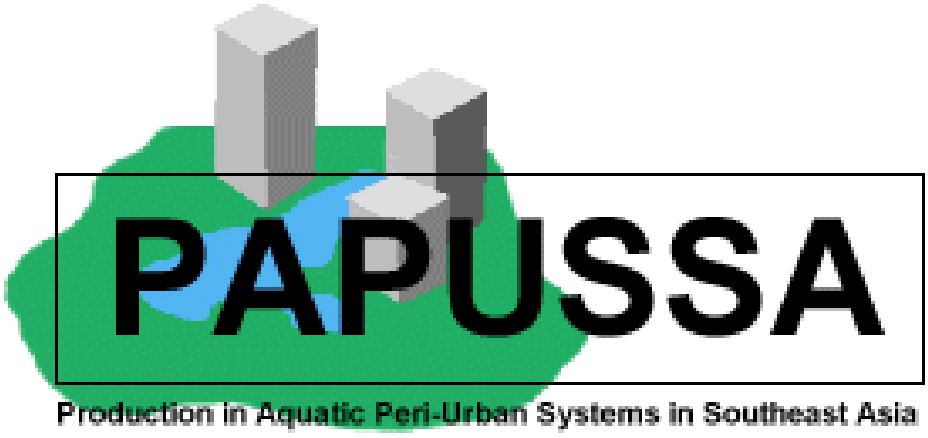

INCO : International Scientific Cooperation Projects (1998-2002)

Contract number: ICA4-CT-2002-10020

Participatory Community Assessment in Phong Phu Commune, Binh Chanh District of Ho Chi Minh City, Vietnam

From 15th to 21st October 2003

Written by

Le Thanh Hung
Huynh Pham Viet Huy
Bui Thi Phuong Thao
Nguyen Thi Thanh Truc
Tran Van Minh
Pham Ngoc Tam

Keywords: PCA, participatory community assessment, peri-urban aquatic food production systems, Southeast Asia, Ho Chi Minh City, Vietnam
Project homepage: http://www.ruaf.org/papussa

Contract number : **ICA4-CT-2002-10020**

TITLE : PRODUCTION IN AQUATIC PERI-URBAN SYSTEMS IN SOUTHEAST ASIA

COORDINATOR

University of Stirling
Institute of Aquaculture
FK9 4LA Stirling
Scotland

DR. David Little
E-M : d.c.little@stir.ac.uk
TEL : +44 01786 467923
FAX : +44 01786 451462

CONTRACTORS

Royal Veterinary and Agricultural University
Department of Veterinary Microbiology
Bulowsvej 17
1870 Frederiksberg C
Denmark

DR. Anders Dalsgaard
E-M : ad@kvl.dk
TEL : +45 35282720
FAX : +45 35282757

National Institute of Hygiene and Epidemiology
1 Yersin Street
4000 Hanoi
Vietnam

PROF. Phung Dac Cam
E-M : cam@ftp.vn
TEL : +84 4 8219074
FAX : +84 4 9719045

University of Durham
Department of Geography
South Road
DH1 3LE Durham
England

DR. Jonathan Rigg
E-M : J.D.Rigg@durham.ac.uk
TEL : +44 0191 374 7305
FAX : +44 0191 3742456

Research Institute for Aquaculture No. 1
Binh Bang
Tu Son, Bac Ninh
Vietnam

DR. Pham Anh Tuan
E-M : patuan@fpt.vn
TEL : +84 4 8781084
FAX : +84 4 8785748

University of Agriculture and Forestry
Faculty of Fisheries
Thu Duc
Ho Chi Minh City
Vietnam

DR. Le Thanh Hung
E-M : lthungts@hcm.vnn.vn
TEL : +84 8 8963343
FAX : +84 4 7220733

Royal University of Agriculture
Faculty of Fisheries
Chamcar Daung, Dangkor District
PO Box 2696 Phnom Penh
Kingdom of Cambodia

Chhouk Borin
E-M : 012898095@mobitel.com.kh
TEL : +855 12 898 095
FAX : +855 23 219 690

Kasetsart University
Department of Aquaculture, Faculty of Fisheries
Bangkhen, Chatujak
10900 Bangkok
Thailand

DR. Ruangvit Yoonpundh
E-M : ffisrvy@ku.ac.th
TEL : +662 579 2924
FAX : +662 561 3984

Table of Contents

List of Tables

List of Figures

I. Introduction

1.1 Methodology

The different activities which made up the Participatory Community Appraisal (PCA) were performed from October 15th to October 21st 2003.
At first contacts were made with the head of Phong Phu Commune on October 16th 2003, to collect general information about Phong Phu commune and villages of this commune, such as status of the agricultural production systems, inhabitants living conditions and livelihoods, and wealth/socio-economic ranking of households.

Village 5 was chosen to be a representative community for the PCA as it is the most suitable and relevant to the objectives of the PAPUSSA project according to basic information and ideas from the Chairman of the Commune's Farmers Association. This person was the first contact with the village in order to collect information. Important information was gathered from him in order to select suitable household members to participate in the PCA. These chosen household members were then invited to participate in the PCA meeting carried out on October 21st 2003.

Those participants involved included: farmers involved in fish culture, rice, vegetable and seed production systems; representatives of the Communal Farmers Association, Women's Association, and Communist Party Committee. From information about wealth ranking from local government statistics, about 90% of households in the commune were ranked into average and better-off levels. Therefore division of groups did not rely on this wealth ranking information. Participants were divided into two gender groups, one male and one female group. Because most of the land area of the commune is agricultural land, participants were mainly from agriculture and aquatic production households. The age range of the women's group was between 35 - 50 years old, whilst the age of men's group ranged from 35 to 60 years old. It was an advantage to have a wide range of participants' ages present, so that they could supply much and varied information during the meetings activities.

1.2 Generality of the community

In this village there are a total number of 555 households with a total population of 3,181 inhabitants. Out of those there are 51 households which have migrated from other provinces and another 106 households which have moved from other districts of HCMC.

The total migrated households is therefore 157 with a total of 680 people.

Most of these migrated households don't own agricultural land; they only buy land to build their houses.

Their common occupations are factory workers, motorbike taxi drivers or small scale grocery stalls.

It is estimated that 40-50% of permanent households in the village participate in aquaculture activities.

The total land area of the village is 507 ha, out of which 397 ha is agricultural land

Although statistical data of total of aquaculture area is limited, it is said by the Head of the village that fish and aquatic plants have been largely cultured at HO and MAT

TROI fields. In Ho field rice is the main activity; only 15% of the area has been used for rice-fish culture practices. At Mat Troi field, lotus, mimosa water, fish, and seed production are more commonly applied.

Besides agricultural activities there are some other occupations villagers were usually involved in such as small scale business, motorbike repair services, etc. About 205 households are involved in these types of activities with small scale business being the more common.

II. General characteristics of the community and their agricultural production systems

* Community mapping of village 5, Phong Phu commune drawn by 2 groups of farmers (men's and women's group) during the PCA

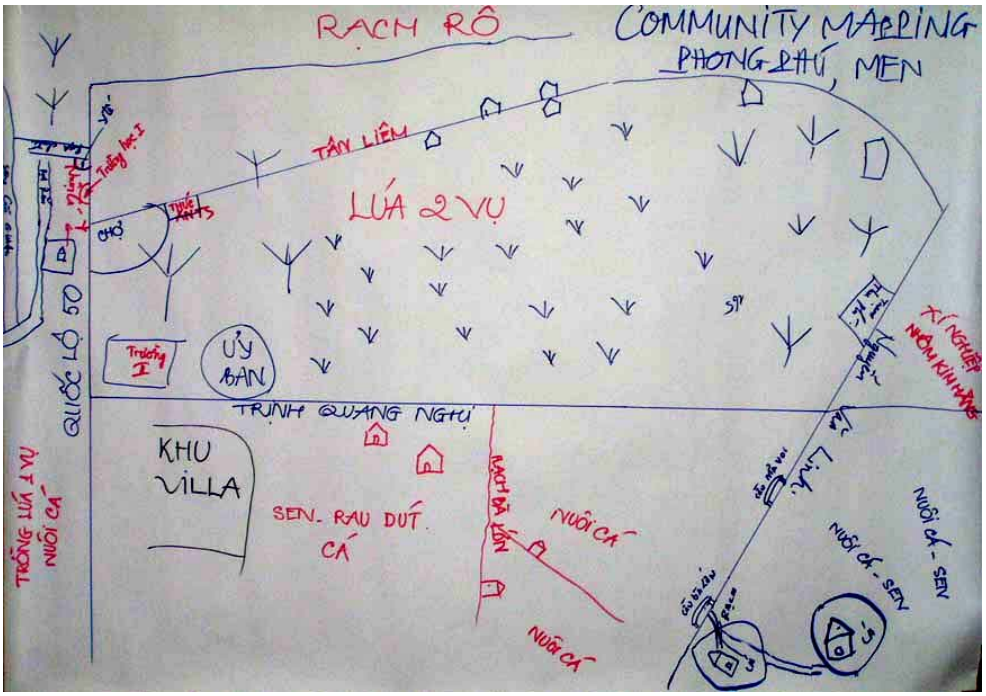

Figure 1 Community mapping of village 5, Phong Phu commune, Binh Chanh district (drawn by the men's group)

Figure 2 Community mapping of village 5, Phong Phu commune, Binh Chanh district (from women)

- Village 5 of Phong Phu commune is located in the southern part of Binh Chanh district. It is 17 kms from the centre of the city. This therefore can be considered as a peri-urban area of HCMC.
- Most of households of the village are located along provincial road No. 50. The land use here is very much influenced by urbanization because this village is within the area urbanization priority.
- According to the Head of Village 5, aquaculture area is becoming smaller and smaller over time. Aquaculture is in danger of disappearing in the near future (2-3 years) because of urbanization.
- 100 ha land will be filled in this year and further 69ha will be filled in next year by Binh Chanh Building Company (49ha) and Gia Hoa residential zone (20ha) for residential constructions.
- The main agricultural activity in Village 5 is rice culture. Besides this there are also aquaculture activities including fish, water mimosa, lotus, rice-fish culture. As land area become scarcer, the local government is more interested in aquarium fish culture e.g. ornamental fish.
- Village 5 can be divided into 2 separate parts which are inside and outside the area of the salt water prevention dike.
- The inside area is used for rice cultivation with two seasons per year while the outside area is used for tilapia culture and seed production in order to take full advantage of salt water from intrusion.
- The village is divided into several parts such as Ho field, Tan Bien field and Village 1 Co-operative field by the two main roads named Trinh Quang Nghi and provincial road no. 50.

- Ho field is the outer part from the dike, with 100 ha land. It is used for rice with one crop per year, culturing fish, and lotus and water mimosa cultivation.
- Tan Bien field is on the inner part of the dike, with 300ha land, it is used for rice with two crops per year. In the future from 2003 to 2012 this area will be converted into a residential zone.
- Village 1 Co-operative field is also on the inner part of the dike, with a smaller area of 50ha; it is also used for rice cultivation. This area is infected by acid sulphate soil.
- The main source of water supply for agricultural activities of this village is from Can Giuoc River which flows to the agriculture area of the village through small canals or flood-gates within the dike.
- Water pollution usually occurs from August to November every year. At this village, Kim Hang aluminum factory discharges contaminated wastewater and also pollutes the air of the area.
- The market, public health station, and school are nearby to the people's residential area.
- Inputs for agriculture production are available locally.
- Fish seed (mainly tilapia) is produced traditionally by farmers in the village. Many households are applying settling ponds to treat wastewater. Wastewater is good for breeding of fish but it can also cause fish kills if it's excessively contaminated.
- For culturing aquarium fish water has to be treated by filtering carefully before use.
- Rice bran is available locally for fish feed. Pelleted feed is easily bought at agencies within the village.
- Aquarium fish are sold at District 5 and Cho Lon markets. Fish seed is sold at village 5 in Phong Phu district or village 7 in the 8th district or collected by middle men. At this village there is a lot of middle men who particularly collect fish seed (mainly tilapia) and sell to outside provinces. Farmers can choose any middle men offering higher prices to sell their fish to.
- In the future this area will be converted into a residential area. Farmers will continue agricultural production until they have to sell their land.

*** Seasons and important weather events**

This sort of information comes from the seasonal calendar exercise which was carried out by participants during the PCA. Participants were provided with big sheets of paper and then asked to draw up a table with significant seasonal events that have important impacts on their production activities or their everyday livelihoods.

Table 1 Seasons and important weather events (drawn by the women's group)

Women	**Month**											
Events	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Dry season	■	■	■	■								■
Rainy season					■	■	■	■	■	■	■	
Flooding									■	■	■	
Pollution								■	■	■	■	

Table 2 Seasons and important weather events (drawn by the men's group)

Men	Month											
Events	1	2	3	4	5	6	7	8	9	10	11	12
Dry season	■	■	■	■								
Rainy season					■	■	■	■	■	■	■	■
Flooding									■	■	■	
Pollution		■	■									

- Seasonal weather events were recorded similarly by men's and women's groups. The rainy season usually occurs between May to December, with the dry season from January to April.
- Many places in the village are usually flooded during the later period of the rainy season causing difficulties for agriculture and aquaculture activities. For women flooding further results in water pollution because they can't control water supplied to the aquaculture ponds.
- People use water from wells for households' uses. For drinking bottled water must be bought at a cost of 5,000VND/m^3 for a whole year.
- In the dry season (February to March), the water source is polluted because of low levels of river water. These are the ideas of the men, but women didn't mention pollution in dry season.

* Fish disease doesn't occur seasonally. Infectious disease of fish occurs when the water source is polluted. Farmers need technical support for more effective treatments and preventions.

*** Resource mapping is jointly described with community mapping.**

This was also drawn by farmers themselves so that they can understand and describe exactly what resources they have and use in their own systems as well as the resulting outputs from those systems. This type of map was drawn by men and women separately. A summary of the information produced from this mapping exercise was as follows:

Table 3 List of inputs and outputs for agricultural production described by men and women.

Men		**Women**	
Input	**Output**	**Input**	**Output**
Water source	Fish, aquatic plants	Feed	Fish, plant
Insecticide and fish disease treatment drugs		Fertilize for the field	Extra-product is used for fish
Fish feed		Fish disease drugs	
Fertilize for the field			

- Inputs for agriculture production are bought mainly within the local area. Fish seed is also available locally because there is considerable tilapia seed production by households in this village. Red tilapia seed/fingerlings are

bought from other locations, mainly from Thu Duc district and Dong Nai province.

- Fish products are mainly sold to middle men.
- Almost all the water mimosa and lotus grown is sold at the market or to middle men. Farmers occasionally use their cultivated aquatic plants for their own family consumption.

III. Developmental history and important events

3.1 Information from the men's group

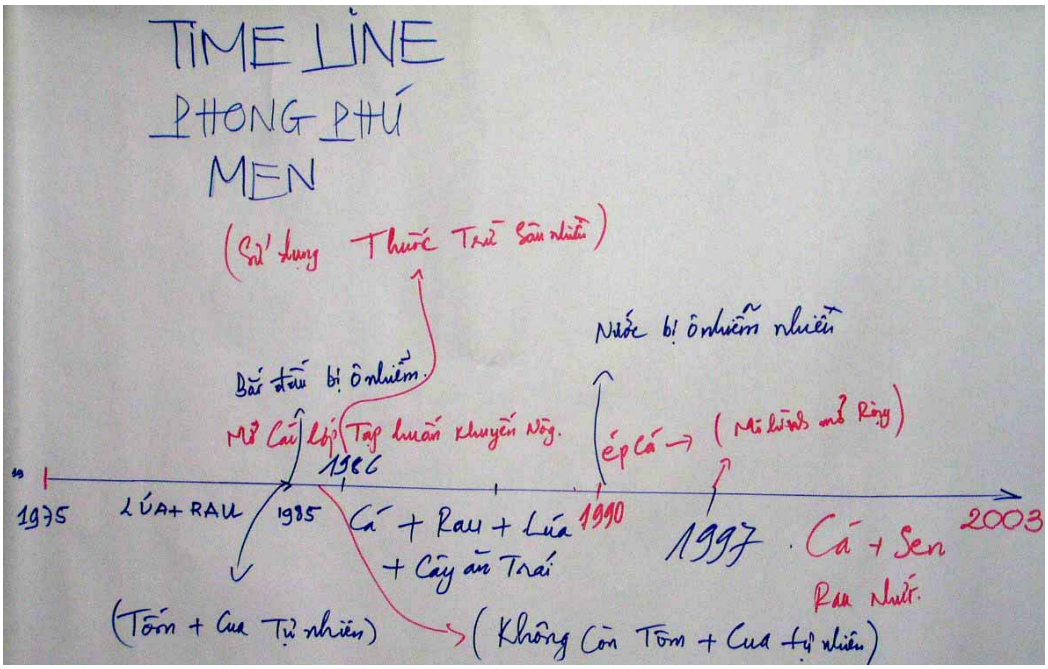

Figure 3 Important historical events in the village (from the men's group)

- In the period of 1975 – 1985 the main agricultural activities were rice and morning glory culture. During this time water quality was good and villagers could raise natural fish and shrimp.

- By 1985 the local environment began to become polluted because of increasing insecticide and herbicide use on their local rice fields and morning glory ponds. Therefore the wild, natural fish and shrimp began to disappear. During this time they began culturing fish, fruit-trees, rice and lotus.

- In 1986 they were encouraged by the extension activities of the government to practice VAC system (Garden-Pond- Animal Coops) which is an integrated model. Integration of fish and fruit-trees, breeding duck and fish, with joint rearing of pigs and fish, was applied by farmers. Integrated rice-fish and lotus-fish cultivation models also began to develop.

- By 1991 the local environment was seriously polluted. Aquaculture began to develop rapidly. Fish seed production and aquarium fish culture started to develop rapidly.

- From 1995 fish and lotus culture models developed strongly because they were more effective and financially viable than rice culture.

- By 1997 the area for fish culture in the village had expanded.

- In the period of 1997-2003 a combination model between fish-aquatic plants developed strongly.

- In 2000, wild fish and shrimp began to appear again because of the encouragement of limited insecticide use on the rice fields.

3.2 Information from the women's group

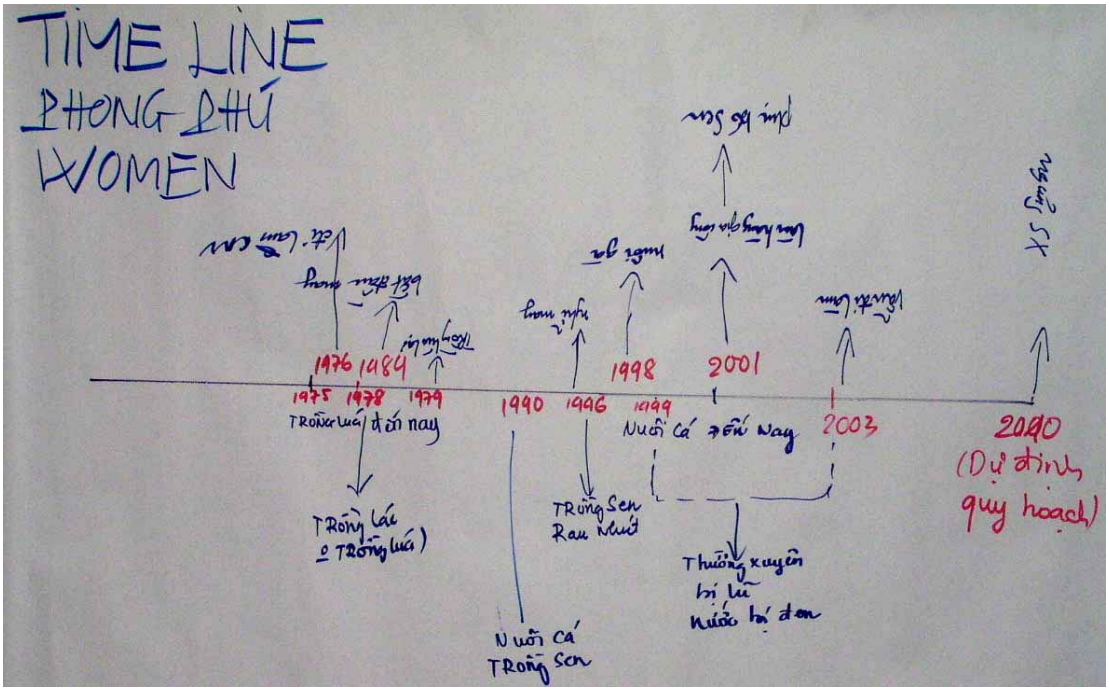

Figure 4 Important historical events (from the women's group)

- Rice cultivation started early in 1975 and continues up to the present time.

- In 1978 villagers had to stop rice cultivation in order to plant another species which can be used for production of bed mats at the request of the government. People's life was very difficult.

- In 1979 rice cultivation started again.

- By 1990 they began culturing fish and lotus

- And by 1996 water mimosa cultivation also began.
-
- In the period of 1999 – 2003: fish culture also developed strongly because flooding seriously affected rice culture making production losses. The main species cultured was tilapia.

- In 1998 they applied an industrial chicken culture model, but it wasn't successful so it was stopped in 1999.

- Up to 2010 all of this area which is currently being used for the different agricultural and fish farming activities will be converted into a residential zone. The farmers will have to stop aquaculture as well as agriculture activities but despite knowing this will happen they haven't got any plans for the future yet.

IV. Social characteristics

1. Wealth ranking

It was said by a local official that poverty has been eliminated completely in the commune and Village 5 as well. This statement was based on the evaluation of government on people's poverty levels which use income standards earned by each household. A household is certified to be released from poverty if one's annual income is over 2.5 million VND. There are only 10% of the populations in this village which are ranked in this poorer group. Most of the households have brick built houses. However, according to the Head of Village 5, the economic condition and livelihoods of this 10% poorer people is fine, with some of them often owning thatched houses.

2. Important festivals

Traditional Tet holiday is the biggest festival event in which all people participate. Buddhists and Catholics participate in their individual religious festivals also. Besides weddings, death anniversary parties are also held with the some level participation of people in the village.

3. Health characteristics and seasonal variations

The villagers don't seem too concerned about their health and disease. Their main problem which they mentioned was skin-disease because they are regularly in contact with polluted water. They have no problem about treating these problems so they rarely contact to the public health station, as they can recover themselves.

4. Seasonal calendar

This exercise was also conducted separately by the men's and women's groups. Participants were asked about seasonal events that have significant impacts on their production activities or their livelihoods. These seasonal calendars from men and women are presented in Figures 5 and 6.

a. Information from the men's group

- Aquarium fish are harvested 2 times per month and basically sold all year round. Aquarium ornamental fish are sold mostly in June and December at the times of the highest prices.
- Tilapia fingerlings are stocked mainly in July.
- Fish seed is produced all year round except in July when the ponds are empty and being prepared.

- Red tilapia is cultured throughout the whole year, but it is sold mainly between November to March because of the high prices (19,000VND/kg) during these periods
- The dry season is from January to April, with the tidal salt water intrusion being beneficial for the growth of the tilapia.
- Price fluctuation occurs several times during the year. Fish seed price is low from January to April and high from May to June and November to December. Table fish price is high from June to August.
- Flooding occurs every year from September to December.

b. Information from women

- Integrated culture system of fish and rice is harvested 2 crops per year. The first crop is from January to June and the second crop is from July to December.
- If villagers culture rice one crop per year, the crop is from April to November. Fish is cultured throughout the whole year.
- Water mimosa is cultured from April to December; no water mimosa is grown from February to March because of high water salinity.
- Fish is culture mostly from January to June because of the advantage of the water source and management (no flooding); and less from July to December because of flooding.
- Lotus is cultured mostly from May to November but not between December to April of the following year because of the high water salinity
- Besides people can do other activities at home to utilize their spare time (mostly hand-made crafts and none-skill requirement products that are paid by quantity).

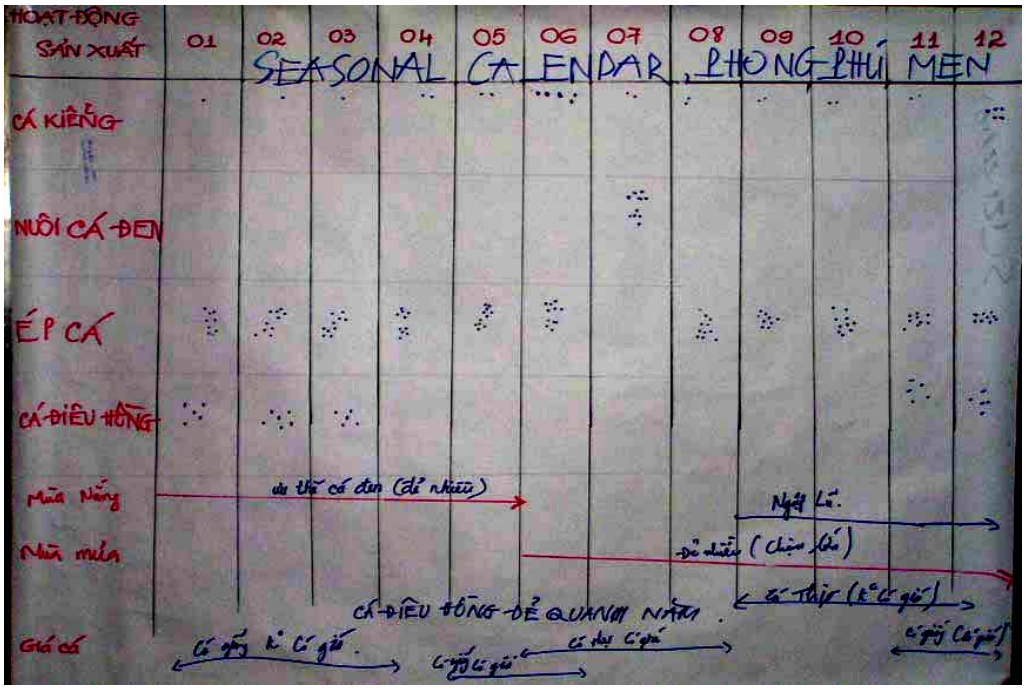

Figure 5 Seasonal calendar of production (from the men's group)

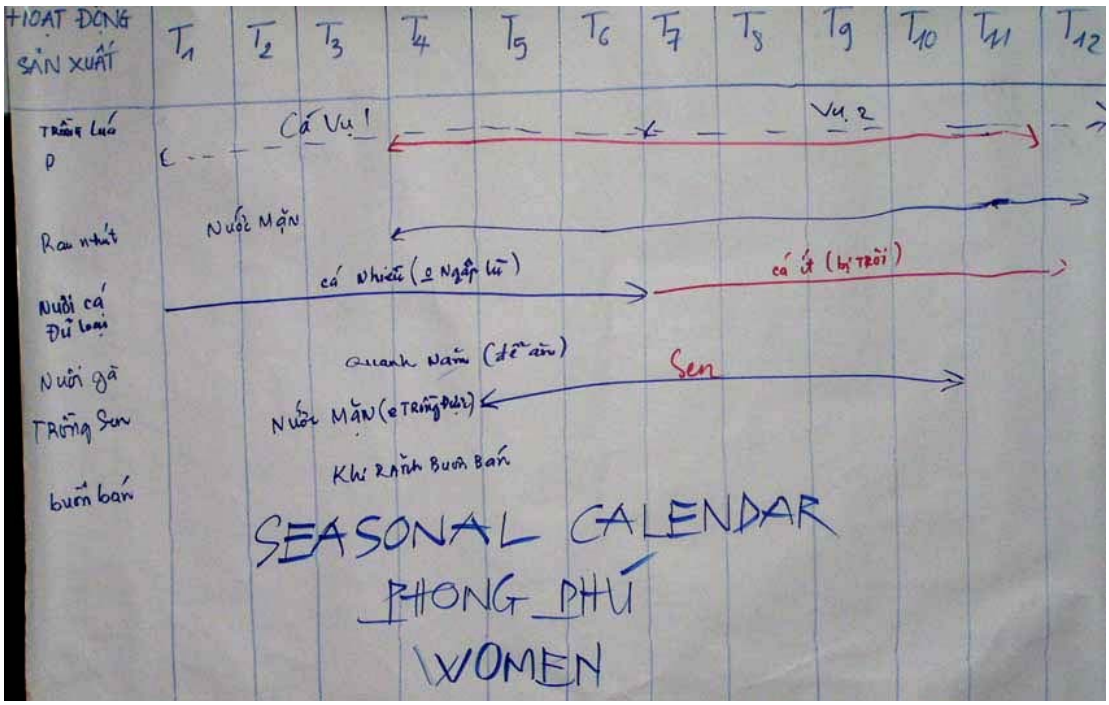

Figure 6 Seasonal calendar of production (from the women's group)

5. Food consumption and supplied resource

Household food consumption was also described separately by women and men. In this exercise farmers were given big sheets of paper to draw and show all food items that they usually consume and also the frequency with which they eat them. Information was collected separately from the men's and women's groups.

Information about food consumption and sources of supply throughout the year from the men's and women's groups is presented in Figures 7 and 8.

a. Information from women

- Pork, marine fish and wild fish are consumed throughout the whole year. Pork is the most frequently eaten food item.
- Farmers rarely consume beef and shrimp because of their expensive price.
- Chicken and duck are consumed about 4 times per month.
- Morning glory, lotus and water mimosa are the main vegetables because morning glory is easy to eat and a cheap price; water mimosa is cultured by the farmers themselves.
- For people who don't culture aquatic plants (water mimosa and lotus), they only occasionally consume this type of vegetable because of the high price.
- Morning glory is consumed from May to December. It is consumed less from January to April because of higher prices.
- Vegetables are consumed the whole year round with villagers having to buy them during some periods in the year.

- Fruit, cake, sugar, and soups, etc. are also sometimes consumed.

b. Information from men

- Lotus, water mimosa, and morning glory are consumed the whole year round and are produced by households.
- Villagers don't like marine fish so consumption is rare
- Pork, beef, chicken, and duck are occasionally consumed (3-4 times per month)
- Freshwater fish is consumed throughout the whole year and is produced or wild captured by farmers.
- Fruit is sometimes consumed after meals.
- Drinking water must be bought at a cost of 50,00VND/m^3

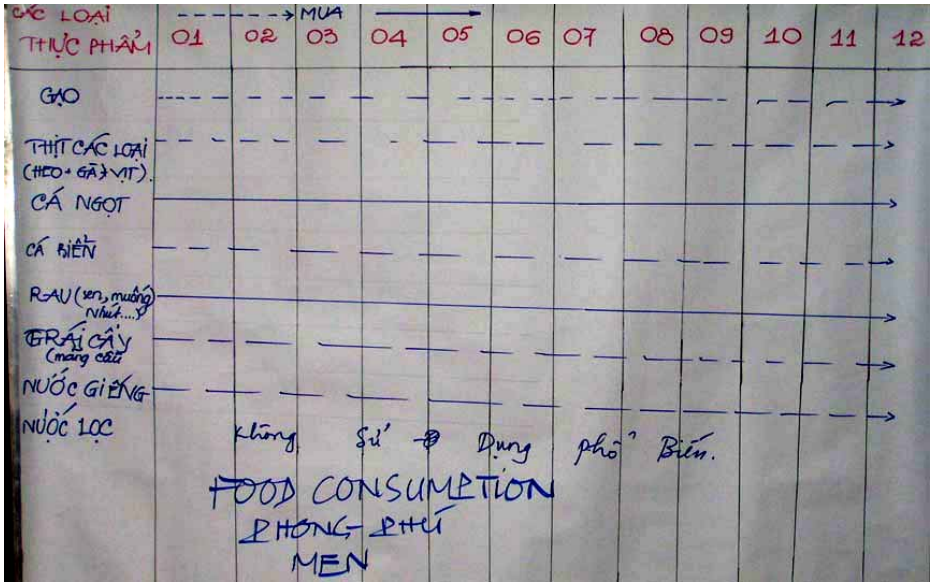

Figure 7. Food consumption, and sources of supply throughout the year (from the men's group)

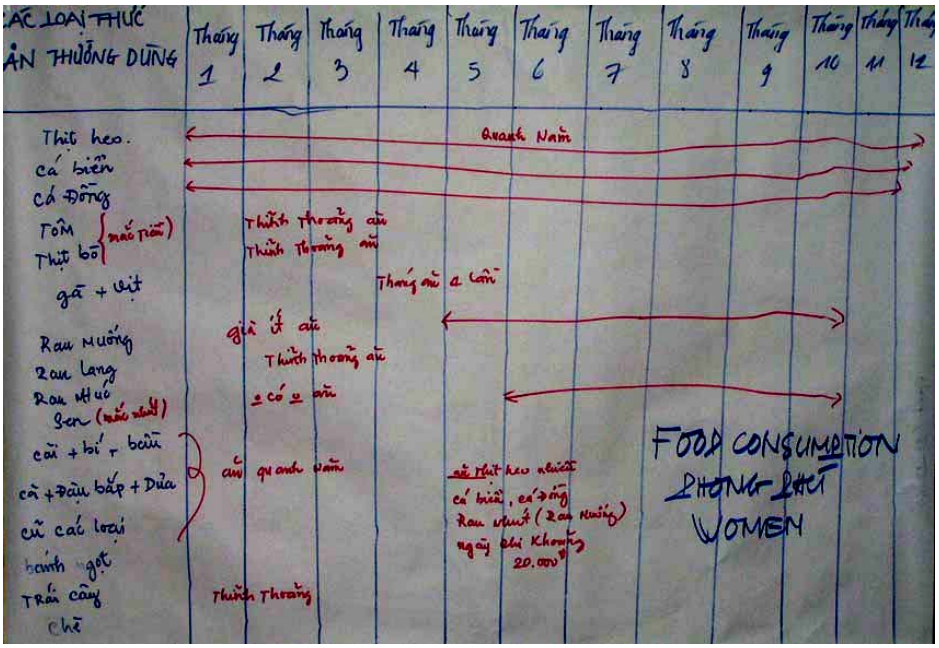

Figure 8 Food consumption and sources of supply throughout the year (from the women's group)

6. Activities matrix

*** Information from Women**

- Most farmers usually wake up at 4:30 to 5 am.
- They then do morning exercise about 30 minutes before going to work.
- For people who work at an administrative agency, they work from 7.00 to 11.00 and 13.00 to 16.00.
- For people working in the fields, they work from 6.00 to 11.00 o'clock and 13.00 to 16.00 o'clock but their time is very flexible and they can work whenever they find it is necessary.
- Harvesting of lotus and water mimosa usually takes place from 6.00 to 11.00 o'clock in the morning.
- After lunch and in the evening are usually free times for farmers.
- They usually harvest fish very late in the night until the next morning (from 24.00 to 5.00am the next day)
- They often go to bed at 8:30 PM

*** Information from men**

- They work in the field from 7.00 to 11.00 , and have lunch at 12
- If they have to work in the afternoon, they usually go to the field from 13.00 to 16.00 but they usually are not working in the afternoon. They usually have dinner in late afternoon rather than in the evening.
- In the evenings men have to go out to ponds for security checks.
- Overall time spent for fish and pig culture is very short in total compared to their other agricultural activities.

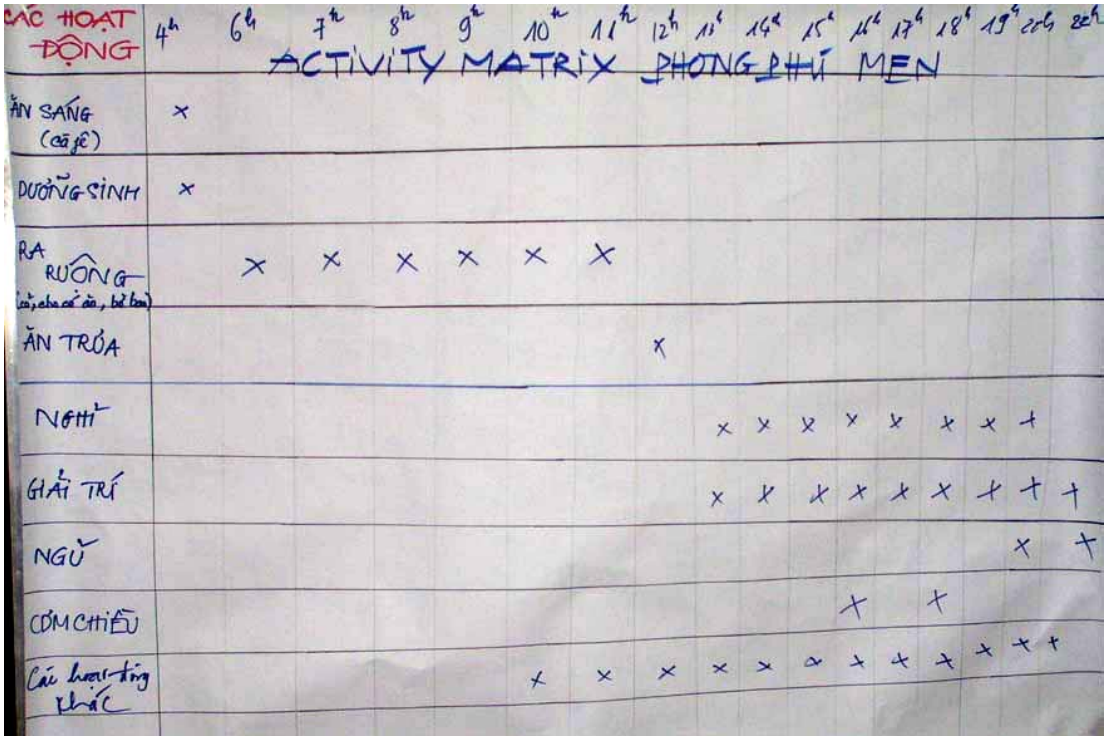

Figure 9. Activities matrix of men

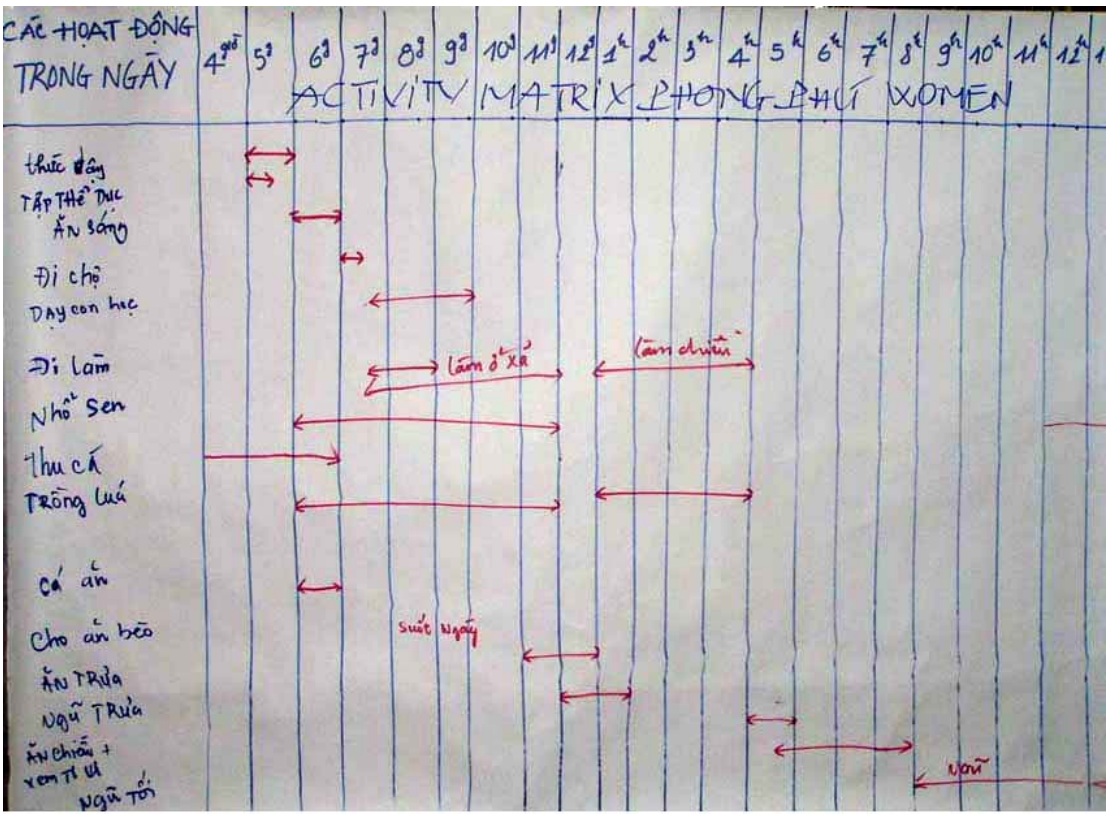

Figure 10 Activities matrix of women

V. Problem ranking

- Pollution is the most important problem for farmers in Phong Phu commune.
- Flooding usually causes production losses. Pollution in the flooding season making water supply uncontrollable and unmanageable in its quality which can cause fish losses.
- Lack of knowledge on city development plans; they are threatened by urbanization and feel uncertainty in the future of their own activities. Therefore they don't want to invest further in their agriculture systems and activities.
- They seem to have no clear plan for reallocation when they have to stop aquaculture though they know that they will have to do this. Farmers want to continue aquaculture production but it is difficult to find new areas to culture fish and aquatic plants. Thus relocation is also a major problem for them.
- Because their source of water is often polluted, fish disease is another difficulty. Farmers further need support on ornamental fish diseases in order to avoid production losses.

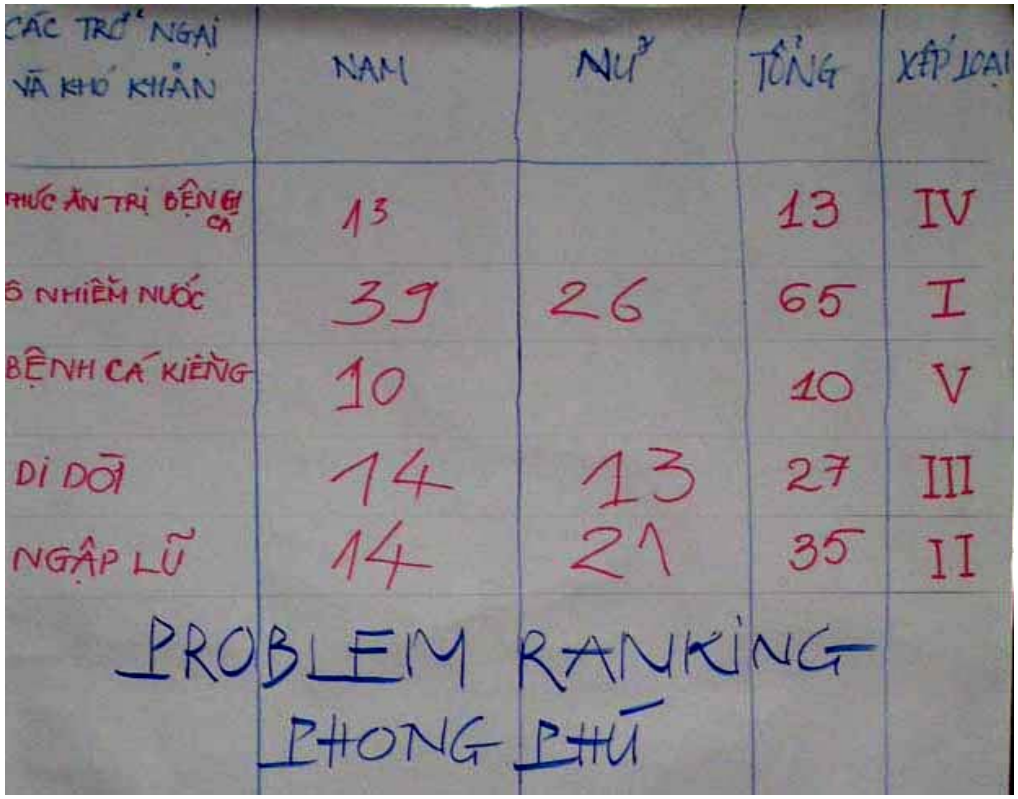

Figure 11. Problem ranking by farmers – men's and women's groups.

Table 4 Problems and ranking by farmers – men's and women's groups.

Rank	Problems		
	Men	Women	Pool
1	Water pollution	Water pollution	Water pollution
2	Flooding	Flooding	Flooding
3	Relocation	Relocation	Relocation
4	Fish disease prevention		Fish disease prevention
5	Ornamental fish disease		Ornamental fish disease

According to Table 4, problem ranking is similar between men and women groups though they were doing this activity separately. Problems are ranked in priority as follows:

(1) Water pollution,
(2) Flooding,
(3) Relocation,
(4) Fish disease prevention, and
(5) Ornamental fish disease.

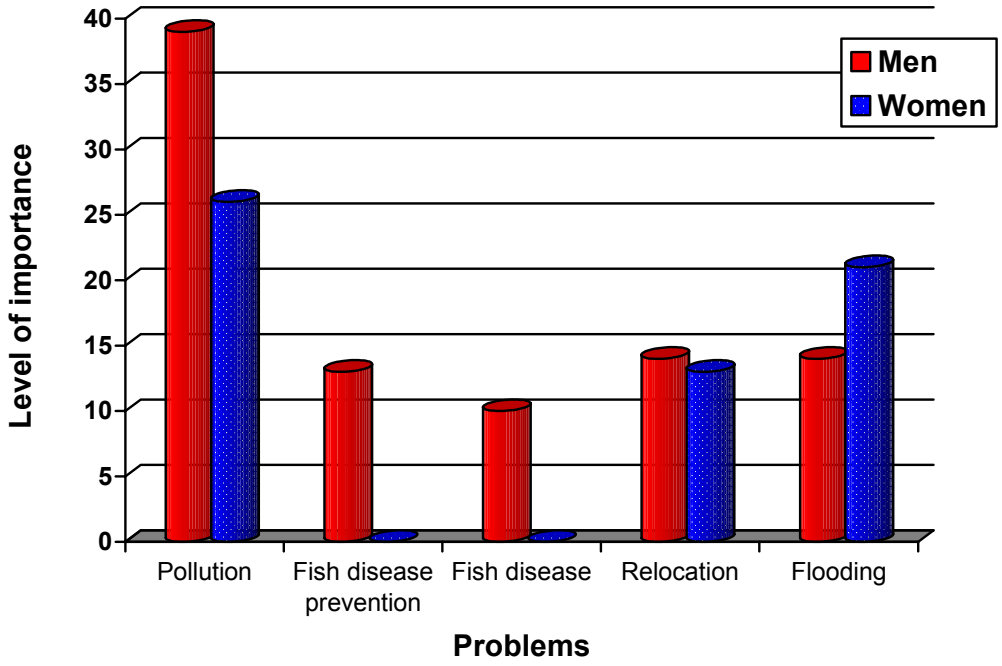

Figure 12 Problems and their ranking according to men's and women's opinions

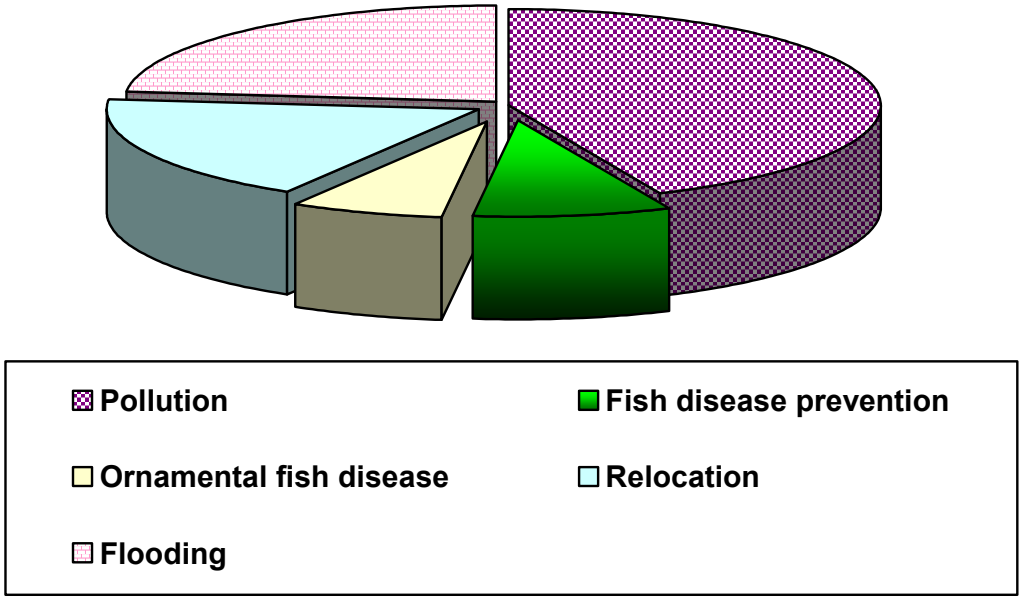

Figure 13 Problems evaluated by farmers as a whole group

VI. Summary and key points

- In this village 50% of the total numbers of households are involved in some form of aquaculture.

- Common production systems are fish culture, seed production, water mimosa culture and rice-fish culture.

- The source of water used for agriculture/aquaculture is seriously polluted.
- Fish disease appears because of water pollution, so the farmers need support and training in techniques of fish disease prevention and treatment.

- The economic condition of people in the village is ranked to be medium to better-off by the government, with 50% of households have improved their livelihoods by aquaculture.

- Women participate more than men in lotus and water mimosa culture.

- Skin disease is common, but it isn't a problem for farmers.

- Every year agriculture and aquaculture production is affected by flooding.

- Aquaculture products are also consumed everyday by the farmers and their families.

- Relocation is a difficulty for farmers at the present time and in the near future. They also seem to lack any in depth knowledge of the cities development plans and how these will affect their land, livelihoods and families.

- Farmers are mainly working in the morning. They have most of the afternoon and evening to spare. Men usually have to go the aquaculture ponds in the evenings for security checks.