

## **An analysis of collective action in forest plantation establishment by Forest User Groups**

A case study in the Central Dry Zone, Myanmar

The annual deforestation rate has been increasing in Myanmar since the 1970s. In 2005, it was about 1.4% (FRA, 2005). However, the deforestation rate in the dry zone is higher than the national level. The Forest Department (FD) is trying to reduce the deforestation rate through the participation of local people. Therefore, Community Forestry Instruction (CFI) was issued by the FD in 1995 with the aim of promoting a community initiative in reforestation and conservation at the local level. The FD and NGOs have been trying to assist the targeted communities to establish the forest plantations in the dry zone of Myanmar. Following the CFI, the local people formed Forest User Groups (FUGs) and established forest plantations in marginal lands. The members of FUGs contribute labor and materials to forest plantation establishment and share the products from communal forest. 30 years after forests were transferred to FUGs, some remain incapable of properly managing the forest plantations on a long term basis. The problems occur not only due to the internal issues of the FUGs but also as a result of the local government's strict control over the users' rights of the FUGs. Among them, the major problems are inequity of benefit sharing and lack of voice in decision making by the poor people among the members. Therefore, the overall objectives of this study are to investigate the economic and political equity of forest users by wealth strata within FUGs and to determine how equity affects the outcome of forest plantations.

In total, 120 households are selected from three villages in the Magway Township. The Participatory Wealth Ranking technique is applied to divide the wealth strata in the villages. Poor, medium and rich households represent 42, 39 and 39 of the total respondents. The conceptual framework is based on the framework for institutional analysis of Thomson (1992). Rapid Rural Appraisal, questionnaire survey, and tree inventory methods are employed for data collection. The formula from Adam's (1976) is applied for economic equity and three criteria are adapted from Webler and Tuler (2000) for political equity. The Kruskal Wallis method is applied to test the significant level in economic and political equity. Financial analysis and comparison methods are used for evaluating the performance in financial efficiency and sustainability of forest plantations.

The local communities are able to manage their communal resources in a sustainable way (Ostrom 1990, Thomson 1997). The empirical evidence of this study shows the how members interact in the FUG and factor affecting toward the sustainable management of communal forests in the dry zone of Myanmar. The test result shows that poor people contributed significantly more labor and materials to the forest plantation and they received significantly more benefits from the forest plantation than medium and rich people. The results of the comparison of wealth groups shows that the poor and medium groups are getting greater benefits while the rich group receives slightly lower benefits with respect to their inputs. According to the results, the more the members contribute, the more they profit from the forest plantation. In the decision making process, the results are not significantly different between the wealth groups and it can be concluded that the members have equal opportunities within the FUGs. Therefore, the system is "fair" in economic and political equity between the wealth groups. An internal rate of return value is higher than the bank interest rate in eight year old community based forest plantations. The harvesting amount is lower than the growth rate of tree volume per hectare for fuel wood and poles. Inputs (voluntary labor and materials), management and withdrawal rights significantly contribute to the forest plantation outcomes and among them, inputs are the best predictor for the forest plantation outcomes.

**Key words:** Community Forestry Instruction, Forest User Group, property rights, decision making, equity, sustainability.