

SURVEY PAPER

Socio-Economic Conditions of Hill Tribes Small Farmers in Northern Thailand

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Introduction

Under the cooperative research work between Kinki University and Chiangmai University in Thailand, a series of study on hill tribes in northern Thailand has been conducted to find out ways and means of giving an impact on the life of hill tribes through the introduction of cultivation of medicinal plants and mushroom to their cropping practices. The study conducted during 1989 resulted in a draft report amounting to 95 pages, highlighting the geographical and historical background to the socio-economic structures of hill tribes as well as their economic activities.

This article is prepared, based upon the material contained in the report, placing emphasis on the possible approach towards improvement of the living standard of hill tribes through the introduction of improved farming practices.

Chapter 1. Hill Tribes

1.1 Population and geographical distribution

The bulk of hill tribes live in the mountainous provinces of the extreme north and along Thailand's western border. The total population is estimated at 550,000 in 1988, as shown in Table 1, and their racial distribution and family size are shown in Tables 2 & 3, respectively.

The largest and most widespread of the highland people are the Karen, who make up about 49% out of the total highland group. Three-quarters of the Karen live in Chiangmai, Mae Hong Sorn and Tak with the remainder in 12 other provinces. Hmong (Mae) are the second largest group making up about 15% of the highland population. They are concentrated in Chiangmai, Chiangrai, Nan, and Tak Provinces. The third largest group are the Mooser (about 11% of the highlanders), who live mainly in Chiangrai and Nan, and the Yao (about 7%) who live mainly in Chiangrai and Nan.

As a result of both migration and natural increase, the highland population appears to be growing at a faster rate than the lowland population of Thailand, whose growth was estimated in 1988 at about 1.5% per year. Lowland population in the north especially in Chiangmai, Lampang, Lamphun Provinces appears to be growing more slowly than the national average as a result of a recent marked drop in number of births. By contrast, the rate of natural increase among some hill tribes seems to be considerably higher, i.e., over 2.5% per year.

1.2. Social Structure

The hill tribes are fairly well adjusted and advanced within their environment and their traditional economy. They are different from the lowland population in their mode of life but not thereby inferior. The hill tribes covered in this study are not primitive. They are usually

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Table 1. Number of Hill-Tribe Population in Thailand Classified By Province³⁾

(1) No.	Province	(2) No. of Village	(3) No. of Family	(4) Population	(5) Percentage
1	Chiang Mai	1,062	24,544	142,736	25.86
2	Chiang Rai	526	16,800	98,105	17.77
3	Mae Hong Sorn	641	15,001	83,090	15.05
4	Tak	477	12,195	69,269	12.55
5	Nan	235	8,135	55,078	9.98
6	Lamphun	62	4,314	21,280	3.86
7	Kanchanaburi	85	2,746	15,194	2.75
8	Phayao	46	1,533	10,912	1.98
9	Kampangphet	42	1,411	9,771	1.77
10	Lampang	89	1,568	9,546	1.73
11	Phrae	19	1,851	9,378	1.70
12	Petchabun	11	1,193	8,471	1.54
13	Pitsanuloke	8	766	5,100	0.93
14	Rachaburi	26	868	4,538	0.82
15	Sukhothai	17	418	2,751	0.50
16	Uthaitani	29	468	2,455	0.45
17	Petchburi	14	459	2,283	0.41
18	Suphanburi	13	226	1,292	0.23
19	Loe	1	89	500	0.09
20	Prachuabkirikhan	1	31	186	0.03
	Total	3,404	94,616	551,934	100.00

Table 2. Number of Hill Tribe Population In Thailand Classified By Tribe³⁾

(1) No.	(2) Tribe	(3) No. of Village	(4) No. of Family	(5) Population	(6) Percentage
1	Karen	2,016	50,782	270,822	49.07
2	Mhong	230	10,459	82,490	14.95
3	Lahu	411	11,152	60,321	10.93
4	Yao	204	4,814	36,140	6.55
5	E-kaw	199	5,673	32,866	5.95
6	Thin	146	4,802	28,524	5.17
7	Lisu	128	4,103	25,051	4.53
8	Lua	42	1,467	7,951	1.44
9	Khamu	34	1,274	7,284	1.32
10	Parong	4	90	485	0.09
	Total	3,414	94,616	551,934	100.00

Table 3. Number of Family, Population, Family size Classified By Province.⁹⁾

(1) No.		(2) No. of Family	(3) Population	(4) Family size
1	Chiangmai	24,544	142,736	5.81
2	Chiangrai	16,800	98,105	5.83
3	Mae-Hong-Soi n	15,001	83,090	5.53
4	Tak	12,195	69,269	5.68
5	Nan	8,135	55,078	6.77
6	Lamphun	4,314	21,280	4.93
7	Kanchanaburi	2,746	15,194	5.53
8	Phayao	1,533	10,912	7.11
9	Kampangphet	1,411	9,771	6.92
10	Lampnng	1,568	9,546	6.08
11	Phrae	1,851	9,378	5.06
12	Petchabun	1,193	8,471	7.10
13	Pitsanulake	766	5,100	6.65
14	Rachaburi	868	4,537	5.22
15	Sukhothai	418	2,751	6.58
16	Uthaitani	468	2,455	5.24
17	Petchburi	459	2,283	4.97
18	Suphanburi	226	1,292	5.71
19	Loe	89	500	5.61
20	Prachuabkirikhan	31	186	6.00
Total		94,616	551,934	
Average		—	—	5.91

intelligent, industrious, aware of their present situation and conscious of what is for their own benefit. Their intellectual mobility has been noticed by several observers who have studied them closely. By their history and inclination, they are bound to the mountains and in this environment they have not yet succeeded to make the decisive step toward settlement.

The hill tribes have firmly established social customs and manners as manifestation of tribal and village coherence. They have appropriate social and spiritual authorities who watch that the accepted rules of conduct are dully observed. They have an informal education within the family, the village, and the tribe that makes the growing generations attached to the society they live in. They have a certain value system underlying their actions. They have their own means and ends to satisfy their expectations which are still largely conditioned by their traditional frame of reference. And they have their religious belief and rituals that give a supernatural sanction to many of their social institutions.

The single tribes do not live in a residential unit but are scattered all over the hills, the intermediate areas may be inhabited by fractions of quite different tribes. The tribesmen are organized in village communities. The head of the village is the immediate authority. And the tribal village administration is the main body for settlement of disputes and resort of appeal.

The village community and its authority-system is the basic political unit of the hill tribes. Its most important exponents are the headman, his assistant, and sometimes two or more informal leaders, the spiritual leader or sometimes several of them in a village, and the household heads.

The headman is elected by the adult male members of the village. If he retires or moves out of the village another headman will be chosen by mutual consent. He holds his position by virtue of his ability to negotiate with people as well as by virtue of his experience, age, and wealth. Another factor may be that he has many relatives in the village who act as a pressure group. Usually, his election will be based on public support. It seems that that support of the religious leaders is also of some importance.

The head of the village assumes all important duties and responsibilities in his person. He is in charge of administering the affairs of the village, maintaining public peace, settling disputes, accommodating visitors, selecting the site for a new village. At the same time he is the liaison between the tribesmen and the Thai government. In those villages having closer relations with the local Thai authorities, he is officially approved as village headman and his immediate superiors are the head of the next Thai village (Poo Yai Ban), the head of the commune (Kamnan), and the district officer (Nai Amphur). There are even some cases in which a representative of the local administration is sent up to the tribe village to witness and to recognize the election of a new headman.

A village advisory group will be called upon whenever the headman seeks advice. This village council may become a great influence in the village and seems to be socially obvious among the Lisu. In more complicated disputes they will act as a court. In arranging festivals with community participation, they will render their advice. In making important decisions, they will dully contribute their share in discussing the issue freely and at great length. Usually old and experienced men assume the role of advisers. In several cases an adviser may be a spiritual leader at the same time.

The family system of the hill tribes is marked by two distinctive types of family. The first being the nuclear family, the second the extended family. Both may be either monogamous or polygynous.

The monogamous nuclear family consists of husband, wife, and children; in the polygynous family, one husband may have two or more wives.

The extended family is a composite form of the family. It consists of the grandparents plus their children and the wives of their married sons plus their grandchildren in the male line. The married daughters and their children belong to the families of their husbands after they have left the parents' house. All the members of an extended family are joined by a common roof, a common fireplace, a common budget, a common store, and a common economy. The head of the extended family is a sovereign authority.

The fundamental rules of descent among all hill tribes are patrilineal. The Meo, Yao, and Lisu will inherit the surnames of their fathers. The Lahu have no surnames, they have only a forename. If a surname is found among any Lahu in Thailand, it is likely to have been given by some Thai or by some persons outside the Lahu culture. But there is no indication of a matrilineal descent, the father is considered the head of the family.

The attachments of the family and gratitude to the parents are strongly developed. Among all tribal societies, the original functions of the family are still in full operation. These functions are in matters of sex, reproduction, education, religious worship, recreation, social status, and economic activities. It is important to keep in mind that the tribal families are still fully operational units especially for educators, administrators, and advisers coming from outside.

The head of the family, either nuclear or extended, is a respected authority and the master of the affairs of his own house. He has the competence to conduct religious ceremonies concerning the household, the family and the ancestral spirits. Thus his social position has supernatural sanctions.

Besides the family, the village and the tribe, there is no further social grouping among the hill societies. The lineages are based on actual genealogical connections, thus being consanguineal

kin groups.

The customary rights of property in land are of great relevance in all further administrative and development activities. It was observed that the tribesmen have a clear conception of the rights connected with pieces of land which they have cleared. It is the family, either in its nuclear or in its extended form, and in particular the head of the household that claims all titles to this land. Moreover, the hill tribes have an unwritten law that even an abandoned clearing must not be taken under cultivation by anyone else except the original owner. If the clearing can be cultivated again, say, after 10 years, only the family that has cleared and tilled it before is entitled to cultivate it again. However, if all the clearings are abandoned due to exhaustion of soil and the villagers shift to a far distant place, the claims to these fields will necessarily cease.

The question of inheritance of property in land will arise when the hill people become stabilized farmers. It is obvious that rights of inheritance of land are connected with the cultivation of permanent fields. Consequently, the hill tribes are not too much concerned with it at present.

Chapter 2. Economy of Hill Tribes - Case Study

2.1. General Remarks

There are basically two types of farming practices in hill tribes. One, mostly practiced by Yao and Mhong, is to grow rice, corn, and opium poppies, and the other is practiced by Karen to grow rice under irrigation and garden crops on the upland field, but no opium poppies.

People eat much of what they grow, and for the most part grow what they eat. If they cannot or do not grow what they need to eat, they buy rice with money from other crops, especially opium. Single traders or caravans make their way to the highland villages to purchase opium. Buyers in pick-up trucks visit valley villages to buy garlic and beans. Trucks leave foothill villages loaded with pickled tea bound for Chiang Mai.

Land is free: even in the non-opium growing communities there is forest land available for clearing to develop hill fields. The people share the view that those who clear the land have the right to its fruits. By the act of clearing land, then, one has access to it as a basis for production. Tools are cheap and readily available for people. Labor is the scarce factor most of the time. Yao try to increase labor inputs by increasing household size. Household members of the Meo community own rice swiddens collectively but poppy lands individually.

In Chiang Mai, where there has been a great population increase among Karen, they could not produce enough for their subsistence. Some of them become landless agricultural workers. If they increased the size of their fields, however, they would not have any reserves for the future, since the fields need a long fallow period before re-use. Furthermore, there is little land suitable for terracing, for wet rice cultivation. These Karen, too, have turned to wage workers in the lowlands.

The peasant household economy is production for needs, for selfsufficiency, rather than for profit making. No peasant stops being a peasant because he fails to make a profit. There are certain needs: e.g., pigs to offer for the sake of prestige, rice to eat, opium to sell to get money with which to buy clothes for the sake of prestige, grass or leaves with which to repair the roof, tobacco to smoke, firewood to burn, etc. In each annual agricultural cycle, there are a range of objectives to be met, all of which lead to the maintenance of an agreed upon standard of well-being.

In studying the socio-economics of hill tribe in north Thailand, the data were collected from Huay-Manao Sub-district of Chom-Thong District, Monya Sub-district of Samoeng District, Chiangmai Province, Mae San/Pha-Dang Wang-Nua District, Lampang Province which are under the Thai-Norwegian Church Aid Highland Development Project covering an area of 250 km² (Fig.

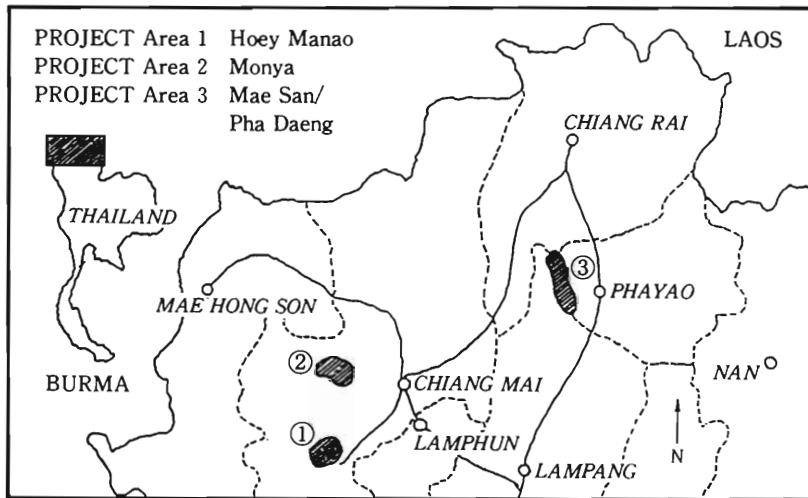


Fig. 1. THAI-NORWEGIAN CHURCH AID HIGHLAND DEVELOPMENT PROJECT AREAS

Table 4. Hilltribe Population Classified by Ethnic Group

Province	Hill Tribe			
	Karen	Hmong	Yao	Total
Chiangmai	5,727	1,586	—	7,313
Lampang	—	—	426	426
Phayao	—	—	523	523
Chiangrai	—	—	353	353
Total	5,727	1,586	1,302	8,615
Percent	66.48	18.41	15.11	100.00

Table 5. Number of Hill Tribe Population Classified By Sex

Province	Total Family	Population				Total	Average Family
		Adult		Children			
		Male	Female	Boy	Girl		
Chiangmai	1,478	2,203 (30.12)	2,100 (28.72)	1,547 (21.15)	1,463 (20.01)	7,313 (100.00)	4.95
Lampang	74	118 (27.70)	110 (25.82)	98 (23.00)	100 (23.48)	426 (100.00)	5.75
Phayao	93	126 (24.09)	131 (25.05)	152 (29.06)	114 (21.80)	523 (100.00)	5.62
Chiangrai	62	95 (26.91)	85 (24.65)	84 (23.80)	87 (24.64)	353 (100.00)	5.69
Total	1,707	2,542	2,428	1,881	1,746	8,615	5.5
Percent	—	29.51	28.18	21.83	20.48	100.00	—

Figures in parentheses indicate percentage

Table 6. Hill Tribe Farm Labour Force

Province	Total Family	Farm labour force		Total	Average/ Family
		Male	Female		
Chiangmai	1,478	2,203	2,100	4,303	2.90
Lampang	74	118	110	238	3.08
Phayao	93	126	131	257	2.81
Chiangrai	62	95	87	182	2.90
Total	1,707	2,542	2,428	4,970	2.91

Table 7. Religion of Hilltribe Classified By Type

Province	Religion			Total
	Buddhism	Animism	Christianity	
Chiangmai	3,684	1,268	2,361	7,313
Lampang	—	426	—	426
Phayao	—	523	—	523
Chiangrai	—	353	—	353
Total	3,684	2,570	2,361	8,615
Percent	42.76	29.83	27.41	100.00

1). Most of the area is mountainous with narrow flatlands with an elevation ranging from 700 -1,500 meters above sea level. It covers 43 hamlets in the project area in 4 provinces.

2.2 Population and family size

The data in Table 4 indicate that there were 1,707 families in this project. The number of population for each tribe were 5,727 Karens, (66.48%), 1,586 Hmong (18.41%), and 1,302 Yao (15.11%). The total population was 8,615.

As seen in Table 5, total number of hill tribe population in the project is : adult male, 2,542 (29.51%) ; 2,428 female (28.18%) ; male children, 1,881 (21.83%) ; female children, 1,764 (20.48%). The total population was 8,615 persons. Hill tribe population in Lampang has the biggest average family size 5.75 persons, while Chiangmai has the smallest average family size 4.95 persons. An average hill tribe population for 4 provinces is 5.5 persons.

2.3. Farm Labor Force

The data in Table 6 show that the total hill tribe family in 4 provinces were 1,707 consisting of 8,615 persons. There were slightly different farm labor force among hill tribe in the project. Hill tribe in Lampang Province has the biggest and average farm labor force per family 3.08 persons. Chiangmai 2.90, Chiangrai 2.90, and Phayao 2.38, respectively.

2.4. Religion

The data in Table 7 indicate that the total number of hill tribes in project area were 8,615 persons. They can be classified into 3 ethnic groups namely Karen, Mhong, and Yao. They believe in Buddhism 3,684 persons (42.76%), Animism 2,570 persons (29.83%), and Christianity 2,361 persons (27.41%).

2.5. Educational status

The head of the family in the project area has no education and most of them can only speak ; some can only read and write. There is a tendency for the younger generation of hill tribes to finish primary and secondary schools and attend vocational education.

Providing education for both hill tribe children and adult is a difficult task, because villages are scattered and some are very far from schools.

The area for each type of land used of hill tribes in 4 provinces are shown in Table 8. Total land used 14,445.90 rais were classified by upland crops 7,368 rais (51.00%), lowland paddy field (only in Chiangmai) 3,600 rais (24.92%), fruit trees 3,387 rais (23.45%), and opium 90.90 rais (0.63%). An average land used/family for 4 provinces was 8.46 rai.

2.8. Cropping system

Cropping system is represented in the cropping calendar in Table 9. Since the land of the project areas are mountainous, most of the cultivated areas are the slope complex along the hillside. The lowland paddy fields were 24.92% of the total area which belong mostly to the Karens. The types of crop grown varied according to the land type. While the Karens grow lowland paddy, vegetables and fruit trees, the Hmong and Yao grow field crops such as corn, potato, taro, red kidney bean, wheat, vegetables, poppy and upland paddy.

Upland paddy can be cultivated for not more than 2-3 successive years in the same field. Hill slopes at any altitude of approximately 800 meters above sea level are regarded as the most favorable areas.

For planting upland paddy land, clearing begins in April and leave the land waiting for rain about a month then the growing period starts in May to June. For planting rice a digging stick is used to make holes in the ground about 50 cm apart. Five or six seeds are placed in each hole. With their feet, the farmers stamp firmly on the hole to cover the seed. Two or three times, weeds and grasses are cleared before rice is harvested by September to October. Threshing is usually done in the field. The paddy is brought to the village by pack horses or by human labor where it is stored and ultimately milled with wooden rice pounders.

Lowland paddy can be cultivated under irrigated area where land preparation normally begins in May to June by draft animal. Transplanting of rices is done by human labor. Fertilizer is applied only in some areas. One to two times, weeds and grasses are cleared before rice is harvested by November. Threshing is usually done in the field, and brought to the village by oxen cart or by human labor.

Poppy planted areas in the project area are decreasing. In the past most hill tribes grew poppy as a cash crop and is the major source of family income. At present, the situation has changed since the introduction of some other cash crops to replace poppy. However, some hill tribes are still growing poppy for home consumption.

Poppy planting period begins from September. It grows best at an altitude between 1,000 to 1,500 meters. Most of the hill tribes prefer higher grounds because the climate is cooler and the place collects plenty of dew at night. The poppy plant thrives on loamy soils of blackish, reddish or yellow color with sufficiently loose surface. The surface of the ground in fine powder and the poppy seed mixed with lettuce, parsley and other seeds are sown broadcast. The seeds are covered lightly by gently raking the ground surface with the hands. Poppy plants growing too close together will be picked off, thus leaving a space of some 15 cm between each plant. The fields have to be weeded three times before the poppy capsules ripen and the opium can be extracted. For the tapping of the resin, special brass knives with 3 to 5 curved edges are used. After the capsule is scratched in vertical incisions, the resin flows down along the capsule and the stem for one day. The milky-white resin changes to a brown and finally blackish color by exposure to the air and is scraped from the plants with a halfmoon shaped iron knife. The collected resin is the raw opium ready for the market.

There has been information that poppy can be grown for 8-10 successive years in the same field and in some case up to 20 years without yield decrease.

2.9. Planted area, production, yield per rai of various types of crops

The data are shown in Tables 10.1-10.4.

2.10. Livestock

Hogs are the most important domesticated animal. There are but a few instances in which they

are intensively fattened in specially prepared hogpens. Only a few Meo and Yao were observed following this proper method of feeding and even among them it is almost exclusively confined to the months just before the New Year Festival. For the rest of the year the hill tribes take little care of their hogs, and only feed them with some left-over food, boiled corn and chopped banana stalks once or twice a day.

As regards poultry, it was observed that the Meo and the Yao generally take more care than the Lisu and the Lahu. Usually, one can find both native and foreign breeds of chicken in the tribal villages. Diseases and epidemics are as frequent as among the hogs. No proper veterinary treatment is known to the hill tribes. The hazards involved in the raising of livestock are perhaps one to the main reasons why the hill farmers do not undertake a more intensive care in their animal breeding.

Cattle are another species of domesticated animals that can be found in many villages of the

Table 10.1 Planted Area Production Yield/Rai Crop Year 1988

Type of Crop	Province				Total
	Chiangmai	Lampang	Phayao	Chiangrai	
<i>Off season Vegetables</i>					
-Planted Area (Rai)	1,008	—	8	—	1,016
-Production (kg.)	5,104.046	—	4,200	—	5,108.246
-Yield/Rai (kg.)	5,063.53	—	525	—	5,027.80
<i>Taro</i>					
-Planted Area (Rai)	593.5	—	—	—	593.5
-Production (kg.)	725,894	—	—	—	725,894
-Yield/Rai (kg.)	1,223.07	—	—	—	1,223.07
<i>Garlic</i>					
-Planted Area (Rai)	17	—	—	—	17
-Production (kg.)	7,520	—	—	—	7,520
-Yield/Rai (kg.)	442.35	—	—	—	442.35

Table 10.2

Type of Crop	Province				Total
	Chiangmai	Lampang	Phayao	Chiangrai	
<i>Potato</i>					
-Planted Area (Rai)	367	—	—	—	367
-Production (kg.)	729,788	—	—	—	729,788
-Yield/Rai (kg.)	1,988.52	—	—	—	1,988.52
<i>Red kidney bean</i>					
-Planted Area (Rai)	326	411	590	211	1,538
-Production (kg.)	20,906	38,765	61,763	18,208	141,180
-Yield/Rai (kg.)	64.13	94.31	104.68	86.29	91.79
<i>Paddy (lowland)</i>					
-Planted Area (Rai)	3,600	—	—	—	3,600
-Production (kg.)	1,286,441	—	—	—	1,286,441
-Yield/Rai (kg.)	357.34	—	—	—	357.34

Table 10.3

Type of Crop	Province				Total
	Chiangmai	Lampang	Phayao	Chiangrai	
<i>Paddy (Upland)</i>					
-Planted Area (Rai)	2,201	207	320	205	2,933
-Production (kg.)	452,426	78,867	114,880	73,800	719,973
-Yield/Rai (kg.)	205.5	381	359	360	245.47
<i>Corn</i>					
-Planted Area (Rai)	667	129	365	231	1,392
-Production (kg.)	152,497	59,598	54,750	58,443	325,228
-Yield/Rai (kg.)	228.63	462	150	253	223.64
<i>Wheat</i>					
-Planted Area (Rai)	—	1.25	51	—	52.25
-Production (kg.)	—	171	6,303.5	—	6,474.50
-Yield/Rai (kg.)	—	136.80	123.59	—	123.91

Table 10.4

Type of Crop	Province				Total
	Chiangmai	Lampang	Phayao	Chiangrai	
<i>Coffee</i>					
-Planted Area (Rai)	540	188	272	36	1,036
-Production (kg.)	22,994	20,527	18,091	2,251	64,899
-Yield/Rai (kg.)	42.58	109.18	66.51	62.52	62.62
<i>Opium</i>					
-Planted Area (Rai)	87.27	3.06	0.57	—	90.90
-Production (kg.)	87.27	3.06	0.57	—	90.90
-Yield/Rai (kg.)	1	1	1	—	1

hill tribes. They are almost never fed by the villagers but find their own food in the vicinity and come back to the village late in the evening. They are never used for dairy and only in very few exceptions for labor. They are sold to lowlanders or slaughtered in the village for consumption but usually not for feasting the spirits.

Horses are raised with good care in stables near the houses and usually looked after by the boys who ride them skillfully without saddle to abandoned clearings for grazing. Since carts are not in use, these horses are loaded with packsaddles and carry up to 50 kg. Most horses and mules seen in the mountains of northern Thailand are either of local or Chinese breed.

Fishing as an additional food supply is rather insignificant. Most of the hill tribes' villages are located at altitude of the spring water where few or no big fish can be found. Only occasionally they can catch small fishes in the stream. Most frequently, they buy salted fish from the lowlanders coming up to the hill for trade.

Almost every hill tribe family in the project area had livestock for use as labor (elephant, horse, buffalo) consuming in the family, selling and for religious ceremony. The popular animals were swine, chicken, and horses. There were some hill tribes farmers raising horse for transportation of various things between their farms and houses.

The data shown in Table 11 indicated the inventory of livestock in the project area. Total livestock valued 13,081,825 baht. The Chiangmai hill tribe has the highest total livestock valued

Table 11. Hilltribe Livestock Inventory Classified By Type

No.	Item	Province										Remark
		Chiangmai		Lampang		Phayao		Chiangrai		Total		
		No. Head	Value (baht)	No. Head	Value (baht)	No. Head	Value (baht)	No. Head	Value (baht)	No. Head	Value (baht)	
1	Elephant	5	750,000	—	—	—	—	—	—	5	750,000	No. of family
2	Horse	56	97,000	8	12,000	64	96,000	41	61,500	169	266,500	Chiangmai 1,478
3	Ox	1,395	2,848,600	93	139,500	15	22,500	2	3,000	1,505	3,013,600	Lampang 74
4	Buffalo	2,350	6,851,000	6	15,000	—	—	—	—	2,356	6,866,000	
5	Pig	3,033	1,483,500	250	125,000	217	108,500	231	115,500	3,731	1,832,000	Phayao 93
6	Chicken	10,435	234,785	560	11,200	671	13,420	683	13,660	12,349	273,065	
7	Duck	519	15,310	35	875	35	875	4	100	593	17,160	Chiangrai 620
	Total	—	12,280,195	—	303,575	—	241,295	—	193,760	—	13,081,825	Total 1,707
	Average/ Family	—	8,308.65	—	4,102.36	—	2,594.57	—	3,125.16	—	7,626.73	—

Table 12. Average Income per Family Crop Year 1988.

Item	Province								Average	
	Chiangmai		Lampang		Phayao		Chiangrai			
	Baht	%	Baht	%	Baht	%	Baht	%	Baht	%
Total Family	1,478		74		93		62		1,707	
Total Income	15,953.80	100.00	32,088.05	100.00	24,595.38	100.00	10,824.64	100.00	20,865.46	100.00
Agriculture	13,935.87	87.35	29,709.67	92.59	22,036.24	89.60	10,129.16	93.58	18,952.73	90.80
Crop	12,837.17	80.46	29,534	92.04	21,947	89.23	9,500.45	87.77	18,454.65	88.00
Livestock	1,098.70	6.89	175.67	0.55	89.24	0.37	628.71	5.81	498.08	2.30
Non Agriculture	2,017.94	12.65	2,378.37	7.41	2,559.13	10.40	695.48	6.42	1,912.73	9.10
Hire	1,369.19	8.58	945.94	2.95	1,741.73	7.08	443.55	4.09	1,125.15	5.30
Others	648.75	4.07	1,432.43	4.46	817.20	3.32	251.93	2.33	787.58	3.70
Total Expense	11,685.42	100.00	27,405.40	100.00	15,827.79	100.00	9,193.90	100.00	16,028.13	100.00
Agriculture	3,391.03	29.02	8,378.37	30.57	4,091.48	25.85	2,851.64	31.02	4,678.14	29.10
Agricultural Input	2,094.10	17.92	5,878.37	21.41	2,643.57	16.70	2,548.42	27.72	3,291.12	20.50
Labor	1,296.93	11.10	2,500.00	9.12	1,447.91	9.15	303.22	3.30	1,387.02	8.60
Non Agriculture	8,294.39	70.98	19,027.03	69.43	11,736.31	74.15	16,342.26	68.98	11,349.99	70.80
Food	3,646.43	31.20	6,891.89	25.15	4,886.02	30.87	1,621.29	17.63	4,261.40	26.50
Cloths	831.32	7.11	2,486.69	9.07	1,376.35	8.70	2,483.87	27.02	1,794.51	11.20
Education	384.96	3.30	945.95	3.45	219.89	1.39	475.81	5.17	506.65	3.16
Housing	1,203.30	10.30	4,054.05	14.79	1,450.29	9.16	919.36	10.00	1,906.12	11.90
Medical care	514.51	4.40	472.87	1.73	553.76	3.50	619.03	6.84	542.57	25.38
Others	1,713.87	14.67	4,175.68	15.24	3,250	20.53	212.90	2.32	2,338.11	14.59
Net Income	4,268.38		4,682.65		8,767.59		1,630.74		4,837.33	

12,280,195 baht, while hill tribe in Lampang, Phayao, and Chiangrai has the total livestock valued 303,575 baht, 241,295 baht, and 193,760 baht, respectively.

2.11. Income

The data shown in Table 12 are the cash income. There are two main sources of income,

agriculture and non-agriculture. The total average income of hill tribes in the project area was 20,865.46 baht per family/year.

The average income from agriculture accounted for 18,952.73 baht (90.83%). It can be divided into two items crops, and livestock. Income from crops was 18,454.65 baht (88.46%), livestock 498.08 baht (2.38%).

The total income from non-agriculture accounted for 1,912.73 baht (9.17%). It can be divided into two items hires, and others. Income from hires was 1,125 baht (5.39%) others 787.58 baht (3.78%).

The hill tribes in Lampang had the highest average income was 32,088.05 baht per family/year, Phayao 24,595.38 baht, Chiangmai 15,953.80 baht, Chiangrai had the smallest average income 10,824.64 baht.

2.12. Expenditure

The data shown in Table 12. There are two main sources of expenditure, agriculture and non-agriculture. The total average expenditure of hill tribes in the project areas was 16,208.13 baht per family/year.

The average expenditure from agriculture accounted for 4,678.14 baht (29.18%). It can be divided into two items agriculture and non-agriculture. Expenditure from agriculture included agricultural input, was 3,291.12 baht (20.53%) labor was 1,387.02 baht (8.65%).

The average expenditure from non-agriculture accounted for 11,349.94 baht (70.82%). Expenditure from non-agriculture included food was 4,261.40 baht (26.59%), cloth was 1,794.51 baht (11.20%), education was 506.65 baht (3.16%), housing was 1,906.75 baht (11.90%), medical care was 542.57 baht (3.38%), others was 2,338.11 baht (14.59%).

The hill tribes in Lampang had the highest average expenditure was 19,027.03 baht per family/year, Phayao 11,736.31 baht, Chiangmai 8,294.39 baht, Chiangrai had the smallest average expenditure 6,342.26 baht.

2.13. Net income

The data shown in Table 12.

The average net income of hill tribes in the project areas was 4,837.33 baht per family/year.

The hill tribes in Phayao had the highest average net income was 8,767.59 baht per family/year, Lampang was 4,682 baht, Chiangmai was 4,268 baht and Chiangrai had the lowest average net income was 1,630.74 baht per family/year.

Chapter 3. Possibilities of Improving Living Standard of Hill Tribes

3.1. Farmers' participation

The farmers' participation depends entirely on whether the basic needs, especially subsistence and cash requirements of the farm families can be better fulfilled through the offered changes and whether changes fit the existing limitations of the majority of farmers facing limited labor capacity and limited availability of capital.

The subsistence and cash requirements of most farmers are at present met by the production of upland rice, maize, vegetables, beans, other field crops fruit trees, coffee, livestock, and fuel wood. The income from opium is rapidly declining due to opium suppression programme.

For a change to better condition, following guidelines are considered useful ;

a) The technical know-how is required to change the present farming system. Techniques should be provided by adequate extension system.

b) Sufficient land in terms of quantity (area) and quality (fertile soils) in made available to them so that they can produce enough to fulfill the subsistence and cash requirements.

c) Risk sharing to lessen the adoption risk of the newly recommended and unknown farming

techniques should be given. This can be facilitated by a free input supply and an incentive system for a limited period of time.

d) Security for the investment in a piece of land by receiving land use permits should be given, so that they can use more labor and capital and not move to other areas anymore.

3.2. A well functioning extension system

It is clear that the well-trained and highly motivated extension workers are required to change the hill tribes presently practiced agriculture. In order to transfer the know-how to the farmers, adequate visual aids have to be applied as much as possible. The distribution of inputs without advises will never bring about changes. Each extension worker has to acquire a certain know-how by himself otherwise the advice given is weak and therefore will be rejected by the farmers.

The supervisors are supposed to help the extension worker who meet difficulties and can solve the problems by giving advice and encouragement in the field. Therefore, if the extension worker are successful in the implementation of the recommendation and the farmer adopted new farming techniques, the supervisors should also be commended.

3.3. The land use concept

Besides farmers' participation and an effective extension system, the newly designed land use concept (Fig. 2) should be adopted to allow permanent farming system. Measures to prevent heavy soil losses should be implemented. Grass strip can control soil losses, and provide mulch and/or animal fodder if the grass is cut at regular intervals.

The new land use concept should include all cover crops together with the hill tribes' traditional cropping system and correspond well to the traditional subsistence requirements such as upland rice, corn vegetable, beans, other field crops and fuel wood, and some typical fruit trees.

If the participating farmers expand their area in the following year according to their individual

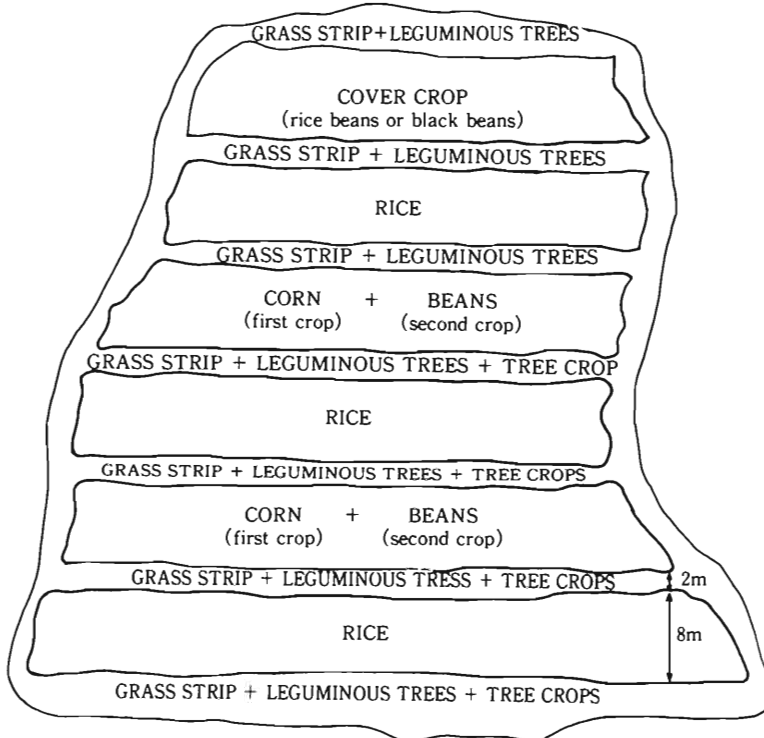


Fig. 2. THE TG-HDP LAND USE CONCEPT

labor capacity, they will be able to generate a higher cash income from the sale of field crops. Opium growing can be replaced by introducing some high value crops such as temperate fruit tree such pear, peach, apple, apricot, and some special variety of vegetables, shitake mushroom, and medicinal plants.

3.4. Agricultural marketing development

Agricultural marketing in directly related to agricultural production. The basic requirement in solving agricultural marketing problem is to provide simplified knowledge of marketing among hill tribes. Training hill tribe farmers should include basic concept of marketing, assembling, sorting, grading, quality control, packaging, price informations, etc. Market observation, and linkage between hill tribe farmers and traders are also considered necessary.

3.5. Village handicraft industry should be developed

Besides, crops and livestock, handicrafts should be an additional source of income for hill tribe farmers. It should be noted that most of them has an experience in iron and silversmiths, tribal ornaments can be produced by village artisans. The women however, sew and embroider the traditional tribal designs into their folk costumes with great skill. Therefore, the promotion of handicrafts among them should be another important source of income.

3.6. Education

Providing education to the hill tribes is an important activity. Educational assistance should be promoted to increase literacy in Thai and to provide primary education to hill tribe children. Besides, providing of non-formal education for adult is also important. Assistance should be provided for building new school, providing necessary educational supplies.

3.7. Public health

Most of the hill tribe farmers live in remote areas, health services are inadequate. Public health services should be provided for them in cooperation with provincial and district public health authorities and district hospitals. Malaria eradication program and other health related work should be extended in order to upgrade public health program of the hill tribes. Health services should include providing fundamental health care, promoting nutritional improvement, assisting with village sanitation including improving drinking water, and promoting family planning services. Village health volunteers should be encouraged in order to work closely with health authorities.

3.8. Infrastructure development

Most of hill tribes live in remote areas where roads and water systems are improper condition. An improvement of all-weather roads would be an essential element for local agricultural produce to be transported to the market and for materials and supplies to be brought to the villages. Roads also facilitate education, health and other social services.

3.9. The understanding of hill tribes social structure

As mentioned earlier, many development projects failed due to interest in only purely technological matter ; the social or human factors were neglected. Therefore, the cooperation among the hill tribes were impossible. So, the understanding of human factors, their tradition, culture, custom, structure, etc. should be taken into consideration of the project personnel. The quiet resistance could be improved. Direct contact with the hill tribe leaders, understanding, good relationship between project personnel and hill tribes leader of all kinds of development activities could be achieved.

Chapter 4. Problems and Recommendations

4.1. Problems

- 1) Shifting cultivation

Shifting cultivation is the traditional farming system in the high lands of northern Thailand. For centuries, this system was appropriate as long as the highland population was small and long fallow periods were observed as abundant land was available.

The high population pressure by natural growth and by the immigration from other areas have caused a breakdown of the once balanced ecological situation. The preservation of natural resources is no longer guaranteed, since the forests around the head water on the hill are rapidly disappearing and the fallow periods are becoming shorter and shorter.

Destruction of forests around the head water on the hill has directly damage hydrological conditions resulting in erosion of hill slopes and floods in the lowlands during the rainy season. As a result, hill tribe farm families living in high land are threatened by ;

-declining self-sufficiency in upland rice, maize, vegetables, animal products, and to a minor degree fuel wood.

-decreasing farm incomes impoverishing families to the extent that many of them are no longer able to fulfill their basic needs.

In the hill of northern Thailand, nature provides heavy rain between 1,000-2,000 mm. occurs every year. The rain falls on steep slopes with an average gradient between 15-40%. Cultivation of crops mostly take place on long slopes which are covered by loose and bare top soil and exposed to rain, sun, and wind. Since the top soil layers are very thin usually 10-20 cm. deep, whole top soil layers are washed away only in a few years. Without preventing such heavy soil losses, there will never be a chance to introduce a permanent farming system.

In addition, hill tribe farmers living in the hills neglect soil fertility improving measures in their traditional cropping system mainly rice and corn in successively grown for years on the same plots until the soil fertility is depleted. Most fields can therefore be used by 2-4 years only. Fast declining crop yield can be observed for all fields crops. Therefore, the farmers have no other choice but to shift to a newly opened field, which is usually cut in forest areas which promises more fertile soil.

2) Opium growing

Opium was illegal in Thailand since 1958. The Ministry of Interior was entrusted with the responsibility of abolishing opium growing. The Thai Government is attempting to solve this problem, by opium suppression measures implemented along with the joint efforts of department, ministries, the Royal Project, and the United Nations. Since, in general, no other crop provides the same high return from the land as opium does, opium is still the basic cash crop of hill tribes in some remote hill areas.

The opium production per family is approximately 4 kg. of raw opium per year on the average. An average yield per rai of opium (raw) is about 1 kg. An average cash income from opium is about 8,000-10,000 baht per year.

Sudden enforcement of the prohibition of the main cash crop, opium, is likely to lead to more dangerous implications. An attempt to discontinue opium trade has several implications. Secret caravans with armed convoy cross over the border from the Shan State enroute to Laos. Due to unchecked movements of hill tribes and smugglers, there is a rather unsettled border situation at altitude above 800 meters. In fact, it seems to be impossible to control effectively the jungle trails in the mountains with the present means of inspection.

3) Agricultural production

The replacement of opium with other profitable cash crops is great relevance to this context. It was discovered from the observation of hill tribes in the project area that the feelings and opinions of hill tribes toward the government were highly conditioned by the government's attempted suppression to their traditional source of income, their shifting cultivation including opium growing¹⁾. The hill tribes do not know what crops are to be grown.

The hill tribe farmers have very limited or no experience in growing perennial crops such as

coffee, peach, pear, persimmon, and in advanced agricultural techniques such as terracing, ditching, manuring, sunshading, use of insecticide and pesticides, etc. They have experience in raising pigs and poultry but need advice in modern veterinary methods, breeding, etc. There were slow to adopted and advanced agricultural techniques and change.

4) Agricultural marketing

Marketing and transportation problems were serious. Since the hill tribe farmers live in remote areas where roads can be used only in some periods of the year, long distance to the market centers cause high transportation costs, perishableness low prices due to the seasonal over supply.

As mentioned earlier, the Haw and local Thai traders spread over the hill villages. The trader exert financial control over the hill tribes farmers. They control all activities in the hills, therefore, they can set up agricultural produce price and also the price of commodities purchased by the hill tribes.

5) Hill tribes social structure and human factor

The introduction of agricultural innovations or other technical innovations to hill tribe societies is by no means a purely technological matter. It is as much a socio-psychological matter, since it depends upon the cooperation of the tribesmen.

All project activities such as education, public health, agricultural development, community development, etc., rendered to the hill tribes were only technical innovation. The social structure and human or social factors were neglected and lacking mutual understanding and confidence between the hill tribes and the project personnel. Even quiet resistance and silent sabotage rendered futile all the attempts of the project personnel. This is not due to the stupidity of the hill tribes. It is rather a self-defense mechanism. It is likely to happen if their leader thinks and feel that they are approached in an undue way.

4.2. Recommendations

In solving existing problems of hill tribe farmers, an intensive integrated approach should be carefully designed and implemented immediately. Otherwise, income generating and an improved standard of living of hill tribe farmers will no longer be achieved. As a result, the destruction of forest through slash and burn agriculture and the cultivation of opium poppy will damage the environment and upset the ecological balance, creating severe impact to the lowland people and also narcotic addiction problems.

The proposal for an effective integrated approach in remedying hill tribes problems are as follows:

1) Close contact with hill tribe leader

The leader is considered as a key person in the hill village. Hill tribes always follow their leader, therefor, close contact with their leader is necessary and may create better understanding. As a result, good cooperation between project authorities and the leader might be possible. So, new farming techniques being introduced to the hill tribe farmers can be adopted more easily.

2) Surveying of crop demand

Exact knowledge about the demand type, quantity, quality, and price of crops in the market before planting are necessary for crop production planning to meet the market demand and take advantage of a better price.

3) Crop production planning

Crop production planning and marketing of agricultural produce are related in order to ensure better price and prevention of over supply to market which will lead to low price. Crop production planning must be considered not only new cash crops but also subsistence crops in order to satisfy hill tribes' needs.

4) Effective agricultural extension system

Well-trained and competent agricultural extension workers who are dedicated to work with the hill tribes in the remote areas are needed. Mobile extension unit equipped with audio-visual aids

facilities are essential. Training should be included in new farming techniques, soil and water improvement, cover crop, fertilizer application, improved seed and livestock, etc., through demonstration work. Basic marketing knowledge such as cleaning, sorting, grading, quality improvement, packaging, and also market informations should be also provided.

5) New high valued cash crops

High valued cash crops are in great demand and have favorable high price such as head lettuce, sweet pepper, sweet pea, carrot, and potato in rainy season. Temperate fruit tree such as apricot, persimmon, apple, peach, etc., also has good potential market. Besides, shitake mushroom and medicinal plant are in high demand and price.

Rice, corn, beans, chilies, typical vegetables firewood and typical fruit trees are also important and essential for satisfying the need of hill tribes. Traditional crops should be maintained along with new cash crops plus some cover and strip crops to improve soil fertility and prevention of soil erosion.

6) Encouragement of commodity-wise producers group

Commodity-wise producers' group should be set up and hill tribe farmers should work, think, and plan together. Group comprises of farmers raising same kind of crop, work out plant to produce, buying agricultural input together, group selling of their produces to take advantage of better price.

Establishment of fruits and vegetables center, equipped with cooling facilities in some center location will be necessary for assembling, sorting, grading, weighing, packaging, and controlling quality. Cooling truck is also required to transport fruits and vegetable to market.

7) Shitake mushroom cultivation

The shitake mushroom extension work should be carried out and expanded through the hill tribe farmers in the project areas where production conditions are suitable²⁾. Research should be continued to improve quality and yield of mushroom produced. Research should cover the following aspects :

- Mushroom strain improvement ; post harvest with handling, grading, and packing techniques ; processing techniques using local materials in the area, and ; reforestation of Ko tree for future production.

8) Land use permits and other incentives

Hill tribe farmers has usually no land use permits. Providing land use permits to them will encourage additional incentive to readily invest more labor and capital in a piece of land and not to move to other areas anymore. Therefore, stabilized farming could be possible.

The success of hill tribes income generation and improvement of standard of living depend largely not only agricultural development, but also formal and informal education, health care, road, and water supply systems, and other infrastructure and support program. Integrated development plans should be planned and implemented.

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北部タイにおける山岳民族小農民の社会・経済条件

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摘 要

近畿大学とタイ国チェンマイ大学との共同研究事業「タイ国における有用植物の栽培とその薬理効果に関する研究」は、北部タイの山岳民族の社会的・経済的地位の向上を目的に農学的、薬学的、医学的な分野での現地調査・研究に加えて、北部タイ山岳民族の社会的・経済的地位の調査を行っている。本

報はその一部として1989年に実施した55万人の山岳民族を対象として実施した調査のハイライトを山岳民族の社会・経済構造と農業手法の改善による彼らの生活水準の改善の可能性に焦点をあて、述べたものである。

作付体系の一環として、薬草や茸類導入の可能性については、後日報告することとする。