

CHAPTER 3

SURVEY RESULTS

The people living in the Project Area reside in one of the least well-known Karens areas of Thailand. Besides being outside the effective reach of many branches of the Thai government, scholarly studies of the area are extremely limited. Only the Australian anthropologist, Peter Hinton, has made an in-depth study of the main part of the Project area from 1968-1974, although an American anthropologist, James Hamilton, did study a village in the Wang Lung area, just south of Hot on the Project area's eastern periphery.

Hinton [1975a, 1975b] studied a group of village south of the Hot-Mae Sariang Road including one he called "Dong Luang" in his dissertation. The village seems to be in the Om Dah area, south of Mae Ho. Some comparisons will be made between the villages he studied and those the evaluation studied in the Project area.

HOUSEHOLD STATUS

The villages studied by Hinton comprised from 5-50 households to a village, with an average of 30 per village comprising 150 individuals in a village. As Hinton noted, the Karens were reluctant of having dealings with the Thai at all. However, when they did, it was the Karen men who did the trading (as was necessary for such items as salt) or the business with government officials. Thus, only very few women spoke more than rudimentary northern Thai. Most men, especially in areas close to Thai settlements could speak sufficient northern Thai to conduct their business. In areas where Sgaws were located, both men and women were able to speak Sgaw. Hinton gives no information on Thai citizenship, although since he refers to some of the villagers serving as Thai headmen, at least some of the villagers had to be Thai citizens by 1974.

As can be seen from Table 1, the household size has remained much the same over the last decade and a half. However, the population has increased considerably over Hinton's figures. Hinton estimated that the Dong Luang population had been increasing at a rate of 2.2 percent since that village was founded in about 1905. However, from 1968 to 1974, reduced mortality resulted in an increase of 25 percent. Hinton did predict that trends current at that time indicated a potentially high growth rate. Continued population increase at rates close to this have occurred in the Project area, resulting in much of the deforestation observed in conducting this survey. Natural increase together with in-migration from troubled areas in Burma, if not reversed, can only cause more difficulties in the Project area and make achieving the Project's goals harder if not impossible.

GENERAL VILLAGE INFORMATION

Table 1

| Village | HOME DISTRICT AND PROVINCE | RELIGION BY PREVALENCE AND POPULATION | MAIN LANGUAGE | TRAVEL TIME FROM ALL WEATHER ROAD |
|---------------|-----------------------------|---------------------------------------|---------------|-----------------------------------|
| DONG DAM | Hot Chiang Mai | Buddhist 399 people | Pwo | 0 |
| TUNG JAM RUNG | Omkoï Chiang Mai | Buddhist 500+ people | Pwo | 0 |
| HIN LUANG | Omkoï Chiang Mai | Animist 193 people | Pwo | T - 1 hr. |
| LAW PLA SAY | Omkoï Chiang Mai | Animist 450 people | Pwo | T - 2.5 hr. |
| PHUE RUE KHEE | Omkoï Chiang Mai | Animist 550 people | Pwo | T - 3 hr. |
| MAE SA TA | Omkoï Chiang Mai | Animist 1000 people | Pwo | T - 3 hr. W - 3 hr. |
| MAE SA TA NOI | Omkoï Chiang Mai | Christian 120 people | Pwo | T - 3 hr. W - 7 hr. |
| HUAY PLA GANG | Mae Sariang Mae Hong Son | Animist 273 people | Pwo | T - 1 hr. |
| OM DAH NUA | Sop Moei Mae Hong Son | Animist 350 people | Pwo | T - 2.5 hr. W - 2 hr. |
| OM DAH TY | Sop Moey Mae Hong Son | Animism 320 people | Pwo | T - 2.5 hr. W - 3 hr. |

T = travel time by truck from a main road.
W = travel time by foot.

GENERAL VILLAGE INFORMATION (Cont.)

| Village | HOME DISTRICT AND PROVINCE | RELIGION BY PREVALENCE AND POPULATION | MAIN LANGUAGE | TRAVEL TIME FROM ALL WEATHER ROAD |
|---------------|----------------------------|---------------------------------------|---------------|-----------------------------------|
| MAE OB TY | Sop Moei Mae Hong Son | Animist 270 people | Pwo | T - 2.5 hr. W - 2 hr. |
| HUAY SAI YONG | Sop Moei Mae Hong Son | Animist 240 people | Pwo/ Sgaw* | T - 1 hr. |
| LAY KHO | Sop Moei Mae Hong Son | Buddhist 329 people | Pwo/ Sgaw | T - 1.5 hr. |
| HUAY NAM SAI | Sop Moei Mae Hong Son | Animist 170 people | Pwo/ Sgaw | T - 2 hr. |
| KAY TU KHEE | Sop Moei Mae Hong Son | Christian 90 people | Pwo/ Sgaw | T - 1 hr. |
| KAW MOO KHEE | Sop Moei Mae Hong Son | Buddhist 165 people | Pwo/ Sgaw | T - 1.5 hr. |
| WAE PAE TA | Sop Moei Mae Hong Son | Animist 20 people | Pwo/ Sgaw | T - 2 hr. |
| OH LOH THA | Sop Moei Mae Hong Son | Christian 240 people | Pwo/ Sgaw | T - 3 hr. |
| BAW LU | Sop Moei Mae Hong Son | Christian 53 people | Pwo/ Sgaw | T - 3 hr. W - 2 hr. |
| MAE HA KHI | Sop Moei Mae Hong Son | Buddhist 350 people | Pwo/ Sgaw | T - 3 hr. W - 5 hr. |
| EE WE JO | Tha Song Yang Tak | Christian 130 people | Pwo/ Sgaw | T - 3 hr. W - 6 hr. |

T = travel time by truck from a main road.
W = travel time by foot.

TABLE 2

| Village | HOUSEHOLD SIZE | POPULATION | HOUSEHOLD TOTAL | MULTI-LINGUAL | THAI CITIZENSHIP |
|---------------|----------------|------------|-----------------|---------------|------------------|
| DONG DAM | 4.3 | 688 | 159 | 95.0% | 100.0% |
| TUNG CHAMROEN | 5.3 | 848 | 160 | 80.0% | 100.0% |
| HIN LUANG | 4.8 | 192 | 40 | 58.3% | 100.0% |
| LAK PLA SAY | 5.7 | 450 | 78 | 95.0% | 95.0% |
| PHUE RUE KHEE | 5.5 | 550 | 100 | 90.0% | 55.0% |
| MAE SA TA | 5.1 | 1,000 | 196 | 100.0% | 50.0% |
| MAE SA TA NOI | 4.9 | 25 | 122 | 100.0% | 27.3% |
| HUAY PLA GANG | 5.2 | 273 | 57 | 100.0% | 95.0% |
| OM DAH NUA | 5.4 | 350 | 64 | 76.9% | 76.9% |
| OM DAH TY | 5.8 | 345 | 60 | 33.3% | 66.7% |
| MAE OB TY | 6.8 | 270 | 40 | 80.0% | 80.0% |
| HUAY SAI YONG | 6.3 | 240 | 38 | 80.0% | 80.0% |
| LAY KHO | 4.8 | 330 | 69 | 61.5% | 92.3% |
| HUAY NAM SAI | 6.5 | 170 | 38 | 52.9% | 82.4% |
| KAY TU KHEE | 5.3 | 90 | 18 | 100.0% | 90.0% |
| KAW MOO KHEE | 5.0 | 165 | 33 | 100.0% | 93.3% |
| WAE PAE TA | 5.0 | 20 | 4 | 75.0% | 75.0% |
| OH LOH THA | 6.1 | 240 | 39 | 100.0% | 81.8% |
| BAW LU | 4.5 | 53 | 12 | 100.0% | 30.0% |
| MAE HA KHI | 6.0 | 350 | 58 | 70.0% | 60.0% |
| EE WE JO | 5.8 | 350 | 60 | 72.7% | 90.9% |
| TOTAL | 5.5 | 6,999 | 1,445 | 82.1% | |

Note: Population figures are the best estimates available. The evaluation was not able to conduct accurate surveys and recent population fluctuations have altered totals considerably.

MAIN ACTIVITY OF VILLAGERS

Hinton observed that rice agriculture, mainly swiddened but also some paddy, was predominate in the Project area. He also noted that some villagers sold surplus crops or engaged in hired labor in order to earn cash income. Livestock were also raised, some for sale to other villagers. These patterns have not changed, although as roads are cut further into remote areas, more villagers have more options for obtaining cash income. Those with cash income earned it from wage labor, the use of vehicles they owned, work as government officials, or from owning a store in the village. Although not studied, income earned by the villagers from the sale of forest produce surely declined.

TABLE 3

| Village | AGRICULTURE | WAGE LABOR | ANIMAL HUSBANDRY | VILLAGERS WITH NO CASH INCOME |
|---------------|-------------|------------|------------------|-------------------------------|
| DONG DAM | na | 40.0% | 60.0% | na |
| TUNG CHAMROEN | 45.0% | 50.0% | 5.0% | 40.0% |
| HIN LUANG | 41.7% | 50.0% | 8.3% | 33.3% |
| LAW PLA SAY | 60.0% | 30.0% | 10.0% | 60.0% |
| PHUE RUE KHEE | 90.0% | 5.0% | 5.0% | 80.0% |
| MAE SA TA | 85.0% | 10.0% | 5.0% | 65.0% |
| MAE SA TA NOI | 90.9% | 9.1% | na | 81.8% |
| HUAY PLA GANG | 55.0% | 30.0% | 15.0% | 50.0% |
| OM DAH NUA | 92.3% | na | 7.7% | 76.9% |
| OM DAH TY | 88.9% | 11.1% | na | 77.7% |
| MAE OB TY | 60.0% | na | 40.0% | 50.0% |
| HUAY CHAIYONG | 93.3% | 6.7% | na | 60.0% |
| LAY KHO | 76.9% | 7.7% | 15.4% | 69.2% |
| HUAY NAM SAI | 76.5% | 5.9% | 17.6% | 70.6% |
| KAY TU KHEE | 60.0% | 10.0% | 30.0% | 50.0% |
| KAF MOO KHEE | 86.7% | 6.7% | 6.7% | 60.0% |
| WAE PAE TA | 75.0% | na | 25.0% | 75.0% |
| OH LOH THA | 90.9% | 9.1% | na | 27.3% |
| BAW LU | 100.0% | na | na | 30.0% |
| MAE HA KHI | 75.0% | 25.0% | na | 70.0% |
| EE WE JO | 90.9% | 9.1% | na | 72.7% |
| TOTAL | 70.4% | 17.6% | 12.0% | 57.1% |

Only villagers selling more than 500 Baht of animals in the past year are identified as practicing animal husbandry. Some villagers have no outside source of income as shown.

SANITATION

Hinton provides little mention of sanitation practices in his dissertation other than to say that standards were low, an observation he said constrained population growth. In other comparable Karen areas at this time, there were no latrines either.

TABLE 4

| VILLAGE | PERCENT HAVING A LATRINE |
|---------------|--------------------------------|
| DONG DAM | 95.0% |
| TUNG CHAMROEN | 55.0% |
| HIN LUANG | 8.3% |
| LAW PLA SAY | 0 |
| PHUE RUE KHEE | 15.0% |
| MAE SA TA | 15.0% |
| MAE SA TA NOI | 0 |
| HUAY PLA GANG | 0 |
| OM DAH NUA | 0 |
| OM DAH TY | 0 |
| MAE OB TY | 0 |
| HUAY SAI YONG | 0 |
| LAY KHO | 53.8% |
| HUAY NAM SAI | 0 |
| KAY TU KHEE | 0 |
| KAW MOO KHEE | 6.7% |
| WAE PAE TA | 25.0% |
| OH LOH THA | 81.8% |
| BAW LU | 0 |
| MAE HA KHI | 0 |
| EE WE JO | 0 |
| TOTAL | 18.3% |

As can be seen, most villages are in need of latrines.

NUMBER AND TYPE OF LIVESTOCK

Hinton explains that in Dong Luang, villagers kept large livestock such as buffalo or cattle for investment purposes. Instead, they kept small numbers, usually under six, of cattle, elephants, or buffalo as insurance against rice failure. They also endeavored to increase the worth of their holdings by trading in livestock with other Karen. This practice has not changed. However, because of population increase and resulting declines in grazing land, it has not been feasible for so many villagers to continue raising livestock. In one village, Baw Lu, no families raise cattle or buffalo at present.

TABLE 5

| VILLAGE | PIGS | CHICKENS | CATTLE | BUFFALO |
|-------------------|------|----------|--------|---------|
| DONG DAM | 1.7 | 20.6 | 4.9 | 0 |
| TUNG CHAMROEN | 1.1 | 6.4 | 2.0 | 1.1 |
| HIN LUANG | 4.1 | 10.9 | 3.5 | 0 |
| LAW PLA SAY | 4.1 | 15.2 | 8.2 | 7.4 |
| PHUE RUE KHEE | 2.5 | 15.3 | 9.0 | 10.7 |
| MAE SA TA | 2.8 | 12.3 | 3.3 | 3.0 |
| MAE SA TA NOI | 1.4 | 15.1 | 4.3 | 2.0 |
| HUAY PLA GANG | 3.2 | 9.3 | 4.4 | 0 |
| OM DAH NUA | 3.7 | 9.2 | 4.4 | 8.8 |
| OM DAH TY | 3.0 | 12.6 | 1.5 | 5.0 |
| MAE OB TY | 1.8 | 7.3 | 0 | 10.5 |
| HUAY CHAIYONG | 2.3 | 17.8 | 3.2 | 3.4 |
| LAY KHO | 2.7 | 14.3 | 1.0 | 3.5 |
| HUAY NAM SAI | 2.8 | 11.8 | 3.3 | 3.7 |
| KAY TU KHEE | 2.3 | 9.0 | 5.2 | 7.0 |
| KAW MOO KHEE | 2.2 | 6.5 | 5.8 | 3.3 |
| WAE PAE TA | 2.0 | 8.7 | 0 | 7.5 |
| OH LOH THA | 2.0 | 12.0 | 0 | 6.0 |
| BAW LU | 1.9 | 15.1 | 0 | 0 |
| MAE HA KHI | 3.2 | 11.3 | 2.3 | 2.5 |
| EE WE JO | 3.3 | 7.0 | 0 | 2.0 |
| FAMILY AVERAGE | 2.6 | 12.4 | 4.6 | 3.8 |

Values expressed here are the average among those villagers possessing a particular animal. Goats, ducks and elephants were also present in some villages but not in significant numbers.

RICE YIELD AND AMOUNT BORROWED

Even in 1974, when Hinton collected his data, swidden agriculture in the Dong Luang area was unable to produce a sufficient amount of rice for over half the families he studied. To make up the difference, the Karen grew corn as a catch crop and resorted to various means of raising income so they could buy rice. Some farmers had begun building irrigated rice terraces but the total amount at that time was less than one hectare. The ability of the Karen to be self-sufficient through swidden rice production has declined, although a substantial number of paddy fields have been prepared for use.

TABLE 6

| VILLAGE | PRACTICE SHIFTING CULTIVATION | AVERAGE RICE YIELD (Thang) | MONTHS NOT ENOUGH | AVERAGE AMOUNT SHORT (Thang) |
|----------------|-------------------------------|----------------------------|-------------------|------------------------------|
| DONG DAM | | 205.9 | .5 | 2.9 |
| TUNG CHAMROEN | | 191.8 | 1.2 | 37.3 |
| HIN LUANG | 66.7% | 95.8 | 3.8 | 50.1 |
| LAW PLA SAY | 55.0% | 162.5 | 2.2 | 74.2 |
| PHUE RUE KHEE | 55.0% | 127.5 | 2.8 | 32.5 |
| MAE SA TA | 75.0% | 92.9 | 2.7 | 39.3 |
| MAE SA TA NOI | 100.0% | 80.5 | 3.0 | 20.0 |
| HUAY PLA GANG | 65.0% | 131.5 | 2.9 | 26.0 |
| OM DAH NUA | 100.0% | 127.7 | 3.1 | 41.7 |
| OM DAH TY | 100.0% | 71.1 | 3.3 | 33.3 |
| MAE OB TY | 100.0% | 142.1 | 2.2 | 34.0 |
| HUAY CHAIYONG | 86.7% | 98.7 | 4.4 | 44.3 |
| LAY KHO | 46.2% | 124.6 | 3.2 | 22.8 |
| HUAY NAM SAI | 76.5% | 198.8 | 1.0 | 25.0 |
| KAY TU KHEE | 100.0% | 98.0 | 7.3 | 78.1 |
| KAW MOO KHEE | 86.7% | 93.6 | 4.9 | 33.4 |
| WAE PAE TA | 25.0% | 155.0 | 4.0 | 50.0 |
| OH LOH THA | 54.5% | 170.9 | 3.0 | 25.0 |
| BAW LU | 90.0% | 156.0 | 2.0 | 20.0 |
| MAE HA KHI | 85.0% | 129.5 | 5.1 | 39.2 |
| EE WE JO | 100.0% | 115.5 | 3.8 | 44.0 |
| FAMILY AVERAGE | 66.4% | 134.5 | 3.2 | 37.1 |

Those villagers not practicing shifting cultivation either had land holdings or did not plant rice. The number of months they were short of rice is displayed along with the amount of rice they either borrowed or purchased (1 Thang = 20 liters).

VILLAGE INCOME BY TYPE AND AMOUNT

Hinton found that in Dong Luang, the average household cash income was 650 baht. However, there was one household with livestock worth over 33,000 baht. Since then because of new opportunities to earn income as well as the inflation of the Thai baht, there is considerably more cash circulating in Project area villages than in the past.

TABLE 7

| VILLAGE | INCOME FROM SALE OF LIVESTOCK | INCOME FROM LABOR | AGRICULTURAL INCOME | TOTAL INCOME |
|-------------------|-------------------------------------|----------------------|------------------------|--------------|
| DONG DAM | 5607.5 | 7815.0 | 775.0 | 14197.5 |
| TUNG CHAMROEN | 289.0 | 7095.0 | | 7384.0 |
| HIN LUANG | 875.0 | 488.3 | | 1363.3 |
| LAW PLA SAY | 570.0 | 365.0 | | 935.0 |
| PHUE RUE KHEE | 1510.0 | 50.0 | 77.4 | 1637.4 |
| MAE SA TA | 112.5 | 1890.0 | | 2002.5 |
| MAE SA TA NOI | | 27.3 | 22.3 | 49.5 |
| HUAY PLA GANG | 390.0 | 944.5 | 17.5 | 1352.0 |
| OM DAH NUA | 480.8 | | | 480.8 |
| OM DAH TY | | 11.1 | 8.9 | 20.0 |
| MAE OB TY | 1900.0 | | 15.0 | 1915.0 |
| HUAY CHAIYONG | | 20.0 | 466.7 | 486.7 |
| LAY KHO | 461.5 | 1153.8 | 153.8 | 1769.2 |
| HUAY NAM SAI | 588.2 | 176.5 | 47.1 | 811.8 |
| KAY TU KHEE | 1450.0 | 300.0 | 5.0 | 1755.0 |
| KAW MOO KHEE | 113.3 | 200.0 | 533.3 | 846.7 |
| WAE PAE TA | 2000.0 | | | 2000.0 |
| OH LOH THA | 22.7 | 90.9 | 3440.9 | 3554.5 |
| BAW LU | 180.0 | | 1622.0 | 1802.0 |
| MAE HA KHI | 5.0 | 65.5 | | 70.5 |
| EE WE JO | 21.8 | 90.9 | | 112.7 |
| FAMILY AVERAGE | 823.7 | 1319.1 | 298.3 | 2441.1 |

Total income among the villagers surveyed is noted.
Values are in Baht.

CONDITIONS IN PROJECT VILLAGES

1) Dong Dam, Hot Tambon, Hot District, Chiang Mai Province.

A. Background\Environment

This is a rather large village of 159 households and about 700 villagers that formerly was on the right bank of the Ping River. Although there have been several Pwo villages in this area for over a century, many villagers were forced out of their previous residence following the completion of the Bhumiphol Dam which flooded the site of their village following the dam's completion in about 1960. When some of them moved here Dong Dam itself was flooded and the village was relocated on a ridge to the east. Since then, mainly as a result of increased population pressure on the land, vast amounts of forest have been cut down and the consequent drying up of water reserves. At present scrub trees and bushes are the most common vegetation growing on the hills in the village area, the name of which, ironically, means "(Dense) Black Forest".

There is evidence that Buddhism has been practiced here for almost a century. The temple has become the center of most social life in Dong Dam. There are still some animists and a number of recent converts to Christianity. Because of these contacts, most of the village men, and quite a few women, are fluent in northern Thai. Children who have gone to school can speak central Thai as well as can some elders.

Because of the recent in-migration of Karens from remote areas beyond the effective reach of the government, only about 360 of the villagers of Dong Dam, almost all descendants of the original residents, are Thai citizens even though the village is close to the Hot District offices and not far off a main road. This proximity to Hot, has facilitated the provision of some government services. There is electricity, a government water supply system constructed after water behind rose to a sufficiently high level in about 1973, a primary school, health station, and a rice bank. There are four drug addicts in the village and 70% of the households have latrines. The majority of villagers are farmers and own a considerable amount of livestock.

Even though the village has a water supply system, water remains a major concern to villagers. Since the water level in the reservoir drops far below the level of the village during the dry season the water pumped into the village at this time is of poor quality. The villagers lack satisfactory filters, and some families resort to straining the water by placing a cloth over the spigot when they need water.

B. Villagers' Appraisal of Project Activities

This village was the home village of one of the Project extension workers. Since the village had received, at least in

comparison with other villages, significant government support, the work in this village differed from that elsewhere in the Project Area. Still the Project did assist six families by providing half the funds needed to tap into the existing water system. Funds were also provided to purchase a smaller diameter pipe so as to increase the water pressure at the pump. Coffee seedlings were also sold to some villagers at half the market price.

The village headman had little or no knowledge of the Project activities, but was aware that the Project's extension worker was involved in the village. Many villagers were unsatisfied with the government's water system because of the high maintenance costs which require someone to watch the pump. Repair costs, and the poor water quality were also reasons for dissatisfaction. However, regarding Project activities, there were no complaints. Unfortunately the coffee seedlings all died because of arid conditions, but this was not seen as a defect of the Project by the villagers.

For those not involved in the Project, most expressed a desire to get water, but were not willing to pay the price. Many would like help in agricultural practices and fertilizer loans. Interest was expressed in a training course on agricultural practices or animal husbandry.

2) Thung Chamroen, Omkoi Tambon, Omkoi District
Chiang Mai Province.

A. Background\Environment

This large village of 160 households is just off the main road to Omkoi District that branches southwards off the Hot-Mae Sariang Road. The main agricultural activity is paddy rice cultivation which provides the staple food for most. A major source of cash income for the villagers is from wage labor in others' fields. Many of the villagers raise livestock.

Little of the village's history is known although there have been Pwo Karen living in this area for centuries, during almost all of which they were quite isolated from the outside world. Perhaps about thirty years ago, small groups of Karen came together in this area forming a small village called Thung Roeng. They cooperated in building a temple and then, with the help of the government, set up a school. The isolation of the village ended about ten years ago when the road to Omkoi was completed putting the village within a few hour's travel of Chiang Mai city. At that time, the government integrated the village into the national administrative system with the new name of Thung Chamroen. Government officials then arranged for the election of a village head and assistants. Almost all of the over 800 villagers are Thai citizens. Other signs of government influence are the rice bank and the fact that one-third of houses in Thung Chamroen having a latrine. Also, the government recently implemented a well project to help solve water problems, that are acute at the end of the dry season. Besides the temple in the village, a church has also been established through the cooperation of the OMF to provide facilities for the few Christians in the village.

In the last few years, a number of villagers have begun smoking heroin, the number of addicts now estimated at 60. This has resulted in a considerable amount of petty theft. Besides wanting care for these individuals, the village chief claims that the biggest needs of the villagers are electricity as well as agricultural water.

B. Villagers' Appraisal of Project Activities

The Project provided this village with an alley cropping demonstration site and a coffee seedling nursery. This was the home village of a former extension worker. The village head claims that he had never been informed of Project activities by the former worker and felt that this indicated a lack of respect for him. The attitude of the (Buddhist) village head is perhaps a sign of the tension that exists between the Christians and Buddhists in the village. One possible cause was seen in the claim by Buddhists that they had to pay for the seedlings, while Christians got them for free. Project policy requires the villagers to pay half the cost. It was impossible to determine absolutely whether Christians paid for their coffee seedlings.

However, if they did not pay for the coffee seedlings, this means that the extension worker was giving them free to certain villagers.

In this village it was difficult to determine which villagers were involved in the Project. It was not difficult to see that the demonstration site had met with skepticism. Over half were unaware of the demonstration site, while those who were saw it as lacking any benefit with some villagers claiming the plants grown there as not of value. This was in no small way due to the absence of a person to tend the site on a regular basis. Thus, when insect pests and weeds got out of control, the other villagers grew skeptical of alley cropping. The lack of fertilizer also contributed to this.

Seedlings were also reported to be a failure with most dying because of lack of water, weeds insect pests and weak or unfit stock. Some who received seedlings did not know how to care for their plants and now desire training. Some villagers chose not to be involved because they feared that their participation in the Project would make it necessary for them to become Christians. There were others who misunderstand yet other aspects of the Project.

In spite of the prevalence of such attitudes, many of the villagers not participating in the Project desired an agriculture demonstration plot and advice in growing their crops. Many expressed a desire to receive fertilizer and seed loans.

3) Hin Luang, Omkoi Tambon, Omkoi District. Chiang Mai Province

A. Background/Environment

This village, which is located northwest of Omkoi, is accessible by road only during the dry season. There are about 200 villagers and 40 some households in Hin Luang. This village was established some 40-50 years ago and seems to have originated with one original settler. From this, it has gradually grown to its present size. As more people came they named the village Hin Luang after the large rock that is near their paddy fields. Government administration has not yet fully reached the village with only 15% of the people having Thai identity cards.

Besides paddy rice and livestock husbandry, quite a few families engage in shifting cultivation. However, Royal Forest Department officials have become concerned over the increased degradation of the forests in the area. They have warned the villagers to stop shifting cultivation, resulting in many villagers becoming discouraged over how they will make a living in the future.

Until now, however, they have been able to maintain a satisfactory standard of living because a good water source enables them to grow off-season crops. Currently a Thai in the district rents paddy land during the dry season to grow tomatoes. These have been factors in making it possible for many families to have tillers and motorcycles and some to build new houses.

Some persons with health problems were observed in addition to one drug addict. There are no latrines and this is one of their expressed needs along with access to basic medicines and an increased number of wells.

B. Villager's Appraisal of Project Activities

In Hin Luang, all villagers received a water system from the Project feeding off of a spring about half a kilometer outside the village. This runs to a central location in the village where there are water tanks and seven spigots. The water is filtered at the source and held in three small tanks to provide pressure. Coffee seedlings were made available at half the market price.

All the villagers were delighted to have the water system. About a year after its construction, they built a roof over the holding tanks to keep out leaves and debris. At present, though, the netting on all but one had deteriorated so that the rest have boards over them. The villagers regularly wash the tanks and filter. Because of overuse, the (moderately-priced) spigots all leak, causing erosion around the concrete foundations. In the rainy season the water is muddy forcing the villagers to use rain water.

The coffee seedlings provided in Hin Luang all died because of lack of water and insect damage. A lack of understanding by the farmers as to how to care for the plants also contributed to this misunderstanding.

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4) Law Pla Say, Na Khian Tambon, Omkoi District,
Chiang Mai Province

A. Background\Environment

Over one hundred years ago, a group of over ten families established this village. Since then in-migration of new settlers and natural growth led to Law Pla Say splitting into three communities over a several kilometer-wide area. Its population has now grown to over 70 households with about 450 residents.

Originally, as with all the Karen villages in the Project Area, they relied primarily on swidden agriculture while raising much livestock. During the last century, as Karens elsewhere in the area adopted an increased amount paddy farming, the villagers here cut terraces and started raising paddy too.

Since the village is still remote, about 2.5 hours off the main road to Omkoi, the village has retained much of its traditional ways. They still have many cattle as well as a few elephants and engage in a certain amount of swiddening. However, the increased population on the land has resulted in considerable erosion in the village as the settlement area has expanded into steeply sloping land. Although there are large grassy patches in the hills resulting in the village name, "Thunder Cut the Trees", forest degradation was also observed in the surrounding hills.

Because of the village's relative remoteness, adequate government services have not yet reached the village. Less than one-fourth of the residents, for example, here have Thai citizenship resulting in the inability of most villagers of obtaining education beyond what is provided in the village school or of taking advantage of various government services. Although a rice bank was established here by the government, villagers say it was not a success. Royal Forest Department officials have come to the village to warn the villagers not to cut down trees in the forest. They are more positive about the government water supply program put in the middle settlement. The government's Dhammajarik Buddhist missionary program did enter the village and establish a temple and some villagers now consider themselves Buddhists. Another type of outside involvement came with missionaries. A number of families profess to be Catholic but most are still animists.

Villagers state that water is a major problem, perhaps a result of the forest degradation that was observed. Rice yields in the village are low because of strong seasonal winds that occur when the rice is plant. There is also one drug addict in Law Pla Say.

B. Villagers' Appraisal of Project Activities

Each settlement has had a water system put in by separate groups. The northernmost by this Project, the second by the government one year ago and the third by a Catholic group several

years ago. The Project also enabled villagers to obtain fruit and coffee seedlings.

The villagers getting water through the Pwo Karen project were very pleased with many asking for other water projects including water tanks and irrigation ditches for their fields. Fertilizer is also a big desire as local soil quality is poor.

The villagers have become conscious of erosion control in Law Pla Say and have built bamboo shelters over each spigot to hold the dirt as well as to allow for privacy. At this point, they would have preferred that the Project had put in concrete slabs under the spigots as was done in Hin Luang. This village has also built a roof over their holding tank to keep out debris. Here, unlike Hin Luang, though, the netting is still in place. Nonetheless, the water system lines often fill up sand and dirt and all the spigots leak from so many people using them. The former is probably a result of improper cleaning of the filter at the water source. All of the seedlings provided by the Project and others obtained from government offices died for lack of fertilizer and poor soil.

Those outside the Project saw the water system as superior to that of their own because of the filtering at the source. The holding tank for the Catholic project is cracked at the base and leaks. Villagers in this (the Catholic project) part of the village would like the Project system expanded into their area as well. The government project was seen as superior in that the villagers got paid for their labor and they used high-quality spigots, none of which were leaking. However, a direct comparison is impossible since the government-supplied spigots were installed for less time than those of the Project. Additionally, this part of the village would like to have the water filtered at the source as it is often not potable. Many who knew of the Project in the other two village areas were interested in the Project's agricultural methods, fertilizer, seed loans and latrines.

5) Phue Rue Khee, Na Khian Tambon, Omkoi District
Chiang Mai Province

A. Background\Environment

This village is commonly called by the Thai name, Mae Khong, which refers to a nearby river. Located to the south of Law Pla Say, it is several hundred meters lower in elevation than the former and consequently has a warmer climate although the terrain is similar.

The villagers remember little of the history of the settlement but they do recall that it dates back several decades to when it was a tiny hamlet. Since then in-migration and natural growth have resulted in a total of 100 families and about 550 residents in the village. Some out-migration also occurred to more remote areas, such as to Mae Say Tay. This village has evolved into one with three distinct settlement areas.

Like Law Pla Say, this village is also remote and has returned much of its traditional nature. From a time when shifting cultivation was the primary means of cultivation, the villagers made a shift to terraced fields probably at some time around the turn of the century. Many also raise livestock including elephants. At present the villagers would like to grow various fruit trees such as litchi, mango, coconut, and lamyai.

Also, as in Law Pla Say, the government has not provided a full range of services here and only 85 of the villagers have Thai citizenship. Still there is a primary school in Phue Rue Khee and the villagers obtained some funds for local development through the Rural Job Creation Project started during the government of M.R. Kukrit Pramoj. Government water-supply projects were also implemented in the northernmost and the southernmost settlements. In the middle settlement, a church has been established in the Christian section of the village. The rest of village is animist.

The village still faces serious infrastructure difficulties. For a few months of the year the road is not passable while during the dry season, water sources run very low for the first four months of the year. This is the home village of a former extension worker.

B. Villagers' Appraisal of Project Activities

A government project recently gave the northernmost part of the village water. The southernmost had received a similar project previously, but is in need of a new system. The Christian part of the village, which consists of about ten families, received a Project water system.

Here as well the villagers built a roof over the holding tank and the net is still in place. There is plenty of water for use, but again all of the spigots leak. Some villagers complained

because the extension worker for the project monopolized the tool that opens a pipe from the holding tank which is supposed to be used for watering tree seedlings belonging to many different villagers.

The Project also implemented a demonstration site, and sold fruit and coffee seedlings at half the market price as well as making seed and fertilizer loans. At first a line from the water supply tank ran to the alley farming demonstration site, but farmers with seedlings nearby had to carry their own water from the village to water their plants. Many viewed the demonstration site a failure because of lack of time and input by the Project workers. Other problems encountered in the demonstration plot were poor soil and insufficient fertilizer and water used there. One year also, cattle ate some of the crop.

Perhaps more serious was that the Project was not able to convince the villagers that the concept of alley cropping was feasible. Then, when many tree seedlings died because of the poor soil, lack of time spent here by the extension worker, and lack of fertilizer and water, the villagers were even more skeptical.

Those outside the Project, however, expressed interest in participating. Fertilizer loans much desired by those not in the Project as was the chance to obtain fruit tree saplings and agricultural training. Those in areas of the previous water systems showed interest in the Project implementing new ones in their area of the village.

6) Mae Sa Tay, Na Khian Tambon, Omkoi District
Chiang Mai Province

A. Background\Environment

Mae Sa Tay village is perched on the east side of the ridge constituting the Chiang Mai-Mae Hong Son provincial boundary. Lying in a remote area that even today is several hours from the nearest all-weather road, Mae Sa Tay residents retain a conservative outlook. This is the largest of the Project area villages, with about 1,000 residents in almost 200 households.

Conservative though the village may be, it seems to have been settled after other villages in the area and may well have comprised an area that previous generations of Karens left unoccupied to serve as a watershed or wildlife source. The site, first occupied by two pioneer families 70-100 years ago may well have been occupied by large numbers of Karens only because of population pressure during the last few decades and is in an unfavorable area for crop cultivation. This is shown by the lack in this area of a good supply of water in the dry season. As a result its recent settlement occurred only after the growth of other villages in the area, with many coming here, for example, from Phue Rue Khee.

Because the village is located on a ridge, the area is not well suited for paddy agriculture. Formerly, the villagers engaged entirely in shifting cultivation but the Royal Forest Department has been making this increasingly difficult. The lack of a dry season agricultural water supply for up to five months each year impedes the chance to grow other crops. Many villagers do grow livestock and some own elephants.

The remoteness of this village has resulted in even fewer government services reaching the village. Thus out of the roughly 1,000 residents, only 12 have Thai citizenship. The southernmost settlement area has a primary school but because the parents both believe their children need to help them in the fields and because they do not see the value to a Thai education, attendance is not too high. There may also be a problem here with the attendance of the teachers themselves too. A large church is situated in the middle of the village, but most of the villagers are animists. The southernmost part of the village has a water supply project recently set up by the government.

This village has neither been too remote nor too conservative to keep several families from becoming Christian in the last few years. They have moved to a separate part of the village.

B. Villager's Appraisal of Project Activities

This village also received a water supply system from the Project in the middle sub-village. The Christian villagers chose to buy a metal holding tank rather than carry cement and materials from Phue Rue Khee. The northern, non-Christian part of the village chose not to be involved with the water project. There

was also a demonstration site and fruit and coffee seedlings were sold to some villagers. A demonstration latrine was also construction by the Project.

The villagers receiving the water system are now dissatisfied with the metal tank as it has no release valve and is very difficult to clean. They have not taken the time to clean it and the pipes frequently become plugged up by debris. Many of the inexpensive spigots supplied by the Project have been replaced by the villagers by ones of higher quality.

In this village, everyone was impressed by the demonstration site and saw it as beneficial since it showed them good agricultural practices and new possibilities they could apply themselves. The coffee seedlings, however, and largely because of the lack of a good water supply, all died but the fruit trees still remain. The villagers expressed a desire for more training in taking care of coffee and other seedlings. Planting methods were adopted by observing practices in the demonstration site. However, since the villagers encountered problems of disease and insect infestation, they indicated they wanted further training in these areas.

The northern part of the village, that was at first skeptical of the value of the water supply project and chose not to become involved, has now indicated an interested in having one. They have obtained a single hose and have run it from one of the spigots in the central village 500 meters into their village. The value of the water project is now almost universally accepted. Many in village would also like the Project (or some other agency) to provide seed loans and fruit tree saplings.

7) Mae Sa Tay Noi, Na Khian Tambon, Omkoi District
Chiang Mai Province

A. Background\Environment

Until thirty years ago the hilly setting of the present-day village was uninhabited. At that time, population pressure in Phue Rue Khee and in Mae Sa Tay resulted in a few families coming to this area where eventually the present village developed. Perhaps, too, some of these families had become involved in a conflict and felt it appropriate to move. The fact that some of these early settlers were Christian made the chance of disagreement in villages largely animist high. Good land was no longer available so the migrant settlers were forced into taking up residence in an area in a rain shadow where making a living by farming is difficult. The villagers have not dug terraces. Instead they practice shifting cultivation and raise livestock.

At the time Mae Sa Tay Noi was settled, the government had begun making some contact with Karens in the area. Since this village developed outside of official government processes and also because it is accessible only by a difficult path and is thus isolated, it is not surprising that out of 25 households which comprise about 120 individuals, none of whom is a Thai citizen. There is no evidence of direct government involvement or assistance to this village.

There is a small church to which eight of the families belong. The animist families live in a small cluster in one part of the village. There is one drug addict and one latrine that was put in by the project.

B. Villagers' Appraisal of Project Activities

The Project provided this village with a water distribution system as well as coffee seedlings. When the water system was set up, the animists wanted no part of it. They then moved away from their previous location to a separate location within the general area of the village. No holding tank was built because of the remoteness of the village and the difficulty in bringing in construction materials.

At present the villagers complain that the water system lines often silted up. After inspecting the filter at the water source, it was ascertained that some of the villagers who had not been properly instructed or who had forgotten what they had been told, had cleaned the first filter improperly. This then caused the second filter to become clogged. The villagers took no action because they were afraid to break open the seal to the second filter, believing they ought to obtain permission from the Project in advance. However, a simple cleaning of the second filter should clear up the problem. In spite of this difficulty, Mae Sa Tay Noi was one of the few villages where the residents actually cleaned and maintained their filter. They would like to have the Project construct a holding tank which will enable them

to plant vegetables near their houses and to store water when the traditional water source runs low. Also, since soil quality is poor, they desire fertilizer and seed loans. The coffee saplings died because of poor soil and lack of fertilizer.

Regarding the three animist families who moving away from the irrigation site, all now desire a water system: two of the families want the Project to provide it while the other family wants the government to build it. The one family desiring government assistance appears to have some influence over the other two, thus preventing them from receiving the benefits the project offers to them.

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8) Huay Pla Gang, Mae Ho Tambon, Mae Sariang District
Mae Hong Son Province

A. Background/Environment

Karens have been living in the Mae Ho area since at least the 1830s when English travellers enroute from Mae Sariang to Chiang Mai made mention of them here. The villagers do not know the origins of this settlement, but they do say that the name Huay Pla Gang has been used longer than they can remember--which means it should have had this name for over 100 years. Some of the villagers engage in shifting cultivation, but in spite of the steeply sloping terrain in Huay Pla Gang, some villagers have cut their own paddy fields. With the acceptance of many Western medical advances, mortality has declined and the village population has been growing. The result has been a significant amount of pressure being put on the environment, consequent deforestation, with adverse effects on the local climate and, more recently, water shortage problems.

A dirt road has been built which links the village to the Hot-Mae Sariang Road. However, since the road is impassable for much of the rainy season, contacts with Mae Sariang are uneven. of the 57 households and over 270 residents in the village, about half have acquired Thai citizenship.

Perhaps learning the technology from the Hmong in the general area who were already involved in cultivating cabbage as a cash-crop, about half of the villagers now cultivate cabbage, which has proved very profitable. Many see this as the way to develop the village. Villagers raise the livestock typical of other Karen villages in the Project area.

The government has become involved in ways besides the uneven provision of citizenship. At present there is a health station and a primary school in the area. Previously this village had a water system provided with the help of the government, but it has deteriorated and been out of use for the past three years. There are seven drug addicts in the village indicating a problem with opium use. There are only two latrines in Huay Pla Gang but villager acceptance of public health is growing.

B. Villager's Appraisal of Project Activities

This village had a demonstration site at which many people could observe the alley cropping method of cultivation. Two of them became sufficiently interested in this methodology to borrow fertilizer from the Project. Many of the villagers also expressed a need for a new water distribution system and most were willing to pay from one-third to half of the costs.

The two people who borrowed fertilizer were pleased with its quality. Most of those going to view the demonstration site saw it as a valuable way to show them how to grow new plants and crops. However, some saw the site as displaying things that were

not applicable to them, perhaps because as a village close to a road into town, there were other agricultural options (such as cabbage cultivation).

As in a number of other villages, most of the Huay Pla Gang villagers had little or no knowledge of the Project or the activities it performed. Since water is a pressing and obvious need, most desired a new distribution system and were willing to pay as previously mentioned.

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9) Om Dah Nua, Mae Khathuang Tambon, Sop Moei Sub-District
Mae Hong Son Province

A. Background\Environment

This village is nestled in a high altitude valley in an area that might have been settled for centuries. The village name, "Om Dah" is a Lua term ("Om" means water, or "Mae" in Thai) indicating that human settlement might have occurred here centuries ago. However, the present population dates back to about a century ago. At that time Om Dah Nua had only a few households but has since grown to over 60 households comprising a population of 350 persons. Om Dah Nua means "North Om Dah" and it dates back to the same origin as Om Dah Ty ("South Om Dah").

This growth in population has led apparently to increased forest degradation which in turn was quite likely a key factor in most local water sources drying up during the hot season, unlike a few decades ago when they lasted the entire year. Villagers state that the climate is now hotter than before. Almost all the villagers engage in farming and there is much livestock in the village as well as a few elephants.

Since the village is difficult to reach, being two hours walk from a road-end, there has been less outside impact on it than other villages. All of the residents are animist. The villagers stated that except for a primary school, there has been no government assistance for the village. However, there have been mobile health teams, mosquito abatement efforts, and some other activities. Royal Forest Department officials have also been through the village warning the residents not to conduct shifting cultivation. Because of its relative remoteness, only about 100 of the villagers are Thai citizens.

B. Villagers' Appraisal of Project Activities

The Project provided this village with a water system with two holding tanks and ten central spigots. This pleased the villagers since they no longer have to travel long distances to fetch water, particularly in the dry season.

An inspection of the filtering system made it was obvious that they had never cleaned out the first filter. When questioned regarding this, the villagers responded that they had never been instructed to do so. After some discussion, the villagers then cleaned out the rocks and put in new sand. However, the villagers have been carried out cleaning of the holding tanks on a regular basis. They also built a roof over the two tanks. As noted in other villages, the spigots provided by the Project leak. The villagers replaced some of them with higher quality spigots. A few families also expanded the system so that the distribution system extended to their houses.

Some villagers stated that the extension worker assigned to the village was not very helpful. They stated that after the system was installed, he did not return to help them with the system or to answer their questions.

Many of the villagers expressed a desire that the Project provide assistance in basic agricultural practices and in teaching them new cultivation methods. The villagers also stated that they would like an irrigation system and were willing to provide half the cost of its installation. They also requested seed and fertilizer loans.

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10) Om Dah Ty, Mae Khathuang Tambon, Sob-Moei Sub-District,
Mae Hong Son Province

A. Background\Environment

Om Dah Ty (South Om Dah) has much the same early history as Om Dah Nua. They are located only a few kilometers apart from each other. Since Om Dah Ty is located further an hour's travel on foot further from the road than Om Dah Nua (on the way to another Karen village named Mae Ob Ty), it is more remote and has had less contact with external influences. The villagers are all animist.

The village is about the same size as Om Dah Nua, with about 60 households and over 300 residents. Since this population represents a significant increase over the population of just twenty years ago, forest degradation has occurred as the villagers have to make increased demands on the forest to obtain food, fuel, and construction material.

In this village on hilly terrain, almost all the cultivation is by shifting cultivation. Almost all of the residents are subsistence farmers, growing rice and other food crops. In some cases the villagers must work in the city or for other Karens to earn sufficient money to have rice throughout the year. The swiddening cycle has been tightened resulting in decreased soil quality in recent years. Some villagers complain that water sources have started running drier than in previous years.

B. Villagers' Appraisal of Project Activities

When the Project first made contact with Om Dah Ty, the villagers expressed interest in having a water distribution system in the village. However, when they considered the difficulty of carrying the construction materials into the village from the nearest road, they decided against participation. Project documents report that the villagers quarreled with each other regarding the irrigation project.

By now however, the villagers have seen Project water distribution systems in nearby villages such as Om Dah Nua and told the evaluation team that they would like a system too. Most said also that they were willing to pay from one-third to one-half of the cost of construction. The villagers stated that because the extension worker had not returned to the village since his original contact, it had not been possible to get word to the Project of their renewed interest.

10) Mae Ob Ty, Mae Khathuang Tambon, Sop Moei Branch District
Mae Hong Son Province

A. Background\Environment

The villagers state that Karens have lived in the area of the village longer than they can remember. Descendants of the original settlers are now found in three villages, Mae Ob Nua (North Mae Ob), Mae Ob Klang (Middle Mae Ob), and Mae Ob Ty (South Mae Ob). Mae Ob Ty is the original of the three settlements. Unlike in other Project area villages, the residents here report that the climate has not changed appreciably in the last few decades, rainfall is still satisfactory, and that water sources still flow as before. The villagers engage principally in shifting cultivation and are mainly subsistence agriculturalists. They also raise livestock also for household consumption.

In the last decade, old trails have been widened so that they are passable as a vehicular track and reach to within about seven kilometers from the village. Even though this track is usable for only half the year, it still affords the villagers more contact with the outside world than at any time in their history. All of the villagers say that they are animists.

Despite its relative remoteness, the village has received a considerable amount of support from the government. In the 40 households comprising 270 individuals in the village, over 200 have received Thai citizenship. There is also a primary school in the village and a health clinic. The villagers complain though that the teachers and the health workers only come the village at infrequent intervals. The villagers have no latrines. There are four opium users in the village.

B. Villagers' Appraisal of Project Activities

The Project helped the villagers install a water storage and distribution system in Mae Ob Ty. This represented a considerable commitment on the part of the villagers since they had to carry all the construction materials from the road-end at Mae Ob Nua, two hours by mountain trail distant from Mae Ob Nua. While the villagers were grateful for this assistance, they did not believe that the extension worker provided sufficient assistance. They also said that he picked quarrels with the villagers. As a result, they said that they were not well-informed about how to maintain the system. They had not cleaned the holding tanks even once since they were afraid they could not get the net to go back over the tanks correctly. An inspection of the filter showed that only a small amount of gravel and plant material had got in despite the fact that it was really only the blue netting that was doing the filtering. The headman was responsible for this because he checked the system regularly, and took out the rocks whenever the pipe got clogged.

Some villagers also complained that they did not know how to maintain the system. As a result also of animals getting into the water source and polluting the water there, and also because many of the spigots were broken, they said that animal waste was getting into the system and flowing through the pipes.

Note on Mae Ob Nua

The evaluation team, while enroute to Mae Ob Ty, passed through Mae Ob Nua, which was the drop-off point for materials used in building the Mae Ob Ty water system. The Project made contact with this village to find out whether it was interested in having a system installed there. Even though there was no need for the villagers to carry materials nearly as far as for Mae Ob Ty, the villagers were not convinced that the system was worth the investment since the water source was quite far away, making the cost of the system higher than they thought worthwhile. However, after seeing the success in the other villages, they now are willing to pay for a water system. The villagers said that the extension worker never stopped in the village again so that they were unable to make their intention known to the Project staff.

12) Huay Chai Yong, Sop Moei Tambon, Sop Moei Branch District,
Mae Hong Son Province

A. Background\Environment

Huay Chai Yong is located southwest of Mae Sariang in an area of heavy Karen settlement. Since it is close to the border, Karens from Burma have sought refuge here from fighting between the Burmese government and Karen rebels. As a result of recent in-migration to this and other nearby villages, there has been a rather substantial growth in population over the last decade. This village lies in a zone of mixed Sgaw-Pwo inhabitation, which is perhaps a result of being so close to the border.

As a result of recent population growth, of this and also because of the hilly terrain in the area in which cutting rice terraces is difficult, most of the residents, who make their living by shifting cultivation, are finding it increasingly difficult. As the cycle becomes increasingly intense, significant forest degradation is occurring. Because the amount of remaining forest cover in the village area is estimated at only 5 percent, climatic changes seem to have occurred that have resulted in water shortages. Most of the villagers raise different kinds of livestock.

Although close to Mae Sariang in terms of distance, the lack of an all-weather road to the village has meant that external influences have been only at a moderate level. One example is that the villagers say they are all animist.

Besides RFD officials, other government activities have included the establishment of a primary school and a water distribution project. The majority of the 240 village residents are facing limitations in terms of the amount of land they can swidden. These limitations are caused by several factors, including increased population pressure on the land, an increasingly serious lack of water, and forest depletion as well as the RFD's increased enforcement of the forest regulations. The government has provided Thai identity cards for slightly over half of the residents.

B. Villager's Appraisal of Project Activities

Huay Chai Yong is noteworthy in that several farmers visited a demonstration site in Lay Kho where they observed the sustainable techniques utilized on the alley farming site. They became so intrigued by the demonstration site, that they independently adopted the cultivation of rice bean and coffee between rows of pigeon pea. Seeds and coffee seedlings were obtained from the Project by these same farmers and planted in Huay Chai Yong.

Those receiving the plants and seeds were pleased with the quality, but complained that the poor soil quality and insect pests in Huay Chai Yong resulted in poor yields. The villagers said they wanted pesticides and fertilizer especially for the

coffee, which had many insect problems. Another major impediment to success in Huay Chai Yong with the alley farming is the lack of agricultural water. If there were a distribution system, the farmers could plant more coffee and expand their present cultivation. Cattle and water buffalo also got into their fields, trampling and eating what was planted.

Farmers not participating in the Project were impressed with the results of the new techniques they saw their neighbors adopting. They stated that it was only the lack of agricultural water prevented them from participating in the Project. If there were such a system, these non-participating farmers were confident that they could put their energy into the sustainable agriculture practices with confidence.

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13) Lay Kho, Sop Moei Tambon, Sop Moei Branch District
Mae Hong Son Province

A. Background\Environment

Villagers state that Lay Kho was settled over 300 years ago, which if true would make it one of the oldest Karen villages in Thailand. Located in the area of Huay Chai Yong this village too has undergone recent rapid population growth. Currently the village has a population of about 330 people living in 69 households including mainly Pwo but also some Sgaw. The majority swidden rice on the steeply sloping terrain around the village. As in almost all the other Project area villages, increased population pressure on the land has resulted in forest depletion. The increasingly dry climate here during the cold season may have resulted from the decreasing amount of forested land. Some streams in the area, that previously were all-weather have become intermittent.

Nonetheless, the village appeared more prosperous than many nearby settlements even though it is located over an hour's walk from an all-weather road. Villagers raise livestock, including cattle, and a number of elephants are kept here too. One family owns a pick-up truck.

Some government services have reached the village, namely the primary school here. About half of the villagers have become Thai citizens. A government agency also installed a water distribution system. The Royal Forest Department has sent its officials to warn the people not to continue shifting agriculture. The Dhammajarik program has established a Buddhist temple in Lay Kho. The villagers described themselves as Buddhist.

B. Villagers' Appraisal of Project Activities

The Project installed a water distribution system to supplement the government-installed system. A previous Baptist-supported project also provided assistance in supplying water to agricultural fields. At present, only the headman's house and the temple are beyond the reach of a water system. A demonstration site was also set up with pomello and coffee interspersed between rows of Pigeon Pea. Seedlings and seeds were also sold to the villagers in Lay Kho.

A check of the tanks and filtering system were showed that neither were being looked after. The nets for the holding tanks were pushed to the side and the water had debris floating in it. The filter was not covered and there were only large stones in it. A wire mesh was attached to the end of the flow pipe was the only thing filtering the water.

The demonstration plot was on fairly level land, all the Pigeon Pea plants were dry and devoid of leaves and had not been pruned. The coffee and pomello looked satisfactory, but other plants looked sparse and unimpressive. The villagers said that

during the dry season the plot looks dead. However there is a water spigot to the plot and plenty of water in the holding tanks, even at this time of year and seems to have been ignored.

When asked, the villagers mentioned that the local extension worker was not very active. The villagers claimed that he did not emphasize the need to maintain the filtering system in good operating condition.

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14) Huay Nam Sai, Sop Moei Tambon, Sop Moei Branch District,
Mae Hong Son Province

A. Background\Environment

Located in the east of the Project area, the village dates back about four decades when ten families came to reside on the steeply sloping hillside here. One of earlier villages in this area, the older residents recall when all the villagers engaged in swidden agriculture. As the area's population grew to a total of 170 people and 38 households, however, the increased population resulted in over-cultivation. Some villagers also dug paddy fields. Now because of an increasing amount forest depletion, the additional amount of land that must be used for settlement areas, as well as recent efforts to enforce the prohibition on shifting cultivation by the Royal Forest Department, little swiddening is now conducted. Because the population in adjacent villages also grew, soil degradation and erosion have occurred over a wide area. Because of the reduced amount of tree cover left on the surrounding hillsides, hot season temperatures are high. Water supply during that time of year has declined in recent years.

The village's former isolation ended about ten years ago when a dirt road reached the village. Although most of the villagers are animist, the recent contacts with the city have led to evangelists coming. Now, in addition to the majority of animists in the village, there are also a few Christian families. The government installed a water system several years ago but it has deteriorated recently with the pipes often get plugged up. There are also too many people for the number of spigots and overuse has resulted in many not functioning. Eight years ago, the government established a primary school in the village as well. About half of the villagers have received Thai citizenship.

B. Villagers' Appraisal of Project Activities

Several farmers cooperated with the Project to build an agricultural irrigation ditch. Water from a river has been diverted to supply water to their paddy fields. Others borrowed seed and fertilizer while quite a few others bought coffee seedlings from the Project. Some of the coffee trees have begun to bear fruit. However, since the market for coffee has fallen, the farmers say they cannot sell the beans they have produced. This may also reflect poor quality, though.

The villagers stated that the Project extension worker for this village came here only rarely. As a result, they said that there was no one who could answer their questions or help solve problems. This reflect their discouragement over the fact that the irrigation ditch's usefulness has been severely reduced when a storm washed out some of the dams. With the reduced water supply, the villagers said that the seedlings grew less well.

Villagers here who had not joined in Project activities, stated that they wanted help in obtaining fertilizer and training in agriculture practices. The majority of the villagers also said they would like the present water system expanded and repaired so that it could supply their fields with water.

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15) Kay Tu Khee, Sop Moei Tambon, Sop Moei Branch District
Mae Hong Son Province

A. Background\Environment

The Karen name, "Kay Tu Khee", meaning Kay Tu Stream, refers to a nearby creek. The official name of the village is Mae Khathuan. This village is another of the Sgaw/Pwo settlements between the Salween River and the Mae Yuam. The villagers do not recall the origins of the village but there has been Karen settlement here for several decades. Because of the steeply sloping terrain, shifting cultivation is widespread. Besides rice farming, many villagers raise livestock. Some villagers own elephants.

This village is now a short walk from the road since the portion of the recently-constructed dirt road reaching the village has been washed out. Because of the climactic changes occurring in this area, during the hot season, the village is almost arid. Overuse of the land has resulted in a decline in soil fertility.

Because of its long isolation until a dirt road reached the village in 1984, only a few government services and other influences from the outside have reached the village. Of the total 90 residents, forty have Thai citizenship and of the 18 households, fifteen are Christians, the rest being animist but with an admixture of Buddhist practices. The Christians have apparently received some assistance and have perhaps developed a pro-development mentality because their section of the village appears better than the other areas. They are also building a nice church facility. The government established a primary school in the village, the building of which has fallen into disrepair.

B. Villagers' Appraisal of Project Activities

Until the Project came to the village, water had to be obtained from quite a distance away. Since the water source for this village was at a low level in terms of the village, the Project provided matching funds for the construction of a water system that, instead of delivering water into individual houses, two community taps were provided a few hundred meters from the village. A demonstration site and nursery were established here by the extension worker. The Project also made seedlings, and seed and fertilizer loans available to members of the village.

The Christian families paid the greatest portion of the cost-shared expenses. However, those not able to pay, were eager to contribute labor for building the system. An inspection of the filter showed conditions found elsewhere. The net covering the filter was no longer in place, and there were no rocks or sand remaining to filter the water. A tadpole was seen swimming in the pool. The holding tank, however, was in good condition, and the villagers had constructed a roof over it. The spigots were leaking while the PVC pipes were loose and tied together

with plastic cord and string to keep them from separating at the elbow joint. Nonetheless, the villagers were satisfied with their system and the convenience it has brought them.

Through the loans and demonstration site the Project had provided new plants, vegetables and new planting methods to the villagers, for which they were very pleased. Lack of fencing, however, resulted in cattle and other animals ruining their produce and investment. Fertilizer, water and an extension work who had enough time to monitor conditions at the site would have created a better impression among the villagers as well as a more efficient system. Since setting up a demonstration site is a long term investment of time and resources, initial results may be unimpressive and commitment over the long term is needed. Perhaps because of its state of disrepair, some villagers did not even bother looking at the site, even though it was only twenty meters away from their water source. However, villagers from other settlements, in particular Kaw Moo Khee, did observe it and sought Project assistance.

16) Kaw Moo Khee, Sop Moei Tambon, Sop Moei Branch District,
Mae Hong Son Province

A. Background\Environment

Yet another of the Sgaw/Pwo villages in the east of the Project area, Kaw Moo Khee was established some decades ago with ten households settling here. Since then it has grown gradually in size to comprise 33 households with 165 residents. Shifting cultivation has been carried out here for a long period of time while different kinds of livestock, such as cattle, are also raised. Recent increases in the village's population have resulted in the residents having to tighten their swiddening cycle, a change that has caused the loss of some forest in the last few years. The weather is very dry and water supply has become a problem in recent years.

The residents here consider themselves animist. However, in recent years, the Dhammajarik Buddhist missionary program has set up a Buddhist temple at which two monks are now resident. Although a new experience, the villagers were helping provide the monks with food to eat.

The government has begun to provide services to the village during the eight years since the completion of the dirt road reaching Kaw Moo Khee even though it is only passable during the half year during which rain does not fall. The official name of the village is Kong Mun and virtually all the villagers have received Thai citizenship. A government project built a water system here. Apparently, a government agency also provided the villagers with five latrines. The government has also established a primary school in the village.

B. Villagers' Appraisal of Project Activities

Activities in Kaw Moo Khee village mostly grew out of the interest evoked in a few farmers by the demonstration site they observed at nearby Kay Tu Khee. Other farmers received coffee seedlings from the Project.

Insects caused problems with the pigeon pea crop because a weevil attacked the pods. Cattle also destroyed some plots because of poor fencing. Those planting coffee seedlings were satisfied because they had experienced good success in growing them.

Even though those participating in the Project encountered some obstacles and setbacks, most of the villagers interviewed who had not participated in the project, now expressed the desired to do so. For reasons not readily apparent, the villagers of Kaw Moo Khee recognized the need for permanent farming methods and responded more positively to the demonstration plot in Kay Tu Khee more than the villagers in that settlement. One possibility is that because of the presence of the Buddhist temple in the village, the villagers had become better

disposed towards making changes in their lifestyles. The villagers in Kaw Mu Khee also expressed interest in receiving seeds and fertilizer loans as well as being able to obtain fruit and coffee seedlings.

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17) Wae Pae Ta, Mae Suat Tambon, Sop Moei Branch District
Mae Hong Son Province

A. Background\Environment

Wae Pae Ta is located in the valley of the Ngao Stream, south of Sop Ngao where the Ngao enters the Mae Yuam. This is a newly-established village set up by four families from a nearby village, about one kilometer to the east of the stream. Another farmer, from Oh Loh Tah village, joined with them and has participated in cost-sharing an irrigation ditch to bring water to land previously not cultivable on an annual basis. Initially, though, the villagers relied mainly on shifting cultivation.

Even though the village is located on the road running south from Sop Ngao, the village has not received much government assistance because of its extremely small size and because it is not itself a recognized village. It constitutes part of Mae Phae Luang Village. There is no village school or other government service in the village. The villagers are all animists.

Since the area of the village is relatively flat, the residents here have been able to construct paddy fields. When they have time, usually during the dry season, the villagers are expanding the area under paddy as best they can. Until the entry of the Project into the village, the paddy fields were almost entirely rainfed.

B. Villagers' Appraisal of Project Activities

Until the Project reached the village, the residents had be unable to hire labor to help dig the ditch, over one kilometer in length, from the stream to their fields. However, with the possibility of cost-sharing the expenses with the Project, the villagers found it possible to hire help from nearby villages and finish the ditch successfully.

Inspection of the ditch showed it to be in good condition and the farmers reported no problems in using it. The villagers regard this Project as highly successful. They stated that although the assistance was small-scale, the results were quite satisfactory benefits that should last for a long time. These farmers now have an alternative to shifting cultivation and are finding success because of their investment.

18) Oh Loh Tah, Mae Suat Tambon, Sop Moei Branch District
Mae Hong Son Province

A. Background\Environment

According to the villagers Oh Loh Tah was established in about 1960 by ten families who moved here mostly from Baw Lu, in the hills to the southeast. Now the village is entirely Christian and includes a number of Sgaw families in addition to the Pwo. It is located on the site of a former Lua village. The official name of the village, Um Lo, indicates the older settlement, and the present Karen name seems to have been adapted from it. At present, Oh Loh Tah has 39 households of slightly over 10 persons each comprising over 240 people. Livestock husbandry is the second most important occupation, next to agriculture. Many types of animals are raised here, especially goats and water buffalo.

Oh Loh Tah village is situated next to the Mae Ngao river and at the end of a dirt road that is not passable during the rainy season. Nonetheless, since it is a sizable location, the government has made its presence felt here.

The government has worked extensively in this village providing a primary school, a health station and a water system. With this government presence also comes pressure not to burn the surrounding forest to plant rice. Half of the households have latrines, indicating that the officials of the health station have been active. Not all of the villagers, however, have Thai identity cards.

B. Villagers' Appraisal of Project Activities

Even with the many projects already accomplished by the government, the Pwo Karen Agricultural Development Project has made some valuable inputs. Soybean and fertilizer loans were the major undertaking in this village. Fruit tree seedlings were also sold to some of the villagers.

The majority of the villagers reported considerable success after planting the soybeans. Those who cultivated soybean said they produced enough to both pay back the Project loan and then to earn a profit. This then provided them with sufficient capital so that they could purchase their own seed for planting in the future. However, several farmers complained of empty seed pods.

The Project achieved less success with the fruit tree seedlings sold to the villagers. Those who grew the trees said that animals had eaten them.

19) Baw Lu, Mae Suat Tambon, Sop Moei Branch District
Mae Hong Son Province

A. Background\Environment

Villagers recall that this mountainside village traces its origin to one pioneer man and woman who came here by themselves. They persuaded others to come and stay there as well. Even though there is ample agricultural land and a large water supply in the area of the village, a group of residents broke away and went to start Oh Loh Tah village in about 1960. The population of Baw Lu at present comprises 12 households with a little over 50 total residents. The Karen residents call this place Gaw Ja Village. This is the only Project area village in which no large livestock are raised.

Since the village is located several hours walk from the road down the Mae Ngao Stream, government services have not reached the village to any significant degree. Since there is no school in the village, and because the parents say that they need their children to help them with farming chores, they do not want them to go to the school in a nearby village. Parents are also concerned over the risks the young children would face in walking several kilometers to and from the school every day as well. As a result of the village's remoteness, less than 10 percent of the villagers have received Thai citizenship. The village was not so remote, however, that officials of the Royal Forest Department could not find it to warn the residents about not engaging in shifting cultivation.

B. Villagers' Appraisal of Project Activities

The Project provided Baw Lu with a water system including a metal tank which the villagers carried in from Oh Loh Tah. Vegetable seeds were also made available under the Project's conditions, seed and fertilizer loans made, and fruit tree seedlings sold. Because of restrictions on the area that can be cultivated and the smallness of the village, Project activities in Baw Lu made a big impact.

An inspection of the water system found it to be in good shape. However, the configuration of the metal tank poses a problem in that it cannot be washed easily. The filter was in the best shape here of all villages visited. The villagers complained, however, that sand kept getting into the pipes. It seems that the rock size is not graded gradually enough so that sand flows progressively down to the lower levels. To solve this problem, the villagers used the blue netting as a screen between the rocks and sand. The filter was then covered by bamboo slats. The seal of the second filter was broken, probably by villagers who wanted to clean out the sand. The villagers are pleased with the system, with the only problems occurring when animals muddy the source above the filter.

Seed loans yielded successful results. Several of the farmers also said they had been able to sell their extra seeds. The fruit trees grown here faced problems similar to those encountered in other Project villages with animals eating the plants. Some villagers met with success in planting vegetables while others found them impossible to grow. Soil fertility problems may be the cause of this, since when one farmer changed locations for planting his vegetables, his vegetables grew satisfactorily.

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20) Mae Ha Khi, Mae Suat Tambon, Sop Moei Branch District
Mae Hong Son Province

A. Background\Environment

The villagers state that Mae Ha Khi village was founded over 100 years ago on the hilly land in this area. Although there is no one large water source, there are many streams and wells in the village to provide agriculture and household water. This has facilitated the village's continual growth until its present size of about 60 households with over 350 residents. Because of the terrain, the villagers have had to rely almost entirely on shifting agriculture. A group of Christians live in Mae Ha Khi although most of the residents are Buddhist with strong animistic overtones.

This village is now only accessible by mountain trails making it one of the most remote in the Project area. This has kept it relatively remote although a primary school has been established in Mae Ha Khi and a water system was constructed. There is little other evidence of Thai government presence and only about 5 percent of the villagers have received Thai citizenship and there is only one latrine in Mae Ha Khi. This isolation is about to end as a dirt road is being built to reach the village. Narcotics are a potential problem with 20 residents, including the headman being drug users.

The fact that Mae Ha Khi is the home village of one of the extension workers resulted in quite a few Project activities being carried out here. A previous Baptist project tapped another water source to supply water to the Christian part of the village.

B. Villagers' Appraisal of Project Activities

The extension worker for this village joined the Project a little over two years ago and considering his low level of education and only a short agriculture training course at the Mae Jo Institute of Agricultural Technology, he has done well. A major activity in Mae Ha Khi has been coffee trees raised from seeds in a nursery here. Villagers reported gratifying yields. A demonstration plot was set up a little distance from the village in which pigeon pea was grown as a divider in the plots where rice, other legumes and various other plants were cultivated. Soybean and fertilizer loans, fruit trees and vegetables were also provided by the Project in this village.

During the first year, the demonstration plot did not fare well, probably due to a change in extension workers at the time. There was some negative reaction from the villagers as a result. More important is the fact that pigeon peas last only about three years. How this is solved is important for the long-term viability of the alley cropping effort. This was compounded by the fact that the pigeon pea here produced seeds that were not viable for

planting. Progress since then has been made and perseverance should produce good results, even though the soil in the village is poor and water sources in some areas are problematic. Field mice were yet another problem for those planting soybeans, causing some farmers to suffer a total loss. Also many farmers lacked sufficient knowledge about the cultivation of soybeans and planted the crop at the wrong time. Others lacked fertilizer. For the coffee trees, many farmers found success by using animal waste for fertilizer. Animals foraging and eating the fruit trees, however, and insect pests in the fruit and coffee trees caused losses for many.

Some of the residents reported that the extension worker here was not sufficiently active in talking and meeting with the farmers. A number of the people mentioned that he was not available so they could not obtain the advice they needed to solve their problems.

With so much coffee being successfully planted, other villagers previously not interested have taken notice. Fruit trees and seeds were requested by many in the village. This reflects villager desire to cultivate a diversity of crops. This desire seems to have come from their observing those involved in the Project.

21) Ee We Jo, Tha Song Yang Tambon, Thai Song Yang District
Tak Province

A. Background\Environment

Ee We Jo, near the headwaters of Mae Ngao Stream, in Tak Province, was settled by Christian Karens by two or three Karen families in about 1990. Although the terrain is essentially mountainous, there are some places in which paddy fields have been constructed.

This was probably the greenest village visited. The village also was well-supplied with water. Thus, although there are two wells in the village, the majority of the villagers can obtain sufficient water from nearby mountain streams. Nonetheless, Ee We Jo is rather poor, with only a few families owning livestock.

Because the village is located at least 6 hours walk from the a dirt road, there has been almost no government contact here. Still 40 of the villagers have Thai citizenship. Although a government school is very near, since it is across the river and inside Mae Hong Son Province, government regulations prohibit the children from attending.

B. Villagers' Appraisal of Project Activities

The Project helped to build an irrigation ditch with four of the villagers. Seed and fertilizer loans were also made available to the residents.

The irrigation ditch has limited use at present. At two points the force of the water following heavy rains broke the banks of the ditch. The villagers have attempted repairs using bamboo but this has not resulted in a satisfactory amount of water reaching the villagers' fields. The villagers noted that no one from the Project had returned to advise or assist them after the ditch was completed, or particularly since the banks had been breached. One of the farmers receiving seed loans did well until the water buffaloes found his field and ate his plants.

Other villagers would like to get continued help from the Project. They are interested in expanding and repairing the irrigation system and in obtaining more seed loans.