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Participatory Community Assessment in Duc Tu Village,
Duc Tu Commune, Dong Anh district, Hanoi, Vietnam

From 26th October to 10th November 2003

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

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List of abbreviations

- | | |
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| 1. NIHE | National Institute of Hygiene and Epidemiology |
| 2. RIA 1 | Research Institute of Aquaculture Number 1 |
| 3. VAC | The garden, pond and animal raising model |

Abstracts

The PCA (Participatory Community Assessment) process of Duc Tu commune was carried out by RIA 1 and NIHE teams in October, 2003. The commune was chosen as being representative of a well structured gardening, aquaculture and livestock breeding (VAC) based production model. PCA tools which were included 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 in the day before the main PCA process with three persons who are now working as government employers in the commune. There were 34 persons (16 females and 18 males) involved in the PCA process. All participants were then divided into the four groups which were ranked as worse off and better off groups based on gender. These groups had lately discussed the next five tools which were listed previously. During the activity of Resource mapping and Problem ranking participants were assigned into two groups based on their profession and gender separately. Duc Tu commune is a Peri-urban area of Hanoi where people are working in agriculture with relatively clean water from the Red River.

This community might be appropriate to continue working on the ongoing work packages. It is also relevant to the specific objectives of PAPUSSA project.

Part 1: Introduction

1. Structure of the PCA

This study was carried out between October 22nd to the 10th November 2003. The RIA1 team first visited the commune on October 22nd to carry out the well-being ranking. Afterwards RIA 1 and NIHE teams began the main PCA process on the 27th October. After summarizing and analyzing information obtained at RIA 1 on the 28th October the teams gave a ‘debriefing session’ with villagers on the morning of 31st October. The RIA 1-NIHE team for the fieldwork consisted of:

1. Phan Thu Phuong
2. Nguyen Dang Tuan
3. Kim Van Van
4. Nguyen Huu Hoa
5. Nguyen Tat Hao
6. Nguyen Thi Dieu Phuong
7. Nguyen Thuy Tram
8. Pham Duc Phuc

2. Description of Duc Tu Village

Selection Process for the Village:

Once the tentative commune sample framework had been established, the RIA1 team (Mr. Kim Van Van and Ms. Nguyen Thi Dieu Phuong) began the work by making an appointment with the officer of Duc Tu Commune, Dong Anh district in the afternoon of 22nd October. Mr. Phuc (Head of the Farmers Union supplied information and as a result Duc Tu Village was chosen as the target community for the PCA. The commune was chosen as representative of carrying out garden, pond and animal raising (VAC) and fish culture in water from the Red River (considered as non wastewater).

i) Location: Duc Tu is one village in Duc Tu commune and Dong Anh district. It is located approximately 25 kms north of Hanoi and as such is the furthest out of the four PCA communities we are studying from the centre of Hanoi. It is bordered by the Duc Tu channel near Thac Quan village to the northeast, Hau village to the northwest, the railwayline to the southwest and the Ngu Huyen Khue river to the south east. Following

information from key informant Mr. Vu (2003) the total land area of the commune is 8 km² with a total of population of 13,206 people. The land used in the village for garden, pond and animal (VAC) is 25.8 ha.

ii) Population: Duc Tu commune consists of 8 administrative units equivalent with 8 villages. There are 3079 households including only 269 households doing non-agricultural occupations (Vu, 2003). At the moment there are 166 (5.4%) households in the commune that are classified as poor (They have income of less than 130,000 VND/month/person (Duc Tu's People Committee, 2003).

Duc Tu village has a population of 3467 people in 826 households. The village is divided into 3 sub-villages: Duc Tu 1, 2, 3.

iii) Ethnic composition: All villagers in Duc Tu village are Kinh ethnic, Kinh is the majority ethnic group living in the plain, lowland areas of Vietnam.

iv) Other secondary information:

Duc Tu commune has always worked in traditional agricultural-based production systems. In the last 5 years the commune has converted large areas of its land to doing garden, fish culture and animal raising (VAC systems). Some other farmers have also changed to recycling metals. These changes in income earning activities make the economics of the commune better but also at the same time are contributing to make the environment more polluted.

Duc Tu village was chosen as the representative of an aquatic plant and fish culturing zone of peri-urban Hanoi using non-wastewater. (water from the Red River is considered as the least polluted water source in peri-urban Hanoi)

3. The characteristics of each PCA tool

Table 1: Characteristics of each PCA tool

Activity	Group composition	Details of the Methodology	Outcome
Village mapping	<p>The better off womens group consisted of 6 women (4 women doing garden, pond and animal husbandry, 2 women growing vegetables and rice)</p> <p>The worst off womens group consisted of 7 participants all doing garden, pond, animal husbandry (VAC) and growing vegetables and rice.</p> <p>The better off mens group comprised of 7 participants with 6 men raising fish and 1 working as an administrator.</p> <p>The worst off mens group included 4 men with 2 doing garden, pond and animal husbandry (VAC), and 2 raising rice.</p>	<p>The researcher asked the participants about the important locations of the village for them such as the settlement, paddy fields, health center, schools, fish ponds, pumping station etc. Then the participants drew the village map themselves.</p>	<p>This method enabled us to come up with a more complete map through interactive discussion.</p>
Timelines	<p>All the participants contributed actively in the discussion</p>	<p>Villagers were asked to sketch the village history using timelines.</p>	<p>More comprehensive overview of the village history including dates was taken</p>
Seasonal Calendars	<p>This activity was carried out by four groups a) better off mens group b) better off womens group c) worse-off mens group and d) worst off womens group separately.</p>	<p>Each group was asked to describe the various factors associated with their livelihood via cropping pattern, water availability, pest and disease attacks, cultural activities, health issues, natural disasters, water issues and labor use. Then participants were asked to indicate the importance of these factors through out the year.</p>	<p>This provided a comprehensive picture as to how the overall importance of different activities varied throughout the year and across the four groups.</p>

Food consumption	This activity was carried out by four groups a) better off mens group b) better off womens group c) worse off mens group and d) worse off womens group separately	Each participant within these groups was asked to discuss and write down the food items that they consume throughout the year under three categories: bought, produced and harvested.	A comprehensive overview of the main food items that they consume and the differences of the food habits amongst the different well being groups.
Activity matrix	This activity was carried out by four groups a) better off mens group b) better off womens group c) worse off mens group and d) worse off womens group separately	Individuals of all the four groups were asked to list their day to day activities first separately and then collectively. Afterwards the researchers will count all the hours of an activity spent by all participants thought one day.	Day to day activities of the villagers were examined and categorized as primary and secondary activities.
Resource mapping	This time, all participants were divided into two groups, one group doing garden, pond and animal husbandry, the other group raising fish	Each occupational group discussed separately about resources related to plant and fish culture and health in village	A comprehensive overview of the resources of the village in relation to their aquatic production systems were taken according to the perception of two different occupational groups
Problem ranking	This time, all participants were divided into two groups, one group doing garden, pond and animal husbandry, the other group raising fish	Each occupational group discussed separately about problems related to plant and fish culture and health	Enabled us to assess the problems and how they directly impact on villagers life and health

Part 2: Details of PCA activities

C. Social characteristics of the community

1. Well being ranking

After working and discussing with Mr. Do Duc Phuc (Head of Farmers Union) about the objectives of the PCA and project, we were supplied necessary information and a list of 34 households (including fish production, fish trading, rice cultivation, fish seed; this consisting of 17 men and 17 women from the community). Firstly the names of each household were written on a card. After that, we decided to invite three key informants and explain that the purpose of this activity was to gather information on the socio-economic status of the village families. The informants were asked to rank the families and suggest criteria that could be used to describe a socio-economic class. Typical variables included: income level and sources of income, land area, type of house, motorbike, telephone, TV, refrigerator, educational attainment, quantity and quality of daily food.

Three key informants were asked to rank families (repeat three times for each person)

1st Time ranked by Mr. Do Duc Phuc, Head of Farmers Union

2nd Time ranked by Mr. Pham Van Kim, Head of Duc Tu village

3rd Time ranked by Mr. Nguyen Van Vu, Head of Village Military

Note: For all three times of ranking, key informants divided participants into two groups: group 1: worst off group and group 2: better off group

Table 6: List of invited participants

STT	Name	Time 1	Time 2	Time 3	Note
1	Tran van Hau	1	2	2	VAC
2	Do Duc Dat	2	1	1	VAC
3	Nguyen van Thoi	2	1	1	VAC
4	Nguyen Huy Xa	1	2	2	VAC
5	Nguyen Van Loc	2	2	2	VAC
6	Le Van Luong	1	2	2	VAC
7	Nguyen Van Duc	2	1	1	VAC
8	Do Van Da	2	2	2	VAC
9	Nguyen Duc Dao	1	1	1	VAC
10	Chu Thi Tuyet	1	1	1	VAC
11	Le Van Nghia	2	2	2	VAC
12	Do Thi Tho	2	2	2	VAC

13	Do Van Ly	2	2	2	VAC
14	Nguyen Dinh Thiem	2	1	1	VAC
15	Pham Van Hien	2	2	2	VAC
16	Nguyen Van Ninh	2	2	2	VAC
17	Chu Thi Viet	2	1	1	VAC
18	Chu Thi Van	2	1	1	VAC
19	Nguyen Van Vu	2	2	2	Fish/Rice
20	Nguyen Van Chien	1	2	2	Fish/rice
21	Le Van Thin	2	2	2	Fish/rice
22	Nguyen Dang Toan	2	2	2	Fish/rice
23	Nguyen Van Binh	2	2	2	Fish/rice
24	Pham Van Dong	2	2	2	Fish/rice
25	Nguyen Van Hung	1	1	1	Fish/rice
26	Nguyen Van Chau	1	1	1	Fish/rice
27	Nguyen Van Mong	2	2	2	Fish/rice
28	Pham Van Bac	2	1	1	Fish/rice
29	Nguyen Van Cai	1	2	2	Fish/rice
30	Nguyen Cong Luan	1	2	2	Fish/rice
31	Nguyen Van Canh	1	2	2	Fish/rice
32	Nguyen Duc Quang	2	1	1	Fish/rice
33	Do Duc Phuc	2	2	2	Fish/rice
34	Nguyen Van Hien	2	2	2	Fish/rice

Table 7 : Results of well being ranking

Group 1 (worse off womens group)

- 1 Nguyen Thi Thoi (wife)
- 2 Nguyen Huy Xa
- 3 Le Van Luong
- 4 Nguyen Duc Hao
- 5 Chu Thi Tuyet
- 6 Chu Thi Viet
- 7 Chu Thi Van
- 8 Nguyen Van Chau

Group 2 (worse-off mens group)

- 1 Tran Van Hau (Quy)
- 2 Do Duc Dat
- 3 Nguyen Van Duc
- 4 Nguyen Van Chien
- 5 Nguyen Van Hung
- 6 Pham Van Bac
- 7 Nguyen Van Cai
- 8 Nguyen Cong Luan
- 9 Nguyen Duc Quang

Group 3 (better off womens group)

Group 4 (better off mens group)

- | | | | |
|---|------------------------|---|------------------|
| 1 | Nguyen VAn Loc (Thanh) | 1 | Do Van Da |
| 2 | Le Van Nghia (wife) | 2 | Do van Ly |
| 3 | Do thi Tho | 3 | Nguyen Van Ninh |
| 4 | Pham Van Hien(wife) | 4 | Nguyen Van Vu |
| 5 | Le Van Thin (wife) | 5 | Nguyen Dang Toan |
| 6 | Pham van dong (wife) | 6 | Nguyen Van binh |
| 7 | Nguyen Van Mong(vi) | 7 | Pham Van Dong |
| 8 | | 8 | Nguyen VAn Canh |
| | | 9 | Do duc phuc |

Table 8: Well-being ranking criteria

Rank	<u>Trial 1</u> Mr. Do Duc Phuc, Head of Farmers Union	<u>Trial 2</u> Mr. Pham Van Kim, Head of Village	<u>Trial 3</u> Mr. Nguyen Van Vu Head of Village Military
1	Lack of concern about science technology applied into production, low income, living condition is poor. Poor responsibility for social affairs	Low income, without motorbike	Low income, poor knowledge, lack of concern about science technology applied into production
2	Active, high income, cement house, motorbike, telephone. Concern about science technology applied into production. All the family members are well-behaved.	High income, with motorbike, cement house. The family is good in many aspects: economy, cultural and social knowledge. Mainly the family are able to bid for a contract for land for fish culture.	High income, active farmer. Mainly the family are able to bid for a contract for land for raising fish.

A. Physical characteristics of the community and resource systems

1. Community map:

1.1. Better off womens group

According to the maps which were drawn by participants Duc Tu is bordered by Co Loa commune to the West, by Da Hoi commune to the North-East, and to the South by VAC systems and fish ponds.

There is one main road in Duc Tu village which divides the commune into two separate areas. To the north of the road is residential and to the south is an agricultural production area and aquaculture which takes water from Ngu Huyen Khe river (a branch of the Red River). In the village there is a network of several small roads. In the residential area there are some small fish ponds but not concentrated.

The participants also included the medical station, secondary school, kindergarten, post office, graveyard, area for recycling metal and an historical monument to the west of the village.

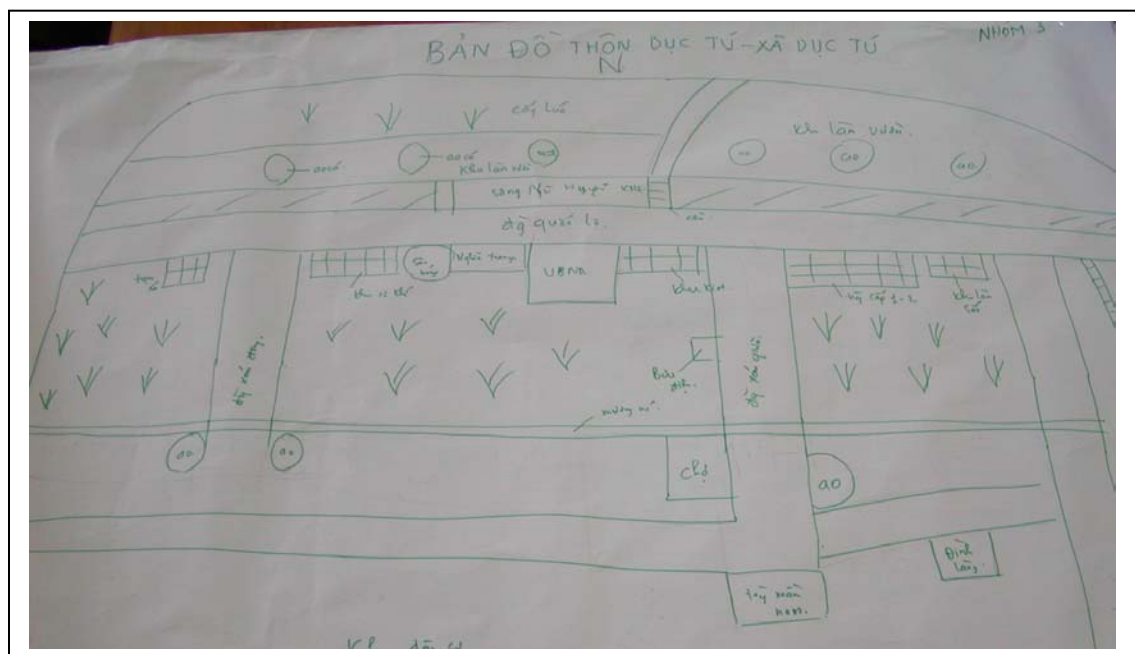


Figure 1: Community map of Duc Tu village by better off womens group

1.2. Community map of Duc Tu village by worst-off womens group

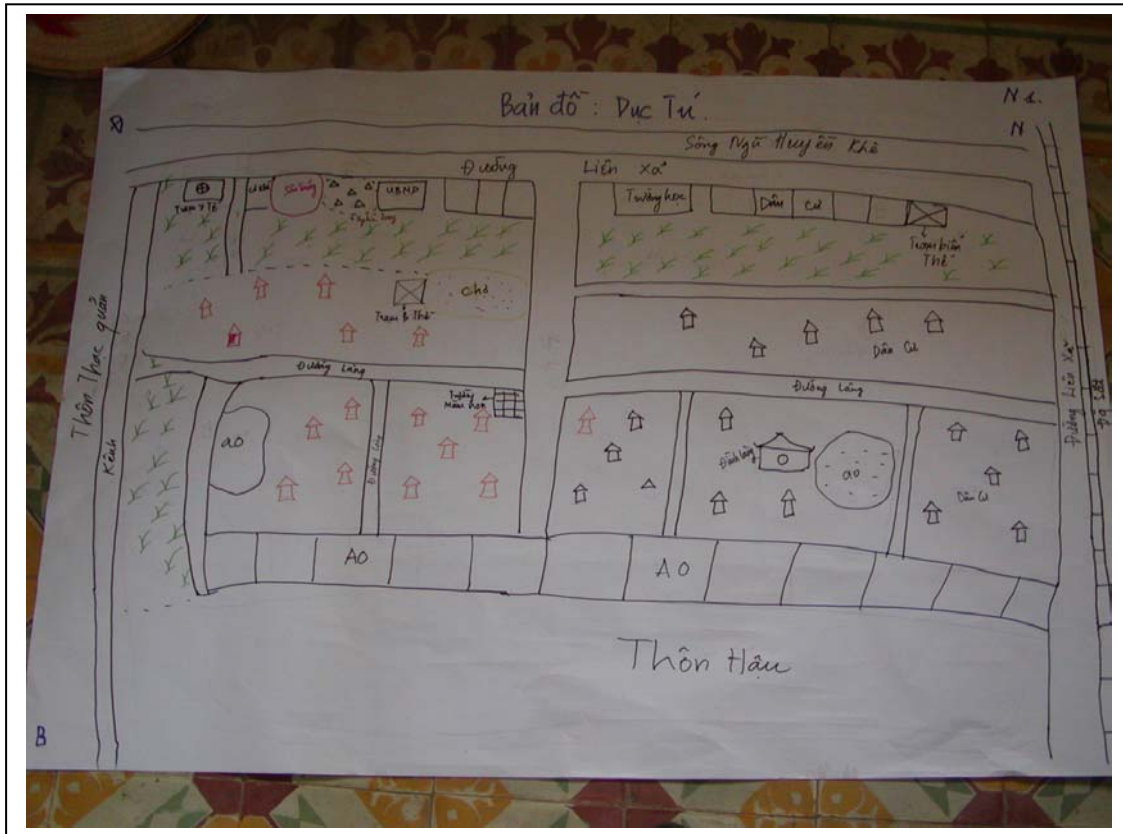


Figure 2 Community map drawn by the worse off womens group

- **Boundaries:**
Duc Tu is a village in Duc Tu commune and Dong Anh district which borders the Duc Tu channel near Thạch Qua village to the northeast, Phuc Hau village to the northwest, by the railway line to the southwest and the Ngu Huyen Khe river to the southeast. In the residential area, there are some small ponds where water is pumped from small channels.
- They drew a health station, peoples committee hall, school, electricity station, market and pagoda in the northwestern part of the village.
- The map of the worse off womens group focused only on the residential areas, not on the farming areas on the other side of Ngu Huyen Khe river.

1.3 Community map of the better off mens group



Figure 3: Community map of the better off mens group

- **Boundaries:** Nghia Vu village to the north
- They included one main road in the village near the peoples Committee Hall, dividing the village into two separate zones. On the north of the road they drew the living area and to the south of the road large land areas for farming rice, vegetables and fish ponds where they source water from Ngu Huyen Khe river (one branch of the Red River). There drew 6 water pumping stations alongside of Ngu Huyen Khe river and within the village some small roads and a few smaller fish ponds .
- They included a health station, schools, kindergarten, post office, graveyard, metal recycling area and pagoda in the west part of the village.

1.4 Community map of the worst off mens group

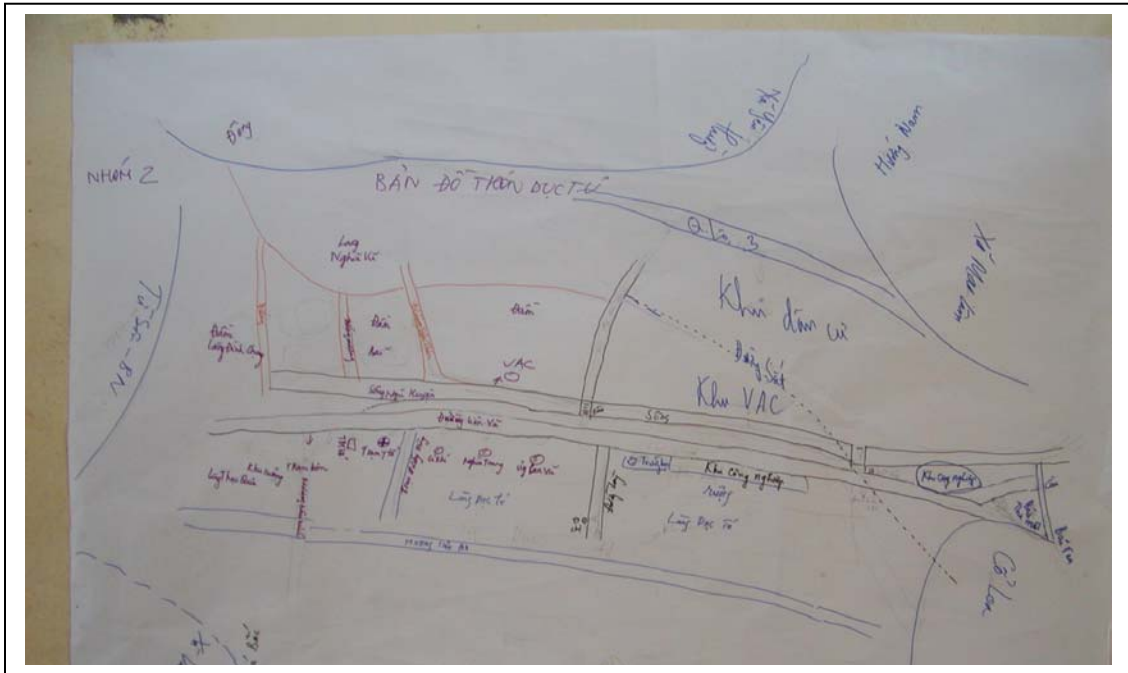


Figure 4: Community map of worst off mens group

- **Boundaries:**
The worst off mens group set the boundaries of the village as Yen Thuong commune to the South, Van and Lien Ha commune to the north, and Co Loa commune to the west.
- They drew the main road and Ngu Huyen Khe river dividing the village into two separate zones. On the north of the road was the residential area and on the south of the road the agricultural land: large areas for rice, vegetables and fish ponds which receive pumped water from Ngu Huyen Khe river (one branch of the Red River) were included. They drew 1 electrical pumping station next to the Ngu Huyen Khe river which supplies water for these production activities.
- The worst off mens group also drew the health station, schools, kindergarten, electricity station, post office, cemetery, and metal recycling area in the village.

2. Seasonal calendar

2.1 Seasons, weather and climate events in seasonal calendar (See Tables 9, 10, 11, 12)

2.1.1 The better off womens group (Chinese calendar)

- Weather: The seasons around the year followed: spring, summer, autumn, winter. From January to February, there is spring rain, cold and dry weather. From March to May, there are light showers, humid and hot weather. From June to July, there are heavy showers and hot sun. From September to October, the weather is fine with light sun. November and December are winter time, the weather is very cold.

2.1.2 The worst off womens group (Chinese calendar)

- Weather: From January to February, there is fine rain, cold and dry weather. From March to April, the weather is humid and hot. From May to July, there are heavy showers, hot sun and a lot of storms. From August to September, the weather is fine with light sun. October to December is the winter time when the weather is very cold.

2.1.3 The better off mens group

- Weather: From January to March, there is fine rain, biting cold. From April to June, the weather is humid, sunny and hot. July and August, there are heavy showers, and increased water level in the river. September and October is autumn time, the weather is fine and light sun. November and December are winter time, the weather is very cold.

2.1.4 The worst off mens group

- Weather: From January to February, there is spring rain. From March to May, the summer weather is humid, sunny and hot. July and August, there are heavy showers and many storms. September and October is autumn time, the weather is fine and dry with light sun. November and December are winter time, the weather is very cold.

2.2 Production in seasonal calendar

Production in seasonal calendar was shown by all groups in Tables 9, 10, 11, 12. All groups mentioned rice cultivation and fish culture. They also mentioned two rice crops during the year, one in spring and the other in winter seasons. For fish culture the better off womens group mentioned they start to stock fish fingerlings into ponds at the beginning of the year, then 7 months for culturing and then harvest fish in the last three months of the year. The activities of fish raising were similar in the three other groups. Only the worse off womens group spend the two months (December, January) for stocking their fingerlings. Livestock raising was mentioned all year round by all of the groups except the worst off mens group.

3. Resource mapping

The participants were divided into two production groups to do the resource mapping activity. One group doing fish culture and the other group doing garden, pond and animal raising.

The two groups have resources such as fish ponds, rice fields, gardens, small ponds and animal husbandry.

Inputs and outputs for rice/fish ponds were described in Figures 5 and 6. The inputs of the fish pond were fingerlings, which were often self-produced by farmers or bought from RIA1; feed/fertiliser for fish culture was often pig, chicken and quail faeces. Water was pumped by the farmer-cooperatives with individual farmers having to pay for it. Chemical products used in the village for their fish farming activities was only lime powder. They said that they did not use any kind of other chemical products because of price and fear of harmful effects. Labour is mainly from the family but sometimes rented from outside of the commune in high season. The fish cultured are sold in the wholesale markets, then on through traders to retail markets and finally to the consumer. Mud from the pond bottoms are used as fertilizer for the gardens. Because of the characteristics of the work of the fish farmers, they often have sleepless nights, headaches and skin problems associated with their constant exposure to waste water. When the fish farmers have health problems, firstly they use self-treatment with herbs and medicines. If the illness gets worse, then they go to the commune health station or private health personnel in the commune, some even go to the provincial hospital.

3.1 Fish Culture Group

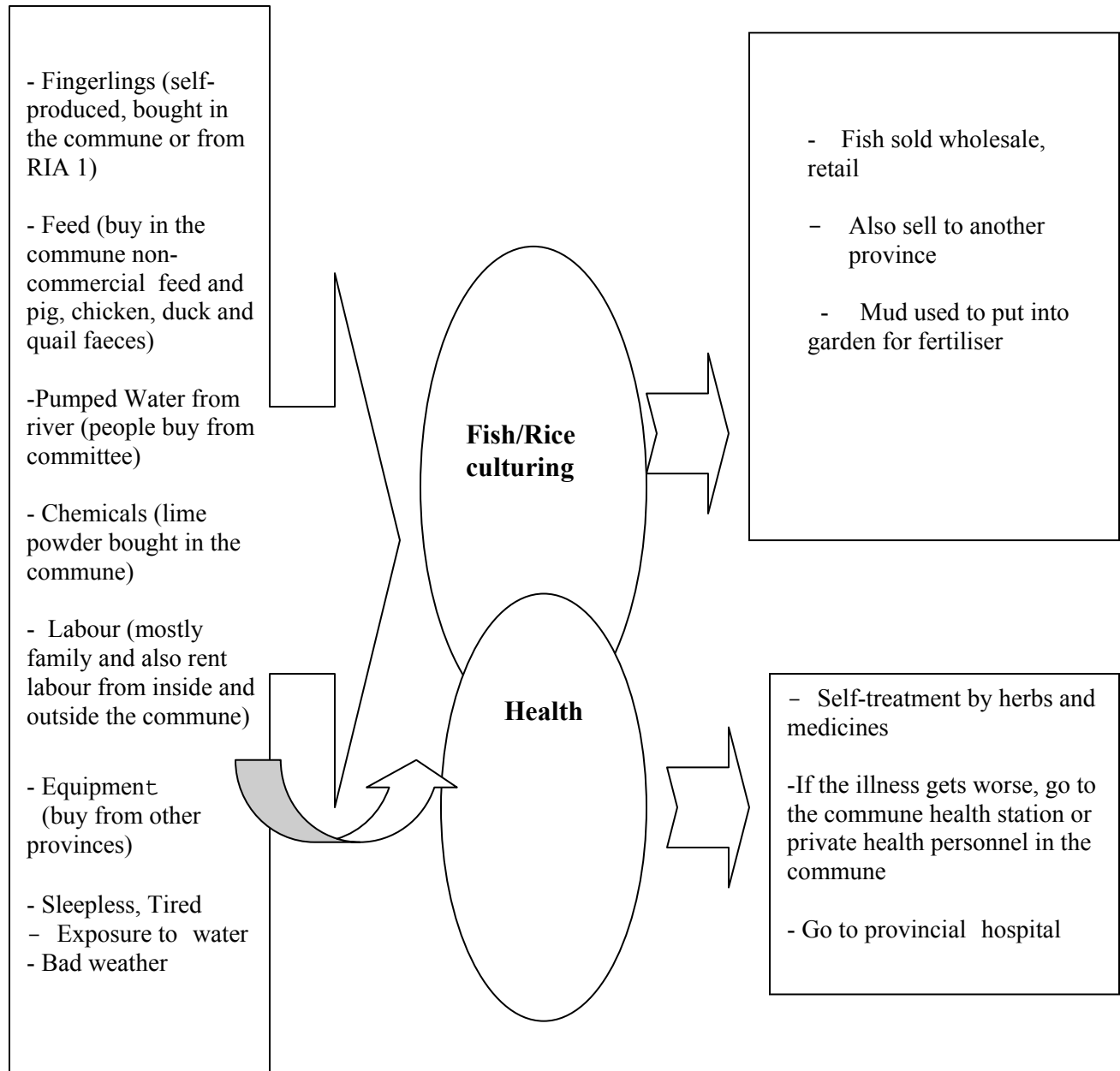


Figure 5: Resource mapping of Fish Culture Groups.

3.2 Garden-Pond-Animal raising group (VAC)

The inputs of the garden, pond and animal raising group were separated into categories depending on the type of production (shown in Figure 6). In general, some outputs of one system can be used as inputs for other systems. For instance, mud from ponds can be used as fertilizer in garden or vegetables from garden can be used as feed for fish. The farmers in this group did not mention about health problems, maybe they did not relate their occupation could involve risks to their health.

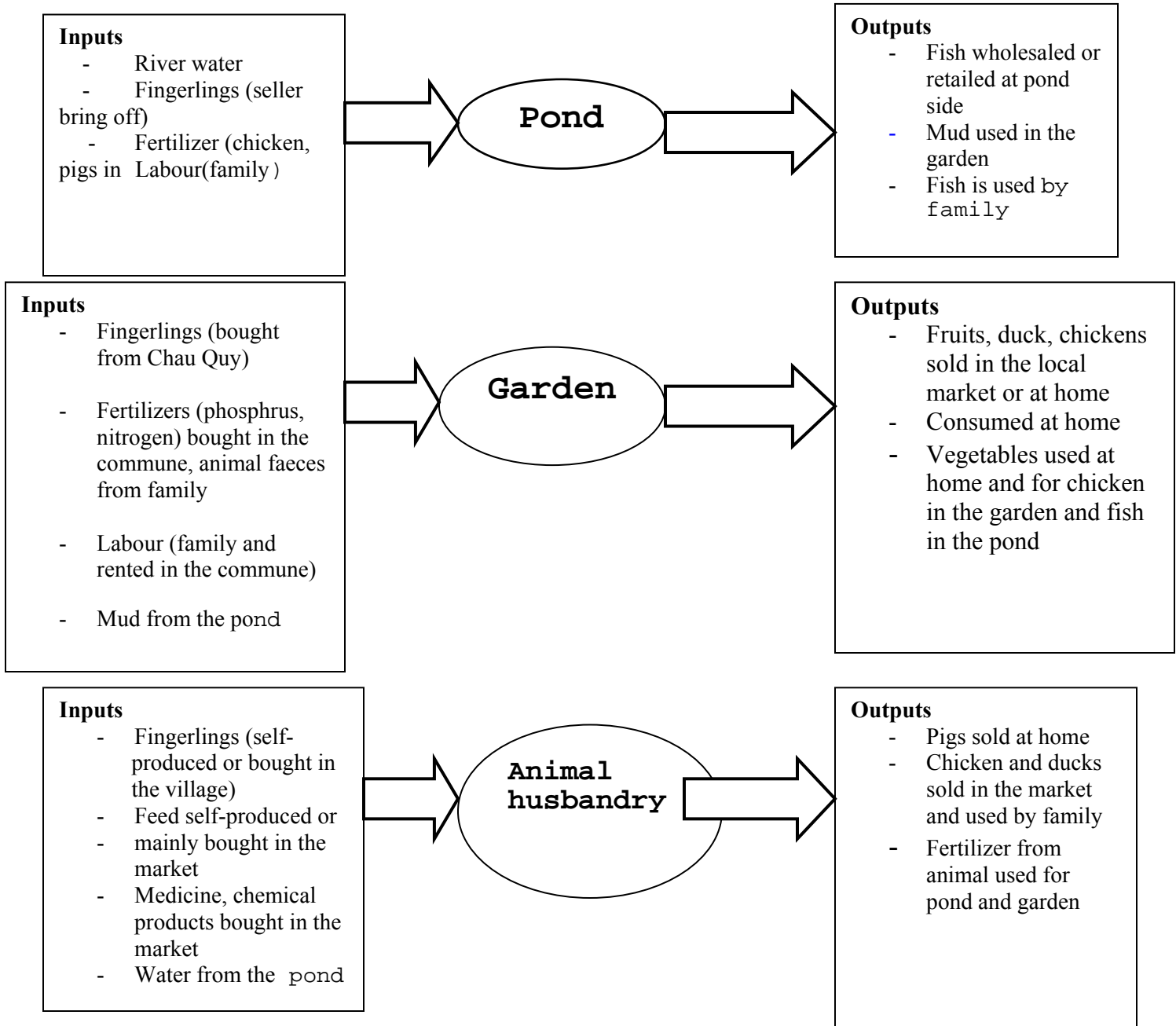


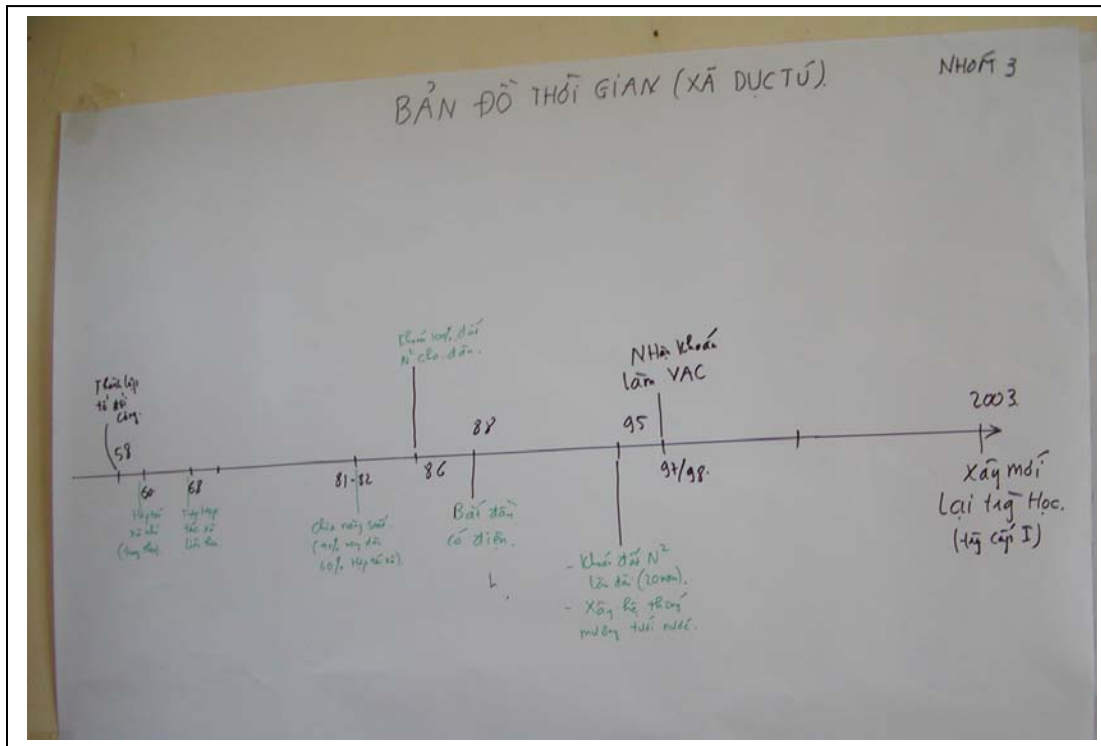
Figure 6: Resource map of Garden-Pond-Animal Raising Group

B. Historic Profile of the Community

Timelines

To understand more about the community, all groups have discussed and drawn timelines of Duc Tu village. The results are shown in Figures 7 - 10. Historical events such as land reform, installation of electricity supply, building schools, “Hire 10”¹, establishment of farmers co-operatives were mentioned by all groups. However, the same historical events but different times were mentioned by the different groups such as installation of electricity supply in the community was mentioned by the better off womens group in 1988, by the worse-off womens group in 1985, by the better off mens group in 1964 and by the worse-off mens group in 1966. This is some indication especially from the better off mens group that they had access to an electricity supply before other groups of people in the community. The development of local jobs in recycling metal was mentioned by the worst off womens and mens groups but the times that it began in the community were very different. It was not mentioned at all by the better off mens group perhaps because the better off mens group mainly consisted of fish farmers who had no contact with such income earning activities.

1. The Better Off Womens Group:



¹ "Hire 10" is a decree-law from Vietnam government in agriculture which gives land use's right to each HHs so that individual farmers can actively manage their own land .

Figure 7: Timeline of the Better Off Womens Group

Table 2: Important Dates and Activities in the village for the Better Off Womens Group

Year	Activities
1958	Establishment of first Agriculture Co-operative
1960	Establishment of first smaller Agriculture Co-operative in individual village
1968	Establishment of small Agriculture Co-operative in other villages
1981-1982	Divide interest rate: 40% interest rate for farmer and 60% for Agriculture Co-operative
1986	Government give 100% agricultural land to farmers by "Hire 10" law.
1988	Electricity supply installed to village
1995	Government give the agricultural land to the farmer for long term (20 years), construction of non waste water irrigation system for Duc Tu commune.
1997-1998	Farmers receive land for garden, pond and animal raising
2003	Build new secondary school

2. The Worse Off Womens Group

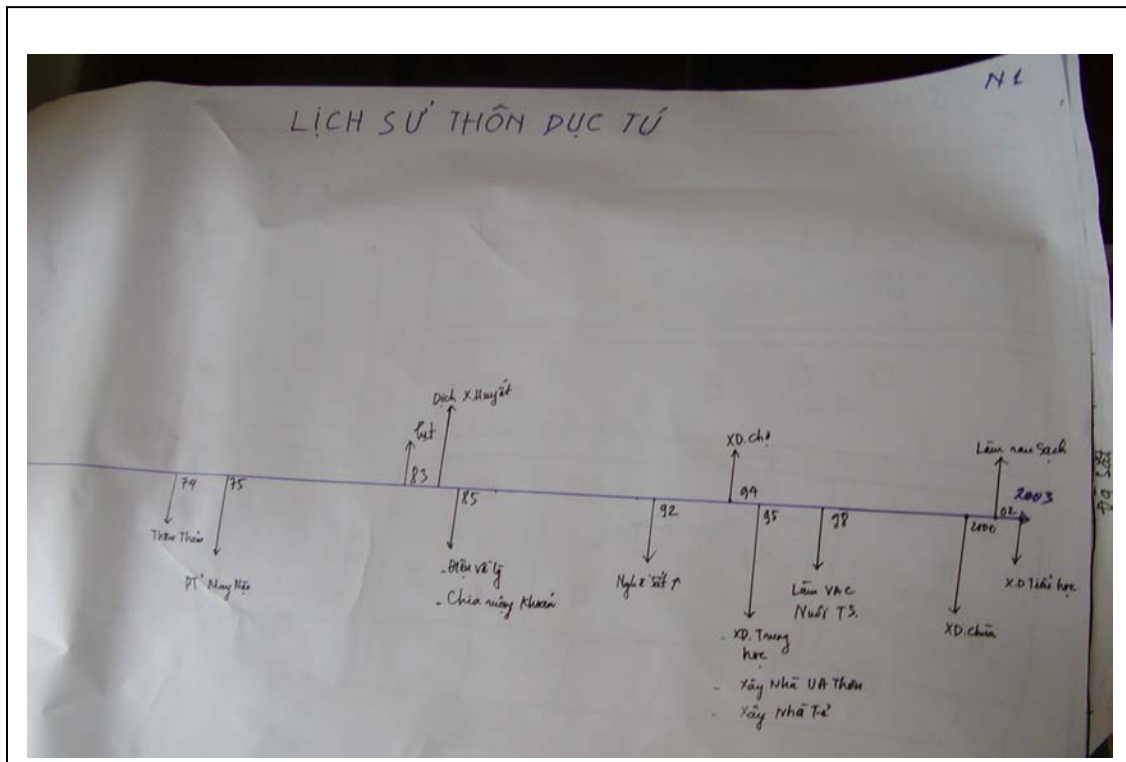


Figure 8: Timeline of the Worse Off Womens Group

Table 3: Important Dates and Activities in the village for the Worse Off Womens Group

Year	Activities
1974	Develop embroidery work
1975	Develop tailors jobs
1983	Flood
1984	Dengue fever epidemic
1985	Electricity supply installed in the village
1992	Develop jobs in recycling metal
1994	Build market
1995	Build secondary school
1999	Doing garden, pond and animal raising. Fish culturing
2000	Renew the pagoda
2002	Cultivate fresh vegetables
2003	Build primary school

3. The Better Off Mens Group

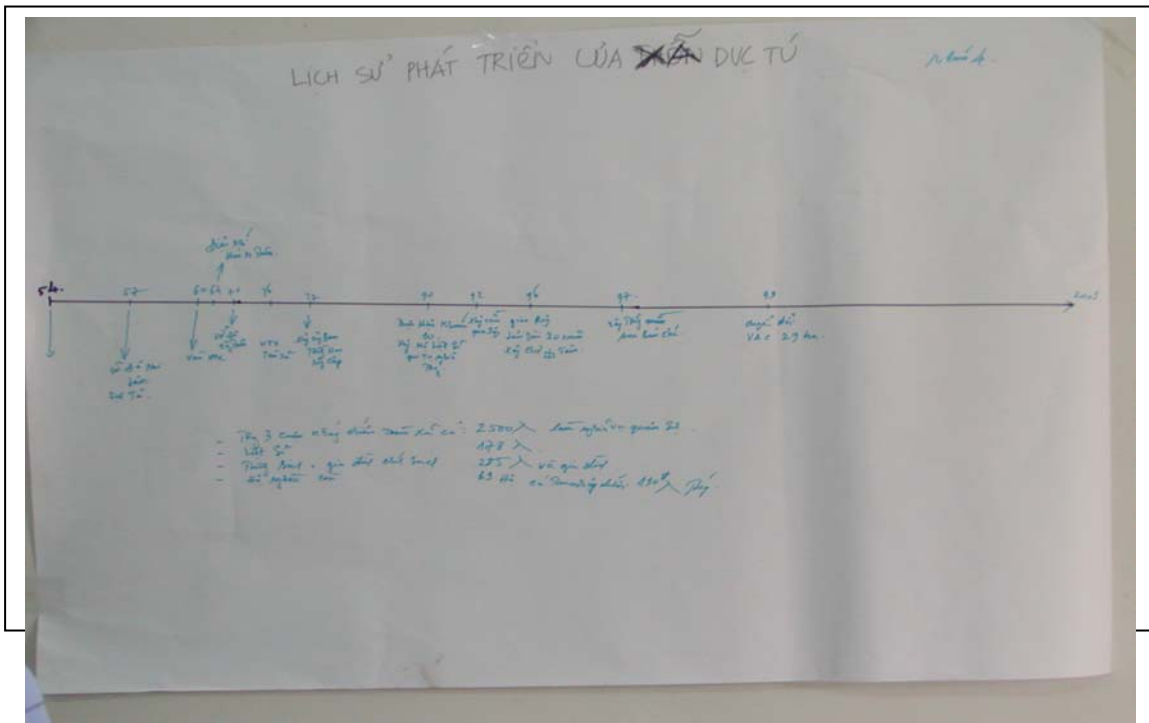


Figure 9: Timeline of the Better Off Mens Group

Table 4 : Important Dates and Activities in the village for the Better Off Mens Group

Year	Activities
1957	Cholera epidemic
1960	Establishment of village Agriculture-Cooperative
1964	Electricity supply installed to village
1971	Flood, the dike was broken
1976	Establishment of commune Agriculture-Cooperative
1977	Build People's Committee Hall and school
1990	Implementation of "Hire 10" of Government, build army cemetery
1992	Build the bridge across the river
1996	Government give agricultural land to the farmer for long term (20 years), build center market
1997	Build kindergarten
1999	Change 29 ha rice land for other land use purposes (doing garden, fish pond and animal raising)

4. The Worse Off Mens Group

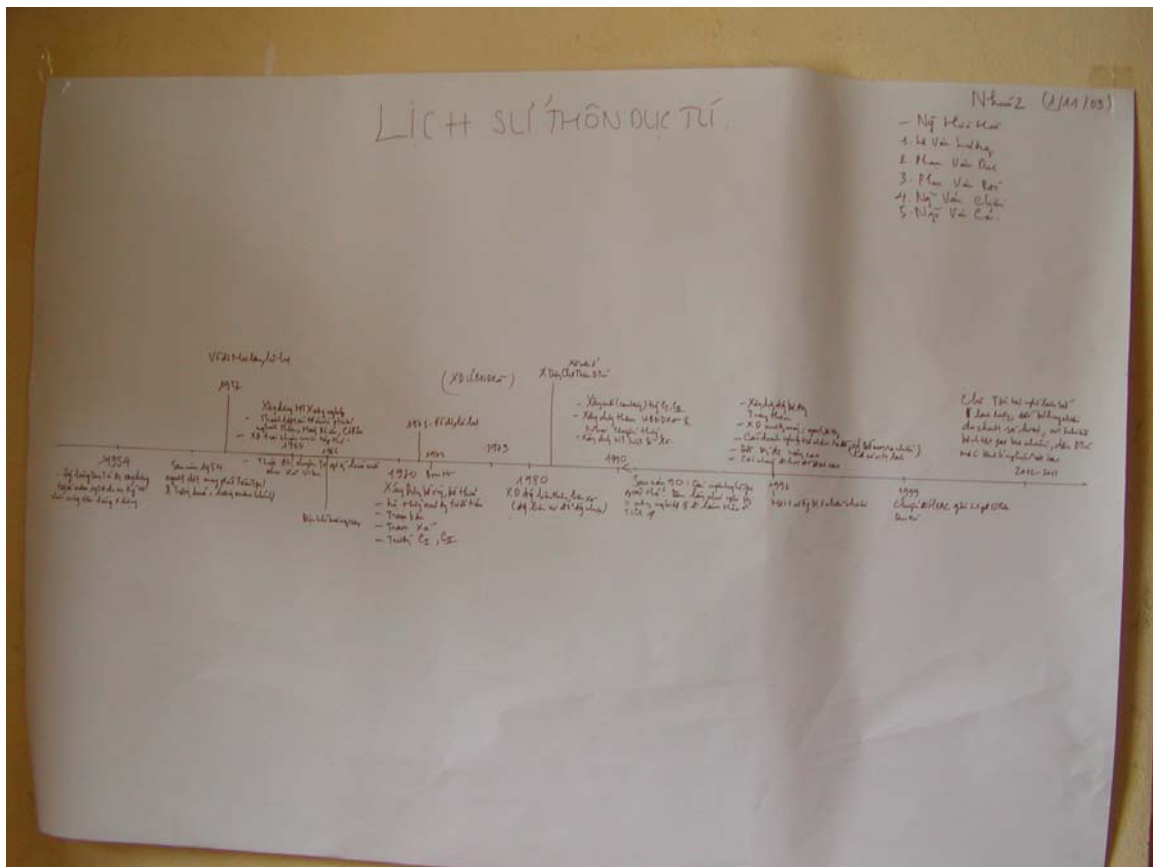


Figure 10: Timeline of the Worst Off Mens Group

Table 5: Important Dates and Activities in the village for the Worst Off Mens Group

Year	Activities
<1954	Build the village road
1954	Develop embroidery jobs, but agriculture still the main income earning activity in the village.
1960	Establishment of first village Agriculture-cooperative. Development and expansion of the embroidery organization and small-scale recycling metal industry.
1966	Installation of village electricity supply
1970	Build the non waste water electrical pumping station, health station, irrigation system (concrete/brick supply channels) and primary school.
1971	Floods when the dike broke
1972	American release bomb on village
1980	Build the commune road
1990	Disband the sub-jobs
1992	Construction of village cement road, build more the non waste water irrigation system. Develop recycling metal jobs and local environment becoming polluted
1999	Change to the garden, pond and animal raising from rice field
2002-2003	Development of recycle metal jobs causingt damage to the crops by pollution of environment air, land and water.

2. Seasonal Calendar

2.1 The Better Off Womens Group (Chinese calendar)

Table 9: Seasonal calendar of the Better Off Womens Group

Items/ Month	1	2	3	4	5	6	7	8	9	10	11	12
Weather	Spring rain		Light shower			Heavy shower, burning rain			Good weather, dry		Biting cold	
Social events	Festival							Wedding season				

Economical activities - Fish raising		Fingerings	Fish raising						Harvest, Clean the pond
- Fruit trees	Plant trees					Harvest after 3-5 years			
- Rice	Culture		Harvest	Culture			Harvest		
- Domestic animal raising	Raise and Harvest all around the year								
Income				Income from rice		Income from fruits		Income from fish	
Spend	Spend for fingerlings						Spend for wedding and New Year		
Health			Flu, tired					Tired because of weather changes	

2.2 The worse off womens group (Chinese calendar)

Table 10: Seasonal calendar of the worse off womens group

Items/month	1	2	3	4	5	6	7	8	9	10	11	12
Weather	Humid, cold, drizzle		Sunny, humid		Sunny, hot, shower, storm			Cool		Dry, cold		
Social activities	Traditional festivals		Bird festival					Wedding season				
Economical activities - Fish raising	Stock fingerlings	Put fingerlings into pond	Fish raising						Harvest fish	Stock fingerlings		
Rice	Culture			Harvest	Culture				Harvest		Sow seeds for seedlings	
Domestic animals - Chicken	Chicken raising							Harvest chicken	Harvest chicken eggs			Harvest chicken
- Pig	Pig raising					Harvest						Harvest
Carpenter	All around the year											

Income				Income from rice, animal raising						Income from rice		Income from animal raising
Spend						Spend for buying fingeri ngs			Spend for weddings			
Health	Headache							Cough and rheumatism				

2.3 The Better Off Mens Group (Chinese calendar)

Table 11: Seasonal Calendar of the Better Off Mens Group

Items/ Month	1	2	3	4	5	6	7	8	9	10	11	12
Weather	Cold			Summer time			High water level		Autumn time		Cold	
Social events		Traditional festival							Wedding and New Year			
Economical activities - Fishing	Stock fingerlings into pond								Harvest			
Recycling metal job	All around the year											
Rice	Culture				Harvest		Culture			Harvest		
Domestic animals	All around the year											
Fruit tree	All around the year											
Income	High income											
Spend												
Health				Allergies								

2.4 The Worse Off Mens Group (Chinese calendar)

Table 12: Seasonal Calendar of the Worse off Mens Group

Items/ month	1	2	3	4	5	6	7	8	9	10	11	12
Weather	Spring rain			Summer		Storm		Autumn			Winter	
Social activities	Traditional festival							Wedding and New Year				

Economical activities - Fish farming	Stock fingerlings into pond	Fish raising				Harvest larger fish, then stockt in extra fingerings	Fish raising	Harvest, clean pond
Rice	Culture		Harvest	Culture			Harvest	
Morning glory		Harvest					Continue to grow on with the same plant stock	
Immigration	Go to city for seeking work							
Income						Income from fruit and fish		High income
Expenditure	Buy fingerlings							Spend for New year
Health								Flu and rheumatism

2.5 Social events and festivals in seasonal calendar

The social events and festivals were carried out following the Chinese calendar. This calendar is usually one month later than the international calendar. All 4 groups mentioned social events and festivals such as village festival in February, and the wedding season from August to December. January and February is the festival season and New Year ceremony.

2.6 Migration in seasonal calendar

People in the community often go into the city looking for other work outside of the cropping seasons. Some people from outside come to the community for finding work, they often are male hired labour for recycling metal jobs. However this information wasn't mentioned by any of the groups.

2.7 Health characteristics/diseases in the seasonal calendar

The illnesses which were mentioned in the commune such as flu, tiredness, allergies, headache, rheumatism, and skin problems were often for the fish production group. The times of the year mentioned by all groups for flu and tiredness relate to colder changes in the weather were slightly different amongst the 4 groups. The fish production group often have itching skin from April to July because of the rain and fish culturing seasons.

2.8 Self sufficiency in food

This information has not shown in the seasonal calendar. But in the feed back meeting we discussed with participants and found out that almost all famers have 2 rice crops so they have sufficient rice throughout the year with the added production from their garden, pond and animal husbandry providing enough food for their families.

2.9 Income generating activities/livelihoods in the seasonal calendar

Fish Farming: Often farmers stock fingerlings into the pond in February, then from March to September grow up the fish and harvest at the end of the year. Some families often harvest some of the larger fish in small quantities in June and then stock more fingerlings by the middle of the year, they then harvest all the fish in the pond at the end of the year.

Rice cultivation: There are two crops per year.

Livestock raising: All throughout the year

Subsidiary jobs: Mainly young people doing recycling metal jobs throughout the year

3. Food Consumption

4.1 The Better Off Womens Group

Table 13: Food Consumption of the Better off Womens Group

Item/month	1	2	3	4	5	6	7	8	9	10	11	12	
Rice	Produced												
Morning glory			Produced										
Other vegetables		Produced											
Chicken egg	Produced												
Pig	Bought all around the year												
Cabbage									Bought				
Tomato	Bought all around the year												
Snail, crab, shrimp							Harvested						

4.2 The Worse Off Womens Group

Table 14: Food Consumption of the Worse Off Womens Group

Items/month	1	2	3	4	5	6	7	8	9	10	11	12	
Pig	Bought all around the year												
Chicken	Produced at home all around the year												
Fish	Bought							Produced at home					
Chicken egg	Produced at home												
Snail, crab, shrimp					Caught from the wild								
Morning glory			Produced										

Cabbage, tomato													Produced
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4.3 The Better Off Mens Group

Table 15: Food Consumption of the Better Off Mens Group

Items/month	1	2	3	4	5	6	7	8	9	10	11	12
Rice	Produced by household											
Pig	Bought all around the year											
Chicken	Produced by household											
Fish	Produced by Household			Bought						Produced by household		
Chicken, fruit	Produced by household											
morning glory			Produced									
Other vegetables								Bought				
Cabbage, tomato										bought		
Snail, crab, shrimp	Harvested from wild or as wild in their ponds.											

4.4 The Worse Off Mens Group

Table 16: Food Consumption of the Worse Off Mens Group

Items/month	1	2	3	4	5	6	7	8	9	10	11	12
Pig	Bought											
Chicken, Duck	Produced by the household											
Morning glory		Produced										
Tomato, cabbage								Produced				
Fish	Bought							Produced				
Soya curd	Bought											

- **Foods produced by household for home consumption:** All four groups mentioned household produced food were vegetables (morning glory often from February to September, water mimosa, cabbage, tomato, potato.) People have rice all the year because there are two rice crops per year in the village. But rice was

mentioned only by the better off womens group, not by the other groups, perhaps because rice is common stable food. Fish and shrimp are consumed in the household during the pond harvested season. Domestic animals such as chicken and duck are produced at home throughout the year, and especially consumed during the wedding season and new year.

- **Bought food:** Pork, beef, fish (not in the harvest season) were bought. Sugar, salt, and other spicies are also bought locally.
-
- **Harvested wild food:** It is very rare that people can harvest and consume shrimp, small crab and snails, it was mentioned only by the better off mens and women groups. Normally it is the poorer people who would collect such wild food and it is because they are selling it to the higher income level villagers and not much eating themselves, otherwise they earn money for their HHs.

4. Activity matrix

4.1 The Better Off Womens Group

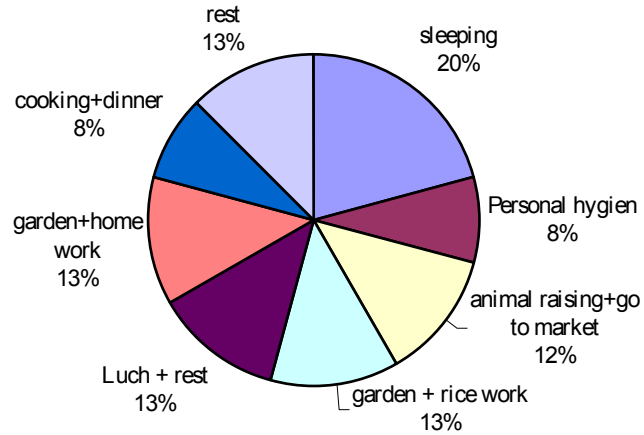


Figure 11: Activities matrix of the Better Off Womens Group

4.2 The Worse Off Womens Group

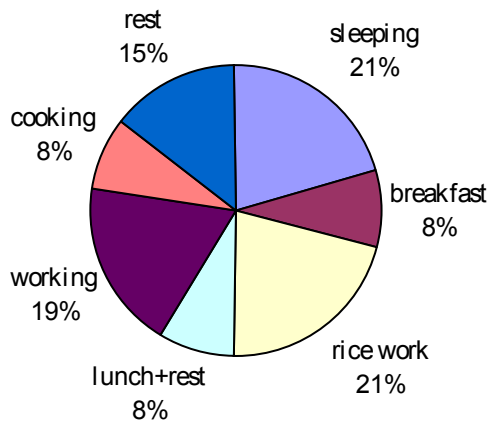


Figure 12: Activities matrix of the Worse Off Womens Group

4.3 The Better Off Mens Group

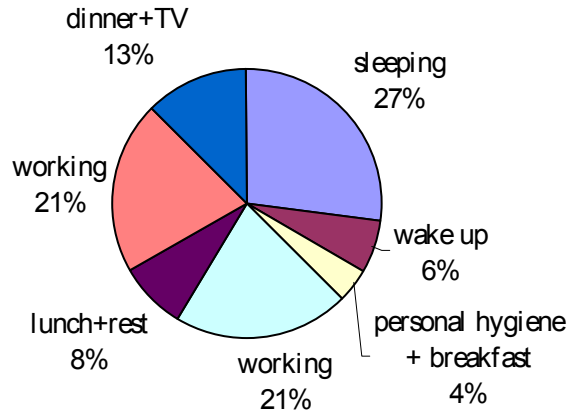


Figure 13: Activities matrix of the Better Off Mens Group

4.4 The Worst Off Mens Group

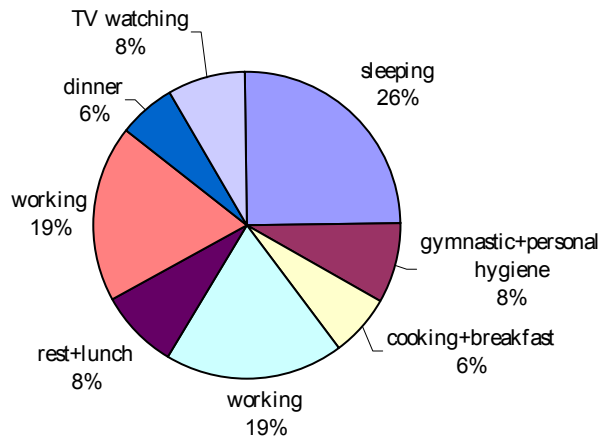


Figure 14: Activities matrix of the Worst Off Mens Group

The time for sleeping is usually between 5-6 hours, with the women's group sleeping less time (5 hours) than the men group (6 hours)

The working time is the same for the groups in the morning and the afternoon. The total working time is 10 hours, nearly the same in all 4 groups. Women spend 2 hours each day for doing work in the home.

D. Ranking of problems faced in the community

The participants were divided into two groups to discuss about the problems facing related to their production and health.

The fish farmers group mentioned both problems relating to their income earning activities and their health. But the garden, pond and animal raising group just mentioned their production problems, nothing on health.

1. Fish Farmers Group

1.1 Problems in fish production

Table 17: Problems in fish production

Numbers	Problems	Total	Rank
1	Fish Diseases	11	6
2	Water source polluted	15	5
3	Lack of money	42	1
4	Fingerling quality	5	7
5	Security	20	2
6	Technology	17	3
7	Time for pond lease is too short	16	4

1.2 Problems with health

Table 18: Problems with health of fish production group

Numbers	Problems	Total	Rank
1	Skin problems	22	1
2	Eye diseases	13	3
3	Rheumatism	19	2

2. The garden, pond and animal raising (VAC) group

Table 19: Problems with production in the VAC group

Number	Problems	Total	Rank
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1	Fingerling quality	23	5
2	Lack of fertilizer, chemical products	32	4
3	Lack of money	78	2
4	Aquaculture Technology	12	6
5	Bad weather	3	9
6	Insect damage to crops	35	3
7	Environmental pollution	6	8
8	Limited Irrigation	12	6
9	Time of land lease is too short	92	1
10	Difficulty in marketing	3	9

There are differences problems between the two groups

- **The Fish Farming group** mentioned that their biggest problem is lack of money for investing on production activities. The second problem is the security for the fish pond, with fish being stolen many times especially during the night. Their third problem is the lack of training in new technology for farmers. The time period for ownership of land leases for fish ponds for the farmer often lasts only from between 3 to 5 years, which causes farmers to worry and hesitate to invest money on improvements to increase their production. Water source pollution was ranked fifth problem, as discussed in detail in the follow up meeting, The PAPUSSA team know that the reasons for water pollution is that many of the local metal recycling work area drains wastewater into the village common ponds without any treatment.
- **The VAC group:** Their most important problem was the time period of holding land ie the lease obtained from the commune is too short. The second one is lack of money for production investment, inappropriate unavailable credit means and high interest rates. The third problem is insect damage on their crops. Environment pollution was ranked as the 8th problem, with weather change the last problem ranked.
- Health problems were only mentioned by the fish farmers group. Skin problems were the first problem in the area. The reason might be the farmers were often exposed to the dirty water. The second and third health concerns were rheumatism and eye infections.

Part 3. Summary and Conclusions

- The main production activities in Duc Tu commune are fish farming and the VAC model of production. Some subsidiary jobs such as small scale steel manufacture are also popular. The working time of women and men groups were similar with the total time of being inside and outside the house being similar at between 10-12 hours approximately.
- Water for fish pond and VAC activities is from Ngu Huyen Khe river, one branch of the Red River, which is a less polluted water source than in other peri-urban areas. In the future, the water source for production will become more polluted because of the development of metal recycling jobs in the commune.
- The main produced food items consumed in the commune are seasonal vegetables, morning glory from February to September, water minosa from May to July, cabbage, potato, tomato to the end of year. Rice is produced all the year round, so the farmers have enough rice for themselves and do not have to buy. Fish and shrimp produced during the harvesting seasons are consumed in the household and bought at the other times of the year. Chicken and duck are produced all around the year, especially during the wedding season and new year. The food items which had to be bought were limited to pig and beef meat, tofu and other spices. Collected wild foods were very rare, in some areas farmers can harvest only small crabs, shrimp and snails. However in recent years, the living conditions have become better.
- In general the main problems of the two production groups are lack of money for investing in their production systems, relatively short term duration of land leases for their ponds, lack of technology transfer – training in new agricultural methods, fingerlings quality and environmental pollution. The health problems are mainly occupational health hazards, caused by exposure to dirty water (skin problems, skin problem and rheumatism).
- Resources related to fish production and the VAC model have some main issues: Fingerlings mainly are self-produced within the community and thus there is a lack of the monitoring of their quality, feed for fish is often domestic animal faeces which might be a source of pollution for the water and have an adverse impact on food safety. Chemical products used in fish ponds are very simple (lime powder) and often used without the correct technological instruction and consultation.

4. Recommendations

- Based on the shorterterm and longterm objectives, the Duc Tu commune should establish an agricultural development strategy for the future until 2010-2015.
- Technology training and transfer new aquaculture technology to farmer. Increase quality and access to fingerlings.

- The Dong Anh district should have plan to effectively monitor and regulate the water source from pollution from metal recycling in order to protect the quality of the agriculture and aquatic production systems.
- It should also look into lengthening the duration of agricultural land leases for fish farmers so that they can have some security of tenure and thus feel confident in investing money into their ponds.
- The local Health Station should establish a surveillance system for occupational diseases related to aquatic systems users in order to diagnose early and treat the patient. Information campaign to community about prevention methods for occupational diseases.