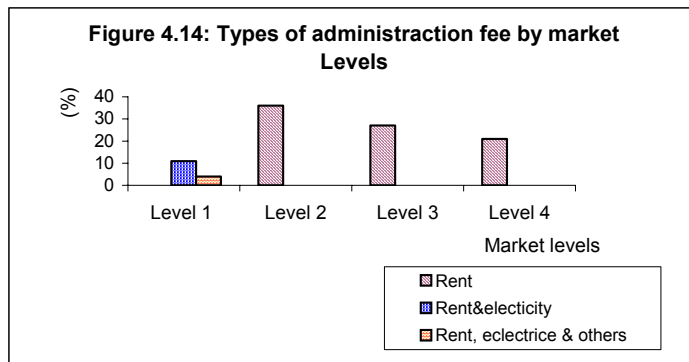




#### 4.6.2. Types of administration fee

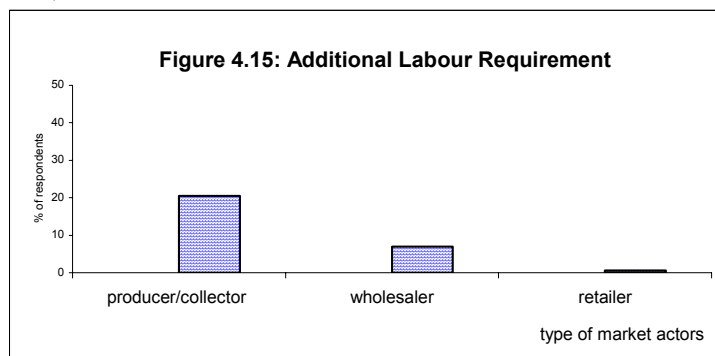
At market levels 1, 2 and 3, 84% of the sellers are paying rent for their places/selling space, at the market level 1 the sellers are in addition paying rent for electricity and other associated services – eg cleaning etc.

On a daily basis fee payment costs them in range 1000- 2000 riel/day for sanitation service and daily tax when their products sold in all market level.



#### 4.7. Requirement of additional labor

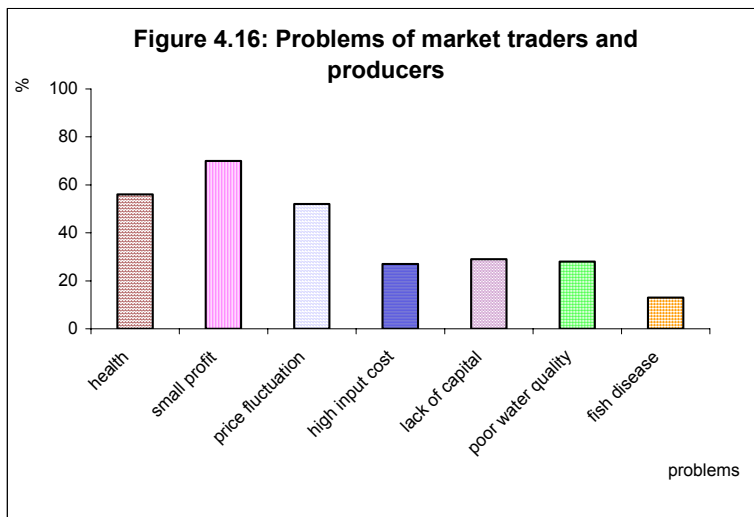
Wholesalers and producers require additional labor to help them (about 28 % of market actors). Producers require 21 % more additional labor for particular activities especially harvesting. Labor cost is in range 18,000- 70,000 riel/month with average of 30,000 riel/month.



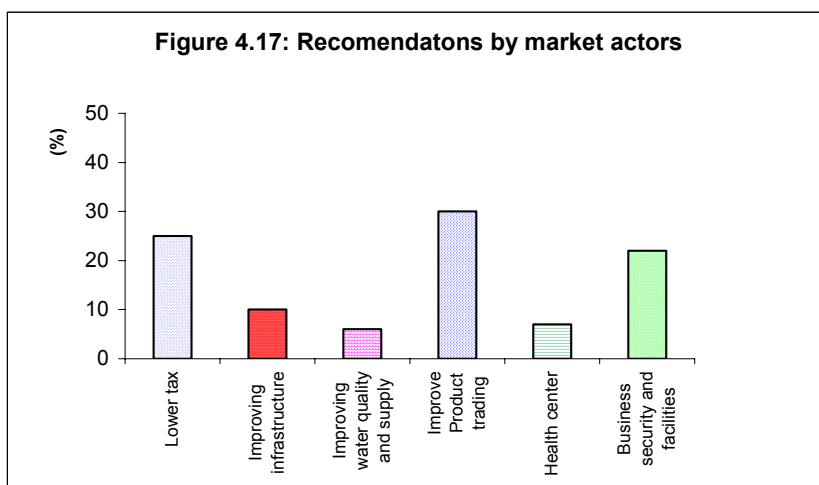


**4.8. Problems and recommendations addressed by market actors**

From our survey most traders are worried about the small profits (70% of all market traders), price fluctuation (52%) and health problem caused by bad environment (56%). Producers also have problems associated with technical aspects such as lack of aquaculture technique, fish disease, poor water quality, high input cost, no investment, insect damage, weather, theft, and with high land rent.



Necessary recommendations are to improve product trading conditions and lowering taxes because when they sell products in markets, they receive small profits.. Consequently, they make suggestion to government to find market for product trading and command to market governor to reduce tax and improve market place security and facilities.



## **V. Conclusions**

- Women were found mostly involved working in markets. Majority of them are retailers.
- Consumers and retailers were younger than wholesalers who were not less than 25 years old.
- Most commonly retailers and producers/wholesalers have been involved in market trading from 1-5 years.
- Normally retailers go to buy products from wholesalers and small amount of producers/wholesalers and sell these products directly to consumers. Moreover, consumers buy from producers too, because the products are grown nearby to their houses
- Most freshwater fish are sold live or freshly dead( 90 % of market sales) in Phnom Penh markets.
- Most of both fish and plant products are transported by motor bike taxi, only a few of them use their own motor bike and trucks were found only to be used with plant products.
- The farming/production sites are all located in peri-urban areas of a small city (Phnom Penh, distance from market to the production site range from about 5 to 10 km.
- By comparing the mark up prices between fish and aquatic plants , fish have higher mark up (in riels) than aquatic plants – however % increase compared to the original farm gate price between fish and plants are more similar ( 40-50%).
- Main problems for those involved are small profits, price fluctuation, and health affected by bad environment. In addition, necessary recommendations are product trading improvement, lowering tax and also improvements in market place security and facilities.

## **VI. Recommendations**

- The government ie the Ministry of commerce should intervene and help develop their product trading by finding new markets/consumers for them
- Manager of market should provides help by lowering tax (rental rates),improving market place security, market facilities and infrastructure
- In association with food safety/ food hygiene concerns the government should help with investment in district /village health centers and improving water quality and supply.

## APPENDIX

### Appendix 1: QUESTIONNAIRE FOR AQUATIC FOOD MARKETING SYSTEMS BASE ON PHNOM PENH (WHOLESALEERS/PRODUCERS/RETAILERS)

Location.....Market's name.....

Name of interviewer .....Date.....

Age ( ) 18-25 ( ) 26-30 ( ) 31-35 ( ) 36-40 ( ) 41-45 ( ) 46-50 ( ) over 51

Sex ( ) Male ( ) Female

Area of living.....Phone number.....

#### **Section I : General Information**

1.1 Production that sale in the market

- ( ) a. Fresh water fish ( ) b. Aquatic plants  
 ( ) Culture  
 ( ) Wild fish  
 ( ) Both

1.2 Do you buy this product? ( ) Yes ( ) No

If yes, from who?

- ( ) Farmer ( ) Collectors ( ) Others.....

1.3 How long that you taken this business?

- ( ) 1-5 months ( ) 6-10 months ( ) 1-5 years ( ) 6-10 years ( ) Over 10 years

#### **Section II : Production Sales**

2.1 Sources and type of aquatic products that you bring to sale at the market

Types of A/P	Where Sources		Quantity (kg/day)	Farm gate price (Riel/ kg or bunch)	Market Price (Riel/ kg or bunch)	Transportation		
	Capture	Culture				Type	Cost (Riel/ time)	Distance (Km)
Aquatic animals								
1-								
2-								
3-								
4-								
5-								
6-								
Aquatic Plants								
1-								
2-								
3-								
4-								
5-								

6-								
----	--	--	--	--	--	--	--	--

2.2. How to make good quality of the productions

Aquatic Animals		<i>Aquatic Plants</i>	
Long term	Short term	Long term	Short term

2.3. What kinds of production is most preference for the customer?

Type of A/P	1	2	3	4	Where and Source	
					Nature	Culture
<i>Aquatic Animals</i>						
Aquatic Plants						
1-						
2-						
3-						
4-						
5-						
6-						
Others						

**Note : 1 → 4 ( Very popular → less popular)**

2.3. Do you have license in your business?      ( ) Yes      ( ) No

2.4. What type of administration fee do you have to pay in this market?  
 ( ) Rent a space    ( ) Electric    ( ) Others .....

2.5. Total fee per wholesaler .....(Riel/month)

2.6. Who are you buyer    ( ) Retailer    ( ) Consumer      ( ) Others.....

2.7. How many contracts do you have? Permanent.....Temporary.....

2.8. How many labors do you have? ..... Cost per/ day for hired.....

2.9. What factors affecting the price determination?

- ( ) 1. Quality, how .....
- ( ) 2. Size, how .....
- ( ) 3. Season, how .....
- ( ) 4. Price, how.....
- ( ) 5. Others, specified .....

2.10. Others specials/ Problems, constraints and recommendation for this business

- 1. ....
- 2. ....
- 3. ....
- 4. ....
- 5. ....

**Appendix 2: QUESTIONNAIRE FOR AQUATIC FOOD MARKETING SYSTEMS BASE ON PHNOM PENH (CONSUMERS)**

Location.....Market's name.....

Name of interviewer .....Date.....

Age ( ) 18-25 ( ) 26-30 ( ) 31-35 ( ) 36-40 ( ) 41-45 ( ) 46-50 ( ) over 51

Sex ( ) Male ( ) Female

Occupation.....

Area of living.....Phone number.....

**Section I: General information**

1.1 What kind of productions do you buy?

- ( ) a. Fresh water fish ( ) b. Aquatic plants  
 ( ) Culture  
 ( ) Wild fish  
 ( ) Both

1.2 Please add more detail information

Kind of A/P	Price (Riel/Kg or bunch)	Quantity (kg/time)	Frequency	Where source		Others
				Capture	Culture	
Aquatic animals						
1.						
2.						
3.						
4.						
5.						
6.						
7.						
Aquatic plants						
1.						
2.						
3.						
4.						
5.						
6.						
7.						

1.3 What kinds of production are most important to you when you decide to buy and eat?

Type of A/P	1	2	3	4	Where and Source	
					Nature	Culture
<i>Aquatic Animals</i>						
1-						
2-						
3-						
4-						
5-						
<i>Aquatic Plants</i>						
1-						
2-						
3-						
4-						
5-						

*Note* : 1 → 4 ( Very important → less important)

1.4 How important is it to you that these productions satisfy you on the following characteristics?

Characteristics	Most important	Important	Unimportant	Most Unimportant
Taste of product				
Quality				
Price				
Variety				
Others				