

Self-recruiting Species in Aquaculture: Their Role in Rural Livelihoods

Case Study V 3: Thanh Tri group, Cong Hoa Village, Phu Linh Commune, Soc Son District

1. Introduction

1.1 Schedules and Persons Involved

This study was carried out between June 7 and 12, 2001. The RIA1-AIT team first visited the village on June 7 and worked on the PRA process on June 11-12. After collating and translating information obtained at RIA1 in evening of June 11, the team continuous work and a ‘debriefing’ with villagers in afternoon of June 12. The RIA1-AIT for the fieldwork consisted of

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1.2 District Commune Description

Soc Son district is the northern most district of Hanoi province. It lies some 40 km north of Hanoi city centre and surrounds Noi Bai International Airport. The total area of the district is 506.5 km² and the population 240,950 people. Despite its location, 87.4% of the households of the district are engaged in agriculture and the average per capita income of the district is a rather low VND2.596 million (US\$180). 8.6% of the households in the district are classified as poor.

The district was chosen as representative of the drier fringe of the Red River delta and is sometimes classified as midland. The district slopes steadily from west to east. The western edge of the district in fact has a line of small hills, rising to around 550 feet above sea level with 5 communes situated in this area. The other 15 communes are entirely lowlands, but a group of 6 communes in the southeast lie alongside the Cau river and suffer from over bank flooding from the river. It was decided to select three communes along a transect from west to east, Minh Phu in the foothill area; Phu Linh in the intermediate lowland areas and Bac Phu in the lowest lying area along the river. The characteristics of these communes are summarised in Table 1.

Table 1: Natural and Social-Economic Characteristics of Selected Communes

Variable	Minh Phu Commune	Phu Linh Commune	Bac Phu Commune
Topography	Midland	Lowland	Very Lowland
Total Area (km ²)	20.35	14.42	10.80
Land Area (ha)	682.4	1067	731.0
Agricultural Area (ha)	203.5	463	731.0
Agricultural Households (%)	96	97	98.5
Population Density	466	529	776
Poor Households (%)	16.6	3.5 (old), 8.5 (new)	14.0
Water Surface Area Used (ha)	7.5	4 lakes	38.0
Water Surface Area Unused (ha)	25	No data	43
Aquaculture Systems	Extensive	Extensive	Extensive
Species	Grass, silver, common and Indian carps	Grass, silver, common and Indian carps	Grass, silver, common and Indian carps
Wild fish	No data	No data	River catfish

Source: Soc Son Departments of Statistics and Agriculture and Rural Development; Selected Commune Offices.

1.3 Selection Process for the Village

Once the tentative commune sample framework had been established, the RIA1-AIT team began its work by making an appointment with Mr Tran Tuan Chac, Chairman of the Phu Linh People's Committee for the afternoon of June 7, details of the constituent villages of the commune were obtained. Phu Linh. Commune comprised 4 villages as follows:

- | | |
|--------------|------------------|
| 1. Cong Hoa | for 469 families |
| 2. Ve Linh | 480 families |
| 3. Phu Ma | 450 families |
| 4. Xuan Doai | 216 families |

It was stated that Cong Hoa village contained the greatest number of poor households. The village was chosen for PRA process after that Mr. Chac introduced to Mr. Nguyen Tien Phuc, head of Cong Hoa village, immediately that afternoon a meeting with Mr. Phuc in cultural houses of Cong Hoa village. The village is too big to do PRA, so one group of village should be chosen. Mr Phuc supported detail information of the village. The village includes 5 groups as follows:

- | | | |
|----------------|--------------|----------------|
| 1. Thanh Lai | 100 families | Good economy |
| 2. Thanh Quang | 77 families | Fairly economy |
| 3. Thanh Tri | 110 families | Poorest |
| 4. Thai Linh | 72 families | Fairly economy |
| 5. Xuan Lap. | 110 families | Poor |

Total land area of the village is 365 ha during hill area is 36.6 ha, land for living is 47 ha and 36 ha for water surface area. The village has 8-10% poor households follow new criteria and 4.5% poor HHs follow old criteria (new criteria: poor = income less 130,000 VND/ month/ person, starving = income less 70,000VND /month/ person; old criteria: poor = income less 100,000 VND/ month/ person and starving = income less 50,000 VND/ month/ person). The Thanh Tri group has the greatest number of poor households. The

number of poor households in this group is 16% follow new criteria about starving and poor. The group is presented for Cong Hoa village and it has larger surface water area than other groups. One of these, Thanh Tri group of Cong Hoa village was chosen. After that list of households in Thanh Tri group was supported by Mr. Phuc and an appointment with village leaders in Thanh Tri on the morning June 11 including:

1. Mr. Duy Tien Phuc (Village Head)
2. Tran Van Khoa (Head of production N° 2-3)
3. Mr. Nguyen Van Noi (Head of production N° 4)
4. Mr. Nguyen Dang Ngon (Old people Union)
5. Tran Van Thieu (Red Crod)
6. Do Thi Tinh (Women Union)
7. Nguyen Thi Tuyet (Head of Women Union)
8. Nguyen Van Tuong (Head of Labour party)

On the basis of which an appointment was made to begin work that same day.

2. Setting the Context

2.1 Mapping the Current Resource Context

Figure 2.1 presents the village resource map. Mr. Nguyen Van Khoa and Mr. Tran Van Noi drew this, Head of production N° 2-3, 4 in Mr. Tuong 's house the meeting was taking place. Thanh Tri group, Cong Hoa village sits on a ridge of upland surrounded concentrically by hill in West of Thanh Tri group and low land field in North. The paddy land to the West of the village alternate with hills appears to be rather more low-lying and the one 'Thanh Tri lake' sits in Northwest of the group, The army offices alternative fields and hills sit in South of the group.

2.2 Mapping the Development of the Village (Timeline)

Figure 2.2 shows the timeline of key points in the village development. Information was supplied by Mr. Nguyen Dang Ngon and Mr. Tran Van Thieu (for 65- 70 year old men). Thanh Tri group, Cong Hoa village was established in 1931. At that time there were 11 households; by 1936 the group was managed by French, at the time, there were 19 households. By 1945, farmer enthusiastic resisted with French army, at the time there was 27 households. In the following thirty years the village was badly affected by conflict. In 1954, young people joined army, trained for farmer, reclaimed waste land, required reducing land rent in 1955 and an agrarian revolution occurred, at the time there were 54 households. By 1963 the village started motorising in agriculture and enthusiastic in resistance with American army, at the time there were 75 households. The village combined small agricultural co-operative became big agricultural co-operative mutual help farm in 1975, at the time there were 95 households during 27 households had radio. The land policy was changed in 1988, the land was divided to each households. Electricity was installed in 1995, the road was built in 1997, kindergarten in 1998 and in 2001 for 100 households had TV and at the time there were 120 households.

2.3 Mapping the Social Context: Well-being Ranking and Criteria

Well Being Ranking Criteria

R a n k	Trial 1 Nguyen Thi Tuyet Nguyen Thi Tinh, Women Union	Trial 2 Nguyen Van Noi Tran Van Khoa, Head of product N°2-3, 4	Trial 3 Duy Tien Phuc, Head of village
1	Single mothers (e.g. divorced) Most children could not finish primary school Lack knowledge & facilities to get information Lack food about 2 months per year Borrow money to buy food	Poor health (households have sick people) so cannot work Lack investments Lack farm equipment Lack facilities Lack knowledge	Earn little, but spend lots Poor knowledge Don't know how to work Widows/widowers Single mothers Poor for long time Lack farm equipment
2	Difficult about finance Some have B&W TV	Enough food Lack investments Not active in working Many young children Lack farm equipment Lack facilities Normal health	Some HHs have not land for children as they were born after land had divided allocated. Not enough land for product. Have risk Some disabled, drunk or gamblers. Poor knowledge Spend lots of money
3	Enough food Some risks Children finish secondary school Some have brick walls Many HHs go to wage labour	Stable finances Income from agriculture No other source of income Have 80% of farm equipment & facilities Not enough money for children to go to higher education	Similar to group 4, but more old people Normally good health Enough rice Lack investment Trading
4	Children finish secondary school Have buffalo, cow, pig, chicken Have enough food (but none spare) Many HHs go to do wage labour. Trading	Most households have payment from government Some retired, some still work High income Have investments Good conditions to develop economics Enough facilities & furniture e.g. motorbike, colour TV, radio Good farm equipment Good health Children go to higher education	Farmers, but also do wage labour (construction) Have stable income Enough food, but lack money to buy meat Children usually finish secondary school, but not higher education

5	Most HHs are farmers (hard work) Some HHs trading Good knowledge Have enough facilities & furniture, but not so good Children finish secondary school Most HHs have husband who does trading Have brick wall		Stable economics Expect children 's successful to increase income Trading in market, home & town to earn more money (2/3) Extra income from forest
6	Other income source e.g. employee government Flat roof Most Hhs have motorbike Some Hhs have telephone More concerned about children education		Small families More income from government Stable income Some HHs have some person retired, older children. Children go to higher education. Stable materials

- Social Structure of the Community: Community includes 4 villages, each village has some groups. The positions in community: Chairman, vice chairman, accountant, chairman of party labour, vice chairman party labour, Young union, Women Union, Old People union & Army Union. The positions of persons in each village are the same, but at level of village.

2.4 Summary/ Key Points

- Thanh Tri group, Cong Hoa village sits on a ridge of upland surrounded concentrically by hill and low fields, paddy land and army offices.
- The village has been established for 70 years & developing.
- Well Being Ranking criteria:
 - Poor Households:
 - + Lack of knowledge, lack facilities and furniture, lack food for 2 months per year. Lack farm equipment, lack.
 - + Some widows or widowers, some women have children without husband, poor health.
 - + Earn a little but spend a lot.
 - + Their children don't often finish primary school.
 - Fairly Poor:
 - + Still lack farm equipment, facilities, furniture and investment. Poor knowledge.
 - + Many young children, normal health. Some of young children have no land.
 - Medium:
 - + Enough food, but still not enough money and lack investment.
 - + Their children often finish secondary school.
 - + Wage labour
 - Fairly Rich:

- + Have cattle and 80% farm equipment and facilities, still not enough money for children go to high education.
- Rich Households:
 - + Good knowledge,
 - + Enough materials, good houses, even motorbikes, telephone, spare some money.
 - + Most of them get other income out of agriculture as work for government employed, some trading, stable income.

3. Activity Profile of the Village

3.1 Seasonal Calendar

Figures 3.1 –3.4 present the annual calendar of activities for the different social groups in the village. There are small but not significant differences in the perception of the weather, with some groups emphasising temperature and others rainfall or wind. Nor are the differences in the social events mentioned especially significant; it may be noted that there are festivals and ceremonies in almost every month, some of them traditional, others promoted by the state.

In relation to economic activities, the calendar for all groups shows double-crop rice cultivation being practised by all groups. Winter – spring rice is planted in February and harvested in May; summer-autumn rice follows immediately from July/August, with harvest in September/October. All groups are also engaged in field crop cultivation, again over two seasons. Maize, beans, peanuts, sweet potatoes and Irish potato, cassava are also planted in February and harvested in May-June; a second crop of winter maize is planted in August and harvested in December, this crop is after harvesting bean, peanut.

All groups were also engaged in livestock cultivation, it was suggested that the profile of livestock might be different between the groups, with the poor concentrating on rearing of pigs and chickens, while the rich had a wider range of stock including cattle and ducks. Fish culture occurred in men groups, fish stocking in March and harvesting in the end or early year of seasonal local calendar.

From this analysis, there are clear peaks in the labour demands and income flow from agriculture. Families are extremely busy in February, May, July, September-October and December-January, while the main income streams appear particularly concentrated in May-June, October and December-January, especially just before the Tet New Year. Interesting rich groups have wage labour all year with every work but for poor groups can not find work to do wage labour. It is all groups who seem to suffer most from health problems, mentioning specifically virus fever and tiredness in May-June at the change of seasons

3.2 Group Activity Profile

Some of these differences are reflected in the group activity profiles.

Poor Women

Names Activities	Tran Thi Hue	Tran Thi Yen	Nguyen Thi Ngan	Tran Thi Chonh	Nguyen Thi Chi	Nguyen Thi Viet	Total
Rice-cultivation	8	8	11	7	10	8	52
Field Crop	5	5	3	4	6	4	27
Livestock	4	4	2	4	4	4	22
Take care children	3	3	4	5	0	4	19
Total	20	20	20	20	20	20	120

Poor Men

Names Activities	Au Van Ben	Nguyen Van Chi	Sai Van Thong	Dao Xuan Lan	Nguyen Van Thuc	Total
Rice-cultivation	4	6	4	6	6	26
Field Crop	4	4	4	4	4	20
Livestock	4	6	5	6	4	25
Culture Fish	4	2	3	2	2	13
Take care children	4	2	4	2	4	16
Total	20	20	20	20	20	100

Rich Women

Names Activities	Do Thi Tinh	Nguyen Thi Luong	Tran Thi Duc	Sai Thi Chin	D - -ng Thi Nuoc	Total
Rice-cultivation	4	4	5	5	5	23
Field Crop	4	4	3	4	4	19
Livestock	4	4	5	5	5	23
Trading	4	4				8
Construction				3		3
Transfer fruit tree					2	2
Making environment			3			3
Take care children	4	4	4	3	4	19
Total	20	20	20	20	20	100

Rich Men

Names Activities	Tran Van Khoa	Tran Van Trong	Tran Van Binh	Nguyen Van Thang	Nguyen Van Thang	Tota l
Rice-cultivation	7	4	6	6	4	27
Field Crop	2	3	4	5	3	16
Livestock	5	4	5	5	4	23
Construction				1	1	2
Fishing	1	1			1	3
Fish culture	1				2	3
Take care children	4	4	5	4	5	22
Total	20	20	20	20	20	100

These are summarised in Table 3.1. It will be noted that rank rice cultivation, livestock and field crop are important with all groups. They place relatively little importance on wage labour and no this activity in poor group. For rich people spend more time for take care children. Fish culture only appeared in men groups.

Table 3.1. Activities summary:

FAIRLY POOR		FAIRLY RICH	
Women	Men	Women	Men
1. Rice cultivation 2. Field crop 3. Live stock 4. Take care children	1. Rice cultivation 2. Live stock 3. Field crop 4. Take care children 5. Fish culture	1. Rice cultivation 2. Live stock 3. Field crop 4. Take care children 5. Trading 6. Construction 7. Work environment. 8. Nursing plant	1. Rice cultivation 2. Live stock 3. Take care children 4. Field crop 5. Fishing 6. Fish culture 7. Construction

Several other points are worth noting. These include:

- The fact that poorer women did not originally mention housework as important and even when pressed at the validation meeting, put it lower than better-off women because of the need to spend considerable time earning a basic living as they put it 'just to feed their children'.
- For wage labour activity is only occurred in rich group because most of them are very active. The different with other PRAs in Thanh Tri have few people go out for wage labour, simple economic activities. For poor women group lacks labour.
- Between poor & rich group have difference opinions about livestock: poor group concerns to pig and rich group concerns to cattle, pig, chicken & duck and with high quantity. Because for poor people lack investment.
- The overall low ranking of fish culture

4. Role of Aquatic Animals

4.1 Species Ranking

Figures 4.1-4.4 present the ranking of the main aquatic animals according to their importance in livelihood by the different groups (poorer men, poorer women, better-off men; better-off women) in the village. On the basic aquatic animal species were supported by all groups. Six highest important aquatic animal species were chosen.

Fig. 4.1 Poor Women

Criteria Species	Easy catch	Few bone s	High value	Delici ous	Cheap	Easy buy	Tota l
Snail	3	3	0	3	3	3	15
Indian carp	0	1	2	2	0	2	7
Silver carp	0	0	0	0	3	3	6
Grass carp	0	3	3	2	0	1	9
Common carp	0	1	3	3	0	1	8
Clarias catfish	0	3	4	3	0	0	10
<i>M. orpercularis</i>	3	1	0	0	3	2	9
Tilapia	3	1	0	0	3	2	9
Snakehead	1	3	4	3	0	0	11
<i>Carassius auratus</i>	3	1	0	0	0	2	6
Anbas testudineus	3	1	0	0	3	2	9
Field shrimp	3	3	3	3	0	0	12
<i>O. pagalense</i>	1	4	4	4	0	0	13
Small Wild Fish	3	1	0	0	3	2	9
<i>Mis.anguillicaudatus</i>	3	3	3	3	0	0	12
Bivalvias	3	3	0	2	2	2	12
Fresh Water Clam	0	4	3	3	0	0	10
Big FW Clam	2	3	2	2	2	2	13
Frog	2	2	3	3	0	0	10
Field Crab	3	1	0	2	2	2	10
Total	36	42	34	38	24	26	200

Fig. 4.2 Poor Men

Criteria Species	Easy cult ure	Eas y cat ch	Gro w fas t	Few bone s	Hig h val ue	High nutri tion	Del ici ous	Chea p	Eas y sel l	Ava ila ble	Tota l
Silver carp	3	0	3	0	1	0	0	1	0	0	8
Tilapia	3	0	3	0	0	0	0	1	0	0	7
Field shrimp	2	3	2	1	3	3	2	0	2	3	21
Grass carp	3	0	3	0	0	1	1	0	0	0	8
<i>C. auratus</i>	0	1	0	0	1	0	0	1	0	1	4
Water snake	0	1	0	1	3	2	2	0	1	1	11
Eel	1	0	0	3	3	2	2	0	1	1	13
Hard turtle	0	0	0	1	1	2	1	0	1	0	6
<i>Spinibarbus</i>	0	0	0	0	1	1	1	0	1	1	5
<i>A. testudineus</i>	0	1	3	0	0	0	0	1	1	2	8

Snail	0	3	0	1	0	2	1	1	1	3	12
Snake head	2	0	1	3	3	1	1	0	1	1	13
Frog	0	3	0	0	3	2	1	0	1	2	12
Soft turtle	0	0	0	0	3	1	1	0	1	1	7
Big FW Clam	0	0	0	3	3	2	0	1	1	2	12
Field Crab	0	3	3	0	0	1	0	1	1	3	12
Clarias catfish	3	0	2	3	3	1	1	0	1	2	16
Bivalvias	0	3	0	1	0	1	0	1	1	3	10
Common carp	3	2	2	1	2	1	1	0	1	2	15
Total	20	20	22	18	30	23	15	8	16	28	200

Fig. 4.3 Rich Women

Criteria Species	Cheap	Delicious	Easy catch	High value	Few bones	Available	Total
Carassius auratus		3		2		2	7
Snake head		3		3	2	1	9
<i>E. bambusa</i>		2		3	1		6
<i>M. orpercularis</i>	2		2			2	6
<i>C. erythroterus</i>	1	1		2	1		5
Indian carp	1	2	1	2	1	1	8
Clarias catfish		3	1	3	2		9
Silver carp	3		1			1	5
<i>A. testudineus</i>	3	1	3	1	2	2	12
Bivalvias	3	2	3	1	2	2	13
<i>Glossogobius</i>		3	1	2	2	1	9
<i>H. leucisculus</i>	3			1	1		5
Field shrimp	1	3	3	3	2	2	14
Frog		2	3	2	1	1	9
Field crab	3	1	3	2		1	10
Snail	4	1	4	2	3	1	15
Water snake		2	3	2			7
<i>M. anguillicau</i>	2	2	1	2	3	1	11
Grass carp		2		2	2	1	7
<i>Cynoglossus. sp</i>		2		2	1		5
Tilapia	2	1	3		1	2	9
<i>O. pagalense</i>	1	2	1	3	3	1	11
Common carp	1	3	2		2		8
Total	30	41	35	40	32	22	200

Fig. 4.4 Rich Men

Criteria Species	Easy culture	Easy catch	Grow fast	Few bones	High value	Delicious	Cheap	Easy buy	Easy sell	Total
Snake head	2	1	2	2	4	6	0	0	4	21
<i>O. pagalense</i>	0	0	0	1	1	4	0	0	1	7
Crab	0	3		2	0	0	1	2	2	10
Small eel	0	1	0	1	0	1	0	0	0	3
Snail	1	4	0	3	3	3	3	2	3	22
Frog	0	1	0	0	2	3	0	0	0	6

Indian carp	3	3	2	0	0	3	0	2	2	15
Silver carp	5	5	4	0	0	0	5	3	3	25
<i>A. testudineus</i>	0	2	0	0	0	0	3	0	0	5
<i>C. auratus</i>	0	3	0	0	0	0	2	1	1	7
Tilapia	3	2	1	0	0	0	2	1	1	10
Grass Carp	4	2	3	0	1	0	0	1	1	12
Field shrimp	0	1	0	1	3	1	0	1	1	8
Small Fish	0	2	0	0	0	0	5	3	3	13
Common Carp	3	1	2	0	3	3	0	0	3	15
Bivalvias	0	2	0	2	0	2	0	2	1	9
Water snake	0	0	0	0	2	0	0	0	2	4
Clarias catfish	0	0	0	0	0	5	0	0	3	8
Total	21	33	14	12	19	31	21	18	31	200

\Important Aquatic Animals - Summary:

Poor		Rich	
Women 20 Species	Men 19 Species	Women 23 Species	Men 18 Species
1. Snail 2. Big FW clam 3. <i>O. pagalense</i> 4. Shrimp 5. <i>Mis. fossilis</i> 6. Small FW clam	1. Shrimp 2. Clarias Catfish 3. Common carp 4. Snake head 5. <i>O. pagalense</i> 6. Crab	1. Snail 2. Shrimp 3. FW Clams 4. Anabas tes. 5. <i>Mis. fossilis</i> 6. <i>O. pagalense</i>	1. Silver carp 2. Snail 3. Snake head 4. Indian carp 5. Common carp 6. Small wild fish

It will immediately be apparent that the ranking is rather different between the different groups. The better-off men emphasised cultured species, other groups largely mentioned wild species as *O. pagalense*, shrimp. Women group mentioned criteria consume as cheap, delicious, few bones and easy catch, they liked *Mis. fossilis*, clams and snail. Poorer men and especially poorer women gave importance to aquatic animals, which could be gathered and/or caught in the paddy fields or natural water bodies. Poor men liked delicious, few bones and high value wild fish. For rich women often buy wild fish than culture fish due to tasty & cheap price, even they are fairly rich but in rural they have not much money. For men groups mentioned criteria for culturing as grow fast and easy culture.

Important Criteria - Summary

	Criteria	Poor		Rich	
		Women	Men	Women	Men
Consume	Delicious	38	15	41	31
	Cheap	24	8	30	21
	Easy buy	26			18
	High nutrient		23		
	Few bones	42	18	32	12

Culture	Easy catch	36	20	35	33
	Available		28	22	
	High value	34	30	40	19
	Grow fast		22		14
	Easy culture		20		21
	Easy sell		16		31

5. Aquatic Animal Seasonality

From figure 5.1-5.4 shown that for poor groups and rich women like wild fish due to cheap, available, catch easy & tasty. Rich men like fish culture. Poor men have wild fish due to catch them in field, lake or pond in rainy season when fish were spawning. This point leads to more reducing natural resource. For poor women have them due to both buy in market and catch them in field. For rich women get wild fish due to buy also, some wild fish are caught by men. For fish culture come mainly by harvesting or buy in market. Most people in Thanh Tri group, Cong Hoa village like *O. pagalense*, snail and shrimp. For men groups liked common carp and snake head.

6. Aquatic Animal Trends

Poor Women

Periods Species	1960	1970	1980	1990	2000
Snail	Increase as few people caught	Increase as few people caught	Stable	Stable	Decrease - A lot of people catch, & development & livestock
Big FW clam	Increase as few people caught	Increase as few people caught	Decrease - a lot of people caught	Decrease - a lot of people caught	Decrease due to bad environment
<i>O. pagalense</i>	Increase as few people caught	Increase as few people caught	Decrease due to bad environment	Decrease due to bad environment	Decrease due to bad environment & pesticides
Shrimp	Increase as few people caught	Stable	Decrease as a lot of people caught for livestock, pesticide use		Decrease – a lot of people caught, & bad environment
<i>Mis. fossilis</i>	Increase as few people caught	Increase	Stable	Stable	Decrease - environment affected by pesticide & over harvest
Small FW clam	Increase as few people caught	Increase	Decrease - many people caught		Decrease - affected by environment

Poor Men

Periods Species	Before 60	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95 -00	after 2000
Shrimp	In. due to low population Fishing a little	Same before	Dec. due to in. Pop. Many people caught, effected Env.		Dec. Pesticide Env. Pollution		Dec. due to Pes. Many people caught		In. Env. pollution but started protect resource	
Clarias Catfish	In. Few people caught & no pesticide	Same above	Dec.		Dec.		Dec.		In.	
Common carp	The same above									
Snakehead	The same above									
eel	The same above									
Crab	The same above									

Rich Women

<div>Periods</div> <div>Species</div>	Before 1960	60 - 65	65 - 70	70- 75	75- 80	80- 85	85- 90	90- 95	95- 00	After 2000
Snail	Stable due to have a lot, less consume					Dec. effected by pesticide				
Field Shrimp	Stable due to have a lot, few people caught					Dec. Effected by pesticide			Dec. Effected by En. & Pesticide	
FW clams	Stable as above					Dec. Many people caught				
<i>Anabas testudineus</i>	Stable Have a lot, few people caught					Dec. Available effected by Pesticide			Dec. Weather	
<i>Misgurnus anguillicaudatus</i>	Stable as above					Dec. effected by pesticide & electric shock				
<i>O. pagalense</i>	Stable as above					Dec. as above				

Rich Men

Periods Species	Before 1960	1960 - 1965	1965 - 1970	1970 - 1975	1975 - 1980	1980 - 1985	1985 - 1990	1990- 1995	1995- 2000
Silver carp	Stable None development due to feudalism and result of war.					Dec. Aquaculture techniques were applied in production and Aquaculture area opened.			
Snail	In. Stable environment, exploited a little.				Stable Normal development, but catch so much			Dec. Pollution environment, agriculture pesticide and too exploited resource.	
Snake head	Stable Normal development and breeding and exploited a little.				Dec. Due to pollution environment, a lot of pesticides were used in agriculture, too exploited, Aquaculture area was become smaller.				
Indian carp	Stable, None development due to feudalism and result of war.					In.			
Common carp	Stable, None development due to feudalism and result of war.					In., Aquaculture techniques were applied in production and Aquaculture area opened.			
Small wild fish	Stable				Dec., Due to pollution environment, a lot of pesticides were used in agriculture, too exploited, Aquaculture area was become smaller.				

Three of four groups in the village like wild fish, but recently most of wild fish have been decreasing due to chemicals, pesticides used in agriculture & damaged equipment as electric shock and a lot people caught. Only fish culture are increasing due to developing seed & technique. Most people like, *O. pagalense*, shrimp, snail, *Mis. fossilis*, snake head. For common carp is reducing in nature but increasing in culture, for poor men group mentioned at the moment shrimp is increasing due to protecting law for natural resource.

7. Cross checking

7.1 Transect Walk

Head of the village and some men taken us to around the village with the map and shown where are their field, ponds, lake and people living. Which fields have wild fish & where water resource run to & canal system and where they could catch wild fish and low land will be changed using purpose into rice-fish.

7.2 Farmer meeting

- Shown the map of their village which some people had drawn yesterday and required them shown some places and asked them which parts were not correct, please drawn up. After that summary their activities and which aquatic animal they like & some questions were talked out:
- Rice cultivation is main activity of all groups. There are differences with other PRAs, Thanh Tri has few people go out for wage labour and often in rich groups.
- Poor women due to lack labour, they have wage labour but earn small money so that they forget mention it.
- Rich women has trading but only small trading for tourism in Giong temple.
- Poor men forget mentioned to fruit plant and it is reput before field crop and Rich women is also put it before take care children and rich men put it after field crop.
- For aquatic animals, most people said that they liked *O. pagalense* due to tasty but at the moment *O. pagalense* is decreasing and very expensive. For silver carp is suitable for both livestock and consume due to cheap and available.

8. Summary/ Key Points

- Most of groups have same ideas about weather as temperature, rain, sun, wind and storm, about social events as mid month, International women day, Giong festival, kill insect day, children new year, wedding and ceremony season and Tet.
- Most groups have two rice crops: Transplant in month 1 and 6 and harvesting in month 4-5 and month 8-9. Rice cultivation is main activity for all groups
- The wage labour is mentioned in rich groups. It is difference with other PRAs. This area is very difficult to find sub-job for poor people.
- Men groups mentioned fish culture.
- Most poor people and rich women like wild fish, men like culture fish. The criteria about aquatic animals are cheap, available, easy catch, easy culture, buy easy, tasty, few bones & high nutrient.
- Most wild fish are decreasing and culture fish are increasing.