

CHAPTER V

SOCIO-ECONOMIC CHARACTERISTICS AND WETLAND RESOURCES MANAGEMENT IN STUDY AREA

In this chapter, socio-economic characteristics of the sample households and details of management and utilization practices of wetland agro-biodiversity resources in Dong San village were described. The contents include land use pattern and characteristics, coping strategies, wetland products for time allocation during the year.

5.1 Wetland resources management in Dong San Village

The results from the formal survey and interviews were analyzed using descriptive statistics, to address management and utilization practices of management in Dong San village.

The following Table 5-1 is a summary of observations and information given during interviews. It is not complete, but shows the season of the most important activities, giving an overview of different land and water uses according to the season and the environmental setting. During the rainy season (May - October) the Mekong water level rises fast and its tributaries, like the Songkhram river, overflows and spills over the edges and the low lying floodplains get flooded for three to four month (August - November). A more general calendar cycle of agricultural and off-farm activities is given in Figure 5-1. It includes also activities in upland areas which are

not affected by annual floods.

Table 5-1: Seasonal calendar of selected land and water use in the Dong San village

Activities	Calendar 2007/2008											
	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Season	hot	rain						Cold			hot	
Water level in lake	lowest							highest			lowest	
Agriculture												
- Wet season rice			Planting				Harvest					
- Dry season rice	Harvest								Planting			
- Livestocks (buffalos)	Taam (Thunk Pan Khan)					Nhong hae/ Home		Nhong Pla Pak/ Don Pu Ta				
- Wetland products	Bamboo Shoots					Flood		Bamboo Shoots				
	Mushrooms											
	Wild vegetables							Wild vegetables				
								Earthworms				
Fishery												

Source: Survey, 2007

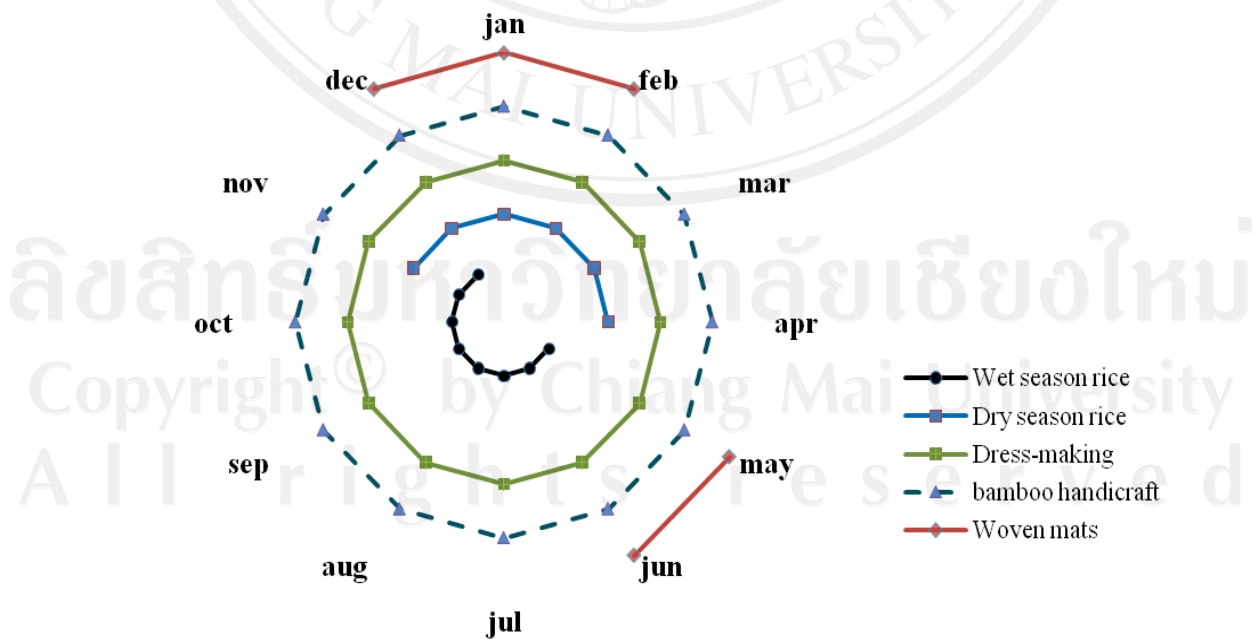


Figure 5-1: Calendar cycle of agricultural and off-farm activities in study area.

5.1.1 Land use management

Dong San village is situated on a parcel of slightly raised land near the Songkram River. The river flows around the village from the south to the east for a stretch of about 7 km. Dong San village has 1,460 ha (9,122 rai), of which 640 ha (4,000 rai) agriculture, 320 ha (2,000 rai) residential, 20 ha (122 rai) common land, 160 ha (1,000 rai) community forest and 320 ha (2,000 rai) of seasonal flooded forest. During peak rainfall from July-September, most of the land is inundated. The village has four major natural water sources as given below and following in Table 5-2 and Figure 5-2:

1. The Songkram River is essential to village livelihoods and culture, and is the largest source of food and income. The river is also the source of water for domestic use.
2. The *Nhong* or natural ponds are created by the flow of the river onto the inundated lands. The village has 8 ponds including *Nhong Bua*, *Nhong Zai Wan*, *Nhong Khae*, *Nhong Kang Huang*, *Nhong Nam Khun*, *Nhong Sang*, *Nhong Ben*, *Nhong Pla Pak* and *Nhong Mak Sao Yai*.
3. The *Kud* is an oxbow lake. It is where the runoff from surrounding water bodies collects. *Kud* in the village include *Kud Seaw*, *Kud Lhum*, *Kud Na saeng* and *Kud Mae Pao*.
4. The *Huay* is a small creek flowing from a pond. In the dry season, these small creeks usually dry up. The village has several creeks such as *Huay Nhong Hae*, *Huay Pak Nong Saeng*, *Huay Pak Bong Kheung*.

Table 5-2: Water resources and the utilization in study area.













No.	Name	Utilization				
		Agriculture	Fishery	Livestock	Agri-business	Household uses
1.	Songkhram river		✓	✓		
2.	Nhong Kang Huung		✓	✓	✓	
3.	Nhong Nam Khun		✓	✓	✓	
4.	Nhong Sang		✓	✓	✓	
5.	Nong Ben		✓	✓	✓	
6.	Kud Lhum	✓	✓			✓
7.	Kud Seaw	✓	✓			✓
8.	Nhong Mak Saeo Yai**	✓	✓	✓	✓	✓
9.	Nhong Pla Pak	✓	✓	✓		✓

Note: ** irrigation system

Source: interviewed, 2007



Figure 5-2: Land use in Dong San village.

 A	Dong San community	 G	Kud Lhum
 B	Paa Chaa	 H	Nhong Nam Khun
 C	Don Pu Ta	 I	Nhong Kang Huang
 D	Nhong Mak Saeo Yai	 J	Nhong Sang
 E	Don Lao Kaw	 K	Nhong Ben
 F	Kud Seaw	 L	Nhong Hae

5.1.2 Forest resources in Don San village

Dong San village is situated in a rich 839 ha (5,244 rai) forest. Villagers have common rules to manage the forests. Most public forest is available to all villagers to collect non-timber products and for cattle grazing. Small trees are with permission.

In 1990, some common land (Thung Nai), 159 ha (996 rai) land have been cleared and shared to 160 households in Dong San village for cultivate wet season rice (na prang). Later in year 2005, 201 ha (1,255 rai) of public forest Thung Phan Khan have been shared to 251 households and each claimant has about 0.8 ha (5 rai) of land. The land in Paa Thaam and Thamm Om keaw forest, Don San villagers and other villagers to collect wetland products but cutting trees or collecting firewood is prohibited. Nowadays, the common forests left for the collective benefit are shown in Table 5-3:

Table 5-3: Forest resources and the utilization in study area.

No.	Forest name	Type	Description
1.	Paa Chaa (graveyard)	Community	8 ha (50 rai) of public land, the area that villagers also planted hard wood to be conserved.
2.	Paa Don Pu Ta (sacred land)	Community	80 ha (500 rai) of rich, diverse and dense forest protected by strong beliefs. Its use is limited to collecting dry tree branches authorized by the village seniors.
3.	Paa Don Loa Kaw	Community	48 ha (300 rai) of upland where the river flow does not inundate the land. The forest is quite fertile and with large hard wood timber.
4.	Thamm Om keaw	Natural	96 ha (600 rai) of seasonally flooded forest located close to the river to the north of the village.
5.	Paa Thaam (flooded forest)	Natural	320 ha (2000 rai) was opened for Don San villagers and other villagers to collect NTFPs but cutting trees or collecting firewood is prohibited.

Source: interviewed, 2007

5.1.3 Livelihood and coping strategies in study area

In the case of Dong San village, it can be stated that wetlands products form the core of local based livelihoods, providing subsistence and incomes for all of households throughout the year. Villagers generally are engaged in multi component livelihoods, which vary by season. As most households still practice subsistence crop farming with little agricultural surplus each year, household income is mostly derived from non-agricultural sectors particularly labour remittances from domestic and overseas sources. Commonly, many households derive considerable seasonal income from the sale of local wetland resources, especially fish, fish products, earthworms and bamboo shoots. A core strategy of Dong San villager is diversifying risk by combining activities as given below.

1) Cultivating Rice

Topography, climatic condition and cultural and socio-economic conditions of the village are diverse and influence the types of crops grown. Rice is the most important cultivated crop for the majority of people in the village. Paddy rice is prominently cultivated in paddy fields and bund terraces in the flood plains and valley bottom while upland rice in shifting cultivation areas at higher slopes. The villagers in Dong San village started to grow rice for their own consumption. The rice cultivated is largely sticky rice, which is their staple food while plain rice is for sale. Now 49 of 60 households had dry season rice fields on low level land, where the second rice crop was planted during the dry season, when the flood water subsided. Before the introduction of dry season rice cultivation, farmers organized barter trade

between fish and fish products for rice with other villages. The cultivation of dry season rice, which was made possible with construction of village reservoir, had improved rice sufficiency. And yet a few household with low rice productivity did not produce enough for home consumption. Currently, average annual rice production is about 362 kg per rai with cash about average 5,000 Baht per year per household. Families who have poor harvests have to purchase rice for domestic consumption. Rice farming is considered risky but it is necessary to meet household consumption need.

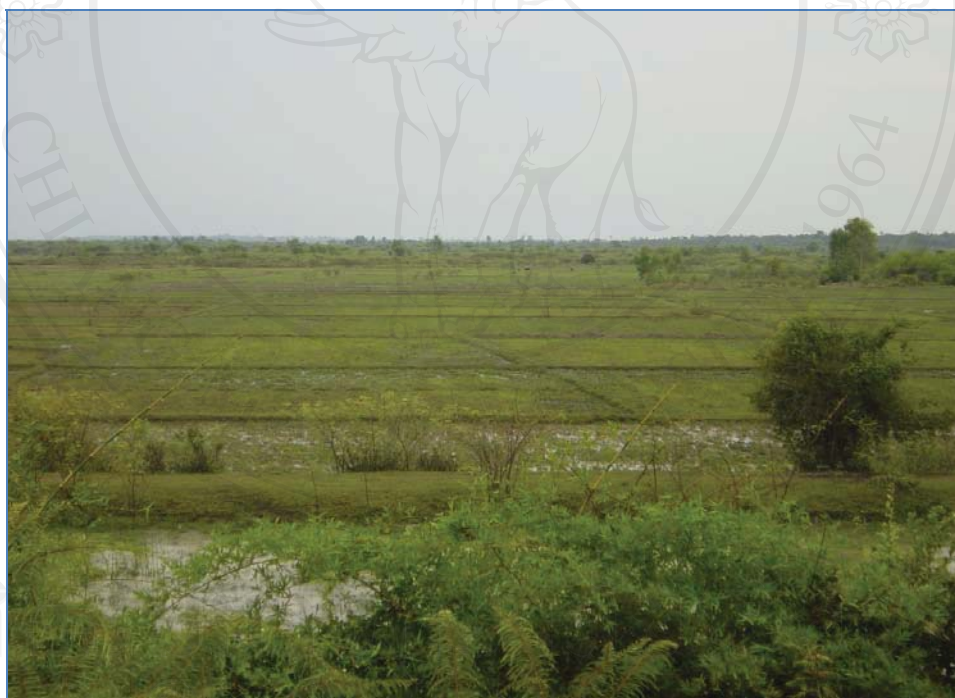


Figure 5-3: Rice fields in the north of the village.



Figure 5-4: Dry rice fields in the north of the village (15-12-2007).

2) Livestock raising

This is a livelihood activity of great importance to households in the Dong San village, especially raising cow and buffalo. Villagers no longer use livestock for ploughing and tilling land since mechanical ploughs and tractors have replaced buffalo draft power. Livestock are considered as a household savings account, with interest paid in the form of calves and manure. With a strong market demand for livestock, villagers can sell livestock when they need cash and use the manure on their fields or for sale to others. In this sense, they are a form of insurance and social security for rural villagers, who are less likely to fall into debt than villagers who depend solely on cropping. According to the group discussion other on-farm income generating on-farm activities were buffalo raising (35 households own 434 buffaloes, among them 11 households earns around Baht 84,000 from sale of last year) and cattle

rising (5 families own 39 cows). During the dry season, when the water level in the river was low, villagers allow their livestock to run free and graze in flooded forests and wide grassy plains. The cattle were guided through the river to the public land (Nhong Hae). Also water buffaloes were brought there. However, many livestock owners in village have faced difficulties in continuing their livestock activity during the flooded season that reduces grazing opportunities. Livestock owners have to move cattle and buffaloes to higher ground, where they were fed with hay harvested on planted meadows. If feeding with hay is not sufficient, they were brought their livestock to the non-flooded (Nhong Pla Pak, Don Pu Ta) land on higher level areas also many livestock owners who do not own a vast piece of land and to the neighboring villages and buy grass for feed.



Figure 5-5: a Dong San villager takes their livestock to graze in the non-flooded

“Nhong Pla Pak” during August of 2007.

3) Fishery

Fishing remains an important activity for large numbers of people in the Songkhram. The Dong San village areas occupied by water bodies (lakes, reservoirs, rivers) as mentioned above. The water bodies in the flooded area are used as fishery areas and also for irrigation purposes. After the annual flood decreases in October, water remains in small lakes and artificial ponds on the floodplain. The villagers' way of life relied on fishery, which is still the main occupation with peak and low seasons. Throughout the year fish was caught mainly for home consumption. During the flooded season, and especially when the flood decreases, fishery reached its peak and fish was sold or processed. Locals perceive that flood is essential for fish to migrate into the river and floodplains in their communities. Most households in the villages have at least one male member fishing for their family. Every household owns at least one type of fishing gear. For many people, fishing is seen as a way of life, rather than simply being an occupation. Like the other riverine and floodplain based communities, fish and fishing is part of their tradition and culture, as well as their livelihood. For most people, fishing is a supplementary livelihood activity

4) Harvesting wetland products

The floodplain and its vegetation are often compared with the traditional food storing cupboard by the villagers. Different kinds of wetland products are available all year round, both in “Tham” area, swamp and upland forest in study area. To enrich the daily diet villagers bring home various leaves, fruits, flowers, mushrooms, and roots, which are eaten fresh or used with curry dishes. Even during the flooded season people collect these vegetables and bamboo shoots by boat. Most important

eatable plants are bamboo shoots, the floodplain mushrooms, and leaves of wild vegetables.



(a): wild mushroom

(b): fresh fish from river tributary



(c): drying fish as processed product for consumption and market

Figure 5- 6(a-c): Various wetland products gathered

from floodplain in study area.

5.2 Socio-Economic characteristics of the households

The sample survey aimed to obtain more detailed information on all aspects of household income and livelihood, and to quantify those aspects that related to wetland agro-biodiversity activities in terms of their degree of participation. For the census, the results were analyzed as if representative of the total population, including non-respondents. This part is based on data which has been checked for omissions or inconsistencies, and provides an accurate and complete presentation of the social and economic information derived from the survey. The sample household's socio-economic information on the study area is provided as below.

5.2.1 Household size

The average household size in the survey is 4 persons/ household. The survey data shows that majority of households (62%) have 4-6 members. About 33% of the households have a family size of 0-3 members. Only few households (5%) have large family size of 7-9 persons (Figure 5-1). Data collected from the survey shows that among the households under survey 35 (58%) households were Tai Nyaw ethnic groups, 18 (30%) were Tai Lao ethnic and 7 (12%) were Tai Yoey ethnic.

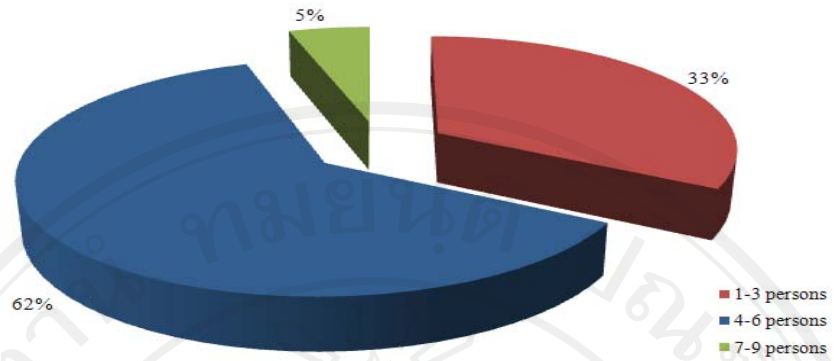
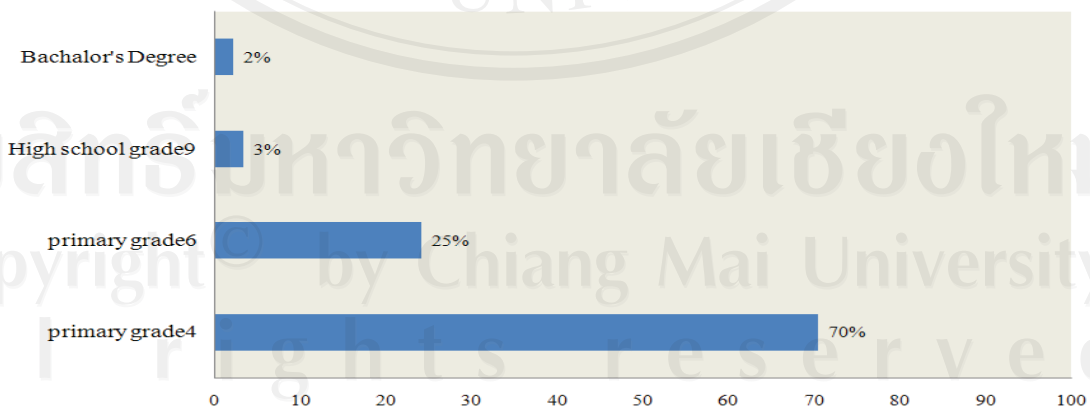


Figure 5-7: Household size in study area.

5.2.2 Literacy Level

Data on the educational status of the household heads are presented in Figure 5-2. In general, all of the household heads had attended school. Majority of the heads of households (70%) have primary grade 4 education level. 25% have primary grade 6 education level whereas 3%, 1% has higher education level of school grade 9 and bachelor’s degree respectively.



Education status	primary grade4	primary grade6	High school grade9	Bachelor’s Degree
Frequency	42	15	2	1

Figure 5-8: Household size in study area.

5.2.3 Farm size and land ownership

Each household listed the area of land it owned and also the common land it accessed, as well as holdings of livestock and poultry. Data are summarized in Table 5-7. With 48.3 % of sample household owned farm size less than 10 rai, 43.4% owned farm size 11-30 rai and only 8.3 % of them owned farm size over than 30 rai. Mean land ownership was 2.52 ha (15.76 rai) per household and 95% of households owned wet rice paddies which on average occupied about 0.8 ha per household, or about 84% of the land owned. This figure is consistent with the estimate provided by village leaders of 90% of village land being floodplain forest. About 82% of households owned livestock or poultry. The information on land ownership and land use were also recorded during the survey. The data on the distribution of farm land regarding ownership (Table5-4) indicates that about 73.4% of the farmer's land have a possessory title (Sor por gor -land use certificate) and 13.3% do still not have a no possessory land title.

Table 5-4: Annual average households incomes by sources in study area

Land ownership	Paddy field	
	Frequency	Percent (n=60)
– Sor por gor	44	73.4
– Nor Sor 3 kor	2	3.3
– Nor Sor 3	6	10.0
– No possessory title	8	13.3
Total	60	100.0

Source: Survey, 2007

Majority of farm households have access to land use right and land title through the Office of agricultural Land Reform (Sor por gor). Discussed with villager leaders revealed that the process of providing land use certificates to local farmers has been speeding up over the last years. Land without a formal land use certificates includes mainly those illegally opened from forest land or do not have clear prove of their origin.

5.2.4 Household Income

In the study area it is more appropriate to view occupations in terms of their importance to households, as there is no social security and all households comprised more than one person. If any member of a household engages in an ‘economic’ activity it can be assumed that the household generally benefits, so it can be regarded as a ‘household activity’. This approach is particularly relevant to harvesting wetland agro-biodiversity products, where trips are often made by more than one family member, but the numbers and extent of participation by each member vary daily and may not be recalled accurately. Household heads were asked to category the importance of activities for food supply and for income. With results as summarized in Table 5-5 illustrate that the livelihoods of most households in the Dong San village were dependent on a range of activities, with rice farming and harvesting wetland agro-biodiversity products the most common, but with several other activities usually also important for supplying food and income in each household. Generally household members commonly engaged in more than one economic activity, with up to five different activities engaged in by one household. The majority of households

(about 78.3%) were involved both in agriculture (rice farming) and non-farm activities. The data are consistent with the generalization that most of households rely on rice farming as the main activity for subsistence.

The average annual cash income per household in the study area is about 31,034 Baht (965.8 USD, exchange rate at 1 January 2007 is about 33.5). The annual income per household however varies widely across the surveyed households, ranging from about 7,000 Baht to 700 thousand Baht (Table 5-4).

Table 5-5: Annual average household cash incomes by activity in study area.

Household activities	Annual average income Baht/year (n=60)	Percentage of contributed to Income
Agriculture	28,211	86.4
– rice production	3,338	10.2
– animal production	2,667	8.2
– wetland products	20,644	63.2
– wage labour in agriculture	1,562	4.8
Off-farm		
– off-farm labour	4,433	13.6
Total	31,034	100.0

Source: Survey, 2007

Table 5-5 pointed out that income from agriculture contributes the largest share (86.4%) of the total household cash income in the village. This data reflects the occupation data reported earlier that most of the household labors are involved in agricultural activities. The income from agriculture is based mainly from wetland products (63.2%). Rice production contributed only 10.2% to the total household

income. Across different types of farmers, animal production seems to be slightly more important for the household with about 8.2% of their total household income on the average. Off-farm activities were recorded to be important income sources for households (13.6%), particularly for households with small land holding. Non-farm activities such as off-farm labour and local services also provide significant income for households (13.6%). The results show that agro-biodiversity products is the most important activity contributing to more than 60% of the total cash income from various products utilized of the sample households.

5.2.5 Household expenditure

During the baseline survey, farmers were asked to provide their annual expenditure for the year 2007 as well as expenditure spent for major items such as food, education, clothes, health, festivals, agriculture and livestock production, and others.

Income from agriculture alone will not be able to cover all the household expenditure. The survey data on household expenditures shows that on the average a farm household in Dong San village spent 30,228 Baht (about 894.3 USD) per year. On the average, the annual expenditure for consumption is about 92.6% of their annual income. The largest household expenditure is for agriculture inputs (48.1%), followed by the expenditure for food (16.2%), followed by the expenditure for education (11.7%), followed by the expenditure for electricity (5.1%), followed by the expenditure for healthcare (3.8%), followed by the expenditure for clothes (3.5%) and expenditure for festival (1.7%) as summarized in Table 5-6.

Table 5-6: Annual average household expenditure by items in study area.

Items	Average expenditure Baht/year (n=60)	Percentage of Expenditure to Income
Annual average expenditure	30,228	92.6
Expenditure by items:		
– Food	5,304	16.2
– Education	3,835	11.7
– clothes	1,157	3.5
– Health	1,248	3.8
– Transportation	765	2.3
– Electricity	1,653	5.1
– Cultural expenses	565	1.7
– Agriculture inputs (seed, fertilizer)	15,701	48.1

Source: Survey, 2007

5.2.6 Labour migration

In study area there are quite a few seasonal labor opportunities within the villages such as ploughing, rice transplanting and harvesting, tomato cultivation, and house construction. However, many household (50%) in the village that at least one of family member leave their home in the dry season temporarily or even permanently for labor jobs such as construction, factories. Bangkok is the most popular destination. From the sample households, average number of migrants is about 0.32 persons per household and the maximum number of migrant per household is 2 persons. The migrants age around 20-40 years is about 16.7 %, age lower than 20 years is about 10 % and over 40 years is about 3.3% (Table5-4). Within sample

group, the numbers of families who seek work abroad or have the head of family (father) or son working as a construction worker in another country like Taiwan, Singapore or a country in the Middle East accounts for two families of the sample household in study villages. The salary as a construction worker in those countries may range from 15,000-30,000 baht/ month.

Remittances from family members who live and work in Bangkok, abroad or in other big cities is an important source of income for the communities, earning 3,000-6,000 Baht a month. The case studies illustrate that many elders count on income from their children who left home. Some can use the sent money to invest in their agriculture or constructing new houses. For example, Mr. Sorn Boonchan went to Bangkok for 3-4 months in recent years to take up a factory job as he could not earn enough income from fishing in the dry season. By doing so he hoped to save some money to bring back home. Mr. Sompong Chaiprasith had lived and worked in several countries as a construction worker, intending to save enough to pay off his family's debts and build a new house. Both Mr. Sorn and Mr. Sorn confirmed that they would prefer to work in their home villages if they had any options. For many people, living and working in their home village is much preferred to living and working in elsewhere. Most migrant workers lack professional skills and college education and are only able to secure employment in low-paid, irregular jobs where accumulating significant savings can be difficult.

5.2.7 Debt and access to credit

Indebtedness is a common feature of villagers in study area as in other parts of rural Thailand. The most important finding from Mr. Sorn's case study is that the groups of people who possess limited property assets, investment, professional skill and livelihood options are the most vulnerable to indebtedness. The key informants explained the common reasons for indebtedness particularly from investments in agricultural activities and overseas laboring recruitment (mostly from farming investment, overcharged commission fee for working abroad by recruitment companies, and purchasing modern material, i.e. motorbike, electronic appliances). They have at least one outstanding loan. There are many sources of loans that the villagers can borrow from. Accessing an informal loan from relatives is the first choice for most. Within the village there are also formal sources of loans including the Village Fund. These are considered to be easily accessible. The Bank for Agriculture and Agricultural Co-operatives (BAAC) is also an important source of credit for all types of farmers in Dong San village. Even though, most of the villagers have a loans to pay off, but none of those showed any anxiety and informed that they were capable to pay off because the interest rate of those loan is only at 3-4% per year.

Table 5-7: The socio-economic of the sample households.

Socio-economic characteristics	Frequency	Percent (n=60)
1. Sex of household head		
– Male	54	90.0
– Female	6	10.0
2. Age of household head		
– 21-40 years	22	36.7
– 41-60 years	29	48.3
– 61 years and over	9	15.0
3. Education status		
– primary grade 4	42	70.0
– primary grade 6	15	25.0
– high school grade 9	2	3.30
– bachelor's degree	1	1.70
4. Main occupation		
– farmer	60	100.0
5. Minor occupation		
– none minor occupation	13	21.7
– labour in agriculture sector	39	65.0
– Off-farm labour (i.e.industrial factory)	5	8.3
– merchant	2	3.30
– Agricultural vendor	1	1.70

Source: Output from SPSS program

Note: The calculated from 60 households

Table 5-7: Continue.

Socio-economic characteristics	Frequency	Percent (n=60)
6. Household member		
– 0-3 persons	20	33.3
– 4-6 persons	37	61.7
– 7-9 persons	3	5.0
7. Farm size		
– ≤10 rai	29	48.3
– 11-30 rai	26	43.4
– 31-50 rai	3	5.0
– ≥51 rai	2	3.3
8. Residences period time at present house		
– Less than 20 years	7	11.7
– Over 20 years	12	20.0
– Local person (since was born)	41	68.3
9. Migrants age		
– Less than 20 years	6	10.0
– 20-40 years	10	16.7
– Over 40 years	2	3.3
10. Average income of household (Baht per year)		
– Less than 7,000	17	28.3
– 7,001-15,000	10	16.7
– 15,001-25,000	10	16.7
– 25,001-40,000	5	8.3
– Over 40000	18	30.0

Source: Output from SPSS program

Note: The calculated from 60 households

Table 5-7: Continue.

Socio-economic characteristics	Frequency	Percent (n=60)
11. Expenditure of household (Baht per year)		
– 7,001-15,000	5	8.3
– 15,001-25,000	23	38.3
– 25,001-40,000	18	30.0
– Over 40000	14	23.3

Source: Output from SPSS program

Note: The calculated from 60 households