CHAPTER VII

CONCLUSION AND RECOMMENDATION

This chapter presented the conclusion of study results as well as recommendations to further study. There were several main contents including general demographics characteristics, livelihood of Hmong people, roles in household of Hmong people, roles in field crops, role in wild plant utilization, and evaluation of these wild plants, which were used by Hmong people.

7.1. Conclusion

In Hmong communities in the study area, it was found that there were 52 households in Huay Hoi village in 2002. All of villagers in this village were Hmong people. Total villagers were 197 males and 195 females and on the average household size were about 7 persons. On the average of agricultural labor per household were 4 persons. Hmong people in the study area were 55 % literate. Most people had primary education. This study found that there were three land use systems in the study area including upland rice – cash crop based system, paddy rice – cash crop based system, and cash crop based system in which farmers grow two times of cash crops per year. The amount of household income depended on their occupation and farming system and farming was the major work of the people in this area. Sixty percent of villagers were farmers. Thus, mainly their income earned from farm activities as vegetables and fruit trees. The villagers earned on the average 12,446 and 31,520 baht per household from vegetable and fruit tree production. The main household expenditure was food expenditure, on the average food expenditures was about 11,759 baht per year. There were other household expenditure including the expenditure of agriculture, clothing, education fee of their children, social and health care fee, and fuel.

In terms of the roles in household food production and consumption, most upland households would get their food from their fields and nearby forests. Hmong people also planted crops and collected some plants and others forest products for household consumptions and uses. In household food production, women did the same activities in rice and vegetables production as men such as land preparation, planting, weeding, and fertilizing. But women did not spray chemical substances as pesticides and insecticides. In rice fields on the average farm size 2.5 rais, women spent 90, 16, 60, 12, and 32 hours per year for land preparation, planting, weeding, fertilizing, and harvesting respectively, while men spent 96 hours per year of land preparation. For vegetable production, Men spent 1,062 hours while women spent 918 hours per year. But women spent more time in weeding than men while men spent more time in land preparation, fertilizing, and pesticide spraying than women.

Women and men had roles in household food consumption but women were a main labor in food preparation. They would prepare food for household members and wake up early. Then, they cook for breakfast and prepare food for lunch meal. Main food was made with fresh vegetables from crop field and home garden and salts. Meat and fish was cooked in some meals. On the other hand, some time they would collect and gather wild vegetables from nearby forests. They would spend about 1-2 hours for wild food collection in each time, which it depended on the distance from their field or village.

At Huay Hoi village, due to the lack of cultivated areas and water for cultivation in dry season, people who did not have cultivated land near water sources would grow only one crop of paddy rice or upland rice in rainy season. Household members would do field work with their family and they must also did housework. In this survey, it was found that most women had more important roles in housework than men because they were the main labor in housework such as cooking, dish and clothes washing, house cleaning, take care their children, and clothing. On the other hand, they were the main labor in home gardening, cattle feeding, and wild plant

collecting for household uses. Hmong people planted food crops around their house such as taro, corn, cucumber, cowpea, and sweet potato. Some medicinal herbs were also planted in home garden. It was found that there were 17 species of food crop in home garden and women spent 1-2 hours on home garden in each time.

Most of households in this village obtained some food from their fields and home garden. In addition, they collect some food from nearby forests and sometime bought from village shop as instant food such as instant noodle, canned fish, and some meat and eggs.

Hmong people in Huay Hoi village collected and gathered wild plant for many purposes such as food, medicine, fuelwood, and fodder. This study found that, there was at least 110 species of wild plants known by Hmong. Popular household collection was the collection of bamboo shoots for household food. The collection of wild plants in this study found that there were 57, 42, 4, and 7 species of medicinal herbs, food, fodder, and fuelwood. Women and men in this village used these wild plants for their livelihood. Women collected more plants from the forest than men especially medicinal plants collection. Women knew 51 species of medicinal plants while men knew 36 species. The average quantities of wild plants gathered / collected by women more than men especially in food and medicinal plant collection. For fodder collection, villagers collected plants as animal food for their animal everyday. The main sources of fodder were in or around their field crop and nearby forests. Fodder were contained in their basket, average quantities of fodder that villager gathered was 10-20 kilograms per basket. From this survey, it was found that women and men gathered fodder in amount of 728 and 336 kilograms per year respectively. These wild plants were collected for household uses but there were some species of medicinal and wild food plants that were sold in this village. Most people who gathered wild plants were old. They would transfer knowledge on utilization of wild plants to their children or younger members in their household.

The economic value of gathered wild plants were estimated by using available market price and quantities of use in on year. The study estimated that the value of food plants, medicinal plants, and fuelwood were 3,652, 315, and 900 baht per year respectively.

Most villager spent time to collect wild plants for household uses after agricultural work. Villagers did not collect a large amount of wild plants and did not spent much time in each collection. In this study found that the villagers spent much time for food collection more than collection for other purposes. They spent 109, 79, 9.1, and 97.5 hours per year in food, fodder, medicinal plants, fuelwood contained in basket collection respectively. Women spent time for food and fodder collection more than men.

Wild plant utilization knowledge transfer in Huay Hoi village, local knowledge of wild plant utilization was transferred as property and as practical skills. There were handed down from generations to generations within family. The knowledge would be transferred to daughters, sons, and daughters – in – law. On the other hand, there was knowledge transfer by village to other village. However, the knowledge was transfer by person to person but not recorded.

7.2. Discussion

Wild plant utilization of Hmong people in Huay Hoi village, it was found that villagers relied on the forests as sources of food, medicine, materials for house construction, and fuel. The villagers would collect wild plants for food in the nearby forests. Almost wild plants that collected by villagers were used in household. Some wild medicinal herbs were sold in this village by local doctors or old persons who had knowledge about medicinal herbs utilization. The knowledge of wild plant utilization of villagers had no records. Change in agricultural systems was a factor that affected the decrease of wild plant utilization as medicine because the villagers had not enough time to collect medicinal plants.

In terms of indigenous knowledge in wild medicinal plant utilization, this study focused on the knowledge of men and women in the use of wild plants in their livelihood. This knowledge was part of local knowledge in this area and tribe. In this study, species of medicinal plants and other wild plants collected from the forests were recorded as to their scientific name, parts of use, method of using and storing for use in other seasons. This study should have focused on the difference in villagers economic status and classified by year of experiences and knowledge of medicinal plants. It should indicate the difference of wild plant utilization knowledge among women and men, the comparison of the different knowledge in medicinal plants and other gathered wild plants for other purposes. The different knowledge should be compared in species of gathered wild plants, method, patterns, sources of use, and experience of uses.

Medicinal plants in Huay Hoi village was used by villagers for treatment of common illnesses. From the transect walk with villagers and local doctors, it was found that there were many of wild medicinal plant species in the nearby forests. This was an important source of biodiversity. In terms of experiences of the utilization of wild plants, it was found that women and men had different knowledge and experiences in medicinal plant utilization. Women would have knowledge about medicinal plants and their utilization while men knew about animal and timber uses more than women. Since women would prepare food and take care all of members, women knew more species of medicinal plants and have knowledge about the utilization than men.

The result of this study was similar to the result of the study of Benchawan and Chaowalit (1999) in Mae Ka Nin Tai village, Chiang Mai province. In the results of their study, it was found that the villagers used forest products in both timber and non-timber products for household use as food, medicine, timber for house construction, making handicraft for sales. Some medicinal plants were collected from the forests to be used in traditional treatments. From direct observation, it was found that male and female villagers possessed different knowledge according to the difference in family roles. Women who were more than 35 years olds would have

knowledge in wild plant utilization more the younger generations especially wild vegetables for food and medicines. The study of FAO (1998) in India, it was found that women knew 300 species of medicinal plants and had knowledge about indigenous species and how to use these medicinal plants. Example in the study of Fao (1989), it was found that, the villagers used bark *of Geoffroea decoticas* and consumed the hull of the fruits as medicine in treatment of respiratory disease.

In terms of how to use collected / gathered medicinal plants this study, it was found that Hmong women used wild medicinal plants to treat common illnesses such as cough, fever, headache, and problem skin from many causes. In this study, it was found that women had knowledge about how to use these wild medicinal plants in many patterns of use. In this study, wild plant utilization patterns included boiling parts of wild plants and drinking only water, frying or boiling leaves or wild vegetables with eggs, boiling with chicken and drink only soup or consumed as food – medicine, and squeezing of wild medicinal plant leaves and put on problematic skin diseases.

In household food consumption, from this study, it was found that women were the main labor in housework such as cooking, animals / castles feeding, take care their children and family member, clothes washing, and prepared clothes for all family members. This results similar to the study done by Akhter and Sarker (1998) and the study of Navichai (1999). Akhter and Sarker (1998) found that women did other work, besides housework, such as home garden work, and agricultural work. Women also work in fuelwood collection and grass cutting. The study of Navichai (1999) found that Karen women in Thailand took their roles in housework such water collection, rice pounding, and pigs feeding. Men did water collection but not more than 15 times per month and they did not rice pounding and pigs feeding. Women also work in rice field, orchard, and vegetable plots. The study results were similar to the study done by Bajracharya (1993) which found that women in agroforestry systems of mid hills made important decisions and contributed their labor in household, farm, livestock, and forestry activities. It was found that on average

women worked in various activities for 12 hours 49 minutes in a day while men worked 8 hours 5 minutes. Women contributed substantially more time to domestic tasks than men. On average, 5.75 hours per day was spent on cooking, cleaning, and washing by women where as men were found rarely involved in these household activities. This study also supports the results of the study by FAO (1996) that rural women continued to have primary tasks for domestic activities. Women were responsible for household tasks, such as collection of food and cooking, collection of forest food, fuelwood, and animal feeding.

The study found that 110 species were used by Hmong people in Huay Hoi village. The villagers collected wild plants as food, medicine, fuelwood, and fodder. Women in this village collected and gathered wild plants species as medicine more than men. Women knew and gathered wild plants for medicine about 51 species while men knew 36 species. This result was similar to the study by Navichai (1999) in Northern Thailand where Karen women in the study areas collected more wild plants species than men. The result found that Karen women from Chan, Den, and Nong Jet Nuai village collected about 85, 119, and 122 species of wild plants respectively, while men from these three villages collected about 61, 65, and 62 species, respectively. And it was found that 132 were wild food plant species, which 117 species were collected by women and 47 species were collected by men. And the study done by Kunstadter (1978) among Karen people in Northwestern Thailand. It was found that women gathered wild plants from nearby forest for household consumption and they transplanted some wild plants species in their home gardens and fields. The result of my study also was similar to the study by Price (1997) that women were the primary selectors, gatherers and propagators of wild food resourced. Women gathered 77 wild plants for food that were used in household consumption.

In this study, the economic evaluation of wild plants could be estimated by using market price and quantities consumed per year of wild plants. This study found

that value of these wild food plants includes 810, 520, and 180 baht per year of *Dilphazium esculentum* Sw., *Bambusa arundinacea* Wild, and *Amorphophallus companulatus* Blume respectively. For fuelwood collection, the estimated value of use was about 900 baht per year per household. This result was similar to the result of the study by Trinh Thi Tien (2003), to study about the contribution of Non – timber forest products (NTFPs) to household economy, found that on the average per year, NTFPs contribute about 42 % (33,281.95 VND) to the total cash income from sales. Cash incomes estimate by using quantities of NTFPs for sale and their market prices. In Northern Thailand, the study of Navichai (1999) found that wild plants were gathered for household uses and some households interviewed sold and surplus. Incomes from selling wild plants depend on the quantities that they could collect. Karen people had income from selling wild food plants and flowers about 148 and 391 baht per year, respectively.

In Thailand, when the Thai government introduced modern educational system in rural communities, sometimes older people in communities are looked down upon as illiterate and their livelihood as backward. There seems to be a gap between older and younger generations that indigenous knowledge would be difficult to be transferred in the communities (Yos, 2003). At the same time, the new education system also affect new generation' beliefs that scientific knowledge is superior than local knowledge of their communities. Population pressure is also factors that endanger the territory and repertoire of indigenous knowledge, because villagers must expand farm areas. This has been a factor instrumental in the reduction of biodiversity and indigenous production systems.

In Huay Hoi village, it was found that villagers had knowledge about wild plant utilization under their traditional beliefs. They still used the knowledge in their livelihood but to a lesser extent than in the past. Rapid national development has affected indigenous knowledge among people. The national development in the past

several years emphasized on economic growth. It overlooked the importance of indigenous knowledge. In addition, the promotion of cash crop cultivation by the Royal Project Foundation also decrease wild plant utilization, because villagers spend much time for cash crop cultivation. The expansion of market economy has resulted in tremendous expansion of land for growing cash crops. The expansion of cultivation areas has been also a direct cause of the reduction of forest areas. Species of wild vegetable plants which depend on the forests as their habitat decreased in quantity. When villagers used less of wild plants for their livelihood, the knowledge of utilization would disappear.

At the present time, many government and non-government organizations try to conserve biodiversity of the forest resources. Sometimes these organizations bring some genetic resources from the forest and then propagated these wild plants outsides. While this is a way to conserve wild plants but these wild plants can become extinct if there is no limit to the quantities of wild plants that are brought out from the forests because some wild plants is specific to each area.

As spa and health care business are currently in fashion, his may result in the decrease in the quantities of medicinal herbs. There are many medicinal herbs in the forests that local people in each area use as cosmetics for women. That is indigenous knowledge of local people. In the positive side, when people use more quantities of medicinal herbs, it can give rise to more medicinal herb conservation because people will plant more of these medicinal plants. Local people are more concerned about the importance of their knowledge of medicinal herbs. They are concerned about medicinal herb conservation and do propagate some of these wild plants in their villages while transferring this knowledge to younger generations. On the contrary, the use of medicinal herbs can make outsiders taking advantage from local people. They may bring some herbs and buy them at very cheap prices from the local people, then thereafter grow the herbs themselves. This is a reason that sometimes the

knowledge of local people can become knowledge of other people in other areas, thus, it is not as specific in an area. If these medicinal herbs are grown in the forests and the demand of medicinal herbs for spa and health care business can increase, it can cause the reduction of wild medicinal herbs quantities in the forests and forests areas. When villagers earn money from medicinal plants, they can be interested only in wild medicinal plants for market and overlook other wild medicinal plants. This can affect other wild medicinal plants which can become extinct and the knowledge about these wild medicinal plants can also become extinct from their communities.

In addition, there was some trading of wild plants and other genetic resources from forests i.e. wildlife, wild plants, and other forest products in international trade. This affects the increase of forest product collection for sale and affects a decrease in indigenous knowledge of local people and local genetic resource in the country.

There are examples of outsiders learning about medicinal herb utilization that is indigenous knowledge of local people in each community from traditional doctors and then they go back to their house or country and also bring back some wild plants for propagation. They then produce some medicine or herbs for treating some diseases from these medicinal herbs and sell the herbs or medicine using their own brand. The traditional doctor and the local people will not benefit from outsiders when they sell these medicine or herbs.

Knowledge transfer in this village is the secret of group or communities especially knowledge of local medicine and medicinal plants. Traditional doctors are persons who have knowledge of local medicine and use this knowledge to cure people in their village and from outside village. They transfer this knowledge only to persons who have appropriate qualities. The selection of persons to inherit the knowledge would help them protect their knowledge from outsiders who want to get benefits from their knowledge. In some cases, they spend excessive amount of time for selecting a heir, sometimes, they can not select persons to continue as the new

doctor. When they die, the knowledge of local medicine also becomes extinct before they can transfer the knowledge to the new person.

In this study, it was found that sometimes there was some difference between local and scientific knowledge of the same medicinal plant knowledge. For example, in identifying a medicinal plant species, local people stated that they used this medicinal plant to cook in meals to treat illness of persons in their household. On the other hand, scientists identified that this medicinal plant could not be eaten. This was an issue that should be studied further in the future.

7.3. Recommendations

The following recommendations are made for further research

1. During the course of this study, it is necessary to have more people interviewed who had knowledge about wild plant utilization and separate people interviewed by age.

2. Group interviewing should be done without men because women would not want to tell about her ideas if men had his ideas known in the same topics.

3. For wild plant utilization, Type or species of wild plants, pattern of use, quantities of use, and source of wild plants should be recorded.

4. Further study should focus more on the nutrition of wild plants that villagers consumed as food and chemical compound in medicinal plants.

5.Further study should be made on the other Hmong people in other areas for comparison in each site. Indigenous knowledge of Hmong tribes in forest utilization should be more a studied because they were people who lived in the hill areas and they were direct users on forest products.

Decrease of forest areas affected species of wild plants because the destruction of the forest was the main reason for decrease in habitat of wild plants and other forest products. Therefore forest conservation must be stepped up.

The following policy recommendation was made for the forest conservation.

1. There should be programs concerning about the utilization of indigenous species, replanting of these species, and to study rare species of wild species domestication. This was one way to conserve wild or indigenous species and help the forest regeneration.

2. The development planning in the areas should not overlook gender roles because women had important roles in household activities and forests utilization especially in wild plants utilization.