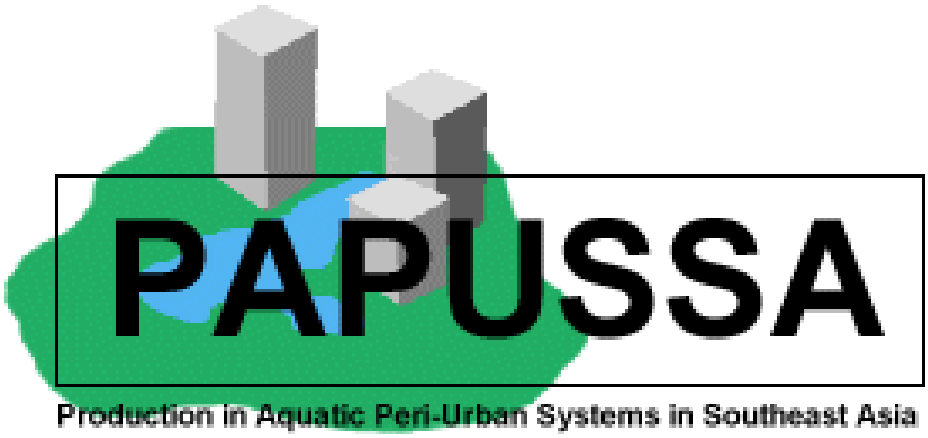

INCO : International Scientific Cooperation Projects (1998-2002)

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Participatory Community Assessment in Khuyen Luong Village, Tran Phu Commune, Thanh Tri district, Hanoi, Vietnam

From 4th to 10th November 2003

by

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Keywords: PCA, participatory community assessment, peri-urban aquatic food production systems, Southeast Asia, Hanoi, Vietnam

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

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Acronyms and terms

PCA: Participatory Community Assessment

HHs: Households

VAC: Vuon - Ao - Chuong = Garden - Pond - Cage

RIA 1: Research Institute for Aquaculture No. 1

NIHE: National Institute of Health and Epidemiology

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Abstract

[1] 11 participants used 12 seeds each to rank their problems
[2] 8 participants used 20 seeds each to rank their problems
[3] 11 participants used 8 seeds each to rank their problems
[4] 8 participants used 8 seeds each to rank their problems

A PCA of Tran Phu community was carried out by RIA 1 (Research Institute For Aquaculture Nos 1) and NIHE (National Institute of Health and Epidemiology) teams from the 4th to 10th November, 2003.

The commune was chosen as being representative of aquatic plants (water morning glory) and fish culture in wastewater.

The tools used in the PCA were Well-being ranking, community mapping, timelines, seasonal calendars, activity matrix, food consumption, resource mapping, and problem ranking. The well-being ranking was carried out with different key informants before the actual PCA and was facilitated by 3 persons. There were 28 participants (12 women and 16 men) in the PCA who were divided into 4 groups (worst-off womens, worst-off mens, better-off womens and better-off mens) to discuss the previous 5 tools. Only the fish and aquatic plant producer groups were involved in the remaining tools (resource mapping and problem ranking).

Overall, Khuyen Luong Village in Tran Phu Commune has potential for selection in the next work packages of the Papussa project. The community is confronted with several important issues such as health, urbanization, and relocation due to urban development. In the near future, Tran Phu commune will soon become a part of the urban core.

Introduction

This study was carried out on November 4th, 6th, 7th and 10th, 2003 by a team composed of researchers from RIA-1 and National Institute of Health and Epidemiology (NIHE) Hanoi. The RIA-1 team was composed of Kim Van Van, Nguyen Huu Hoa, Nguyen Chien Van and Nguyen Thi Dieu Phuong whilst the NIHE team consisted of Phan Thu Phuong, Nguyen Dang Tuan, Nguyen Thuy Tram and Pham Duc Phuc. The RIA 1 team first visited Tran Phu commune on November 4. Both RIA 1 and NIHE teams carried out the PCA process on November 6th, 2003. Analysis of the information gathered was done at RIA 1 on November 7th. Then a 'debriefing' session with the villagers was done in the morning of November 10th, 2003.

Once the commune framework had been established, the RIA-1 team composed of Mr. Kim Van Van and Mr. Nguyen Huu Hoa made an appointment with Mr. Nguyen Tien Vo, the permanent officer of Tran Phu Commune, Thanh Tri district in the afternoon of November 4th to gather information needed to select the specific village for the PCA. As a result of this meeting, Khuyen Luong Village was chosen for the PCA. The commune was chosen as being representative of aquatic plants (i.e. water morning glory) and fish culture in wastewater in peri-urban Hanoi.

Description of Khuyen Luong Village

Location

Khuyen Luong Village is in the southern portion of Tran Phu Commune along the eastern part of Thanh Tri District. It is located about 7 km southeast of Hanoi City center and lies near the Red River on its eastern side. It is bordered by Yen So commune on the south and the west and Linh Nam Commune on the north. Figure 1 is a map showing the location of Tran Phu commune in relation to the whole city.

Tran Phu commune has 2 villages (Khuyen Luong and Nam Du Ha villages) with 11 groups (4 groups in Nam Du Ha village and 7 others in Khuyen Luong village). Both villages have aquatic plants and fish culture. Most households (HH's) plant water morning glory whilst some others plant watercress and water dropwort in winter. It has a total land area of 3.78 km^2 of which agriculture occupies 2.21 km^2 and aquaculture 0.61 km^2 and the rest 0.96 km^2 for other purpose such as residential, schools, markets, etc. 17 HHs of the community comprising of 39 labourers are engaged in aquaculture. This commune has only one rice crop and one

field crop during the year, for example aquatic plant or fish culture. Their water source mostly depends on rains and wastewater from Hanoi City (Report of Tran Phu Commune in First six months of 2003).

Population

The total population of the commune is 5,574 people composed of 1,365 households. 61.9% of people in the commune are engaged in agriculture (845 HHs). At present, only 12 households in the commune are classified as poor (i.e. income of less than VND130,000 person/month). This classification comes from a commune source.

Figure 1. Hanoi sub-urban area and location of Tran Phu commune

Ethnic composition

Ten out of the eleven villages in Tran Phu commune are non-Catholic. The only Catholic group is located along the Red River dyke in the Khuyen Luong village.

Social characteristics of the community

Well-being Ranking

Mr. Nguyen Tien Vo introduced the team to Mr. Nguyen Xuan Huong, the new village head of Khuyen Luong village). He then introduced the team to Mr. Luong Van Binh, Head of Khuyen Luong Agriculture Cooperation. Both Mr. Huong and Mr. Binh supplied the needed information and a list of 36 HH representing different occupations such as aquatic plant production, fish production, fish trade, rice cultivation, fish seed, raising dairy cows and others. There were 18 women and 18 men in the list. The name of each HH was then written

on a card and shown to each key informant to rank based on the criteria they provided. We explained to the informant that the aim of the activity is to gather information on the socio-economic status of village families and to suggest criteria that could be used to describe a socio-economic class. Typical criteria include: income level and sources of income, land area, house, motorcycle, telephone, TV, refrigerator, educational attainment, quantity and quality of daily food. The results of Well-being Ranking is shown in Table 1:

Table 1: Criteria used by key informants during the well-being ranking

<table>
<tr><td>Key Informant 1
Luong Van Binh
Chairman of KL Agriculture Cooperative</td><td>Key Informant 2
Nguyen Xuan Huong
Head of KL Village</td><td>Key Informant 3
Nguyen Thi Thuy Bich
Land officer of Tran Phu Commune</td></tr>
<tr><td rowspan="2">1. Mostly agricultural HHs, around 50% head of HHs have poor knowledge and level of education, haven't known using capital, some HHs have many children, or also opium addict children, or lack capital for investment or have risk in working. There are 70% with tiled roof houses, 90% have motorbikes and 30% telephones.</td><td>1. Most HHs are involved in aquatic plant or rice production. They have house and regular income but only enough money for food and normal expenditure, not for saving money.</td><td>1. These HHs lack labors capital and some HH members are opium addicts.</td></tr>
<tr><td>2. Some intensive aquatic plant or fish HHs have knowledge in working and some spare some money and less expenses.</td><td>2. Mostly simple agricultural HHs: aquatic plant, rice. They have poor knowledge and produce only for personal consumption.</td></tr>
<tr><td rowspan="2">2. Most agricultural HHs whose members also do other part time work so they have more income. Some HHs rent fish ponds for long term or their children work abroad. In general, they have capital, good economic background and know how to work and organize themselves.</td><td>3. Mostly agricultural HHs with trade. They have good knowledge and their children are already matured.</td><td>3. Mostly agricultural HHs have sub job such as fish culture or salary</td></tr>
<tr><td>4. Most of their houses are large which they have owned for a long time (maybe with fish pond). They are high in income and have significant capital and savings.</td><td>4. Mostly agricultural HHs with sub work: rent fish ponds, good economic and financial situation, relatively large capital and adult children.</td></tr>
</table>

The list of HHs is presented in Appendix 1. After classifying the 4 groups, they were invited to the actual PCA. The list of participants and facilitators is shown in Appendix 2.

Historical profile of the community

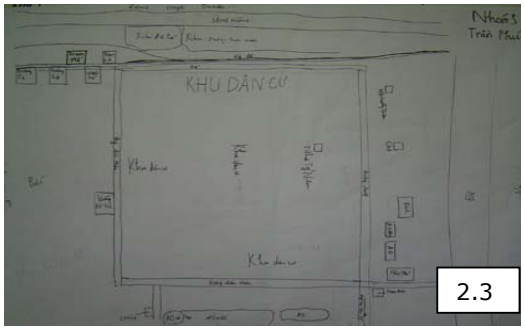
To understand more about the community, all groups discussed and drew the historical timelines of Khuyen Luong village. Historical events such as the establishment of mutual aid team, land reform, electricity, school building, "Hire 10"[5], from 1945, 1955, 1960, 1962 to 2003 are shown in Figures 1.1, 1.2, 1.3 and 1.4. However, there are differences in the groups' recall of these historical events. The installation of electricity in the community was mentioned by the worst-off groups to be in 1962, the better-off womens group in 1968 and the better-off mens group in 1960. Hire 10 was mentioned by the better-off womens group in 1982 and the worst-off groups in 1987-1988. The establishment of agriculture worker mutual aid teams and corrected land reform were mentioned in 1956, 1957 by the worst-off womens group and in 1957-1958 and 1955-1956 by the better-off mens group. Pig farm construction was mentioned by the better-off womens group in 1960 and the better-off mens group in 1963-1964. The conversion of low lying rice fields into fish culture was mentioned by the worst-off womens group in 1978 and the better-off mens group in 1973-1974. The building of a school was mentioned by the better-off womens group in 1977 and the worst-off womens & the better-off mens groups in 1992. The occurrence of epidemics such as cholera were mentioned by the worst-off and the better-off womens groups in 2001, hemorrhagic fever in 1997 and 2001; and red sore eyes in 1998. Livestock disease outbreaks were also mentioned by the better-off groups in 1990 and 1995. For historical events, the better-off mens group was very detailed in their recollections and the worst-off mens group mentioned very little and only mentioned developing economic events.

Physical characteristics of the community and resource systems

Map of the community

Community maps were drawn by the 4 groups (worst-off womens, worst-off mens, better-off womens and better-off mens groups). All community maps are shown in Figures 2.1, 2.2, 2.3 and 2.4.

[5] "Hire 10" is a decree-law from Vietnam government in agriculture which gives land uses right to each HHs so that individual farmers can actively manage their own land .



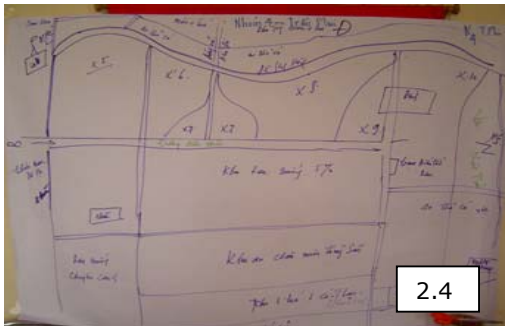


Figure 2.1 Community map drawn by the worse-off womens group.

Figure 2.2 Community map drawn by the worse-off mens group.

Figure 2.3 Community map drawn by the better-off womens group.

Figure 2.4 Community map drawn by the better-off mens group.

On the north of Khuyen Luong village is Nam Du Ha village and Linh Nam communes, on the east is the Red River, on the west and south is Yen So commune. The medical station, commune office, school, kindergarten, residential area, village roads, and ponds was in their maps, however the location of each place mentioned above was a little different among the groups. The worst-off womens and the better-off mens groups had detailed descriptions of their ponds, water morning glory fields and water pumping station. The residential area was described in detail by the men groups. The Pagoda, communal house in the village, and burial ground were only described by the worst-off mens and the better-off womens groups. The electricity supply station was described by the worst-off womens and both the better-off groups. The market was described by the worst-off and the better-off womens groups only. The school was only described by the better-off groups and the cultural village house was shown by the better-off womens group.

Seasons, weather and climate

Figure 2.5 and 2.6 are an example showing the seasons, weather and climate events identified by groups. Like the rest of Viet Nam, the community has 4 seasons: spring, summer, autumn and winter. The Chinese calendar follows these seasons. The rainy season starts in January and February and peaks with heavy showers during March until August. The dry season is in September and October. November and December are the wintry months. The weather and climate events throughout the year are related with economic activities, health, income/expense and other events. Illnesses are often in winter, and also events such as the wedding season have effects on expenditure or in production cycles in the winter.

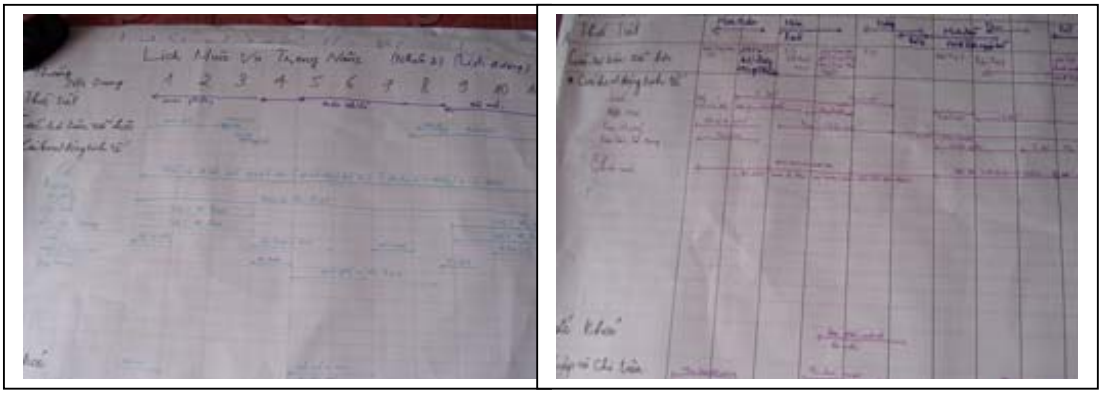


Figure 2.5 Seasonal calendar drawn by the better-off womens group.

Figure 2.6 Seasonal calendar drawn by the better-off mens group.

Food Production

The seasonal aquatic production is also shown in Figures 2.5 and 2.6. All groups mentioned the production of rice and water morning glory. Over the year, for the womens and mens groups they mentioned rice crops and agricultural production. Water morning glory is harvested throughout the year, but kohlrabi, cabbage, mustard and tomato were mentioned as being planted in February by 3 of the groups, and production, maintenance and harvesting of these land vegetables in the late or early months of year. Only the better-off mens group did not mention these vegetables. Raising livestock was mentioned by better-off groups as being carried out throughout the whole year. Interestingly only the mens groups identified fish culture in the village. Fish culture practices were different amongst the men groups. The better-off mens group starts stocking fish in March and April and harvest in November. The worst-off mens group stocks and harvests each 2 to 3 months throughout year. Water dropwort and watercress were mentioned by the worst-off mens group and the better-off womens group, and that they cultivate these aquatic plants during the months from

November to the following February. The worst-off mens group and better-off womens group mentioned more details about their production than other groups such as 2 corn crops and one bean or soil bean crop in a year.

Natural and human resources

The community has different resources such as aquatic plants and fishponds. The input and output into their aquatic plant production systems were described in a resource mapping exercise involving the aquatic plant producers as shown in Figures 2.7 and 2.8. The health situation in the community was also described.

The inputs for aquatic plant production include land, wastewater, fertilizers and pesticides. Land was supplied by the government for each farmer. Water was supplied from fishponds and the wastewater canal system, while fertilizers and pesticides were supplied from stores. Most labour for planting, caring and harvesting the plants came from aquatic plant HHs themselves but some time they get help from their own family relatives. The plants harvested from these systems are their outputs and are sold to wholesale markets via traders, then to retailers, and finally on to the consumers. Some of their produce which is not fit for human consumption is used as feed for livestock or fish.

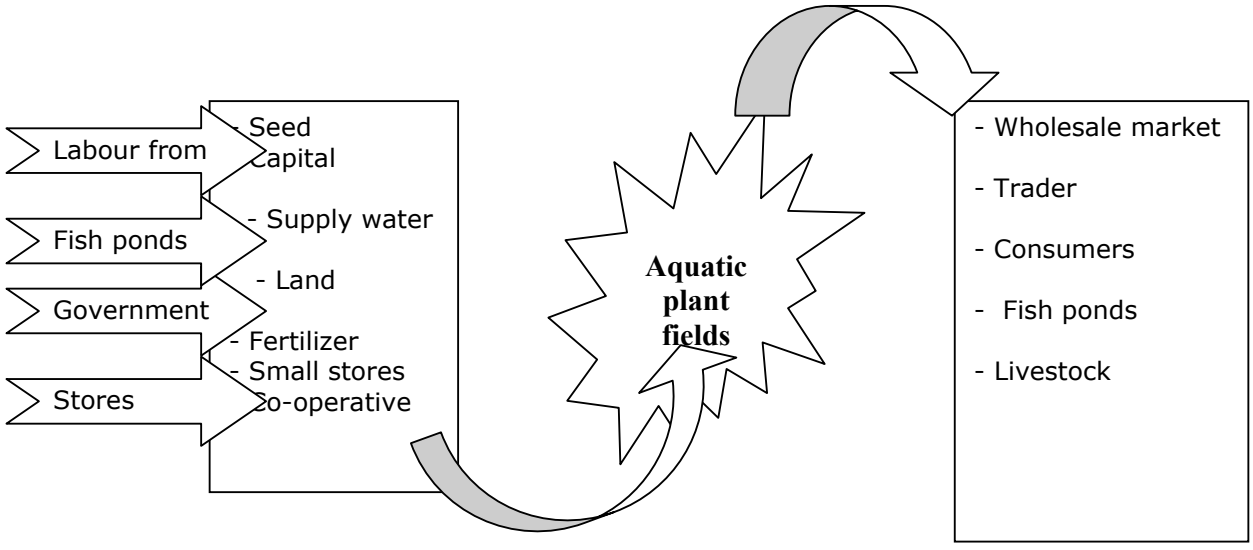


Figure 2.7 Resource mapping of Aquatic plant producers

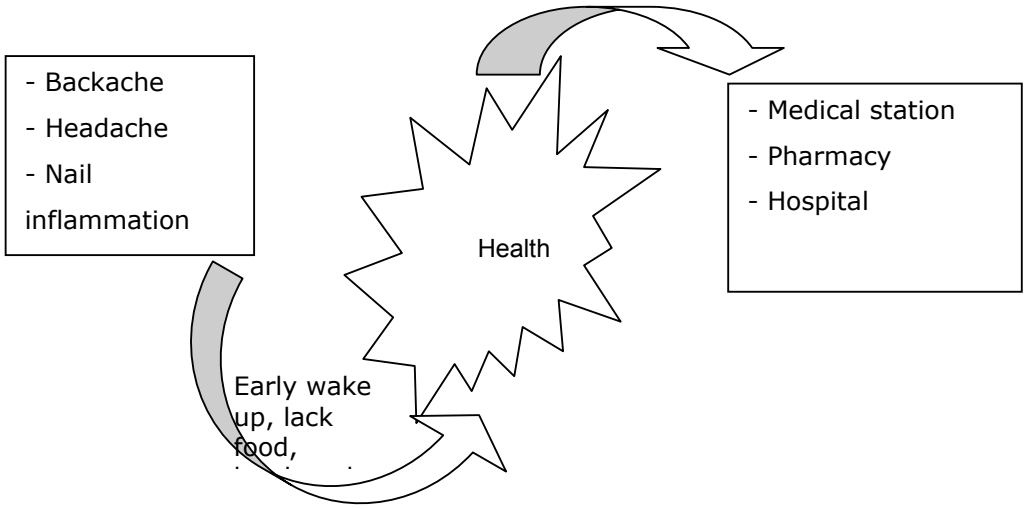


Figure 2.8 Health status of Aquatic plant producers

Aquatic plant producers often spend long periods in the field especially during the harvesting such that they often have headaches, backaches and inflamed nails as their hands are immersed in the wastewater for most of the day. When they have simple health problems, they usually go to the medical station or pharmacy for a check up and buy medicines. If it is a serious problem they go to the hospitals in the city.

The fish farming resources were described by the fish producers as shown in Figures 2.9 and 2.10.

The fish production system needs a supply of vegetables and grass to be used as feeds for the fish. The vegetables may come from the aquatic plant fields while the grass may come from the dykes of the ponds. Vegetables and grass are foods for the grass carp. Only a small portion of the community uses artificial feeds (i.e. pelleted feed) for fish. Wastewater is supplied as fertilizer for pond water for the Indian and common carp. The water used in this system mainly comes from the rain, other ponds and from the wastewater canal system. However too much wastewater leads to high fish mortality possibly due to pollution. Most labour work in the fish pond system is from family labour and they only use more daily labour in harvesting and preparing their ponds . Medicines are used less in the community to treat fish diseases. Lime is used a lot in preparing the ponds.

The fish and other aquatic animals produced are sold at the dykes of the ponds to traders. Some production is used for home consumption and for livestock, especially dead and small fish). The water from the fishponds is also used to supply other ponds, gardens and to wash livestock cages.

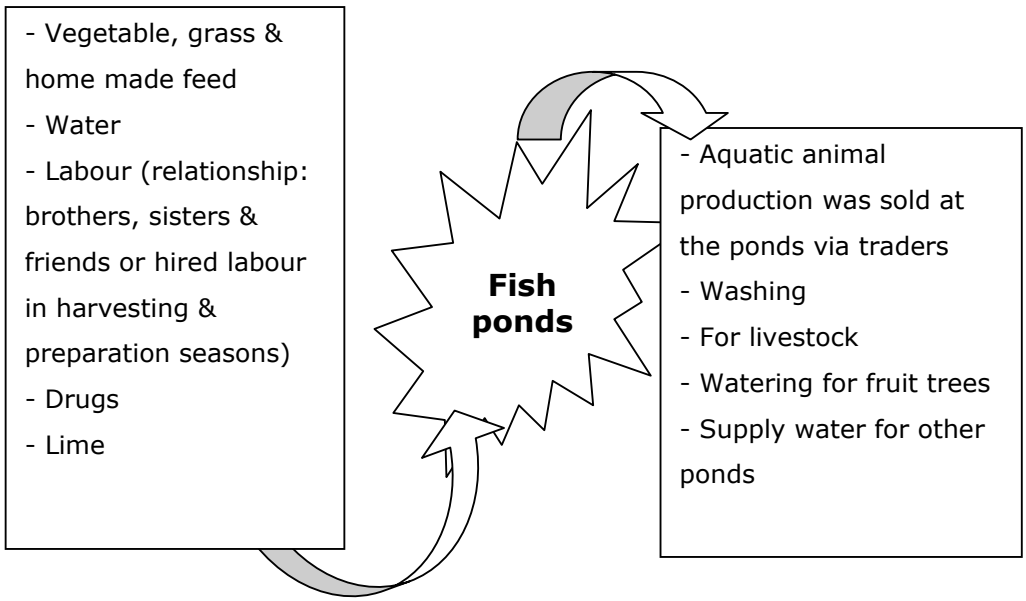


Figure 2.9 Resource mapping of fish producers

As the first producer group spends a lot of time in the water and in the mud, they easily get rheumatism, sore eyes and skin problems. For this group usually wading and standing in mud (and cold water in winter time) for long periods of time could lead on to cause rheumatism. They are also usually in contact with wastewater so they often suffered from sore eyes and skin problems. Skin diseases often are reported to occur during the summer because this is the time when they tend to have more actual contact with wastewater. When this group has health problems they also went to the same places which aquatic plant group went to for treatment.

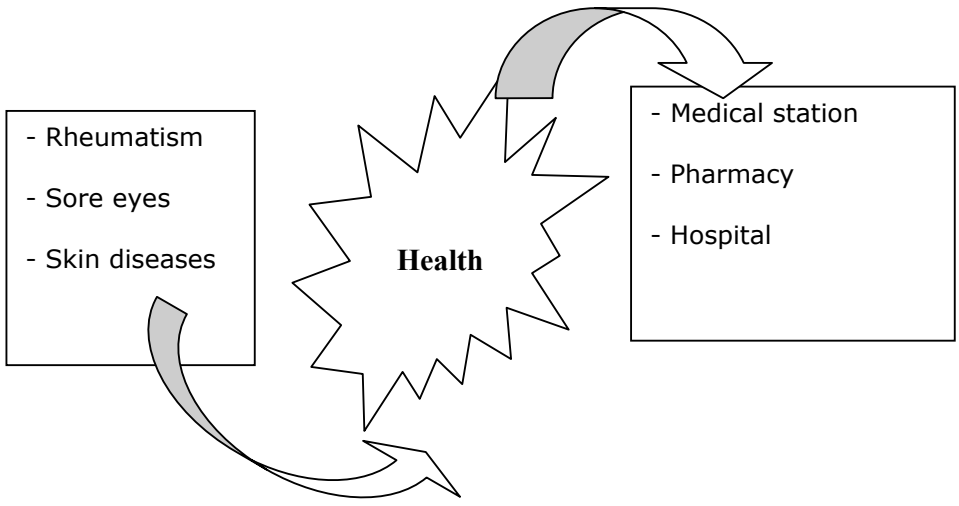


Figure 2.10 Health status of fish producers

Social events and festivals in seasonal calendar

Figure 2.5 and 2.6 show the seasonal calendars. The calendar used was the Chinese calendar which is one month later than the Roman calendar. All 4 groups mentioned the village festival every 10th of February, wedding season from August to February (worst-off womens group only mentioned this season from August to November) and New Year as their main social events and festivals. One festival every 24th of February was only mentioned by the worst-off mens group. Other social events and festivals were mentioned in detail by the better-off groups include a grave visiting festival, pardon full moon, mid-autumn full moon (for children's holiday) and pre-new year every 23rd of December. Only the better-off mens group mentioned having festivities when they exhume the bones of their loved ones for reburial in a final tomb chosen by a geomancer during November and December and birthday feast during the spring season (after the new year). The offering of sacrifices to the village was mentioned by the better-off womens group every 24th of April.

Migration

Migration from the community to the city to find work in the rent/hired labor market is known to occur during free conversations between RIA1 staff and farmers but was not reported by groups in this PCA.

Health issues

The health issues which were mentioned in the PCA include ailments such as flu, headache, backache, tiredness, skin diseases, respiratory inflammation and allergies. These diseases are shown in Figures 2.5 and 2.6. The occurrence of flu was mentioned by 3 groups but at different times during the year. The worst-off womens group mentioned it in January and February, the worst-off mens group mentioned it in May and June and the better-off mens group mentioned it from September to December. The womens groups mentioned headache and backache during September and October. Tiredness occurs in early summer (May to June) for the worst-off mens group and April to May for better-off womens group). The better-off groups also mentioned respiratory inflammation from September to December and skin diseases are only mentioned during rainy season (from June to August) by the better-off womens group. Allergies were only mentioned by the worse-off mens group in May and June because the temperature at that time is suitable for the development of this disease.

Self Sufficiency in Food

This information was not shown in the seasonal calendar. But in the feedback meeting it was discussed that almost all farmers in the commune had only one rice crop per year which they

harvested in April to May so that rice is usually bought between January to April in the market.

Income generating activities/livelihoods

Almost all income in this commune comes from agriculture through the production of amongst others, water morning glory, watercress, water dropwort, fish, rice, corn, beans, dairy cows for milk and livestock. Income is shown in Figures 2.5 and 2.6. The income of the worst-off women and better-off men groups comes from the harvesting of their fish ponds during November and December. But for this the income of worst-off mens group is every 2-3 months. Although most of the water morning glory harvesting happens between April to August, the worst-off groups get income from this activity throughout the year. During other times (e.g. winter and spring), the commune has income from water dropwort and watercress. All groups have income from rice harvesting during April and May and the mens groups have one more income from rice harvesting in October with a second crop during the year. Livestock contributes incomes to households in the commune throughout the year. Some of the expenses reported by the groups include expenditure for weddings, birthday feasts, festival seasons (around Vietnamese's Tet holiday) and children's education.

Food consumption and sources

The participants provided a list of food they eat and its source, whether produced, purchased or collected from their surroundings (Tables 2, 3, 4 and 5).

All groups mentioned rice, water morning glory, pork, fish, kohlrabi, cabbage and tomato as the commonly consumed food. Rice is mostly produced and supplied during April to December. From January to March, the farmers buy rice because they only produce one rice crop a year during April and May. Water morning glory is produced throughout the year. Most HHs raised pigs to sell and not for their own consumption. The mens groups mentioned that they have to buy kohlrabi, cabbage and tomatoes in winter (September to December) and spring (January to March) while the worst-off womens group buys them during August to December.

Table 2. Food types and sources of the worse-off womens group

Months / Food	1	2	3	4	5	6	7	8	9	10	11	12
Rice	Bought			Produced						Bought		
Water M. G	Produced											
Mustard green								Bought				

Kohlrabi, cabbage & tomato								Bought
Potato								Bought
Pork	Bought							
Fruit	Bought							
Aquatic animals	Bought							

Table 3. Food types and sources of the worse-off mens group

Months / Food	1	2	3	4	5	6	7	8	9	10	11	12
Rice	Bought					Produced						
Water M. G.	Produced											
Fish	Bought											
Kohlrabi, cabbage & tomato	Bought									Bought		
Pork	Bought											
Tofu	Bought											
Sugar, milk				Bought								
Fruit	Bought											

Table 4. Food types and sources of the better-off womens group

Months / Food	1	2	3	4	5	6	7	8	9	10	11	12
Rice	Bought				Produced							
Mustard green	Bought (some HHs produced)											
Water M. G.	Produced											
Water dropwort, Cress	Produced & bought											
Kohlrabi, cabbage	Produced & bought											
Pork, beef, egg, duck	Bought through year, (Some HHs produced duck or chicken eggs)											
Fish	Bought											
Chicken	Bought through year, (produced a little)											
Milk	Bought through year, (produced a little)											

Table 5. Food types and sources of the better-off mens group

Months / Food	1	2	3	4	5	6	7	8	9	10	11	12
Rice	Bought				Produced							
Pork	Bought											
Water M. G.	Produced											
Tofu	Bought											
Water dropwort, Cress	Produced								Produced, (Bought few)			
Fish	Bought											
Chicken	Produced, (Bought few)											
Duck & duck egg	Produced											
Cabbage, kohlrabi	Bought									Bought		
Mustard green	Produced											
Potato	Bought											
Taro			Bought									

The better-off womens group produces and buys these vegetables during January and February. All groups mentioned that they have to buy fish for their own consumption throughout year even though they culture fish. The better-off groups mentioned water dropwort and watercress, which they mostly produce. These vegetables are not mentioned by the worst-off groups. Perhaps these vegetables are not common in the commune. We saw during the PCA that morning glory production occupied more fields than water dropwort and watercress (Figure 4). Tofu was mentioned by the mens groups and they have to buy this food throughout the year. Green mustard was mentioned by three groups (womens groups and better-off mens group). The better-off mens group produces this vegetable throughout the year. The better-off womens group produce a little but mainly buy green mustard from the market whilst the worse-off womens group buy this vegetable usually during August to December. Potato was mentioned by the worst-off womens group and better-off mens group, but the latter bought it throughout the year and former bought it during August to December. Fruits which are bought throughout the year, were only mentioned by the worst-off groups. Chicken, duck and eggs were only mentioned by the better-off groups. They mainly produce and buy a little of these food items. Some households in the commune raise dairy cows to produce milk for home consumption.

Figure 11. View of Tran Phu fields

Activity profile of members of the community

The daily activities of all groups were shown in Figures 12, 13, 14, and 15.

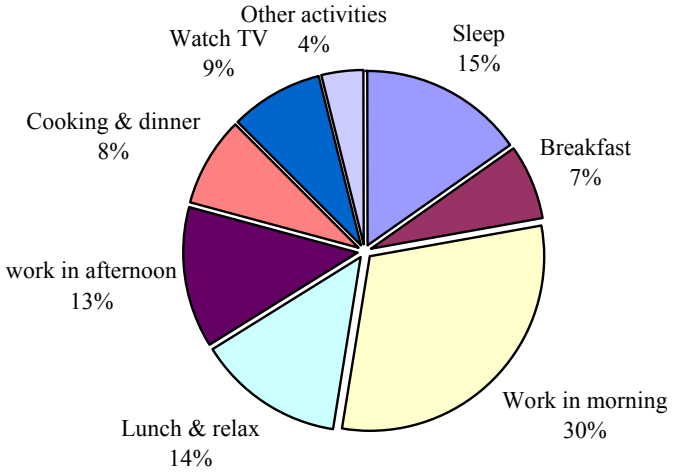


Figure 12. The daily activities of the worst-off womens group

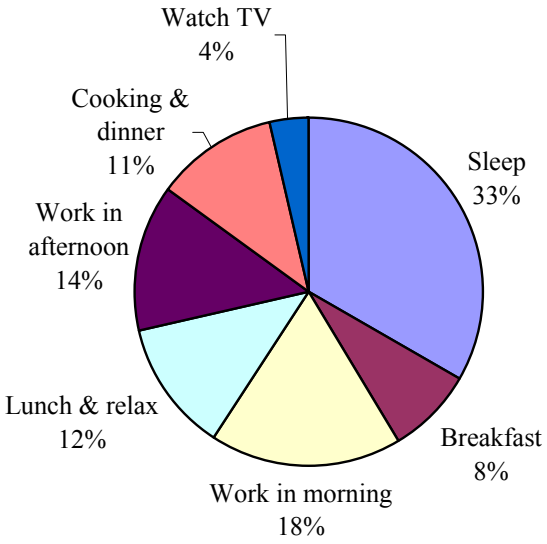


Figure 13. The daily activities of the worst-off mens group

¡ n s¸ng, V	2	2	1	2	1
§ i lµm S¸ r	4	4	3.5	4	4
§ i lµm S¸ r	8	8	5.5	8	8
NghØ¨ n tr	3	3	4.5	2	2
§ i lµm chi	3	3	3	4	3
NÊu vµ¨ n	2	2	2	2	1
Xem TV	3	2	2.5	2	3
Ho¹t ®éng	0	1	0.5	1	3
Taeng th¬i ¸	32	32	29.5	32	32

Nhãm 2

Ho¹t ®éng	Cao V¨n F	Cao Xu©n	NguyÔn V¨	TrÇn V¨n (	§ ç V¨n Li
Ngñ	9.5	9.5	7	7	7
H¸ i rau	0	0	0	0	0
¡ n s¸ng, V	1.5	2	2	2	2
§ i lµm	4.5	4	4	4.5	5

Figure 14. The daily activities of the better-off womens group

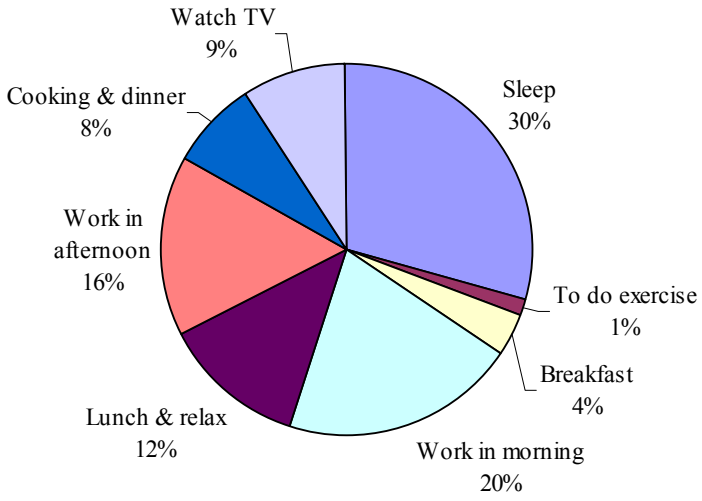


Figure 15. The daily activities of the better-off mens group

The different groups have different times for each daily activity such as the time spent for sleeping in the womens groups is shorter than for the men. The shortest is in the worst-off womens group (only 15% or less than 4 hours) and longest in the worst-off men group, but women spent more time to relax at noon (14% & 17%, around 4 hrs in the womens groups and 12%, around 3 hrs, in the mens groups). The time for working in the morning for the women groups (26-30%, around 7hrs) is longer that of the men (18-20%, around 4.5-5hrs). Similarly, the worst-off womens group spends longer working hours than the worst-off mens group. But the time for working in the afternoon is nearly the same amongst the groups (13-16%, around 3-4hrs). The time for breakfast in the better-off groups (4-5% equal 1 hr) is shorter than in the worst-off groups (7-8% equal 2 hrs). The worst-off mens group has the longest time for dinner and shortest time for watching TV. This may be because they are mixing their time between the two activities. For aquatic plant HHs, they wake up very early (1-2 am) to pick vegetables because customers like their vegetables to be fresh. In general the worst-off women in the community work longer hours than the worst-off men, who spend more time sleeping and eating.

Problems of Producer Groups

In this village, the producer groups were divided into two groups to discuss problems associated with their production systems and related health problems. The results of these discussions are shown in Figures 16, 17, 18 and 19.

For the aquatic plant group, it is hard work as they have to wake up very early (1-2 am) to harvest and prepare vegetables for pick up by the traders. In this business premium is placed on freshness. Some time they do not have good places to sell their produce so that they get low income. The aquatic plant group lack information about the safety and effectiveness of using pesticides so they spend money to buy chemicals to control insect pests however despite this expenditure they still feel they are unsuccessful in controlling the insects. Recently mice have been causing a lot of problems by destroying plants in water morning glory farms but farmers are unaware of how to control them. For water morning glory cultivation, growers are not so interested in learning solutions to the problems about techniques and seeds, as this is very much seen as a traditional job of farmers in this community.

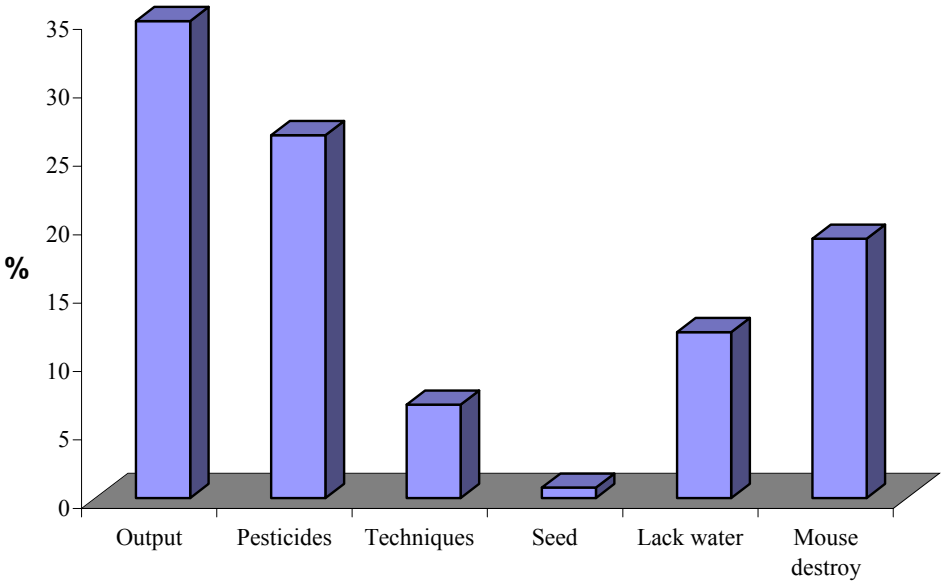


Figure 16. Major problems of aquatic plant producers (n=132)[6]

The fish producer group has a big problem concerning the future of the land they are using for their fish culture as other land uses or developments may come in and marginalize them. This has resulted in their reluctance to make investments to improve their dykes, stock fish and improve feeding. All members of the group feel this very strongly. The second problem ranked is the lack of freshwater for fish culture systems. This is further heightened by their

[6] 11 participants used 12 seeds each to rank their problems.

old irrigation system which makes changing water when farmers need a supply of fresh water for their fish ponds very difficult. They have to wait for rain to come or get water from other ponds. It can affect and reduce the growth of their fish. Farmers lease their ponds and area which they use for their fish farming. This is normally done through an auction process. The terms and durations of these leases are only for a period of between 3 -5 years. Therefore this relatively short period of land's tenure is not enough for investing money in preparing stable banks or other improvements they might wish to make on their ponds. Most farmers want to have periods of lease of at least up to 15-20 years. To improve their yields the farmers need more money or capital to buy feeds. Other problems listed and ranked by the group were lack of markets, poor quality of water source due to waste water and pesticide pollution from the washing out of pesticide sprayers used in controlling insects. Fish diseases are not a major problem in the community as most farmers have large areas and stock their ponds at low densities (extensive and semi-intensive).

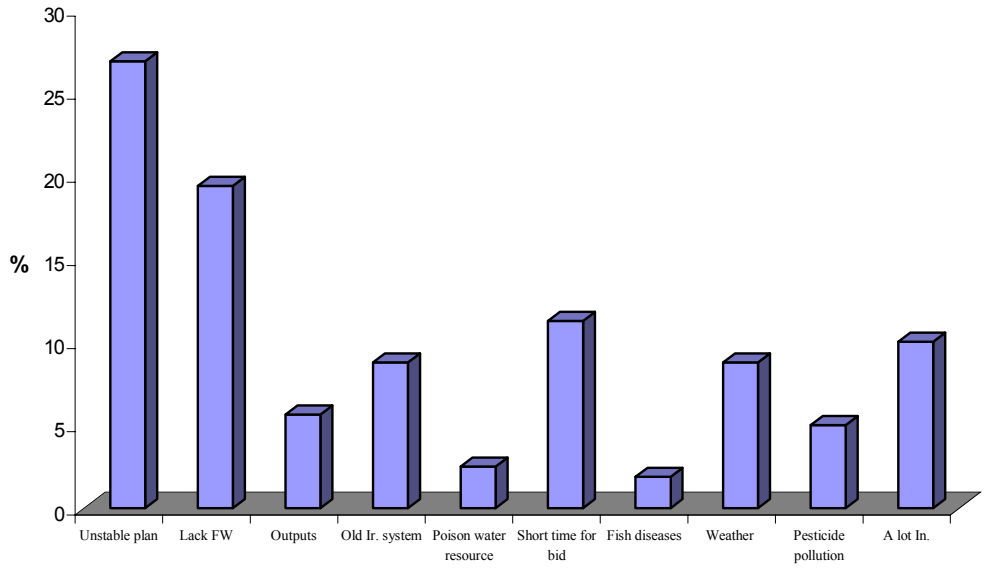


Figure 17. Major problems of fish producers (n=160)[7]

Both aquatic plant and fish producers in the community mentioned skin diseases, rheumatism and backaches as their main health problems. But they rank these problems differently. Skin diseases are big problems for fish producers while backaches and rheumatism are the major problems for the aquatic plant producers. Backaches are not so much of a problem amongst fish producers but it was the second major problem among aquatic plant producers. Sore eyes was mentioned by fish producers but was not mentioned by aquatic plant group.

[7] 8 participants used 20 seeds each to rank their problems.

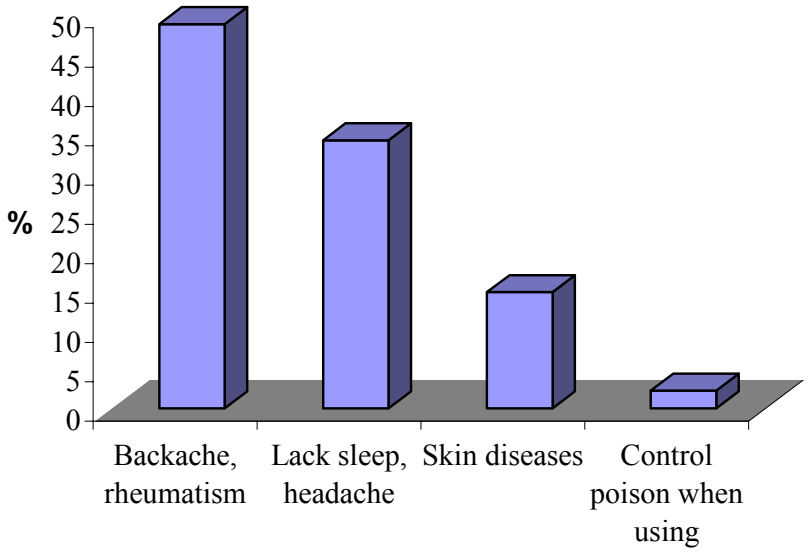


Figure 18. Major health of aquatic plant producers (n=88)[8]

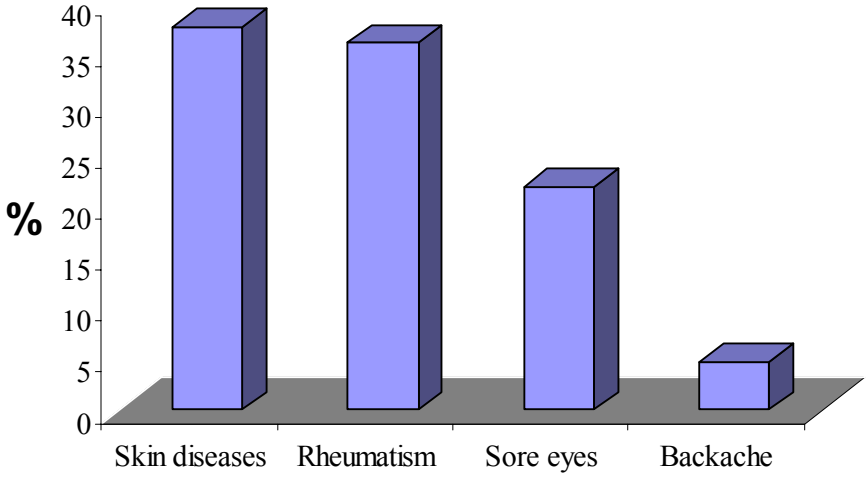


Figure 19. Major health problems of fish producers (n=64)[9]

Conclusions and Recommendations

Khuyen Luong village in Tran Phu Commune is a representative community for aquatic plants (water morning glory, water dropwort and watercress) and fish culture in wastewater. The community is appropriate for selection in succeeding work packages next year. We have established a good relationship with the community, which is good for future collaboration. It has characteristics relevant to the purpose of the Papussa project. The community is facing the

[8] 11 participants used 8 seeds each to rank their problems.
[9] 8 participants used 8 seeds each to rank their problems.

following issues: health, urbanization, and relocation due to urban development. In near future, Tran Phu commune is going to become a part of the urban core.

However, there is very much a problem with the relatively short duration of the leases given to fish farmers when they rent their land – eg only 3-5 years, and this doesn't make them feel confident enough to invest further money into improving their systems and thus their yields. Therefore the fish farmers would like to try and bring about an increase in the duration of their leases for up to 20 years.

Problems with some farmers washing out their chemical sprayers into the water system is causing pollution. Perhaps better regulation for those caught doing this and better warning labelling and instructions for pesticides.

References

1. Tran Phu People's Committee, 2003. Report progress in first 6 months in 2003 of Tran Phu commune.

2. Phuong.,N.T.D., et al., 2003. Institutional Analysis in Hanoi. PAPUSSA reports of WP1.

Index

1. Facilitators in PCA in Tran Phu

Kim Van Van* (Overall Facilitator)

Nguyen Chien Van* (Better-off Men group)

Nguyen Huu Hoa* (Worse-off Women group)

Nguyen Dang Tuan** (Worse-off Men group)

Phan Thu Phuong** (Better-off women group)

Pham Duc Phuc**(Better-off Women group)

(*) Research Institute for Aquaculture No1

(**) NIHE – National Institute of Health and Epidemiology

2. The 4 groups involved in PCA

No.	Group 1(Worst- off women)	No.	Group 2 (Worst-off men)
1	Cao Thi Toan	1	Cao Van Phuong
2	Nguyen Thi Mai	2	Cao Xuan Thu
3	Luong Thi Thuc	3	Nguyen Van Quang
4	Nguyen Thi Tinh	4	Tran Van Chung
5	Cao Thi Ky	5	Do Van Lieu
6	Luong Thi Tha	6	Luong Van Binh
No.	**Group 3 (Better off women)**	**No.**	**Group 4 (Better off men)**
1	Luong Thi Kinh	1	Nguyen Van Phuong
2	Luong Thi Ve	2	Nguyen Van Phuong
3	Luong Thi Nam	3	Le Van Vinh
4	Nguyen Thuy Hong	4	Tran Van Thanh
5	Nguyen Thi Vu	5	Luong Phuc Cuc
6	Nguyen Thi To Phuong	6	Le Van Pham