

**Provincial Department of Agriculture and Rural Development  
Provincial Women's Union  
Research Institute for Aquaculture No 1**

**A livelihoods study of fishers and farmers  
in  
Thai Nguyen Province  
October 2001**

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## Acronyms

DARD	Department of Agriculture and Rural Development
DFID-SEA	Department for International Development South East Asia
GDP	Gross Domestic Product
HEPR	Provincial Commission for Hunger Eradication and Poverty Reduction
HCMC	Ho Chi Minh City
PRA	Participatory Rural Analysis
SAPA	Sustainable Aquaculture for Poverty Reduction
STREAM	Support to Regional Aquatic Resources Management
VAC	Vuon-Ao-Chuong (Garden-Pond-Animal Pen)
VND	Vietnamese Dong (15,400 Dong $\approx$ US\$ 1)

## **Acknowledgements**

Thanks to guidelines and assistance from DFID-SEA, we conducted livelihoods studies in Quang Tri Province in two communes: Dan Tien Commune in Vo Nhai District and Phuong Tien Commune in Dinh Hoa District.

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The implementation process was facilitated by a range of organizations and institutions who made it possible to do this work. We would like to extend our sincere thanks to them.

## **EXECUTIVE SUMMARY**

This is the report of a livelihoods study team working together with members of two communes in Quang Tri Province, Vietnam. The study is based on information provided by the commune members, who shared their knowledge and spoke about real problems they face with their livelihoods.

The study was conducted from 10-30 October 2001. The team worked with key informants in two communes, Dan Tien in Vo Nhia District and Phuong Tien in Dinh Hoa District, who participated in discussions and represented households in the commune. The livelihoods studies in Dan Tien and Phuong Tien communes explored existing human, labor and natural resources as well as other factors affecting people's livelihoods.

Ten different ethnic groups of the province make their living by forestry and agriculture (including aquaculture) activities. In the last decade, reform policies have speeded up agriculture and rural development in isolated and remote areas. Promising progress has been made in the lives of rural upland people, but the local economy still faces many difficulties.

Due to the remote nature of these communes, infrastructure and facilities are poor, with rudimentary health care and educational facilities. While aspects of commune life are improving, on the whole, access to education is limited and levels of education among the population are relatively low. In terms of farming experiences, access to modern and improved methods of farming are restricted so people have limited ability to adopt new technologies. These communes have not been able to contain animal and plant disease. Intensive farming practices have not yet been taken up with fish and rice. Support programs have made some achievements, but they are not yet completely successful. Progress in agricultural structural transition is slow. Monoculture and extensive farming are dominant practices, essentially for self-sufficiency purposes.

This commune would benefit from a range of interventions: improved roads, which would offer commune members wider access to markets; increased access to bigger loans on a longer term basis with lower interest rates; enhanced technical services aimed at providing good seeds and culture of both ordinary and high-value species; and the provision of local supplies of fish seed to enable fish farmers to stock good quality seed in a timely manner.

# **1. INTRODUCTION**

## **1.1 General overview**

Thai Nguyen is a mountainous province of northern Vietnam. The total area of the province is 354,140 ha, and the population is 1,073,000. Thai Nguyen has nine districts and 180 communes and wards, 36 of which are extremely disadvantaged communes situated on high mountains and hence, a focus of socio-economic support programs of the government.

Ten different ethnic groups of the province make their living by forestry and agriculture (including aquaculture) activities. In the last decade, reform policies were accomplished in the agriculture and forestry sectors, speeding up agriculture and rural development in all socio-economic and cultural aspects of isolated and remote areas. Promising progress has been made in the lives of rural upland people. However, the local economy still faces many difficulties, and progress is not completely satisfactory.

This livelihoods study was conducted to understand the livelihoods of farmers and poor people in remote and isolated areas who are using natural and human resources in forestry, agriculture and aquaculture, as well as to gain insights into influencing factors and interactions among them. The livelihoods study also attempts to evaluate what existing activities lead toward sustainable livelihoods, and to find out key issues and recommendations for the planning of new development interventions.

In October 2001, a livelihoods analysis study in Thai Nguyen Province focused on the two communes of Dan Tien in Vo Nhai District and Phuong Tien in Dinh Hoa District, for these reasons:

- Both are upland, isolated and remote communes, which are also covered by Government Program 135.
- Potential resources are rich in terms of land, forest, rivers, streams, ponds, lakes and labor, and are not yet utilized to the necessary extent. However, people of these communes are generally poorly educated and live far from Thai Nguyen City, and transport conditions are difficult.
- Numerous risks and disadvantages are common constraints in the cause of commune development. The communes are in great need of assistance to sustain livelihoods and develop the economy, in parallel with aquatic resources protection.

## **1.2 Overview of the two communes**

### **1.2.1 Dan Tien Commune**

Dan Tien Commune is 60 km north of Thai Nguyen City and 20 km south of Vo Nhai District town. Its 5,535 ha area features a complicated topography of a combination of rocky mountains and hills. The commune is by the Dong River and several streams run through it. Forestry, agriculture and unclaimed land areas are large.

#### *Population*

There are 5,781 people in 1,157 households of seven different ethnic minorities living in twelve separate villages. Each village has one to three hamlets. Life here is difficult, as the commune does not yet benefit from the national power network. The incidence of poor households is 32.3%, and reportedly there are no rich households.

#### *Education level*

The levels of education are quite low and people use 'backward' farming practices and simple production tools. However, only 80 people are illiterate and there are many school graduates.

#### *Transportation*

For transportation, the commune has a 7-km section of an inter-district motorway and several earthen inter-village roads.

### **1.2.2 Phuong Tien Commune**

Phuong Tien Commune is situated 55 km northwest of Thai Nguyen City. The total land area of this commune is 2,170 ha, and contains forest, hills and agricultural land. Water bodies include a small river, streams, lakes, ponds and paddy fields (pond and lake areas are as much as 40% of the rice cultivation area).

#### *Population*

The commune has 3,898 members in 816 households belonging to seven different ethnic groups in fifteen villages. Just over 46% of the population is of labor age.



### *Wealth ranking*

Rich households (earning more than 20 million VND per year) account for 15.8% of the total population, while poor households (earning five million VND or less per year) account for nearly 27%.

### *Education*

Seventy percent of the population have completed primary or secondary education, 28% are literate and 2% have no literacy skills.

### *Electricity*

The national power network supplies electricity to 70% of households. The remaining 30% use petrol, oil or mini-hydropower.

### *Roads*

The 26 km of commune roads are all earthen and rocky but not asphalted.

## **2. METHODOLOGY OF THE LIVELIHOODS STUDY**

### **2.1 The process**

The livelihoods study team of Thai Nguyen Province had twelve members. Ten of these were provincial, district and commune officials working for the Provincial Department of Agriculture and Rural Development, and the Provincial Women's Unions. They were facilitated by two RIA-1 staff.

#### *Schedule*

10 October 2001: The team met at the Thai Nguyen Provincial Department of Agriculture and Rural Development to discuss timing, suitable information gathering methods, and what and how to use livelihoods analysis tools.

11-14 October 2001: Livelihoods analysis in Dan Tien Commune, Vo Nhai District

- Group 1 (five members, including one RIA-1 staff) met commune officers
- Group 2 (seven members) met farmers at some villages

15-18 October 2001: Livelihoods analysis in Phuong Tien Commune, Dinh Hoa District

The team was again divided into two groups as in Dan Tien but the roles were reversed: the group who met Dan Tien commune officers now met farming households and vice versa.

19 October: The team met to present results achieved and agree on reporting roles.

25-30 October: Preparation of report.

### 3. LIVELIHOODS OF FISHERS AND FARMERS IN THAI NGUYEN PROVINCE

#### 3.1 Dan Tien Commune

##### 3.1.1 Labor

The commune's labor force (women aged 16-55 and men aged 16-60) consists of 2,315 people, equivalent to 58% of the 5,781-strong population. A secondary labor force consists of 1,200 people, and 2,266 people can be termed 'non-labor', of these a third are elderly and two-thirds are children.

##### *Economic activities*

Activities include cultivation, husbandry, forestry and fishery. Labor quality is reflected in Table 1 (on a 10-point scale). Table 1 indicates that cultivation has the best labor quality and precedes husbandry and fishery.

*Table 1 Labor quality ratings in Dan Tien Commune*

<b>Occupation Labor quality</b>	<b>Cultivation</b>	<b>Husbandry</b>	<b>Fishery</b>	<b>Forestry</b>	<b>Secondary occupation</b>
Experience	8	5	4	2	3
Skill level	7	6	6	2	2
Know-how	6	5	5	3	4
Capability to work	7	6	6	2	2
Possibility to take advantage of labor force	5	7	7	2	3
<b>Total</b>	<b>27</b>	<b>24</b>	<b>23</b>	<b>11</b>	<b>14</b>
<b>Rank</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>5</b>	<b>4</b>

The water surface area of small private ponds in the commune is three hectares. In addition, a 37.3-ha reservoir, Quan Che Lake, is currently managed by three bid-winning households. Annually, these farmers have to hand in produce of twelve million VND in value. Six million of this will go to the government budget. In the year 2001, ten kilos of fish seed (twelve million VND value) were stocked and the managing households were equipped with fishing nets that cost 1.5 million VND. These households capture wild fish and shrimp, and partially harvest the stocked fish. Average productivity is from 50-60 kg a month. Other families who do not manage the reservoir are also allowed to catch shrimp. They all take care of and protect the reservoir from dynamite fishing and fish poisoning, which used to happen in the past. Rice-fish farming is also undertaken and 161 ha of spring-summer rice crop is utilized for this.

Table 2 shows that labor quality for fish culture in small ponds and lakes is the best. Reservoir aquaculture has just begun and rice-fish farming is a completely new option.

*Table 2 Labor quality ratings for fish culture in Dan Tien Commune*

<b>Practice</b>	<b>Pond fish culture</b>	<b>Lake fish culture</b>	<b>Rice-fish farming</b>
Experience	9	1	0
Skillfulness	9	2	0
Know-how	8	1	0
Capability to work	8	2	0
Possibility of taking advantage of labor	8	1	0
<b>Total</b>	<b>42</b>	<b>7</b>	<b>0</b>
<b>Rank</b>	<b>1</b>	<b>2</b>	<b>3</b>

Table 3<sup>1</sup> shows preferences for husbandry in Dan Tien Commune.

*Table 3 Preference list for husbandry in Dan Tien Commune*

<b>Animal</b>	<b>Pig</b>	<b>Chicken</b>	<b>Duck</b>	<b>Buffalo and cow</b>	<b>Fish</b>
<b>Priority indicator</b>					
Possibility to take advantage of labor	2	2	5	2	1
Easy to sell	4	1	5	3	1
Easy to take care	5	3	2	4	2
Low investment	5	3	3	5	1
Less disease	4	5	3	1	2
<b>Total</b>	<b>18</b>	<b>15</b>	<b>17</b>	<b>13</b>	<b>7</b>
<b>Rank</b>	<b>5</b>	<b>3</b>	<b>4</b>	<b>2</b>	<b>1</b>

Although the water area is small and aquaculture is underdeveloped, fish culture is considered the first priority, buffalo and cow husbandry come second, and pig, duck and chicken-raising rank somewhere behind these.

Table 4 shows that of all possible occupations, the highest value is assigned to fish culture, and people are most aware of this industry and consider it most important.

As shown in Table 5, mud carp and mrigal are the preferred species in this commune.

### *Idle time*

The least busy times in the commune are from April to June, the interval between winter-spring and summer-autumn rice crops; and from December to January, the interval between summer-autumn and winter-

<sup>1</sup> Preferences are based on a 5-point scale: the less value, the higher priority or preference.

spring crops. The busiest time is from February-March and from September-October, the peaks of the two crops.

*Table 4 Valued occupations in Dan Tien Commune*

<b>Indicators \ Occupation</b>	<b>Cultivation</b>	<b>Husbandry</b>	<b>Fish culture</b>	<b>Secondary occupation</b>
Consumption market is easily found	8	7	10	8
High profits	5	4	10	5
Low investment	3	4	9	5
Possibility of taking advantage of labor	4	5	10	8
Fewer risks	5	6	5	6
<b>Total</b>	<b>25</b>	<b>26</b>	<b>44</b>	<b>32</b>
<b>Rank</b>	<b>4</b>	<b>3</b>	<b>1</b>	<b>2</b>

*Table 5 Priority list of fish species in Dan Tien Commune*

<b>Species \ Priority indicators</b>	<b>Grass carp</b>	<b>Bighead carp</b>	<b>Mud carp</b>	<b>Mrigal</b>	<b>Common carp</b>	<b>Others</b>
High profits	1	4	1	1	5	6
Easy feeding	4	1	2	2	6	5
Less disease	6	5	3	4	1	2
Attractive to consumer taste	2	6	3	4	1	5
Simple culture techniques	5	1	2	3	4	6
<b>Total</b>	<b>18</b>	<b>17</b>	<b>11</b>	<b>14</b>	<b>17</b>	<b>24</b>
<b>Rank</b>	<b>5</b>	<b>3</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>6</b>

### *Education system*

A number of schools are available to children and young people of Dan Tien Commune: one kindergarten of nine classes for 137 children; two primary schools for 908 pupils; and one lower-secondary school for 475 pupils. The commune has 100 upper-secondary school graduates (1.7%) and 220 lower-secondary education graduates (3.8%). Eighty people in the commune have no literacy skills (1.4%).

### *Labor and seasonality*

Table 6 shows activities in the course of one lunar year in Dan Tien Commune.

*Table 6 Calendar of cultivation and other activities in Dan Tien Commune*

<b>Plant</b>	<b>Land preparation</b>	<b>Sowing and planting</b>	<b>Care taking</b>	<b>Harvest</b>
Winter-spring rice	12-1	Sow 12-1, transplant 1/1-10/2	2-3	4-5
Summer-autumn rice	5-6	Sow 4, transplant 6	7-8	Late 9 – 10
Early rice	4-5	Sow 4, transplant 5-6	6-7	8
Spring maize	1	1	2-3	4
Summer-autumn maize	6	6	7-8	10
Spring soy bean	1	1	2-3	4
Summer-autumn soy bean	6	6	8	Late 9
Sugar cane	1-2	1-2	3, 4, 5, 6	11, 12, 1
Cassava	2	2	3-5	10, 11, 12
Taro	10-11-12	10,11,12	2, 3	5-6
Peanut	1-2	1-2	2-3	4-5
Chiem peanut	6	6	7-8	10
Tea	7-8	8	All year round	1-10
Vegetables (cabbage, turnip)	10-12	10-12	10-12	10-12

### **3.1.2 Production inputs**

#### *Production tools*

Production tools are largely manual and simple: plough, harrow, rake, hoe, shovel and fishing net. Eighty percent of households have rice threshing machines; most are manually powered and some have motors.

#### *Transportation*

Transportation of commodities is done by using a carrying pole or draft cattle. Additionally, 1,650 buffaloes and 100 cows also provide draft for ploughing and harrowing. The commune has three Cong Nong pick-ups and two trucks which are mostly hired to transport goods from commune to commune. There are also 30 mini ploughing machines which generate total power equivalent to 210 cattle, and assume 16% of needed agriculture draft. More than 60 rice-husking machines are operational.

#### *Artificial wells*

Most people drink well water while a few take water from streams. Quan Che Reservoir, which covers 37.3 ha, supplies water for 274 ha of lower-lying rice fields through a channel system (1 km of this system has been concretized). Both aquaculture and fishing activities are carried out in this reservoir. Almost all the small homestead ponds are stocked with fish and

some are used to water tree gardens in the VAC integrated farming system.

### *Energy*

As yet a power supply has not been set up for the commune, and 30% of households run mini-hydropower works for illumination and television. Oil lamps prevail in the remaining households.

### *Communications*

Of the commune households 35% have a television and 70% have radio.

### *Housing*

More than 80% of commune houses are either semi-concrete or made from thatch and bamboo. Ten percent of houses are brick with thatched or tiled roofs. Animal pens are all made of plant materials.

### *Animals raised*

Animals raised include buffaloes and cows (for draft and meat), pigs (except some exotic strains), chicken, duck, fish (bighead, mud, grass and common carps), mostly belonging to local strains. Poultry and fish are either home-consumed or sold for cash. No local specialty is claimed. People have little knowledge of husbandry techniques and disease prevention or treatment methods.

### *Plant varieties*

Some hybrid rice varieties have been introduced, but are normally sold at cheap prices. (A bicycle is worth about 400 kg of unhusked rice.) In gardens, local vegetables are commonly grown. The majority of agro-products are family-consumed and partly sold in the market to buy household furniture and cover production costs. Unprocessed by-products are usually taken as animal feed, while sticks and straw are used to set fires, or mixed with cattle manure to make composted fertilizer for rice fields.

## **3.1.3 Natural resources**

### *Types of land*

Agriculture land covers 440.76 ha, of which annual plant land is 339.5 ha, perennial plant land is 2.0 ha, and garden land is 3.0 ha. Water bodies (ponds, lakes) cover 40,26 ha. Forestry land covers 2,360.75 ha, of which 1,469.38 ha are natural forest land, and 891.37 ha are forestation land.

Land for specific use covers 24.24 ha, of which land for construction is 8.74 ha, for roads, 11.5 ha, and cemetery and others, 4.0 ha. Residential land covers 45 ha. Unused land covers 2,264.25 ha, of which 1,644.98 ha are hills and mountains, 13 ha are streams and rivers, and 1,006.27 ha are rocky, unwooded mountains.

#### *Natural water sources*

Rains, streams and 7 km of the Dong, a small river, constitute the water supply for rice production and drinking water.

#### *Animal feed*

Buffalo and cow feed comes from two hectares of grass on pasture around the forest and on river and stream banks. Rice fertilizer and fish feed come from green leaves.

#### *Aquatic resources*

The river, lakes, streams and rice fields contain a vast range of aquatic animals such as crabs, snails, clams, mussels, grass carp, red-eyed carp, mud carp, goby, catfish, crucian carp, snakehead, hemicultur, climbing perch, *ca thieu*, *ca dam* and *thau dau*. Due to unplanned fishing, the quantity of aquatic resources has decreased. People catch fish and other aquatic animals mainly for meals but cannot earn their living from this resource.

#### *Fuel*

Dry sticks and fire wood make up the main fuel material. No other sources are used.

After getting an overview of Dan Tien, the study team walked through the commune horizontal section in a north-south direction. The landscape is rather complicated, with all kinds of rocky mountains, paddy fields, natural and protection forests, asphalted roads and rivers.

### **3.1.4 Social resources**

In this commune, people live in villages. The commune is divided into twelve villages, each of which has between one and three hamlets. Seven ethnic groups live, relatively isolated from one another, in their own villages. These are the groups and their corresponding villages, in order of population size:

- Cao Lan group: Dong Quan, Lang Che and Dong Voi villages
- Tay group: Bac Phong, Dong Da and Dong Chuoi villages



- Kinh group: Tan Tien, Phuong Ba and Doan Ket villages
- Dao group: Lang Muoi Village
- Hmong group: Lang Vai Village
- Hoa group: Bac Phong Village

The ethnic groups are all treated equally.

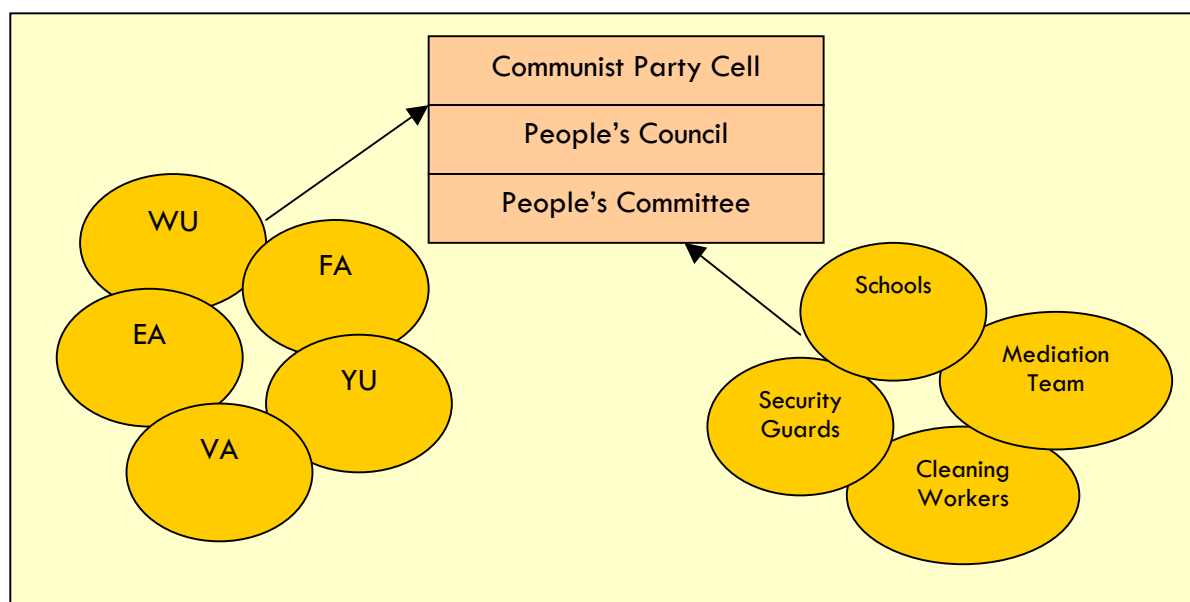
### *Gender divisions*

Of the commune population, 2,858 are men and 2,923 women. Both men and women have equal roles, however, men usually take the role of family decision-makers. Also, when the rice crop is harvested, men have some leisure time. Women do both rice farming and engage in secondary occupations, so they are busy all year round.

No superstitious practices are followed at weddings and funerals. In the case of death, the body of the dead is buried after 12 hours. The cost of a funeral is between one and two million VND. A wedding costs three-and-a-half to five million VND, and 40-50% of this amount is covered by the bride's family.

### *Organizations and institutions*

In Dan Tien Commune, there are twelve Communist Party Cells belonging to eleven villages and the school (Figure 1). These include a total of 146 members and are responsible for guiding public security and socio-economic development trends.



*Figure 1 Organizations in Dan Tien Commune*

The organizations and institutions in Dan Tien have a range of responsibilities:

- Women's Union (WU): responsible for birth control and family planning
- Veterans' Association (VA): responsible for building awareness of military history
- Elderly Association (EA): promoting the "Good Grandparents" motto
- Youth Union (YU): contributing to the cause of national protection and homeland construction, and
- Farmers' Association (FA).

Additionally, the Commune People's Committee instructs village headmen to encourage people in farming activities and fulfilling state policies. The Commune Communist Party Cell and government supervise mediation teams, cleaning workers and security guards who ensure solidarity, rural sanitation and a clean environment.

#### *Education system*

The commune has a kindergarten for 167 children, two primary schools and one lower secondary school. Makeshift classrooms of earthen walls and leaf roofs have been replaced with brick-walled ones.

#### *Health care*

There is one medical care station with a physician, a nurse and 12 beds.

#### *Roads*

Dan Tien has seven kilometers of asphalted inter-district road and one suspension (hanging) bridge, the Phoung Ba Bridge, across the river. The cost of the bridge was 265 million VND. Inter-village roads are earthen and render travel difficult in the rainy season.

#### *Water*

Drinking water is made available by digging homemade wells.

#### *Markets*

Two commune markets are open once every five days.

### **3.1.5 Financial resources**

Commune people's savings are relatively small and not enough to invest, even in a small business. Investment for development, therefore, has to be dependent on other sources. Agriculture Bank loans, with an interest

rate of 0.81%/month, are distributed among 90% of households who do not have mortgages or ability to reimburse.

Annually, the total accumulated debt is around one billion, and for the last three years the amount has come to more than three billion. Bank for the Poor loans have been delivered through the Women's Union to 100 households and the total loan value of these is 300 million VND.

Other donations, sponsored by projects and programs, mainly focus on public welfare works. Program 135 provides funding for the construction of roads at Dong Chuoi and Tan Tien Villages (1.5 km, 665 million VND), Phuong Ba suspension bridge over the Dong River (265 million VND), Thinh Khanh concrete bridge (156 million VND), the concrete reinforcement of the irrigation channel system (187 million VND), the primary school (369 million VND), and the eradication of makeshift classrooms (339 million VND, non-interest loan from the Ministry of Finance, to be covered by frequent contributions of pupils' families).

The German Mark project (1.2%/month interest) allocates 90 million VND of revolving funds for 40 households in a three-year cycle.

Program 120 offers 300 million VND at the rate of 0.6%/month interest. This amount is split into two divisions: 100 million for 30 small-scale production households, and 200 million for better-off households to take up farm economy models.

### **3.1.6 Risks**

#### *Climate*

The average rainfall is 1,750-1,800 mm/year. This peaks in the period from lunar months six to eight. The dry season is between lunar months ten to twelve.

#### *Temperature*

The temperature ranges from 10 to 38 °C. At times the lowest temperature may fall to 7 or 8 °C in winter. The average temperature throughout the year is between 22.7 and 23.4 °C.

#### *Sunlight*

From the twelfth to the fourth lunar month, it is cloudy and a little sunny. The weather is highly humid and least sunny between lunar months one to three, and animals usually come down with diseases in this season.

### *Environment*

There are no toxicants caused by mining or contamination, thanks to the distance from urban areas. The earthen hills are managed by forestation households. The rocky mountains are barren and not under homestead protection. Sometimes hot weather causes bad climatic effects.

### *Natural disasters*

No typhoon has been reported. Every ten years, there is a huge flood on the Dong River but it quickly recedes and causes no harm to homesteads or cultivated plants. Droughts often take place in the eighth lunar month and this adversely affects non-irrigated areas.

### *Epidemics*

In terms of human disease, no major epidemic, contagious or locally typical diseases ever happen. Twelve people who were affected by Agent Orange are given subsidiary money of 84,000 VND/person/month.

Plant diseases usually occur in lunar months two to three, leaf-roller in months three to four (spring crop) and seven to eight (autumn crop).

For animals, congestion syndrome appears among chicken and ducks in months two and three, then Lepto disease among pigs in month eight. Every few years, foot and mouth disease is found in buffaloes and cows. Newcastle disease in chicken appears in between months twelve and three.

### *Factors affecting poverty*

According to the responses of the farmer informants, factors which most affect poverty (Table 7) are low education level (47), poor infrastructure (55) and lack of funds (47), followed by bad quality seeds and seedlings (36), lack of experience (31), land tax (31) and lack of information (30).

*Table 7 Factors affecting local poverty in Dan Tien Commune*

Factors	Number of informants								
	1	2	3	4	5	6	7	8	Total
<b>1. Objective factors</b>									
Natural disasters: Droughts	2	1	3	2	1	1	1	2	13 (16)
Floods	1	2	2	2	1	2	3	1	14 (14)
Epidemics and human diseases	2	1	1	1	1	1	1	1	9 (18)
Plant diseases	2	3	1	3	4	2	2	2	20 (12)
Animal diseases	3	3	4	3	3	3	3	3	25 (11)
Lack of farming land	3	4	5	4	3	5	2	5	31 (6)
Lack of funds	4	5	6	4	7	6	7	6	44 (3)
Poor infrastructure (roads, power)	6	7	7	6	8	7	6	8	55 (1)
Bad quality seed and seedlings	5	4	3	5	3	4	7	3	36 (5)
Lack of information	3	4	5	3	3	5	4	3	30 (9)
War remnants	2	1	2	2	1	2	1	1	12 (17)
Social evils	2	3	2	1	1	2	1	2	14 (14)
<b>2. Subjective factors</b>									
Drug addiction	0	0	0	0	0	0	0	1	1 (19)
Too many children	3	4	2	3	4	5	5	5	31 (6)
Low education level	5	6	5	7	7	5	6	6	47 (2)
Lack of new technical know-how	4	5	3	3	4	3	4	5	31 (6)
Low motivation	2	3	2	1	3	2	1	2	16 (13)
Unemployment	3	4	3	2	4	5	3	6	30 (9)
Lack of facilities	4	5	5	6	6	4	5	5	40 (4)

### *Land use conflict*

No such case ever happens, since land has been divided according to ancestral inheritance. Decades ago, some people from low-land provinces came here to reclaim land. Land allocation has largely been agreed among community members.

### **3.1.7 Impacts**

Policies on contractual management and utilization of land and water surfaces are being implemented. No tax is imposed on aquaculture in reservoirs and lakes. Tax on homestead ponds and lakes is calculated similarly to the one on agricultural land and tax rates range from Grade 3 (307 kg/ha) to Grade 6 (50kg/ha). The agricultural irrigation fee is 120 kg of unhusked rice per hectare.

Other policies on aquatic resources protection, namely Decree 01/1998/TT-TTg by the Prime Minister, and regulations on protection of

aquatic resources and environment issued by the Provincial People's Committee, are also being implemented. These prohibit overexploitation of natural water bodies, fishing on spawning grounds and the use of destructive fishing gear, such as toxic chemicals, dynamite and electricity.

Positive impacts of assistance by NGOs and international development agencies include:

- Local farmers' livelihoods have improved. Hunger has been eradicated and poverty has been alleviated. Some families have become well off.
- In the past all the houses were made temporarily out of bamboo and thatch, but now 20% are brick-walled.
- Seven kilometers of asphalted road connecting districts, a suspension bridge over the Dong River, and 20 km of commune-district town road have been built.
- An irrigation system has been set up for agriculture production.
- Makeshift classrooms have been removed. The literacy rate is more than 98%.
- The health care station which has a doctor and a nurse is a critically important infrastructure facility.

Constraints include:

- Programs and projects are neither synchronized nor appropriate to the local educational level.
- Credit loans do not go hand in hand with employment generation. There is no consumption market for products. No further rice processing is practiced other than husking and grinding.
- Programs and projects work independently without cooperation, so effectiveness was not high.
- Sustainability has not been ensured with activities beyond project and program life, so farmers have not really escaped from poverty.
- Full advantage of labor and aquatic resources (e.g., forest, reservoirs, low-lying paddy fields, mountains, hills, land) have not been taken.
- There have been difficulties in collecting principal and interest of bank loans. Annual accumulated debt has reached some one billion VND.

### A story about hunger eradication

Mr Tran Van Thuan is 31 and lives in Che Village. He's from the San Chi ethnic minority. There are three people in his family. His farm is as large as two *sao* (720 m<sup>2</sup>), but this land was not big enough to feed his family, and for three to four months a year he did not get any food for his family from his land. Through the Women's Union, he got a loan of two million VND and invested in pig raising and soya bean growing. He now earns four million from these activities, a two million VND net profit for his family. They are no longer hungry.

### 3.1.8 Conclusions

The livelihoods study in Dan Tien Commune partly unveils existing human, labor and natural resources as well as factors affecting people's livelihoods. Their economic and cultural lives face many constraints. No family is ranked as rich. Three hundred and seventy-four poor families (whose income is less than 80,000 VND per month) account for 6.5 % of the commune population.

#### *Unused potential*

Many resources which could be useful to commune members are not being fully exploited:

- There are 2,664.25 ha of unused land (1644.96 ha of which are hills and mountains).
- An area of 37.3 ha of reservoir is not being properly stocked and managed.
- Low-lying paddy fields (161 ha) are not being utilized for rice-fish farming.
- No measure has been taken to make use of idle labor in crop intervals.
- Production tools are too simple.
- Seeds and seedlings are not ensured in quality, quantity and sometimes in adaptability to the local environment.
- Cattle disease epidemics commonly break out.
- Low levels of education lead to limited adoptability of farming techniques and household economy management knowledge.
- Transport facilities are poor, as all the inter-village roads are earthen.

## **3.2 Phuong Tien Commune**

### **3.2.1 Labor**

Of the population of 5,781 people in 816 households (1,919 men and 1,979 women), 1,800 (46.2%) are of labor age.

The commune has fifteen villages and seven ethnic groups: Tay, Nung, Kinh, Dao, San Chi and Cao Lan. All ethnic minorities are treated equally, but there are differences in terms of educational level and social awareness.

Men and women have equal roles in families and society, but are distinguished by the work they do. Men are responsible for building houses, carpentry and forestry jobs. Women plough, harrow, transplant and harvest rice, raise animals, do supplementary income-raising work, and take care of children, so they are busy all the time.

#### *Education*

Nine commune members are university graduates, and 81 are technical workers who have completed vocational high school. Many of these are involved in off-farm activities and some have retired. Additionally, 820 people have completed upper secondary school (21% of population); 938 people have completed lower secondary school level (24%); and 860 people have completed primary school (22%).

#### *Economic activities*

Rice farming and husbandry are practiced in all fifteen villages. Thirteen to fifteen villages engage in fish culture (the non-aquaculture villages are Pai and Hop Thanh). Five to fifteen villages are engaged in construction material supply and agricultural services. Carpentry and masonry workers are scattered over hamlets and villages. (See Table 8.)

Labor quality and people's preferences are in the following order: fish culture (43), cultivation (41), husbandry (35) and forestry and gardening (34). Commune members are most interested in pond fish culture (40); lake and reservoir culture is ranked second and rice-fish, third (34) (Table 9).

Compared with Dan Tien Commune, it is clear that there is only a small imbalance between idle and busy time. In the summer interval of the two rice crops, from month five to month seven, people do not have leisure time but take care of fish. Their levels of education also indicate the ability to access advanced production techniques.



*Table 8 Occupations and labor quality in Phuong Tien Commune<sup>2</sup>*

<b>Occupation</b>	<b>Cultivation</b>	<b>Husbandry</b>	<b>Fish culture</b>	<b>Gardening and forestry</b>	<b>Carpentry and masonry</b>	<b>Secondary occupation</b>
<b>Labor quality</b>						
Experience	9	7	9	6	7	5
Skill levels	9	7	9	8	8	4
Know-how	8	6	7	6	5	5
Capability to work	9	8	10	8	6	6
Possibility to take advantage of labor	6	7	8	6	4	6
<b>Total</b>	<b>41</b>	<b>35</b>	<b>43</b>	<b>34</b>	<b>30</b>	<b>26</b>
<b>Rank</b>	<b>2</b>	<b>3</b>	<b>1</b>	<b>4</b>	<b>5</b>	<b>6</b>

*Table 9 Priority matrix for fish culture practices in Phuong Tien Commune*

<b>Practice</b>	<b>Pond fish culture</b>	<b>Lake and reservoir fish culture</b>	<b>Rice-fish farming</b>
Experience	9	8	6
Skillfulness	8	8	8
Know-how	7	6	5
Capability to work	8	8	7
Possibility of taking advantage of labor	8	7	8
<b>Total</b>	<b>40</b>	<b>37</b>	<b>34</b>
<b>Rank</b>	<b>1</b>	<b>2</b>	<b>3</b>

In order of priority, commune members list fish culture, cultivation, husbandry, secondary occupation and then forestry as preferred occupations (Table 10).

*Table 10 Priority list of occupations in Phuong Tien Commune*

<b>Occupation</b>	<b>Cultivation</b>	<b>Husbandry</b>	<b>Fish culture</b>	<b>Forestry</b>	<b>Secondary occupation</b>
<b>Indicators</b>					
Consumption market is easily found	2	3	1	4	5
High profits	3	2	1	4	5
Low investment	2	5	1	3	4
Possibility of taking advantage of labor	3	2	1	5	3
Fewer risks	2	4	4	3	1
<b>Total</b>	<b>12</b>	<b>16</b>	<b>8</b>	<b>19</b>	<b>18</b>
<b>Rank</b>	<b>4</b>	<b>3</b>	<b>5</b>	<b>1</b>	<b>2</b>

Forestry activities include collection of bamboo shoots, firewood, palm leaves, bamboo stems and timber. Secondary occupations include sand and gravel exploitation, masonry, rice husking, tofu processing and basket weaving.

The total agricultural plant production is equivalent to 18,422.82 tons of unhusked rice per year. The commune has 980 buffaloes and 250 goats.

<sup>2</sup> Based on a 10-point scale: the higher the point, the more prioritized.

The cattle output is 24 tons per year, poultry output 1.6 tons per year and fish 63 tons per year. In terms of output value per sector, the output for agriculture and husbandry is equivalent to 300 million VND (21.9%), forestry 200 million VND (14.5%), industry 150 million VND (10.9%), fisheries 630 million VND (45.0 %) and others the remaining 7.7 %.

Table 11 shows existing fish culture practices in the commune.

*Table 11 Existing fish culture practices in Phuong Tien Commune*

<b>Practice</b>	<b>Area (in ha)</b>	<b>Average yield (ton/ha)</b>	<b>Production (tons)</b>
Pond culture	38.6	0.54	20.844
Lake and reservoir culture	63.18	0.54	34.120
Rice-fish farming	26.00	0.27	7.020
<b>Total</b>	<b>127.78</b>		<b>61.984</b>

As Table 12 shows (on a 7-point scale), the order of preference for husbandry in Phuong Tien Commune is fish (12), buffalo and cow (15), duck (19), chicken (19), goat (22) and pig (35). However, this preference also depends on market demand.

*Table 12 Priority list for husbandry in Phuong Tien Commune*

<b>Animal</b>	<b>Pig</b>	<b>Fish</b>	<b>Buffalo</b>	<b>Cow</b>	<b>Chicken</b>	<b>Duck</b>	<b>Goat</b>
<b>Priority indicator</b>							
Easy to sell	7	1	5	4	2	3	6
Possibility of taking advantage of secondary labor	7	2	5	5	1	2	4
Low investment	7	1	2	2	5	6	4
Easy to take care	7	3	1	1	5	6	4
Less disease	7	5	2	3	6	2	4
<b>Total</b>	<b>35</b>	<b>12</b>	<b>15</b>	<b>15</b>	<b>19</b>	<b>19</b>	<b>22</b>
<b>Rank</b>	<b>1</b>	<b>7</b>	<b>5</b>	<b>5</b>	<b>2</b>	<b>2</b>	<b>1</b>

The commune members' preferred species of fish are shown in Table 13. Table 14 shows cropping patterns for the commune based on one solar year.

*Table 13 Priority list of fish species in Phuong Tien Commune*

<b>Species</b>	<b>Grass carp</b>	<b>Bighead carp</b>	<b>Mud carp</b>	<b>Mrigal</b>	<b>Common carp</b>	<b>Tilapia</b>
<b>Priority indicators</b>						
High profits	6	3	1	2	5	4
Easy feeding	6	1	1	1	5	4
Attractive to consumers' taste	5	4	2	3	1	6
Simple culture techniques	6	5	1	2	4	3
<b>Total</b>	<b>23</b>	<b>13</b>	<b>5</b>	<b>8</b>	<b>15</b>	<b>17</b>
<b>Rank</b>	<b>1</b>	<b>4</b>	<b>6</b>	<b>5</b>	<b>3</b>	<b>2</b>

*Table 14 Cropping pattern in Phuong Tien Commune*

<b>Plant</b>	<b>Land preparation</b>	<b>Sowing and planting</b>	<b>Care taking</b>	<b>Harvest</b>
Winter-spring rice	Late Jan–Feb	Sow Jan, transplant Feb-Mar	Mar-Apr	Late Jun
Early rice	Early Jul	Sow early Jun, transplant Jul	Jul-Sep	Late Sep-Oct
Summer-autumn rice	Jul	Sow early May, transplant May-Jun	Jul, Aug, Sep	Mid-late Nov
Spring maize	Feb	Feb	Mar-Apr	May
Summer-autumn maize	Jun	Jun	Jul-Aug	Sep
Winter maize	Sep	Sep	Oct-Nov	Dec-Jan
Sweet potato	Sep-Oct	Sep-Oct	Oct-Nov	Dec-Jan
Cassava	Feb-Mar	Feb-Mar	Apr, May, Jun, Jul	Oct-Dec
Tea	Oct-Nov	Oct-Nov	All year round	All year round
Winter vegetables	Aug-Sep	Aug-Sep	Oct-Nov	Oct-Nov-Dec

Average production of key locally grown plants is:

- Winter rice crop: 146.4 ha x 4 tons/ha = 585.6 tons
- Maize: 20 ha x 4 tons/ha = 80 tons
- Sweet potato: 11 ha x 5 tons/ha = 55 tons
- Cassava: 14 ha x 6 tons/ha = 84 tons
- Beans: 10 ha x 1 ton/ha = 10 tons

### ***3.2.2 Production inputs***

#### *Production tools*

All production tools are manual and simple and have been used traditionally. These include plough, harrow, rake, hoe, shovel, knife, bamboo fence and fishing net. Of the area for cultivation, 98% is ploughed and harrowed using buffaloes and cows as draft animals. Two percent is ploughed using four mini ploughing machines of 8-12 hp capacity each. Eighty percent of the threshing machines are manual and 20% are automatically powered.

#### *Artificial water sources*

In Phuong Tien, 70% of households have dug wells, while the others fetch water from streams and other natural underground sources.

#### *Ponds and lakes*

There are nine lakes with areas ranging from one to 13 ha, totaling 42 ha. These are utilized in agricultural production. Fish ponds are also used for stocking fish and watering gardens. A 15-kw water pump station supplies

water for 20 ha of rice fields and 40% of rice area is water-fed naturally or manually.

### *Irrigation system*

A channel irrigation system has been set up. One kilometer of this was concretized at the cost of 150 million VND, 60% of which came from the state budget, and 40% was shared among villagers.

### *Energy*

A 250-kva power station has been built with 350 million VND in government funds. The station supplies electricity for 650 of 816 households, and besides this ten families own mini-hydropower sources. The rest rely on oil. Fifty to sixty percent of households have purchased televisions and 80% have radios.

### *Housing*

Twenty percent of the commune houses are Grade 4 and the rest, which all belong to ethnic groups, are made of wood, bamboo and thatch. The brick houses are either thatched or tiled. Animal pens are all made of leaves and bamboo.

### *Transportation*

Transportation is made possible by carrying poles and by using cattle as draft. The commune has three pick-ups and one truck. These are usually hired to transport goods in and out of the commune. No internal road is asphalted. Some roads are stony and difficult to drive on.

### *Animal raising*

Nearly all the animals raised (buffalo, cow, goat, pig, chicken, duck, geese and fish) are of local strains.

### *Plant varieties*

In rice cultivation, an old variety of rice called *Bao Thai* is commonly used as well as some short-term varieties. The most adaptable forest trees are acacia, *mo*, local bamboos (*tre*, *nua*, *vau*) and canaria. Sticks and straw are used to set fires, or are mixed with cattle manure to make composted fertilizer for rice fields. Other by-products are used for fish and poultry feed.

### **3.2.3 Natural resources**

The total land area (including water bodies) consists of almost 431 ha. Two rice areas cover 213 ha, of which 26 ha are rice-fish farming land. Rice and cash crop rotation land covers nearly 60 ha, and cash crop and upland crop land covers close to 57 ha. Additionally, lakes and ponds cover 102 ha. There are just over 978 ha of forestry land and hills, mountains, roads, and homesteads; unused land covers 788 ha.

#### *Natural water sources*

Three kilometers of a small river, the Chu, flows through the commune. Some small streams are used by 30% of households, and also act as a water supply for agricultural production. In the dry season, droughts threaten four villages.

#### *Aquatic resources*

In the river, lakes, streams and rice fields there are crabs, snails, clams, mussels, grass carp, bighead carp, mud carp, catfish, crucian carp, hemicultur, climbing perch, swamp eel, cranoglanis, *ca bo*, *ca nheo* (a river catfish species), *ca cho*, *ca dam* and *thau dau*, as well as some aquatic weeds. Over-fishing has reduced these resources. People catch fish and other aquatic animals for meals and sell some at the market but no one considers fishing a professional career.

Buffalo and cow feed comes from grass on pasture around the forest and on river and stream banks, as well as from moss and aquatic weeds. Some wild leaves can be processed to make green fertilizers for plants and for fish feed.

#### *Fuel*

People make fires with wood collected in the forest.

### **3.2.4 Social resources**

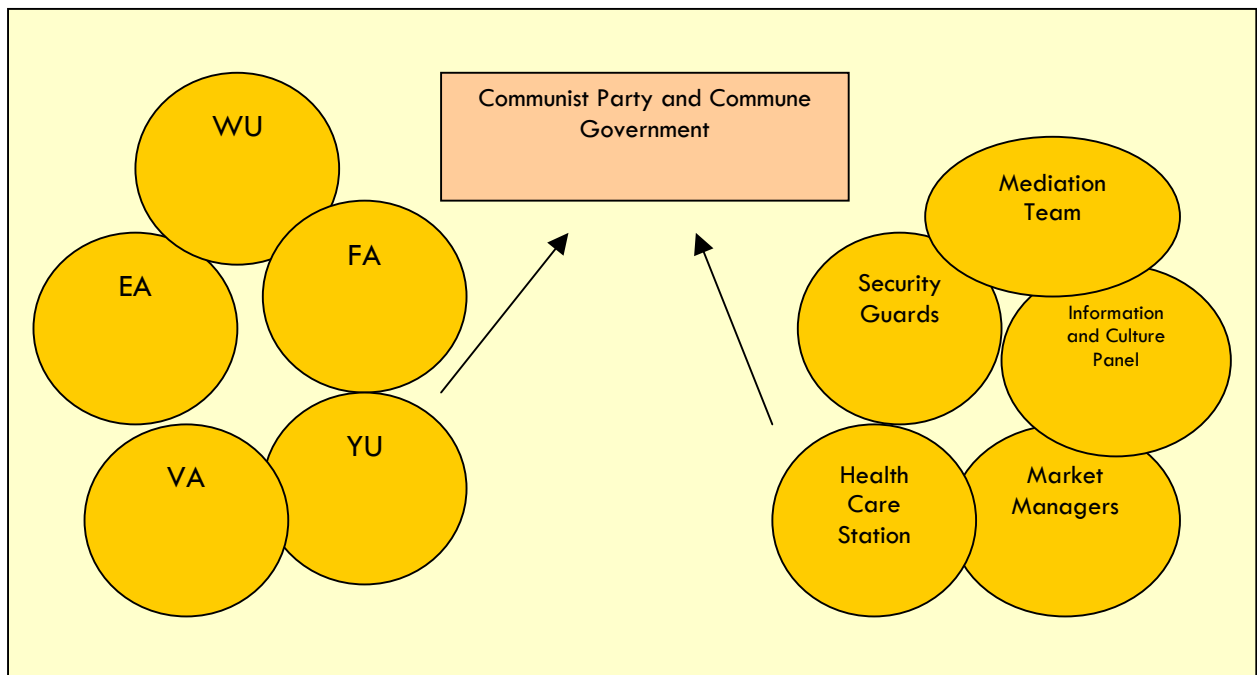
#### *Organizations and institutions*

A range of organizations work with the members of the commune to improve their livelihoods. These include:

- Youth Union (YU): representing the younger generation who can more easily adopt advanced techniques
- Women's Union (WU): responsible for family planning and care-taking of children

- Veterans' Association (VA): building awareness of military history
- Elderly Association (EA): encouraging children and grandchildren to be more involved in agricultural production activities, and promoting the conservation of traditions
- Farmers' Association (FA): encouraging members to apply new agricultural techniques

These organizations link with other functional organizations that ensure security, keep villages tidy and create good common sense among the people (Figure 2).



*Figure 2 Organizations in Phuong Tien Commune*

### **3.2.5 Financial resources**

#### *Funds*

People have few savings which are only sufficient for small business and to cover production expenses. Bank for the Poor loans are delivered to 180 households with a total loan value of 286 million VND and at a monthly interest rate of 0.6%. Agriculture Bank loans, with an interest rate of 0.81% per month, have been distributed to 420 households (90% of the total). Asia-Pacific Bank granted the commune a loan of 400 million to construct eight classrooms. A 15-kw water pumping station was built using 50 million VND, fifteen million of which was contributed by the commune people, and 35 million a government investment.

The government also contributed to the concretization of one kilometer of irrigation channels. The cost of the channels was 307 million VND and was shared between the people (40%) and the government (60%). A 250-kva power station was also built using government funds.

At present farmers are not really in need of credit, since they are not clear about what form of economic activities they should embark on.

### **3.2.6 Risks**

#### *Climate*

The average rainfall is 1,750-1,800 mm/year and this peaks in lunar months six to eight.

#### *Temperature*

The temperature ranges between 9-10 °C and 37-38 °C. The average temperature is between 22.3 and 23.8 °C.

#### *Sunlight*

During lunar months eleven to three, it is cloudy and a little sunny. The period from month one to month three is a time when plant diseases (e.g., *dao on* and leaf-roller) and animal diseases (e.g., congestion in cow, buffalo, chicken, Newcastle in chicken) often occur.

#### *Environment*

No contamination or devastation has been reported. However, soil is frequently eroded and its pH level is commonly less than seven. No original forest exists and rocky mountains are all barren. Sometimes hot weather causes bad climatic effects. Forest land has basically been distributed and planted with *mo*, acacia, bamboo, apricot and canaria. Produce from the fruit trees is not tasty, so market demand is low.

#### *Epidemics*

No major human epidemic, contagious or locally typical diseases ever happen. Common diseases are not dangerous.

#### *Animals raised*

Extensive models have not been set up for high-quality animals such as hybrid or exotic strains of pig and chicken. Traditional species of fish, bighead carp, mud carp, grass carp and common carp are usually stocked

in fish ponds. Local strains are popular and that is partly the reason for low seed quality in terms of small size and vulnerability to disease.



### *Family size*

A common factor is that families have too many children. Seven to eight member households make up about 3% of the population and six-people families make up 20%.

### *Flood frequency*

Every three years, a medium-sized flood takes place but the consequences are not serious. A much bigger flood recurs every ten years in lunar months eight or nine. Additionally, drought occurs every three years in lunar months four, eight or nine.

### *Factors affecting poverty*

According to responses from farmer informants, the factors which most affect poverty (Table 15) are lack of farming experience and techniques (56), poor quality seeds and seedlings (49), animal diseases (39), education level and lack of motivation (30), lack of fertile farming land (26), lack of information (27) and unemployment. Factors which have less impact include human diseases (7), war remnants and land use conflict (9), drug addiction (11) and social evils (13).

*Table 15 Factors affecting local poverty in Phuong Tien Commune*

<b>Factors raised in interviews</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>Total</b>	<b>Rank</b>
<b>1. Objective factors</b>									
Natural disasters: Droughts	2	2	3	1	2	4	3	17	14
Floods									
Human diseases	1	1	1	1	1	1	1	7	18
Plant diseases	5	6	4	5	6	3	4	20	13
Animal diseases	6	7	5	6	5	7	3	39	3
Lack of farming land	4	3	5	2	3	5	4	26	10
Lack of fund	2	3	5	4	3	2	3	22	12
Poor infrastructure (roads, power)	6	7	6	5	6	4	5	39	3
Bad quality seeds and seedlings	8	7	8	6	7	6	7	49	2
Lack of information	3	4	5	3	4	3	5	27	8
War remnants	1	2	1	1	8	1	1	9	17
Social evils	1	2	2	3	2	1	2	13	15
<b>2. Subjective factors</b>									
Drug addiction	1	2	1	2	2	1	2	11	16
Too many children	4	5	3	5	4	4	4	29	7
Low education level	5	6	4	3	3	4	5	30	5
Lack of new technical know-how	7	8	9	9	8	8	7	56	1
Lack of motivation	5	6	5	4	3	4	3	30	5
Unemployment	3	4	4	5	3	4	4	27	8
Lack of facilities	3	4	3	4	4	5	3	26	10
Land use conflict	1	2	1	2	1	1	1	9	17

In Phuong Tien Commune, people with no literacy skills comprise 1-2%, but 21.67% of the labor force has completed primary education only. In terms of farming experiences, people have limited ability to adopt new technologies. They have not been able to contain animal and plant diseases. Intensive farming practices have not yet been taken up with fish and rice. Rice productivity on good soil is just 120-180 kg/*sao* (equivalent to some 3.2– 4.8 tons/ha).

Family production management and entrepreneurship capacity is poor and the government's support is not practical. The commune members' needs for timeliness, reasonable prices of production, inputs and seeds, convenient credit-borrowing and budget-closing procedures have not been satisfied. Lack of motivation and unemployment are common. The commune has sent ten drug addicts to rehabilitation centers but no clear progress has been reported.

### **3.2.7 Impacts**

To encourage people to develop long-term livelihoods strategies, current policies on contractual management and utilization of land and water surfaces, support policies on development and tax treatment are being implemented.

Soil quality of the local land ranges from Grade 3 (307 kg/ha tax) to Grade 6 (50kg/ha tax). Tax on perennial tree land is 1.3 times as much as on annual tree land. Tax on timber tree land is equal to 4% of total product value. Other taxes on irrigation and resource use amount to about 357 million in total a year. In general, the taxes are not high and this is an incentive to develop forestry and aquaculture. Aquaculture land is imposed with a tax equivalent to the rate applied to Grade 3 agricultural land.

Assistance by NGOs and international development agencies has had a range of positive impacts. With support of the Bank of Agriculture, Bank for the Poor, government programs, government-and-people-shared programs and extension projects, the livelihoods of local farmers in Phuong Tien commune have improved. Hunger has been eradicated and poor households have gradually advanced to medium rank.

#### **Box 2**

#### **Hunger eradication in Phuong Tien Commune**

Mr Tran Van Luat, whose house is located at Hop Thanh, a poor village of the commune, is the head of a seven-member family. Only two of them are bread-winners. In 1999, he borrowed a loan to purchase a nine-*sao* paddy field, and a three-*sao* garden. The household is no longer hungry, and they have some small savings.

However, constraints to improvements in livelihoods still exist:

- Financial support and credit loans have not been delivered in a timely manner. Borrowing and reimbursement procedures are unnecessarily complicated.
- Most credit loans have unfavorable interest rates.
- Credit is not given in parallel with employment generation. Habits of reliance on state subsidies are still common within local government.
- New technologies and new cultivable species have not been broadly introduced.

### **3.2.8 Conclusions**

The incidence of poverty is high among fishers and farmers of Phuong Tien Commune, due to these factors:

- As a result of lack of occupational experience and good education, people are less dynamic in adopting new technologies. In some cases, lack of motivation, lack of information and unemployment contribute to the causes of poverty.
- Support programs have made some achievements, but they are not yet completely successful.
- People have not done their best and sometimes they are passive in searching for employment opportunities (e.g., reclamation of unused land). Forest is unreasonably exploited.
- The progress in agricultural structural transition is slow. Monoculture and extensive farming are dominant practices, essentially for self-sufficiency purposes.

## **4. RECOMMENDATIONS**

- Infrastructure, in particular 26 km of inter-village roads, should be upgraded.
- Makeshift classrooms should be eradicated in the government-and-people-shared modality.
- People should have access to bigger loans on a longer-term basis and with less interest.
- Credit provision and job creation should be linked. Intensive farming of rice, fish and rice-fish combination should be promoted.
- People need good technical services that depend on extension work, which should be aimed at providing good seeds and culture of both ordinary and high-value species.
- A supply of fish seed should be made locally available to enable fish farmers to stock good quality seed in a timely manner. This would help prevent fish disease.

## **5. ADVANTAGES AND DISADVANTAGES IN THE LIVELIHOODS STUDY**

The main advantages were that:

- The analysis covered all aspects of local socio-economic life and the poverty situation.
- The analysis tools allowed for a participatory approach in interviewing groups of farmers, poor people and officials. They were useful in reflecting the overall picture of people's livelihoods.
- Objectively analyzing methods was key to finding out about problems leading to poverty and identifying the resources that had not been brought into play in the cause of poverty reduction.
- The positive impacts and constraints of the completed support programs and projects have been drawn out as experience and lessons learnt, based on which we can identify new approaches to interventions.
- The findings provide a good base to set forth plans appropriate to local capacity and circumstances, to meet the needs for improvement of people's livelihoods.

These difficulties were experienced:

- It was hard to objectively select representative households of the community, since it was impossible to access all farmers and fishers.
- People sometimes found the interview questions vague, for example, the distinction between "working experience" and "working capability" and "level of skill".
- In a group of farmers, the later speakers tended to reiterate the first speaker's points.
- As remote villages of different ethnic minority groups are usually far from each other, the representatives of these villages are different in education and awareness levels, and this hinders the process of negotiating towards consensus.
- Difficult transport conditions meant that more manpower and time was required.