Socio-Economic Role of *Acacia senegal* to Sustainable Development of Rural Areas in the Gum Belt of Sudan

Mohamed El Nour Taha[1], Jürgen Pretzsch[2]

[1] *University of Kordofan, Forestry and Range Sciences, Sudan*
[2] *Technische Universität Dresden, Inst. of International Forestry and Forest Products: Tropical Forestry, Germany*

Abstract

Gum arabic from *Acacia senegal* (Hashab) trees is major product of rainfed agricultural sector in Sudan. It contributes significantly to household income of gum farmers and foreign exchange earnings of country. Hashab trees provide fodder, fuelwood and diverse valuable social-environmental benefits.

Since inception of 1970's drought years and recently traditional gold mining and civil war, gum production decreased and bush-fallow crop rotation system that traditionally involves Hashab tree is affected. Under such conditions, gum farmers have to decide on allocating limited resources available in trial to achieve their objectives and cope with problems.

The study was planned to identify socio-economic conditions of gum farmers that influence their decision on retention of Hashab stands and develop mechanism for evaluating farmers' decision on Hashab stands. The study covered carefully selected parts in Kordofan and Blue Nile. Target groups were found homogenous and perform same economic activities that combine crop, livestock and gum production. Primary and secondary data were generated through field survey that involved distribution of pre-structured questionnaires to randomly chosen gum farmers and some key-informants besides visiting nearby markets. Suitable statistical packages were used for data analysis.

The Study identified socio-economic aspects of gum farmers that influence decision on gum producing stands in terms of willingness to retain gum trees as component of farm system as well as preserved and annually tapping areas. Economic performance of household farmers was analysed with emphasis to total family income and expenditure.

Logistic regression model expressing probability of farmer's decision on Hashab stands as component of farm system was derived based on independent explanatory factors. Covariance and regression mathematical models that estimate Hashab area and gum production as function of significantly verified influential variables were built.

Per-hectare total real financial benefits to farmers were found positive in many diverse systems. Gum trees add to improve land quality and save considerable high costs of supplying fertilisers. Estimated total household family income is no longer enough to cover household consumption for the majority of smallholder farmers. Therefore the study recommends gum credit systems that lead to the improvement in total household family income and insure retaining old traditional practice of land use.

Keywords: *Acacia senegal* (Hashab trees), covariance and regression mathematical models, gum arabic, household income and expenditure, logistic regression model, rainfed agriculture, social-environmental benefits, traditional bush-fallow crop rotation

Contact Address: Mohamed El Nour Taha, University of Kordofan, Forestry and Range Sciences, Algamaa Street, 00249 Elobeid, Sudan, e-mail: nour54321@yahoo.com