

#### IV. CONCLUSION

The forest-tea production system is a permanent highland agricultural system. Miang production is the major activity existing in the forest-tea production systems in the highlands of northern Thailand. In Ban Kui Tuai, it provides the livelihood of all the landless, small, and large tea farmers which make up 63 percent of the village's income. The miang gardens are mostly "owned" by large tea farmers and some by small tea farmers. The villagers' movement is more or less centered around these miang gardens in terms of their economic activities. Keen (1983) described the cropping system of the Karen and the local Thai people as a "system of permanent residence and cyclical occurrence of agricultural land, not a system of migration." Although the villagers grow upland rice for consumption, which demands rotation of fields or swidden cultivation, they will also cut a terrace to cultivate wetland rice as well. Since Kui Tuai is heavily dominated by miang gardens with only some few terraced fields where land is available, the supply of tea leaves for miang production is constant.

From the social perspective, it was found out that 50 percent households do not own any land and have to rely heavily for their living on miang picking. Their existence depends on the large miang garden owners and the livelihood of the large miang

garden owners also depends on their labor. Their relationship is thus maintained and never appears to change. Even a small miang garden owner finds it difficult to expand his holding because no one is willing to sell their miang orchards to him. In addition, since only few rich ones own both miang orchards and terrace fields, new comers to the village do not own any piece of land but rely for their living on wages. Hence, the land owning class in Kui Tuai is well off although they are facing the problem of scarcity of family labor (Pitackwong 1988). This can be explained by the fact that the large tea farmers own from 45 rai up to a hundred rai.

As long as miang production is the major activity of the forest-tea production systems, firewood will remain the most important rural fuel and deforestation is likely to occur in Ban Kui Tuai. Many villagers, even those in wood plentiful areas (i.e. miang gardens and houselots), are increasingly worried that firewood is becoming scarce and that its collection would be more risky in the future. Based from informal interviews, the villagers have been cutting in the forests for quite sometime in the past besides from their miang gardens.

The study also found out that the firewood use for miang processing consume large volumes of firewood. However, their annual use is more or less stable compared with the use of firewood for cooking.

The farmers' perception and knowledge on tree cutting and

fast-growing species to cope up with deforestation was clearly demonstrated. Their knowledge was obtained from existing development projects particularly from the Royal Forest Department and the Research Management and Development Project of Chiang Mai University. The presence of these development projects indicates a high degree of public awareness on the effects of forest destruction in the area. However, a great majority of the tea farmers feel more concerned in meeting their immediate needs than conserving the forest.

Furthermore, the study dealt with estimating the land areas needed for planting the two fast-growing species identified particularly the *Eucalyptus camaldulensis* and *Melia azedarach* in order to cope up with the increasing firewood demands of the villagers. Thus, five- and 15-year projections were made to determine the land areas needed as well as the number of trees to be planted.

It was found out that sustainability of the forest-tea production system in Ban Kui Tuai is threatened by problems which are complex and interrelated. Based on the analysis and findings, sustainability of the forest-tea production system relies on three major elements. One of the elements is the income derived from miang which is not enough because of the continuous growing population where the number of households in the village is increasing while the income per head is decreasing. This low income is also caused by the stable market price of miang and supply of tea leaves.