

CHAPTER VIII

CONCLUSIONS AND DISCUSSION

8.1 Conclusions

Karen people in the study area have good literacy, especially the younger generation. Ninety percent of the adults interviewed had cash income. The amount of income depended on their jobs. Farming is the major work of the people in this area, but income from this activity was lower than off farming. Farming is self-sufficient production and the cash crops have fluctuating prices. They earn some money from selling forest products, but not much. They also collect forest products for household consumption and sell the surplus. Nuts and mushrooms are bought by outside merchants while flowers can be sold to the Royal Project in Den village, which stopped buying in early 1999. They can not earn much from selling other wild plants because other local people collect these plants themselves.

Food expenditure per household is related to economic status. The rich families spend more in meats, especially pork. Low economic people depended more heavily on forest foods than the high economic ones.

This study found that at least 203 wild plant species are known and used by Karen. The forest plant species used in their daily lives are much fewer than all the species found in the forest. Forest plants used in Chan, Den, and Nong Jet Nuai villages, were 111, 136, and 138 species, respectively. Women from these three villages collected

more forest plants than men. Women collected 190 species, while men from Chan, Den, and Nong Jet Nuai villages collected 115 species. Forest plant species collected by Karen can be put into 11 groups. The main groups include food, fodder, dyes, medicine, and fuelwood. All groups were utilized more by women than men. Wild plants were gathered for household use and some were sold. Almost all women interviewed sold nuts, flowers, and mushrooms. Income from selling wild plant was not more than 1,500 *baht* per year per person.

Most women gathered wild plants while men who came from rich families did not do this. Women also gathered more wild food plant species than men. They gathered 117 species while men gathered 47 species. The average quantities of wild food plants gathered by women per year per person were also more than men collected. The quantities of wild food plants collected depended on the palatability of the plant and ease to find it.

Beside wild food plants, Karen people also gather fodder from the forest. At least 80 percent of women, mostly from all social and economic levels, gathered fodder. Not more than 40 percent of men from all economic level did this activity. Women gathered more species than men, about 7 species. The average quantities of fodder that women gathered were about 456 kilograms per year per person while men gathered about 115 kilograms per year per person. Women also gathered plants used as fodder such as pumpkin, papaya, and lettuce.

Dye collecting was done more by women than men. At least 50 percent of the interviewed women participated in this activity. In Chan village, rich women collected

more dyes than poor women. This contrasts with Den village, while collectors from Nong Jet Nuai village came from all economic level. Only 10 percent of poor men from Chan and Nong Jet Nuai did this activity. Women collected 10 species of wild plants used as dyes, while men collected 3 species of these plants. Women collected about 13 kilograms of plants per year per person while the average quantity of dye plants collected by men was not more than 1 kilogram per year per person.

Fuelwood gathering was also done mostly by women. All interviewed women from all economic level did fuelwood gathering. Men gatherers were not more than 80 percent and almost of them came from poor families. Fuelwood gathering takes an average of 1-2 hours to collect one basket (= 15 kilograms). Women collected fuelwood about 160 times per year per person, while men did it about 5 times per year per person. Seventeen species were collected by women to use as fuelwood, while men collected 15 species. The average quantities of fuelwood collected by women were about 2,368 kilograms per year per person, while men collected about 76 kilograms per year per person.

Medicinal plants are used to treat some minor ailments such as fever, colds, head ache, and stomach ache by simple methods such as boiling fresh plants and drinking the water. Almost all men and women who collected medicinal plants came from poor families. More men did medicinal plants collecting than women. Men know more about medicinal plants than women, particularly species found deep in the forest. The average quantities of medicinal plants collected by women were not more than 3 kilograms per

year per person, while 8 kilograms of medicinal plants were collected by men per year per person.

Karen go to collect wild plant at locations which have high species diversity, more quantities, and are not so far from their village. Almost all useful wild plants found are near streams, especially wild food plants. The distance to go to each location is about 375 to 3,500 meters. Women do not go far from their villages, while men usually go further than women when they collected medicinal plants.

Presently the diversity and quantities of wild plants are decreasing because of over collection and habitat destruction (fire, cattle, and deforestation). The species that have decreased were divided in 3 groups. The first group, 4 species, have very seriously decreased and are not available around the villages. The next group, 6 species, decreased seriously, but are still available in the forest near the villages. The last group, 11 species, has begun to decrease. Karen people, therefore, propagate these wild plants, and women more do than men. Most wild plants are propagated in their home gardens for household consumption. At least 16 wild plant species are found in their home gardens.

8.2 Discussion and recommendations

Discussion

From the results of this study, it was found that housework was a predominant role of Karen women. Water collecting, rice pounding, and pig feeding were done exclusively by women. Men do water collection, but not more than 15 times per month and they never do rice pounding or pig feeding. As in the study done by Akhter and Sarker (1998), they found that women did other work, besides housework, such as with

home gardens, livestock, poultry, and agricultural crops management. Women also took part in fuelwood collection and grass cutting and bundling. Clearly, women have many activities involving not only housework, but also other work to support their households. This study also found that women have important roles in wild plant utilization. Women collected more wild plant species and in greater quantities than men, especially wild food plants. The results of the study were similar to the study done by FAO, 1998b which found that women have a leading role in caring for and using forests. They gather food to feed their families, fuelwood for cooking, fodder for livestock, and compost for fields as well as collecting bark, roots, and herbs to use as medicines. This study also supports the results of the study by FAO (1996a) that rural women continued to have primary responsibilities for domestic activities. Women tend to rely more than men on NTFPs for household use. In mountainous areas, women were responsible for household tasks, such as collection of forest food, fuelwood, and medicine, and tending livestock.

This study found that 203 wild plant species were used by Karen people. Women from Chan, Den, and Nong Jet Nuai villages collected more wild plant species than men. They collected about 85, 119, and 122 species, respectively, while men from the three villages collected about 61, 65, and 62 species, respectively. It was also found that 132 were wild food plant species of which 117 species were collected by women and 47 species were collected by men. This result was similar to the study by the Ford Foundation (1998) in West Bengal where women collected more wild plant species than men *i.e.* women collected 71 wild plant species while men collected 23 species.

Karen women, from this study, not only collected wild plants used for household consumption, but they propagated these plants in their home gardens and fields. They did more cultivation than men. This result was similar to the study by Price (1997) that women were the primary selectors, gatherers, and propagators of wild food resources. They gathered 77 wild food plants, which are used for domestic consumption. They also cultivated these plants on their agricultural land or swamps to ensure their continued supply. The result of my study also was similar to the study by Kunstadter (1978) among Karen hill farmer in northwestern Thailand, where women gathered wild plants from nearby forests for consumption. Some wild plants were transplanted from the forest to their home gardens and fields.

The knowledge of forest use by women is valuable for planning. Forest tree propagation and conservation programs can be better designed when indigenous knowledge is applied. Forest conservation programs will have to become more sustainable as the importance of wild plants are considered. The omission of wild plant values means that forest resources are undervalued because the value of wild plant is greater than timber in the long run.

This study covers only species and quantities of wild plants used by Karen people, especially women. Further study should focus more on the economic values of wild plants, wild plant nutrition, and chemical compound in medicinal plants that will be useful for forest conservation programs.

Recommendations

The following recommendations are made for further research.

1. During the course of this study, it is necessary to have interpreters. The researchers should select interpreters who do not have any bias ideas.
2. Group interviewing should be done with different groups on the same topic to prevent gender bias.
3. Interviewing women should be done without men, especially their husband, because women respect them and usually follow their ideas.
4. The estimation of wild plant quantities by local people is usually over estimated. Rechecking by taking samples from gatherers and weighing can solve this problem.

Presently the diversity and quantities of wild plants are decreasing because of over collection and habitat destruction. Forest destruction is the main reason for habitat destruction of wild plant. The following policy recommendations are made for forest conservation.

1. Government and non-government organizations should encourage the local people to conserve forests by conservation promoting education. Leading groups in the community should have responsibility to take care of forest resources.
2. Any development planing in the area should not overlook gender role. Women has intimate knowledge about forests and their resources. They should also have decision making roles in forest management and not only passive participation.

3. Community forestry is another way to use and conserve forest resources managed by local people. With the community's sense of belonging, people will use forest resources more efficiently and prevent outsiders from cutting down their forests.

4. There should be programs concerning replanting of using indigenous species. These species will help the original forests to regenerate and become more useful for local people.

5. Fast growing trees should be promoted for fuelwood uses instead of using trees from the natural forest.

6. The Department of Agricultural Extension should promote alternative cash cropping or fruit tree planting, which can give benefits (food supply and income) to the local people in the short run. They also should introduce integrated pest control methods instead of random use of toxic chemicals.

7. The Royal Project should consider supporting conservation of forest habitats, cultivation methods for useful native plants. The present emphasis on introduced exotics should be reconsidered.

8. There should be further studies on nutritive value of wild food species.

9. There should be programs to study rare and valuable wild species domestication.

10. Sustainable non-timber forest conservation and use should be promoted and subject to more research.