

CHAPTER IV

DEMOGRAPHIC AND SOCIOECONOMIC CONDITIONS OF THE STUDY AREA

4.1 General description of the study area

4.1.1 Physical characteristics

The study area includes three Karen villages *viz.* Chan, Den, and Nong Jet Nuai. These villages are in Wat Chan Subdistrict which is in the northern part of the Mae Chaem watershed, Mae Chaem District, Chiang Mai Province, Thailand (Figure 2). The villages are situated in evergreen hardwood mixed with pine forest between $19^{\circ} 12'$ to $19^{\circ} 06'$ north latitude and between $98^{\circ} 16'$ to $98^{\circ} 20'$ east longitude with an elevation of 900-1000 metres above sea level. Wat Chan is close to Pai District, Mae Hong Son Province, which is some 50 km away. Each village is about 1 km from each other with Chan village being in the centre along a major dirt road. Chan village is 136 km from Chiang Mai via Samoeng District, and 166 km from Chiang Mai via Pai District. Travel time to Wat Chan is about 3-4 hours depending on the route and road conditions. From Chiang Mai to Wat Chan (via Samoeng district) there is a public bus travelling twice a day. The travel time in the bus takes about 7-8 hours depending on how many passengers and road conditions.

The people are Thai citizens. Village settlement history extends back 85-115 years in Chan and Nong Jet Nuai villages, but around 50 years for Den village. The people migrated from other areas in Mae Chaem District. Nong Jet Nuai village was settled specifically as a Christian village where Christians came to live together. Chan

village is Buddhist and has a Buddhist temple (*Wat Chan*). Den people are half Buddhists and half Christians (Ekasingh *et al.*, 1999).

The temperature all year (1998) ranges from 15 to 29 degrees centigrade. Frost can be expected from last week of December to mid February. The rainy season occurs from mid April to early November, with an average rainfall in 1998 of 12.72 mm recorded at Wat Chan Highland Agricultural Development Centre (Figure 3).

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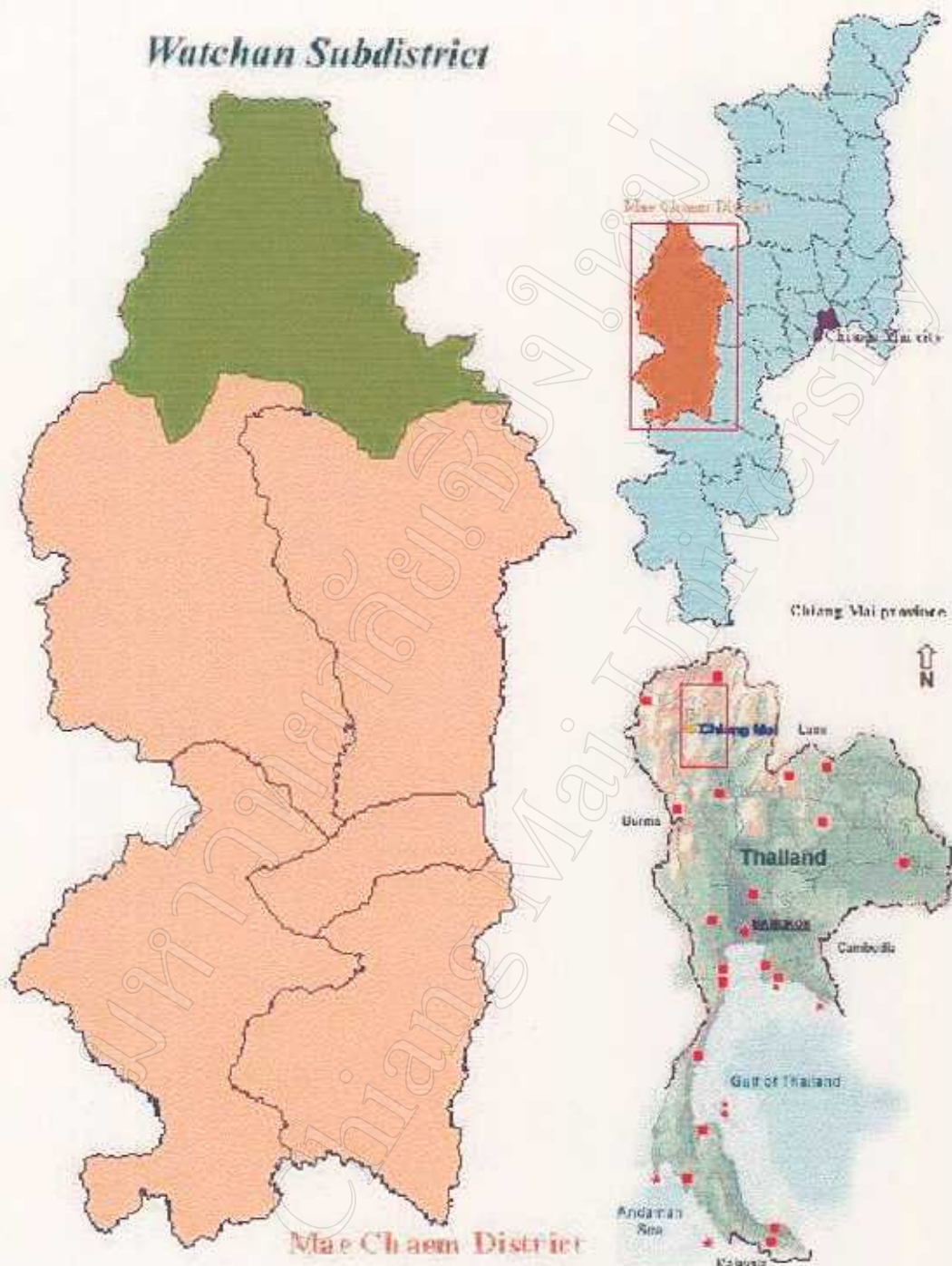


Figure 2. Watchan Watershed, Mae Chaem District, Chiang Mai Province

Source: [Http:// Thailand1.com](http://Thailand1.com)

: Multiple Cropping Center, Faculty of Agriculture, Chiang Mai University.

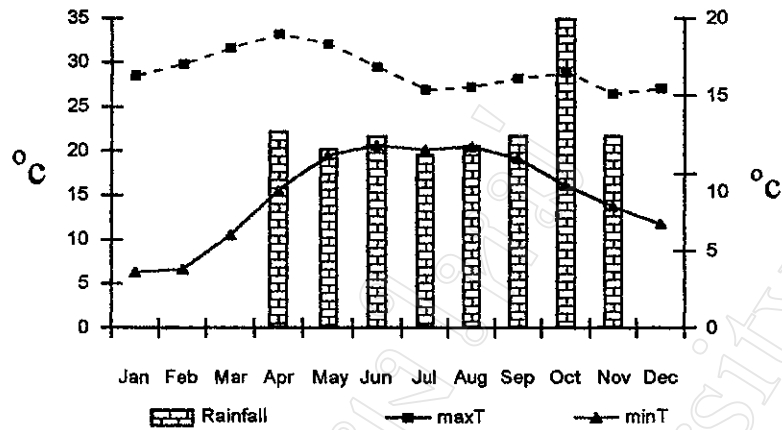


Figure 3. The average rainfall and temperature in 1998.

Source: Wat Chan Highland Agricultural Development Centre.

The soil texture in Wat Chan is clay and sandy clay loam. The average surface soil depth is about 9-10 cm and organic matter is about 3-6 (Chalothorn, 1994).

4.1.2 Demographic characteristics

The total population in the three villages in 1998 was 1,249 persons with 52 percent male and 48 percent female. There are all together 265 households with 86, 95 and 84 households in Chan, Den and Nong Jet Nuai villages, respectively. The family size is generally large with an average of 5 persons per household (Table 1).

Table 1. Population in Chan, Den, Nong Jet Nuai villages (1998).

Village	Number of households	Total population	Household size (persons)	Male (%)	Female (%)
Chan	86	331	4	53	47
Den	95	475	5	51	49
Nong Jet Nuai	84	443	5	51	49
Total	265	1,249			

Source: Wat Chan Highland Agricultural Development Centre, 1998.

The Karen people in these villages have good literacy, especially the younger generation, many being educated to Grade 9 while middle-aged people have finished Grade 4 while old people usually cannot read or write. A small number of people have continued their studies to finish Grade 12 and undergraduate level, in which case they have to go out of the villages to stay in major town centres like Chiang Mai or Mae Hong Son. There is a private secondary school in Nong Jet Nuai village run by Christian missionaries. This school serves as a major educational institution in the area (Ekasingh *et al.*, 1999).

4.1.3 Social characteristics

With regard to religion, Christianity, Buddhism as well as animism are practiced. People in Nong Jet Nuai village are predominantly Christians. There is in this village a Christian secondary school established by missionaries. The school provides employment as well as education opportunities for Nong Jet Nuai villagers and those in hereby villages. In Chan village, people are mainly Buddhists. In Den

village, 60 percent of the people are Buddhists, while 40 percent are Christians (Table 2). Animism is still prevalent mainly in Chan village (Ekasingh *et al.*, 1994).

Table 2. Religions in Chan, Den, and Nong Jet Nuai villages.

Village	Percent of households		
	Buddhist	Christian	Animist
Chan	76	2	22
Den	60	40	0
Nong Jet Nuai	0	100	0

Source: Ekasingh *et al.*, 1994.

These three villages do not have fresh food markets, but do have small shops selling miscellaneous consumer products. The villagers also can buy things such as vegetables, pork, and utensils from outside merchants who come to sell them in their villages.

The livelihood of the village people depends on agriculture with rice as the major crop. Chan village is a predominantly paddy rice-based community where Den and Nong Jet Nuai villages are paddy-rice plus upland cash crops-based. Farm activities that need a large number of people such as for rice planting and harvesting, farm owners get help from their neighbours (labour exchange) or hired labour. Food and rice are prepared for their neighbors during rice planting and harvesting, respectively. Hired labour is not used much in these villages. The daily wage rate in this area is 60 *baht* per day, while the daily rate at the Wat Chan Highland Agricultural Development Centre is 70 *baht*. Some villagers temporarily migrate to

work in other towns after the rice harvest and some come back to their village a few times a year.

Beside rice, they grow various highland crops which are supported by the Royal Project which is the King's highland development project, one of its branch offices being in Den village and it was established in 1979. Crops such as Japanese pumpkin, lettuce, green pepper, green pea, and red cabbage are promoted to farmers. Fresh gladiolus flower is also promoted crop in the Royal Project. This project also bought dried forest flowers from local people.

The Queen's Handicraft project is situated in Chan village in the same area with the Buddhist Temple (*Wat Chan*). This project introduced weaving skills to women villagers. This area also has a library, health centre, and day care centre. Every village has a day care centre, which costs parents 20 *baht* per child per month. The people in these villages also receive health care from the public health centre, which is in Huai Bong village, near Nong Jet Nuai village. The nearest hospital is in Pai, in Mae Hong Son Province, which is about 50 kilometers away.

4.1.4 Economic characteristics

According to this study, it focus only on cash income, which Karen people could earn from farming, weaving, selling forest products, and off-farm employment as illustrated in Table 3-5. From the survey of 30 households in these three villages. It was found that 90 percent of the adults interviewed had cash income. The amount of cash income depended on their jobs. Sources of household income were not much different in each village.

The total cash income per household of Nong Jet Nuai was higher than others being 51,409 *baht* per household per year. More than 50 percent of household income in Nong Jet Nuai and Den villages came from off-farm employment such as working for the government and church, and house construction. In Chan village, 46 percent of household income came from weaving for the Queen's Handicraft project (Table 3).

People also earn some money from selling forest products. They collected forest products for household consumption and sell the surplus such as nuts, mushroom, flowers, and vegetables. More flowers and mushrooms were gathered and sold than other plants, especially by people from Den village because these plants are available near this village more than others. Men never collect flowers because it takes a long time and needs endurance for collection. The total income that people in Chan, Den, and Nong Jet Nuai villages received from selling forest products was about 593, 1093, and 130 *baht* per household 1998 (Table 4).

When considering gender, it was found that women from Chan, Den, and Nong Jet Nuai villages had average cash income between 1,588-27,987 *baht* per person per year while men had average cash income between 14,804-40,200 *baht* per person per year depending on household status. Nong Jet Nuai village had a larger income gap between rich and poor households than the other two villages because the rich people worked as teachers, with the church, school, and non government organizations while the poor ones worked as farmers (Table 5).

Household income is used to buy food more than for other purposes. The food that they usually buy are pork, chicken, fish, eggs, canned fish, salt, dry chilli, and

instant noodles. Most rich households spend more money on eggs and meat, especially pork, than poor households. Almost all poor households buy more dry chilli, salt, vegetables, and canned fish than rich households (Table 6).

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Table 3. Average cash income per household in Chan, Den, and Nong Jet Nuai villages.

Activities	Chan		Den		Nong Jet Nuai	
	baht/HH	%	baht/HH	%	baht/HH	%
Farming	5,611	27.8	4,542	29.7	6,040	11.7
Weaving	9,333	46.2	1,725	11.3	10,389	20.2
Selling wild plants	593	2.9	1,093	7.1	130	0.3
Off farming	4,667	23.1	7,960	51.9	34,850	67.8
Total	20,204	100	15,320	100	51,409	100

Source: Household interview, 1998.

Table 4. Average cash income from forest products (*baht* / household).

Village	Nuts	Mushrooms	Flowers	Vegetables	Total
Chan	50	150	283	110	593
Den	193	402	498	0	1,093
Nong Jet Nuai	110	0	0	20	130

Source: Household interview, 1998.

Table 5. Income of the people interviewed in the study areas (*baht* per year), 1998.

Village	% Adults having income	Rich households	Poor households
<i>Chan</i>			
Women	90	7,550 ± 1,500	3,750 ± 1,125
Men	70	5,525 ± 2,500	4,030 ± 1,060
<i>Den</i>			
Women	90	6,443 ± 1,500	3,511 ± 1,825
Men	100	8,440 ± 2,880	7,081 ± 1,440
<i>Nong Jet Nuai</i>			
Women	90	27,987 ± 9,600	1,588 ± 300
Men	100	40,200 ± 20,100	14,804 ± 4,000

Source: Household interview, 1998.

Table 6. Percent of food expenditure per household per year (*baht*), 1998.

Chan village	Rich households		Poor households	
	Total expenditure	%	Total expenditure	%
Dry chili	240	4.2	300	6.8
Salt	704	12.2	270	6.2
Meats	3,104	53.7	2,300	52.7
Vegetables	60	1	216	5
Canned fish	1,464	25.3	1,170	26.8
Others	208	3.6	108	2.5
Total	5,780	100	4,364	100

Den village

	Rich households		Poor households	
	Total expenditure	%	Total expenditure	%
Dry chili	400	1.4	260	8
Salt	525	1.9	180	5.5
Meats	2,496	87.2	1,904	58.2
Vegetables	274	1	181	5.5
Canned fish	840	3	313	9.6
Others	1,550	5.5	432	13.2
Total	6,085	100	3,270	100

Nong Jet Nuai village

	Rich household		Poor household	
	Total expenditure	%	Total expenditure	%
Dry chili	300	3.2	120	2.2
Salt	370	3.9	201	3.6
Meats	4,430	46.6	2,500	48.4
Vegetables	180	1.8	100	1.8
Canned fish	2,070	21.8	1,410	25.3
Others	2,160	22.7	1,048	18.8
Total	9,510	100	5,379	100

Source: Household interview, 1998.

4.2 Land use systems and cropping patterns

4.2.1 Land use systems

Ekasingh, *et al.* (1999) found that the major land use systems in these three villages includes paddy rice-based, upland rice-based, upland cash crops-based and other land use systems like orchards (peach, plum, and apricot).

4.2.1.1 Paddy rice-based land use system

This land use system is practiced predominantly in lower irrigated areas along rivers and streams. The people grow local rice varieties and have limited irrigation facilities in the dry season. Paddy rice is planted in July and harvested in December. The average area of paddy land¹ is 0.69, 0.77, and 0.62 ha in Chan, Den, and Nong Jet Nuai villages, respectively (Ekasingh *et al.*, 1994).

4.2.1.2 Upland rice-based land use system

Farmers grow upland rice because of an inadequacy in lowland rice production area for household consumption. In the past the rotation period was 1 year cultivation with a 5-7 years fallow period. Overpopulation and land scarcity have made them unable to complete the fallow cycles. Sometimes, cash crops such as ginger and taro were grown in these areas instead of upland rice. Vegetables like melon were sometimes grown in these cash crop plots for household consumption. Upland rice production is practised in Nong Jet Nuai, Den, and Chan villages at about 51 percent, 30 percent and 14 percent, respectively. The average farm size for upland

rice in Nong Jet Nuai, Den and Chan villages was 0.29, 0.10, and 0.05 ha, respectively (Ekasingh *et al.*, 1994).

4.2.1.3 Upland cash crops-based land use system

Common cash crops grown in the area are Japanese pumpkin, lettuce, green pepper, and gladiolus. These cash crops were introduced by the Royal Project. The average farm size for upland cash crops in Nong Jet Nuai, Den and Chan villages was 0.05, 0.10, and 0.08 ha, respectively (Ekasingh *et al.*, 1994).

4.2.1.4 Other land use systems

Other land use systems include orchards with peach, plum, apricot, and silver dollar tree (*Eucalyptus cinerea* F. Muell. ex Bth.). These land use systems still developing since the products still do not provide much income. After growing them for several years, farmers expected to have some income from them. Some impatient farmers have replaced these fruit trees with more promising tree crops such as coffee. Orchards are more popular among villagers in Nong Jet Nuai village (55 percent of the households) where the average orchard size is 0.43 ha (Ekasingh *et al.*, 1994). Some households have orchards and home gardens in the same place.

The average farm size for different crops in the three villages is shown in Table 7.

¹ Conversion factor

Table 7. Average farm size (hectare) for different types of crops.

Village	Paddy	Upland rice	Upland crops	Orchards
Chan	0.69	0.05	0.08	0.19
Den	0.77	0.10	0.10	0.16
Nong Jet Nuai	0.62	0.29	0.05	0.43
Aver. 4 villages	0.69	0.14	0.08	0.26

Source: Ekasingh *et al.*, 1994.

4.2.2 Cropping patterns

The dominant cropping patterns in these areas are paddy rice - upland rice, paddy rice – ginger - pumpkin, paddy rice – pumpkin - lettuce, paddy rice – pumpkin - green pepper, paddy rice - gladiolus and paddy rice - taro (Ekasingh *et al.*, 1999).

The paddy rice is planted in early June and harvested in December. Other upland cash crops, such as pumpkin and lettuce, which they are grown twice per year, are grown and harvested during the same period, but lettuce is grown and harvested before pumpkin in the first crop cycle. In the second crop cycle, both of them are planted in January and harvested in May. Other upland cash crops, which have the same growing period, are gladiolus and taro. Taro is harvested in November and gladiolus is harvested in December. Upland rice and ginger also have the same planting time in May, but upland rice is harvested in November. Green pepper is planted in February and harvested in June, which is different from the other upland cash crops. Figure 5 shows the cropping patterns of the main cash crops in the study area.

Besides cash crops, Karen also grow many fruits such as banana, papaya, mango, chilli, pumpkin, and eggplants for household consumption.

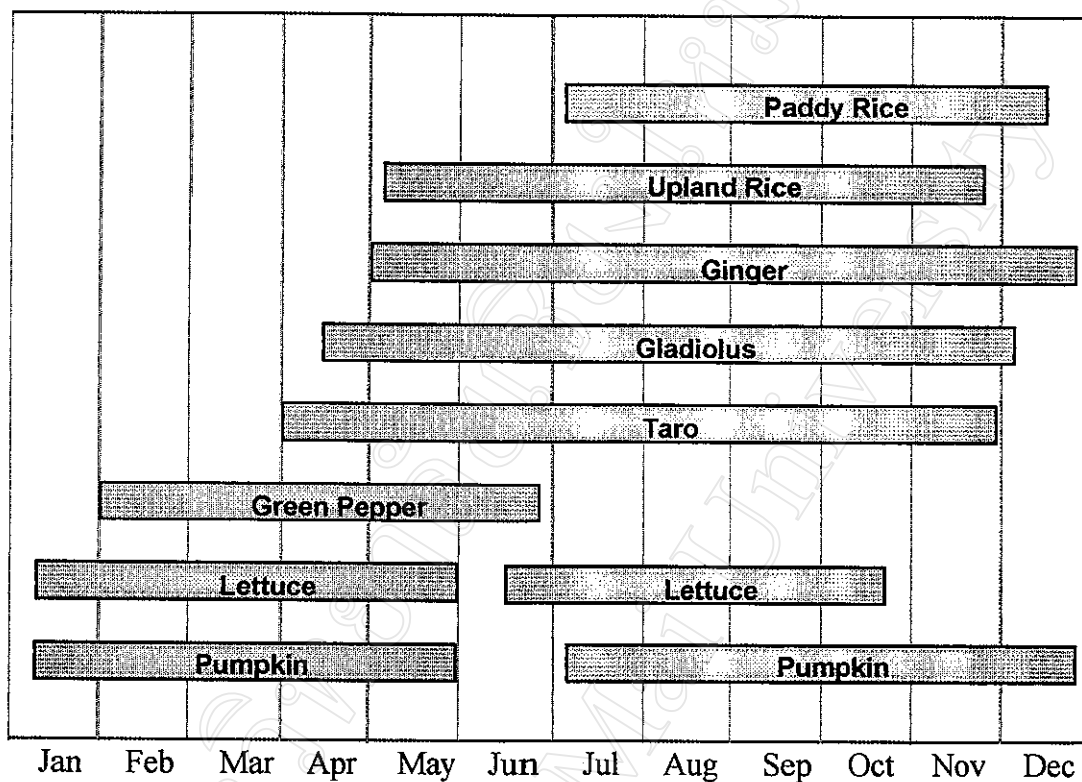


Figure 4. Cropping patterns of main cash crops in the study area.