Strategies and standards for production and distribution of tree germplasm in Mt. Elgon region, Uganda

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INTRODUCTION: Shifts in global strategies for management and conservation of forests and allied tree resources have increased consideration for the needs and opinions of local tree farmers. Considering the extent of forest and tree restoration need in highland areas of Uganda (Barungi *et al*. 2013) a study was conducted in five districts within Mt. Elgon region. In this region, faming livelihoods are susceptible to natural calamities including floods, landslides, drought and famine. The aim of the study was to assess the robustness of structures and mechanisms for effective production and distribution of tree germplasm. The objectives were to; i) assess the socio-economic characteristics of actors in the tree germplasm industry, ii) profile stakeholders typologies and interests in new tree based enterprises and iii) assess the standards for producing fruit tree germplasm in the region. Standards for tree germplasm production are generally lacking and the farmers are desperate to adopt technologies that will rescue them from the impacts of climate change.

STUDY AREA AND METHODS: The study was conducted in five districts including Mbale, Manafwa, Bududa, Bulambuili and Sironko within the Mt. Elgon range (Figure 1). Mt. Elgon (4322m), an extinct Pliocene shield volcano at the border of Uganda and Kenya has rich soils, conducive for agroforestry. Agroforestry is practiced on fragmented land ranging from 0.06 to 0.8 Ha on average. Data were collected using 24 Key Informant interviews and 126 household interviews. A Chi-square test was used to determine the degree of association between the socio-economic factors of actors, standards and choice of tree based enterprises.

RESULTS: The tree germplasm sector in the region was dominated (84%) by male actors between 15 and 40 years of age. About 60% of the actors were illiterate farmers operating on small land holdings.

The private tree farmers comprised the biggest (56%) number of actors in the region. The other actors were categorized as CBOs (including beekeepers, fish farmers, cattle keepers, coffee farmers, fruit farmers), Civil Society Organizations, Belief Based Organizations (including the local cultural institutions), Local Government and Government Parastatals .

Up to 58% of the actors were involved in tree nursery activities such as seed collection, grafting and marketing. About one quarter were engaged in tree plantation establishment and 12% were engaged in development of the tree products value chain. Stakeholders were interested in fruit growing, beekeeping, Eco-tourism, carpentry and carbon trade as "new" tree based enterprises (Figure 2).

Generally, sourcing seed was steered by convenience and demand for tree seedlings. Nearly 40% of the nurseries determined seed maturity by observing color, 38% combined seed from various sources, and up to 22% collected seed from wild sources. About 42%, 38% and 16% of tree germplasm in nurseries was dirty, contaminated and diseased/infested with pests respectively (Figure 3).

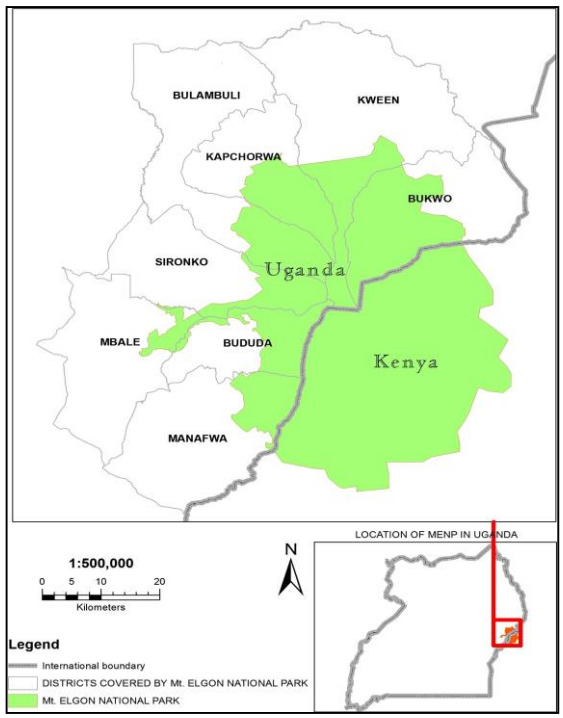

Figure 1: Location of the study districts in Eastern Uganda. Adopted from Nakakaawa et al. 2015

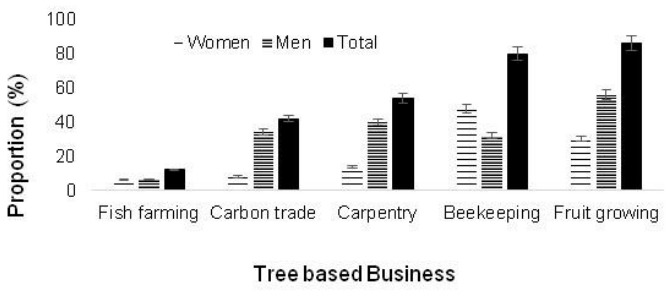

Figure 2: Tree based enterprises in the Mt. Elgon region, Uganda

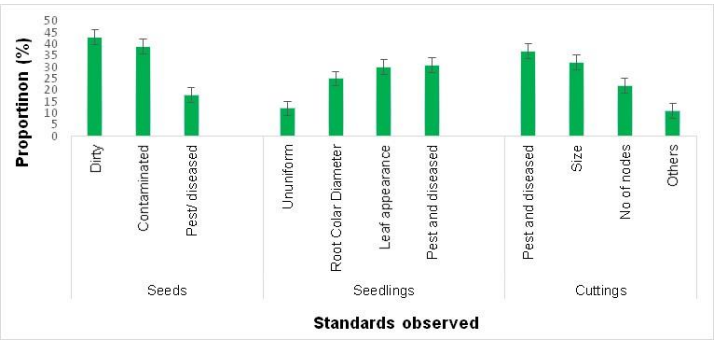

Figure 3:Standards for tree germplasm in nurseries around Mt. Elgon region, Uganda

CONCLUSION AND RECOMMENDATIONS

Tree germplasm production and distribution in Mt. Elgon region is dominated the by the illiterate with need for specialized training in tree seed handling, pests and disease management. We recommend formulation of a tree germplasm management policy to regulate the actors in the industry. Registering and certifying all actors will assist in establishment of a high quality, well-coordinated and harmonized tree germplasm system

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