

Economic Importnace Of Hashab Tree In North Upper Nile State, South Sudan

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Abstract: Hashab as a tree started to be known in Upper Nile State from the middle of the 20th century, its use in gum Arabic production is limited to a minority of the people in Upper Nile State. It is known to be used for wood products more than being a source of gum Arabic. Gum production is constrained by various factors, including limited awareness about gum production and marketing in addition to over-cutting and forest fires. Education level has also its impact on gum production.

The illiterate, who are mainly nomads are not concerned with gum production. With the increasing level of education, gum production tends to be protected; educated people are more settled than illiterate and are connected to jobs and trading, production and marketing activities that may include gum as a commodity. Hashab distribution tends to be more in northern Upper Nile State being associated with agriculture and Hashab tree regeneration following agriculture.

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Keywods: Hashab trees, Gum Arabic, South Sudan, Upper Nile, *Acacia senegal*, *Acacia seyal*

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I. Introduction

Forests are an important natural resource that covers approximately one-third of the earth's surface, equivalent to 4 billion hectares (FAO, 2005). They comprise a wide variety of ecosystems that range from open savannah woodlands to dense tropical rainforests and are some of the most biologically diverse systems on the planet (FAO, 2005).

The subsistence economy in South Sudan is based on agriculture and cattle rearing. Besides, it involves the use of forest resources as an economic activity. For instance, forests in the three regions of Equatorial, Bahr el Ghazal and Upper Nile are suitable for the economy as they produce firewood, charcoal making, poles and building materials at the regional level.

Hence, forests do have value to the people in the sense that they provide fuel wood, building materials, grass for animal pasture, fruits, fibers, wood suitable for spear, hoes, clubs, shields and other implements. For example, the Zande use forests for numerous natural vegetative products. They are excellent woodmen and knowledgeable about bushes that yield many products important to the Zande economy, such as fibers for construction, wood for carving articles, firewood, and charcoal, materials for baskets, sieves, trays, mats and hats, timber for all construction, grass, food, medicines and poisons and cosmetics. The forests act as a place for hunting activity (FAO, 2012).

Most of these tree species are threatened by decreasing in number and demolishing because of human exploitation (cutting and burning) besides agricultural expansion and cattle rearing. In spite of the importance of these trees and shrubs for providing multiple functions, they are in many situations removed for land use for agriculture.

Gum production from *Acacia senegal* and *Acacia seyal* is the most important communal forest activity as far as non-wood forest product is concerned. *Acacia senegal* has a significant economic role in the country. Gum Arabic plays an important part in rural life, providing a steady income for rural families, especially in dry years when crop fail.

II. Background to Research Problem

Gum Arabic system in the Upper Nile state may play a great role in the improvement of the economics of people who are living in northern Upper Nile. Gum Arabic from *Acacia senegal* (Elhashab) which is believed to cover large areas may be added to the resources of the people in addition to their dependence on forest products. It is worth mentioning that the Hashab trees are protecting the soil from erosion. The core problem in this area is that these trees are not being used properly due to produce the gum. No markets of gum exist in the

area; even the citizen of the area does not participate in forestry administration to protect the forest from exploitation. This factor constituted the main driving force to exist the researcher get moving towards carrying out this study.

Gum prices and marketing mechanisms may contribute to the development of a system to gum production in Upper Nile. The neglect of market promotion and pricing systems develop gum gardens and tree tapping and picking. It's worth mentioned that the study area is classified as a poor area. Upper Nile may be taken as one of the potential producers of gum Arabic. Gum Arabic production in the area has recently started and can be incorporated as part of the agricultural production system following the experience of Sudan (Seif Eldin, 2006).

III. Objectives

The Hashab trees are widely spread in the Northern Upper Nile. This research is concerned with, the investigation, surveying method, questionnaire in the area. The main objectives of the present study are:

- To survey the extent of Hashab trees in Upper Nile State using questionnaire.
- To investigate the attitudes and perceptions of the local people towards, Hashab trees and their alternatives.
- To suggest possible solutions and approaches for the management of Hashab trees in the State.

IV. Study Area And Methodology

4.1 Study Area

Upper Nile State lies north of the Equatorial region; it is found between latitude 60 N and 120 N. It shares borders with Ethiopia in the east on the longitude of 35o and 28.5o and eastwards, toward the borders with the White Nile State where at this borderline, the State used to face conflict and tribal problems between nomads and trans-boundary settlers over grazing areas, agriculture and lamenting. Upper Nile State covers an area of 236.180 square miles. Topographically it is flat with a considerable mud; soil (MAF, 2010).

Upper Nile State is characterized generally by six months, rains every year, from May to November. The annual amount of rainfall varies between 500mm/, minimum at Renk and 1200 mm/annum at Fanjak. The average temperature approximates 34.17o C maximum in summer, and the last is 18oC. The most important rivers are Sobat, with its branches Pibor and Bor to give a push to the White Nile on its' way to the North (MAF, 2012). *Acacia sengal* in northern Upper Nile is a valuable tree due to its wide range of benefits and uses.

4.2 Methodology

The methods of data collection questionnaire, personal interview, local forest population, experience. The pilot survey was conducted. It was done primarily to collect data regarding the population of households and to specify and select the study sites.

There was also some preliminary discussion with staff in the area which was found to be useful for the questionnaire design. The information obtained was from two sources: primary and secondary data. Finally, the primary data collected through the interviewing of local populations provided facilities for descriptive tabulation while the secondary data was obtained from annual reports, archives, journals, and books that were found useful for discussion.

An informal interview was conducted, based on a group discussion with the village people while touring the field. Interviews with leaders and extension workers were conducted separately for each group besides the direct observation of the author.

All families constituted reach population (1500) and while households considered as a research unit, where 10% was taken as a 150 sample.

V. Results And Discussion

5.1 Family Age - groups

Table (5.1) family age – groups

Age/year	Percentage
25 – 45	55.3
46 – 65	37.7
More than 66	7
Total	100

Source, field survey, 2014

From the questionnaire results (Table 5.1), it is indicated that 55.3% of the people fall in the age group 25 – 45 and 34.7% fall in the age – group 46 – 65 years and 7% in the age – a group more than 67 years. It is clear that the majority of the family members constitute in the age group less than 66 years 93% of all members. As a result, the younger groups were the majority which means the working groups constitute a good number. According to the customs and traditions of the tribes of this study area, marriage is usually an early age.

Large-sized families are usually owners of large cattle herds. Group discussion with gathered leaders of large-sized families indicated that the household has no problems with herds rearing. They integrate cattle rearing with agricultural activities. According to the group discussion with older people and key informants, the activities concerning cattle rearing is the function of the young and middle age boys while the activities of agriculture and forestry activities are the responsibility of girls and women.

Cattle rearing with the same agricultural activities in small areas are considered to be the main family activity. The system is the main feature in the study area in particular and in Upper Nile State in general. However, there are many other activities carried by family as woodcutting for firewood, charcoal making, and building poles. These activities are carried out by women and small children.

5.2 Educational level:

Table (5.2): The level of education

Education level	Respondents	Percentage
Literature	88	58.6
Primary	39	26
Secondary	23	15.4
Others (like Khalwa)	0	

Source: field survey, 2014

Table (5.2) shows that 58.6% of respondents are literate. The educated group is 41.4% of whom the primary school level makes 26.0% and the secondary level constitutes 15.4%. There is no any kind of education provided before the primary school level. When linking between education and age group, the majority of people older than 35.0 years of age are not educated. This means that future programs of extension and knowledge transfer will not be based on reading the message for the majority of people.

5.3 Source of Income:

Table (5.3): The income schedule for the people of the study area

Source of income	Percentage
Cattle rearing	41.2
Agriculture	39.3
Forest activities	11
Trading	7.5
Others	1

Source: field survey, 2014

The source of income is diversified and very much related to natural resource, cattle rearing, wood, and non-timber products and cottage industry products which together constitute the sources of income. However, most of the people in the area are associated with cattle rearing

depending on animals for their food, particularly products from the milk and meat.

Table (5.3) showed that 41.2% of the respondents mentioned that they depend on animal rearing as a source of income generation, while 39.3% assured their dependence on agricultural products as their source of income. Forest products constitute a source of income for 11% of the people in the study area. Some people (7.5%) are trading of goods and animal products and depend on them as a constant source of income. Only 1% of the people in the study area works as daily paid workers and seasonal workers and had a good income for their living. Cattle rearing and agricultural activities are the main income sources for 80.5% of the people of the study area, followed by forest activities and other marginal sources.

5.4 Hashab Trees as aSource of Energy

Table (5.4) Source of energy in the study area

Source of energy	Percentage
Source from trees	80
Agriculture energy	14
Another alternative	06

Source: field survey, 2014

Source: field data

Most of the people north of the Upper Nile State depend on the wood as a source of energy. Table (5.4) showed that 80% depend on wood energy while 14% depends on the agricultural residues as a source of energy. Another 6% use alternative energy. From these results, it is clear that wood alternatives are necessary to reduce the pressure on wood used for energy.

5.5 Uses of El Hashab in the Study Area

Problems confronting El Hashab	Percentage
Overcutting	85.4
Fires	14.6
Total	100

Source: field survey, 2014

Hashab, (*Acacia senegal*) like other tree species in the dry lands, provides various uses and benefits. It is known for the gum Arabic production and income generation through gum Arabic sales (Seifeldin 1986, Ballal *et al* 2005). It supports the livelihood of hundreds of families in Upper Nile as gum producing the tree and as an Agroforestry and desertification control species.

Table (5.6) showed that the majority of people in the study area mentioned that Hashab is used for its wood (firewood, building poles, and furniture) as mentioned by 85.9%. The use of firewood was mentioned by 50%, building poles by 20.6% and furniture (simple bed units) by 15.3%. The production of honey as, about Hashab was mentioned by 2.1% as a non – timber product.

The present study indicates that *Acacia senegal* is gradually moving in Upper Nile State following agricultural development from the north towards southern areas in the State. It is spreading in areas predominantly agroforestry in practice. The people of the area depend on agriculture and animal rearing. It is the expansion of large scale farming that facilitated the development of Hashab to mix with the *Acacia seyal* and *Balanite aegyptiaca*.

The extension material does not contain any advice on forest use or Hashab importance. Most of the extensive material may be concerned with matters other than forestry affairs, may be more concerned with the peaceful use of the resources than on conservation of the resources.

5.6 Problems Confronting the Existence of El Hashab Tree in the Study Area

Table 5.6 Percent of respondents concerning problems confronting Hashab tree

El Hashab uses	Percentage
Firewood	50
Building pole	20.6
Furniture	15.3
Sub Total	85.9
Gum Arabic	12
Honey production	2.1

Source: field survey, 2014

Many problems are confronting the development of Hashab and gum production in Upper Nile. In addition to the low perception of people towards gum production and trading, problems are facing the Hashab tree itself.

Table (5.6) indicates that the majority of people (85.4%) perceive that over -cutting of gum Arabic trees is a major problem confronting Hashab. Cutting of Hashab is dictated by reasons such as agriculture expansion, production of wood and grazing. Also, 14.6% see that fire is the second problem.

5.7 Extension Activities

Table (5.7) Extension activities in the study area

Extension activities	Percentage
Meetings on agriculture issues	44.7
General information	42
Farmer union	13.3

Source: field survey, 2014

It is clear that Hashab tree and gum production are not well known in the area because Hashab appeared in the area only recently (Table 5.7). People are more concerned with wood production from Hashab and from other types of tree species than being concerned with Hashab conservation for gum.

VI. Conclusion and Recommendations

Conclusion

The study area is densely populated; cattle rearing and agriculture are the main sources of income for the people of this area, besides trading and some forest activities.

- Agriculture development is taking place at the expense of forest extending from North to South of Upper Nile State.

- The Hashab trees have become a reality in the Northern part of Upper Nile State; they only need extension advice to know the economic importance of the gum Arabic. El Hashab trees are exploited in the area through random cutting by the charcoal and the firewood traders.
- Gum Arabic is in the Northern, Upper Nile region, Maban, Malut, Jalhak, Elrenk, Aweil area, in the Bhar El Ghazal region and Kapoeta in Equatoria. There is a need to explain its economic value, but it is important to research further for more information on this commodity.
- The forestry administration in the study area lacks a support to execute their schemes and programs because of a lack of transport and means for communication and coordination in the administration.
- Some of the local people are producing gum Arabic through their traditional tools such as axes, knives which sometimes spoil these trees, but this activity may attract the people to produce gum Arabic, thereafter in proper ways, it will minimize the cutting of the trees and by doing so we could guarantee the proper growth of El Hashab in this area.
- Natural regeneration of El Hashab is a dominant method of regeneration, no attention is given to the establishment of gum gardens or selection of mother trees high yield the gum, and few respondents manage to collect seeds from good mother trees.

Recommendations

- Encourage the marketing of the gum Arabic in the State for the encouragement of the local people to work as gum producers.
- Carry on the idea of establishing social forests this is meant for the participation of the people in the management of the wood forest.
- Establish cooperatives for the gum Arabic producers to encourage the people to produce the gum, to get rid of the obstacles facing the forestry administration in the State and that is through financial and psychological support.

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