



**Strengthening the Gum Arabic Sector for Sustainable and Resilient Landscapes and Livelihoods of Women and Youth in Africa's Drylands**

**By**

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**Date: October 15, 2020**

## **List of abbreviation and Acronyms**

CES	Central Equatoria State
EES	Eastern Equatoria State
GoSS	Government of Southern Sudan
JS	Jungulei State
MAF	Ministry of Agriculture and Forestry
MT	Metric tone
NBGS	Northern Bahr el Ghazal State
NGOs	Non-gouvernemental organisations
NTFP	Non Timber Forest Products
SDG	Sustainable Development Goals
SSGAFU	South Sudan Gum Arabic Federal Union
SNV	Netherland Development Organization
UNS	Upper Nile State
UN	United Nation
WS	Warrap State

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## **Executive Summary**

South Sudan has abundance of natural resources including forests, oil, gold, fertile soil, water, wildlife, etc. The rural Communities are classified as gum Arabic producers of South Sudan who trade predominantly on traditional collections from natural gum tree stands. The socioeconomic attributes of the communities comprise of poverty ridden societies characterized by low income earned from sale of mixed gums collected from naturally tapped gum products. This is in addition to minimal productivity and low production due to limited knowledge of environmental requirements and gum tree protection and shortage of gum production tools and equipment. Moreover most of producers have limited knowledge about the economic value of gum Arabic in their livelihood.

Based on the field work in the three potential areas of Kapoeta South, Renk and Wadokona, most of the local communities or producers lack training in the areas of gum Arabic farm establishment, protection measures, formation of associations and gum Arabic cooperatives, policy and regulations, storage, collections, tapping, etc.

This study will help all the stakeholders to have clear understanding on potential, quantity and quality of gum Arabic of South Sudan.

**Key words:** Gum Arabic, South Sudan, Local communities.

## 1.0 Introduction

### 1.1 Background to the study

Sub-Saharan Africa is home to approximately 926 million people with most of the area classified as dryland where about 50% of the population lives. The greatest challenge facing the drylands is desertification brought about by an interplay of factors including population growth (average population growth rate for Africa is 2.4%), rural poverty, market and policy failures, poor policies, unsustainable agriculture and over-exploitation of natural resources, among others. Climate change is aggravating the problem of desertification affecting livelihoods of the rural farming and pastoral communities in these areas. Women and youth make up a large number of poor people in the drylands that are highly dependent on natural resources for their livelihoods and are disproportionately vulnerable to and affected by climate change.

Forests are among the most important natural assets found in the drylands with plant resources that are well adapted to the harsh conditions that can contribute to adaptation and mitigation to climate change and hence sustainable development of the areas, if well managed. Among the forest resources are trees of *Acacia senegal* and *A. seyal*, which play an important role in the farming systems in many parts of dryland Africa, acting as natural barriers against expanding desertification and providing fodder for the animals in critical dry and drought periods. These forests and trees sequester huge amounts of carbon and therefore contribute to mitigation of climate change. The tree species are also adapted to the harsh climatic conditions prevailing in the areas and will definitely survive the vagaries of climate change, thereby providing opportunities for adaptation. Additionally, they provide important environmental services like water conservation, erosion control, habitats for plants and wildlife (Biodiversity) and soil fertility improvement.

Of greater significance however, these tree resources produce gum Arabic, one of the most useful commodities most sought after in the food and pharmaceutical industries internationally. Gum Arabic is one of the commodities, which is produced during dry seasons when most agricultural activities are not operational and therefore complementary in the farming cycle and is an alternative source of income that can be used to build resilience and adaptive capacity to climate change among vulnerable communities in drylands. Africa supplies about 98% of the world requirement of gum Arabic with a demand of about 150,000 MT though supplies have remained at about 80,000 MT. Sixteen countries from Sub-Saharan Africa are known to produce gum Arabic with the bulk coming from Sudan, Nigeria and Chad. The Gum Arabic sector is dominated by women, which underlines its value as an entry point in efforts to improve livelihoods of women though the monetary benefits are mainly captured by men (middle men and processors outside Africa).

However, the gum Arabic sector is experiencing various challenges that need to be addressed if the sector is to realize its real potential for growth and wealth of national economies and for the sustainable development of the forest landscapes in Africa in addition to building a green economy in support of SDGs and Africa Agenda 2063. Key among these include: inadequate technical capacity and business skills among actors for efficiency gains in gum Arabic value chains; lack of financial support; absence of or weak collaboration and networking with the private sector investors and/or microfinance institutions to provide startup funds; and weak organizational capacity of collector groups to foster cooperation and coordination in the collection of gums and resins as well as in trade. Additionally, there is urgent need for the development of value-adding technologies, identification and employment of right marketing strategies, building the required capacities, instituting and supporting legal procedures/frameworks, proper assessment of the resource base and market conditions. If all or most of these issues are addressed could uplift women and youth from poverty and generate business opportunities and wealth while contributing to conservation of the environment and mitigating effects of climate change.

South Sudan is endowed with a diversity of natural forest and woodland resources. Among them are Non Timber Forest Products (NTFP), where gum acacia is the most important if the tree species can be properly managed.

As from year 2009, the Government of the Republic of South Sudan has raised and recognized Rural Communities' gum production and marketing profile to national and international levels (Southern Sudan Gum Acacia Workshop, 2009). The political will exhibited by the Government of the Republic of South Sudan in support of and enjoyed by Communities-based Gum production and marketing had been shown in provision / funding offered to local gum farmers training opportunities. An exemplary training workshop was carried out by South Sudan National Government in collaboration with SNV in Kapoeta South in 2011 (MAF, 2012). The other support of the Government involved formation of an inter-ministerial committee of Gum commodity and Ministerial Order No. 22 dated 13<sup>th</sup> December, 2006 regarding lifting of restriction on gum export. In spite of this Gum production remained very low due to several factors such as endemic rural poverty (low income levels); lack of transportation facilities, poor roads network (inaccessibility to local markets) etc.

According to the report done by Abdalla Gaafar on Gum Arabic from Southern Sudan is produced by two main species, *A. senegal* and *A. seyal*. Gum Acacia, a seasonal gum from the widely-growing *Acacia senegal* (Hashab) and *Acacia seyal* (Talha) in particular has the potential to make significant contributions to alleviating poverty by increasing cash incomes for resource poor agro-pastoral communities living in remote areas in South Sudan.

## 1.2 Opportunities and challenges in the development of the sector

### 1.2.1 Challenges facing Gum Arabic Sector

The gum Arabic sector in South Sudan is experiencing various challenges that need to be addressed if the sector is to realize its real potential for growth and wealth of national economies and for the sustainable development of the forest landscapes in South Sudan to building a green economy in support of Sustainable Development Goals (SDGs) and Africa Agenda 2063. Key among these include:

- Lack of awareness and knowledge on the value of the gum Arabic resources by local communities living in the gum Arabic belt;
- Inadequate technical capacity and business skills among actors for efficiency gains in gum Arabic value chains;
- Weak local and government institutions to fully support the sustainable commercialization of the Gum Arabic;
- Inadequate research and development in the gum Arabic sector;
- Lack of legal framework to streamline production;
- Lack of financial support;
- Overlapping roles and responsibilities with the line ministries and private sectors;
- Lack of sustainable investment in Gum Arabic Production and Marketing;
- Weak collaboration and networking with the private sector investors and/or microfinance institutions to provide start-up funds;
- Weak organizational capacity of collector groups to foster cooperation and coordination in the collection of gums and resins as well as in trade;
- There is urgent need for the development of value-adding technologies, identification and employment of right marketing strategies, building the required capacities, instituting and supporting legal procedures/frameworks, proper assessment of the resource base and market conditions;
- Unreliable rain fall patterns and Environmental limitations;
- Long distances to gum collection sites and poor roads;
- Wild life encounter and uncontrolled forest fires;
- Gum traders determine gum price;
- Inadequate storage facilities to enable best storage conditions;
- Over-cutting of gum acacia trees for the production of charcoal, brick burning, and other domestic uses;



- Insecurity in the gum producing areas.

If all or most of these issues are addressed could uplift women and youth from poverty and generate business opportunities and wealth while contributing to conservation of the environment and mitigating effects of climate change.

### 1.2.2 Opportunities

- Substantial Acacia gum production base in seven states out of ten states of South Sudan.
- The three key Gum Acacia production of former states in South Sudan (UNS, NBEGS and EES) have about 4,596,342.5 ha with Gum Acacia resources, with an estimated annual gum production potential of 25,721.9 MT. This is about 32.2 % of the potential production in the whole of Sudan (80,000 MT). This should be exploited
- Existence of RSS Political will and strong commitment to support gum Arabic subsector– raised Gum profile as alternative source for RSS national revenue source : International Gum W/shop(2009) in collaboration with SNV, Natural Gums and Resins in Association - Africa (NGARA), UNDP and FAO; Training of Communities in UNS; NBG; & EES
- Communities in high potential productive areas of former Upper Nile, Eastern Equatoria State and Northern Bahr el Gazal possess ample knowledge in collection, storage and trade in gum.
- RSS MAF and RSS MC through support from development partners build the capacity of key actors in gum subsector through financial support by linkages to micro-financing institutions, technical guidance and organized training sessions.
- RSS reviews taxation and levying regimes on gum exports at all levels of government and provides guidelines for unofficial levies in order to provide incentives that would encourage the trade in Gum Acacia.
- Development of appropriate policy frameworks and other incentives for enhanced gum production and food security.
- Growing interest shown by the potential buyers locally and internationally
- Development of Acacia gum plantation in at least three of the gum producing states
- Infrastructure development in gum producing areas where there is greatest potential for impact
- Detailed resource assessment in collaboration with relevant development partners in the remaining four states (Warrap, Jonglei, Unity and Central Equatoria ) with gum production potential.
- Formation of cooperative unions for collective action and lobbying in order to penetrate and expand into existing and emerging markets for the product.

### 1.3 Intervention by FAO in the Studies

In September 2019, FAO in collaboration with NGARA recruited a local consultant from to carry out assessment on the Strengthening the Gum Arabic Sector for Sustainable and Resilient Landscapes and Livelihoods of Women and Youth in Africa's Drylands.

### 1.4 Description of the objectives

The overall objective of the study was to assess the existing capacity of the rural people in gum production, assess the potential of gum Arabic production in the country and identify restoration needs.

#### 1.4.1 The specific objectives are;

- i. To conduct literature review to generate information on the status of the resource base (gum Arabic producing areas) and identify land use changes, if any, linked with the evolution of gum tree areas in the last 20 years,
- ii. To review programmes/ projects/ activities of key actors involved in the management of the resource, production, processing and trade of gum Arabic and identify good practices and investment opportunities,
- iii. To collect, using official government records, the overall production of gum Arabic per species type, and the quantities stored as strategic or buffer stocks and the quantities consumed locally,
- iv. To identify and profile type of gum Arabic traded by each of the different actors' from producing areas based on different species in the country,
- v. To delimit and gather data to appraise the gum Arabic value: Identify and describe the roles of key players in gum Arabic value chain including volumes traded along the value chain and benefit sharing based on interviews, bibliographic research and technical expert meetings
- vi. To conduct ad SWOT analysis
- vii. To carry out a review of existing national policies and institutional frameworks relevant to gum Arabic in the country

## **2.0 Methodology**

### **2.1 An overview on the methodology**

The process of this study involved review of existing literature, holding a series of consultation meetings with government officials at both National and State level, Stakeholders, developmental agencies, private sector, local communities in each of the two selected States of Eastern Equatorial and Upper Nile States.

Closed end questionnaires were also used to gather household or producers, exporters and traders information about the gum Arabic production and export.

### **2.2 Methods and approaches for implementing each task**

#### **2.2.1 Review previous reports, studies and records done by the government, private sectors e.g; Green Horizon community base Gum Arabic collection in Renk including NGOs, UN Agencies and etc.**

Published and grey literature were reviewed. Gum Arabic potential areas are identified during field survey. Land use changes linked to gum tree areas in the last 20 years was also reviewed from various literature complemented by field appraisal.

The programmes/projects/activities done by government, NGOs, companies and Developmental Partners on gum Arabic were assessed, reviewed and reported.

#### **2.2.2 Official government records, the overall production of gum Arabic per species type, and the quantities stored as strategic or buffer stocks and the quantities consumed locally.**

Interviews with senior officials and desk reviews were carried out from records of government institutions such as Ministry of Trade, National Bureau of Statistics, Ministry of Environment and Forestry Directorate of Forestry and Customs to collect records, on the overall production of gum Arabic per species type, and the quantities stored as strategic or buffer stocks and the quantities consumed locally.

#### **2.2.3 Identify and profile type of gum Arabic traded by each of the different actors' from producing areas based on different species in the country.**

Visits were made to the traders and find out commercial gums they were buying and selling

#### **2.2.4 Identify and describe the roles of key players in gum Arabic value chain including volumes traded along the value chain and benefit sharing based on interviews, bibliographic research and technical expert meetings.**

Using the Ex-Act Tools developed by FAO Key Informant Interviews (KIIs) and Focused Group Discussions (FGD), were carried out to identify key players along the value chain as

well as those supporting the gum arabic sector. Also captured were the volumes of gum arabic traded and benefit sharing arrangements.

2.2.5 Conduct an economic and SWOT analysis

Strength, weakness, opportunities and threat for the existing capacity on gum Arabic sectors was analysed using SWOT analysis matrix.

2.2.6 Carry out a review of existing national policies and institutional frameworks relevant to gum Arabic in the country.

Desk review of various government documents and interviews and meetings with relevant ministries such as Ministry of Environment and Forestry, Ministry of Trade, and customs to review policies and institutional framework that's relevant to gum Arabic was undertaken.

### 3.0 Results and discussion

3.1 Status of the resource base, productivity, conservation/management status and potential areas of production.

#### 3.1.1 Status of the resource base

Republic of South Sudan gained its independence from Republic of Sudan on July 2011, as such there were limited studies carried out on the Gum Arabic sector as result South Sudan has few information on status of gum Arabic. However, SNV contracted NGARA before in 2009 to conduct a situational analysis of the sub-sector assisted by national staff from GOSS-MAF and SNV. The study focused on three states of Upper Nile State (UNS), North Barhl El Ghazal State (NBEGS) and Eastern Equatoria State (EES). The situational analysis was done in a participatory manner so as to get inputs from all actors in the value chain. There were some limitations for the study, key among them being: insecurity, short duration for the wide area covered, few sampling points and a small number of respondents. The estimated area under gum acacia resources in the three states of EES, UNS & NBGS where studied was 4,596,342.5 ha with an annual gum production potential of 25,721.9 MT (GOSS , 2010).

#### 3.1.2 Productivity

The area covered by gum producing species is About 46.6% of the total area of the Republic of South Sudan (SNV/MAF/GoSS workshop Report, 2009). The study estimates the potential annual production of Gum acacia from Southern Sudan at 6,541.2 –15,580.3 MT which translates to an annual export value of US \$ 12, 428,280 -25, 850,300. The potential annual production of Gum acacia from South Sudan is estimated at 6,541.2 –15,580.3 MT (GOSS, 2010).

#### 3.1.3 Challenges leading to low productivity in South Sudan

Since 2006, the production of gum in South Sudan has been decreasing due to low prices, lack of market information and both collectors and local traders have been controlled by Northern traders (Sudan) and are the ones who set the prices (SNV, 2009).

The other drawback is marketing arrangement designed by buyers which may be described *‘as leave or take price or leave it’* which leads to unfair pricing and farmers shift in interest causing drop or dwindling productivity.

According to the 2015 survey carried jointly by UN Environment and the Government of South Sudan, it was estimated that in the capital Juba, 88 % of the households, 74 % of businesses, and 40 % of institutions depend on Charcoal energy on one hand. On the other hand, 15 % of households, 8 % of businesses and 40 % of institutions use wood fuel for cooking. This demand translates into an estimated 5 million trees being logged annually to supply Juba with charcoal it currently consumes.

Also Report launched in June 2018, wood fuel and charcoal account for over 80% of all wood used in South Sudan, with an annual deforestation rate estimated at between 1.5% and 2 %.

It's against this background that the government came up with the order on the ban of charcoal production and export, which is considered a step ahead to reverse, or minimize cutting of acacia trees for fuel wood, charcoal burning and brick making in the country.

Moreover, poor delivery of services and goods such as bore holes and “haffirs” (drinking water sites for humans and animals) in gum production locations; poor gum tapping tools and equipment; and lack of encouragement of reforestation activities contribute to low production of gum Arabic in South Sudan.

Also due to political unrest and inadequate marketing arrangements leading to low prices received by farmers for Gum Acacia pushing them to favor crop cultivation, charcoal burning and brick making.

Continuing instability in South Sudan is the likely culprit scaring investors away. Moreover, ethnic fighting between rebel groups and the government in the infamous region of Upper Nile region, a key gum Arabic producing area also contributes in scaring investors. Meanwhile, millions of South Sudanese have been displaced from this and other civil wars over the last 22 years, including current unrest civil war which erupted in mid- December 2013.

Furthermore, the economic valuation of gum Arabic in South Sudan and related studies have not been researched nor evaluated although it is contemplated that production and marketing of acacia gum at both local and international markets could contribute significantly towards social stability; income generation, and improvement of rural livelihood through sustainable use of the renewable natural resource, and proper land management. This is in addition that it will have economic affinity to gum where the communities will protect, nurture, and safeguard against (environment destruction) cutting and burning of acacia trees by persistent annual wild fires and charcoal burners by communities within gum areas. Internationally, trade and marketing of acacia could boost the South Sudan foreign currency earning

### 3.1.3 Conservation/management status

As per now there is no institution already putting up programs/projects/activities for the management of gum Arabic production, processing, trade and investment said DG of MoE&F. The only example of institution we can give is South Sudan Gum Arabic Federal Union (SSGAFU) that was established in 2016 and its non-governmental company, but ministry does not put up any programs/projects/activities for the management of gum Arabic production, processing, trade and investment as of per now.

The only available approved action plan is for training and capacity building; MoE&F does not go beyond capacity building in gum Arabic production. The ministry of Environment and Forestry does not draw any management and conservation of gum Arabic in the country. Therefore, management of gum Arabic is done by the producers.

However, in Renk and other surrounding counties, natural gum Arabic forests have been ideally demarcated as individual or commercial ownership. This ownership simply denotes coverage for ease of utilization of gum Arabic product without much inconvenience among communities.

#### 3.1.4 Potential areas of production.

South Sudan has large quantities of the gum Arabic trees in the central, western and northern parts of the country.

The gum belt in South Sudan runs across from Eastern Equatoria State (EES), Central Equatoria State (CES), Northern Bahr El Gazal State (NBGS), Warrap State (WS), Unity State (US), Jonglie State (JS) to Upper Nile State (UNS), (SNV, 2009).

- In UNS, both *A. senegal var. senegal* and *A. seyal var. seyal* are found in six counties of UNS: Renk, Maban, Manyo, Panyikango, Melut and Fashoda. *A. senegal* and *A. seyal var. seyal* grows best on clay sandy soils usually associated with *Balanites aegyptiaca* and also *A. seyal var. seyal*. The *A. seyal var. seyal* occurs in almost pure stands in Melut County and Maban County in wooded grassland, especially on seasonally flooded or wet flats of black cotton soils and along water courses in the entire Nile basin. *A. senegal var. senegal* is rarely found in Maban county of Upper Nile State.
- In EES *A. senegal var. senegal* are found in Lafon, Kapoeta North, Kapoeta South, Kidepo valley, Tagonyi, Kadiriha and Tiwolo. Both *A. seyal var. seyal* and *A. seyal var. fistula* are available in EES. The most important areas where *A. senegal var. senegal* is prevalent and some tapping currently taking place are Kidepo valley, Tagonyi, Kadiriha and Tiwolo (SNV, 2009).
- In NBGS, *A. seyal var. seyal* are found in Aweil East, Aweil Center, and Aweil North County, (Malualkon, Malualbai and Wanjok payams).

#### 3.2 Agro-ecological shifts due to climate change and land use changes linked with the evolution of gum tree areas in the last 20 years.

Based on the available literature and information from both National and State government and development partners such as FAO, UNDP and etc, there is no land use changes linked with gum tree areas in the last 20 years in South Sudan.

- 3.3 Programmes/ projects/ activities of key actors involved in the management of the resource, production, processing and trade of gum Arabic; good practices and investment opportunities.

Since South Sudan got independence in 2011 the country does not consider and recognize gum Arabic as one of the potential revenue only after COVID-19 hit the whole world and the price of crude oil dropped international, this is when South Sudan government came in and thought of non-oil revenues and plan for supporting the gum Arabic sector. The government of South Sudan has a pledged four million pounds for the support of gum Arabic sector this year 2020, this include establishment of South Sudan Gum Arabic Corporation. Therefore, as per now there are no programmes, projects and activities in place for gum Arabic sector by the government of South Sudan.

- 3.4 Production and trade of gum Arabic per species type, quantities stored (buffer stocks, if any), quantities consumed locally, cross border trade and total quantities exported in the last fifteen years (2005 – 2019) and value of exports

- 3.4.1 Production and trade of gum Arabic per species type

In South Sudan, commercially available high quality Gum Arabic is mainly produced from *Acacia senegal* (Hashab) and *Acacia seyal* (Tallah), both varieties through tapping for using hand tools *Acacia senegal* and also by natural agents for both species. Other extractable gum is produced from *Acacia polyacantha*.

The main sources of raw Acacia gum are produced by Communities (family groups, unions, associations) and also by gum companies, individuals, traders - mainly unsorted products.



*Acacia senegal*

Gum arabic

- 3.4.2 Quantities stored and quantities consumed locally

Currently the available quantities of gum Arabic stored in Renk is about 7149 bags (714.9 tons). To convert bags to ton, multiply the quantity in bags by 2 and divide by twenty (7149 bags \*2/20) while in Maban the available gum in store is 200 guntar (10 Tones), to convert guntar to tone, divide quantity in guntar by twenty 200/20.



It's not easy to quantify how much gum Arabic is consumed locally, however, traditionally, acacia gum is partially used as food, chewing, treating lower abdominal pain, plastering the local house, and its barks and leaves are used as fodder for the domestic animals. Moreover, gum Arabic is used as materials for fixing agricultural farm implements. Gum collection, ownership and trade are solely male dominated business although it is socially acceptable within the communities. In Kopeata South most of the gum collectors are male.

### 3.4.3 Cross border trade and total quantities exported in the last fifteen years (2005 – 2019) and value of exports

Trading gum Arabic dates back to 16th Century across African continent (West – East) by Arab Caravan traders who used to transport to the Middle East and Europe. Moreover, history revealed that gum business in South Sudan had always been conducted by Arab dealers from the north. These dealers organize and provide funding for tapping down to the gum stores along the chain of production.

According to the NGARA/SNV, 2009 rapid assessment study, there is only one, South Sudan Gum Company Ltd, permitted by GOSS to trade in Gum Acacia since 2007. This company markets the Gum to the United States of America (USA), United Arab Emirates (UAE) and India through Mombasa port in Kenya. Also, the Gum Arabic Company (GAC) transport the gum to Port Sudan from where the products are exported out of Sudan. According to the study, the prices for gum Arabic have come down from US \$ 2.6-3.1 /kg (in 2005) to USD 0.5 for gum hashab and to, US \$ 0.3 for gum talha (in 2006 - 2008).

South Sudan is exporting forest products to international markets. However, the sector is poorly managed. There is limited reliable information on numbers quantifying exports and economic potential and investment in the Non-timber forest product (NTFP) and timber trade is limited.

Based on the literature reviewed, Gum Arabic production (*from A. Senegal*) in South Sudan has had a declining trend over the years since 1960 while gum Talha (*from A. Seyal*) has had a general increasing trend. The decline in gum Acacia production could be attributed to political unrest and inadequate marketing arrangements leading to low prices received by farmers for Gum Acacia. Since South Sudan gained her independence in 2011, there is not much done in gum Arabic sector, as such there is limited information regarding the quantity of gum production and export.

The economic valuation of gum Arabic in South Sudan and related studies have not been researched nor evaluated although it is contemplated that production and marketing of acacia gum at both local and international markets could contribute significantly towards social stability; income generation, and improvement of rural livelihood through sustainable use of the renewable natural resource, and proper land management. This is in addition that it will have economic affinity to gum where the communities will protect, nurture, and safeguard against (environment destruction) cutting and burning of acacia trees by

persistent annual wild fires and charcoal burners communities within gum areas. Internationally, trade and marketing of acacia could boost the South Sudan foreign currency earnings.

However, like in other countries, the full contribution of forest resources to the national economy is usually undervalued. For example, the contribution of forest resources to the country's GDP remains low because many important services which forests provide are not valued and because many forest products such as gum Arabic, charcoal, fuel wood, and many others are traded in the informal sector. Furthermore, corruption leads to further revenue losses.

### 3.5 Identity and profile type of gum Arabic traded by in the country

There are two types of Acacia trees traded in South Sudan, however based on the field work currently the only species of acacia tree traded in South Sudan is only *Acacia senegal*, although South Sudan has big areas of *Acacia seyal*. Therefore, the only sample of gum send to the NGARA for chemical analysis is *Acacia senegal*. The sample send to NGARA is from Renk, because during the field work in Kapeota South there was no gum available in the stores.

### 3.6 Key stakeholders and their roles in the production and trade of gum Arabic and benefit sharing mechanisms (as outlined in the EX-ACT data collection guidelines and questionnaires provided).

#### 3.6.1 Actors along the value chain

##### i. Collectors

As of now community participation in value chain have organized themselves into cooperatives of producers, collectors, cleaners, and transporters.

Most of the gum collector's role along the value chain is collecting gum from the bush, cleaning and sorting into grades.

In Upper Nile State, and Northern Bahr el Gazal the funding of gum Arabic comes from the dealers from Sudan. Often buyers influence the prices at gum collector centers or market centers in towns like Renk in Upper Nile State and Aweil in Northern Bahr El Ghazal State. As mentioned earlier, the prices are determined by the several factors, among them are several taxes levied on the product along the chain of production and also South Sudan being landlocked without sea outlet to end users.

##### ii. Merchants – traders (village traders or agents) and wholesalers

The role played by the traders is to organize the producers in associations so that they can be able to collect for them gum. Because exporters get gum from traders or

middle men, the traders buy gum from producers then they sell it to those companies who export the gum.

iii. Exporters and/or National Merchants

Currently there are few exporters of gum Arabic in South Sudan, this is because it's very expensive and costly to export South Sudan gum Arabic to the international market, this is because South Sudan is a landlocked country with poor infrastructure such as road connections and continued conflict in the country. The major role played by the exporters are to provide cash to producers to collect gum for them, provide stores and transportation of gum from producing areas to the major city like Juba for easy export. According to the Global Company its very expensive for them to export gum Arabic from producing areas such as Renk or Northern Bahr el Ghazal to Juba then to Mombasa – Kenya due to higher cost of transportation as result of poor road connection and when they try to export through Khartoum to Port-Sudan tax is extremely higher as such they have to stop purchasing of gum. Therefore, improving road connection will help exporters to export the gum to the international market.

iv. Processors – if any

Commercially available Gum Arabic produced in the Country is mainly unprocessed lumps although sorted/graded by the exporters into grades (I, II, & III) according to types. The collectors only clean the gum but there is no grading at the producer level. No kibbled, spraying or granulation is done in South Sudan due to lack of equipment or machinery.

All gum is sorted and graded using a sieve table. The first sieve has a wire mesh of 6 to 10 mm in diameter while the second sieve has a wire mesh of 2 to 6 mm in diameter. Gums on upper sieve table are graded as first grade, gums on second sieve table are graded as pellets and the gum which passes through the second sieve table are graded as dust. The gum is packaged mainly in jute bags in units of 50 kg (especially in UNS) and polythene bags (especially in EES) (NGARA/SNV, 2009).

According to the Undersecretary for the MoE&F the production and processing is done by gum Arabic producers and collectors in the forest. The issue is that South Sudan is now in the process of restructuring the gum Arabic trade, because so far we don't have end processing companies here in South Sudan, even before the independent South Sudan is exporting through Khartoum. Because the only sole company buying gum Arabic and exporting it to the international market is the gum Arabic Company (GAC) in Khartoum.

Moreover, most of South Sudan gum Arabic are being smuggled to neighboring countries without proper documentation, as a result there are no records of production to know how

much gum Arabic South Sudan is producing . Even the Ministry of Trade and Commerce and South Sudan Customs have confirmed that there are no data to show how much South Sudan gum Arabic has been exported to the international market.

Putting more attention on the gum Arabic value chain in South Sudan could bring enormous benefits to South Sudan's low-income farmers. But continuing civil conflict, fueled in part by the high demand for the gum itself, keeps farmers vulnerable and investment slow.

### 3.6.2 Actors providing support to the sector

#### 3.6.2.1. Government – relevant ministries and agencies and their roles

The Government of South Sudan values gum Arabic as a strategic and essential contributor and important industrial export commodity regionally and, internationally with high potential to rural communities' socioeconomic and livelihoods improvement.

As such government of South Sudan is committed to create awareness amongst the farmers; conduct training; and foster marketing channels and economically strengthen gum producer communities to deliver quality gum products.

The National Government of South Sudan therefore has the view to encourage viable investment opportunities for sustainable production and marketing of quality gum that could contribute towards improvement of the socio-economic and livelihoods of the rural producer communities.

Therefore, National Government wishes to deliver the below services and goods to gum farming communities of South Sudan: Forestry extension mobilization (consultative meetings) and stakeholder training program; purchase and distribution of gum tapping tools and equipment; purchase of assorted gum commodity; production of 45,000 improved acacia seedlings; and establishment of gum in three (3) Greater States of Upper Nile; Eastern Equatoria; and Northern Bahr el Ghazal.

Hence, the aims of Revitalized Transitional Government of National Unity of South Sudan had always been establishment of viable investment opportunity for sustainable production and marketing of quality gum that is contributing towards improvement of the socio-economic and livelihoods of the rural producer communities.

The government therefore intends to deliver the below services and goods: -

- Training and empowerment of Gum producing Communities in the designated States: UN; BG & Equatorial Regions. To date the South Sudan Government had carried out six (6) trainings and capacity built gum producer groups in Northern Upper Nile, Kapoeta and Northern Bahr el Ghazal States: trees identification; taping procedures; collection / gum handling;
- Purchase of communities' produced gum Arabic;

- Establishment of gum tree nurseries and seedlings distribution for planting out;
- Establish gum tree afforestation areas (plantations and enrichment planting in form of agroforestry systems);
- The South Sudan Government commits to ascertain gum Arabic production ownership; gauge production; regulate production and exportation procedures (control quality through certification of exported gum Arabic);
- Testing and certification of exported gum from South Sudan.

Gum Arabic production, trade and investment is actually a private business at a moment. What the government of South Sudan is supporting through the Ministry of Environment and Forestry (MoE&F) is enabling environment such as policies and the issues of certification, analyzing and checking whether the gum is of good quality. South Sudan individual companies are only contacting the MoE&F when they need certificate of origin and technical assistants, but the real production is being done by the gum Arabic producers.

As from year 2009, the Government of the Republic of South Sudan raised and recognized Rural Communities' gum production and marketing profile to national and international levels (Southern Sudan Gum Acacia Workshop, 2009). The political will exhibited by incumbent Government of the Republic of South Sudan is support enjoyed by Communities-based.

Gum production and marketing had been shown in provision / funding offered to local gum farmers and training opportunities. An exemplary training workshop was carried out by South Sudan National Government in collaboration with SNV in Kapoeta South in 2011 (MAF, 2012). The other support of the Government involved formation of an inter-ministerial committee of Gum commodity and Ministerial Order No. 22 dated 13<sup>th</sup> December, 2006 regarding lifting of restriction on gum export. In spite of this Gum production remained very low due to several factors such as endemic rural poverty (low income levels); lack of transportation facilities, poor roads network (inaccessibility to local markets) etc.

On the other hand, government of South Sudan through the Ministry of trade and Commerce facilitate the market for the local and international exporters. Moreover, also South Sudan National Bureau of Standards (SSNBS) plays role of checking quality of gum Arabic before exporting it out and they also provide some training on post-harvest and how to store in hygiene way since gum Arabic are used for food and pharmaceuticals.

### 3.6.2.2 Development partners – current development partners and the roles they are supporting

As per now FAO and USAID are the only development partners that are supporting gum Arabic sector through NGARA and government of South Sudan.

### 3.6.2.3 Non-Governmental Organizations - current NGOs and the roles they are playing

Currently there are no known NGOs working on supporting the gum Arabic sector in South Sudan. This is mainly due to ongoing conflict in the country and COVID-19 Pandemic. But before the 2013 conflict SNV, Winrock USAID funded BRIDGE Programme and PACT Sudan have conducted community mobilization, and strengthening activities in about four States NBGS, EE, WS AND US which include awareness creation meetings and through local FM radios on gum Arabic and its importance, group formation and training, training of community trainers and leaders, involvement of politicians and youths in awareness creation and education. Moreover, before the lock down of COVID-19 and sanction of Global NTM by USA, Winrock used to support the gum sector through post-harvest trainings and they also used to purchase the gum from local communities in Renk and greater Bahr el Ghazal.

### 3.6.3 Price trends along the value chain and benefit sharing arrangements.

In South Sudan currently there are no much inputs in value chains since there are no plantations, producers depend on natural acacia trees for gum Arabic, all the work or labors are done by the family members from taping down to storing and no fixed price for purchasing gum Arabic, its fixed by those companies buying the gum Arabic. Because it's the companies or traders who provide advance pay to the producer to collect the gum Arabic for them.

For the case of Kopeota South, there are no local traders, there is only one person who trades on gum Arabic and he sells it to some companies to be exported. While in Renk and Wadkona before the outbreak of conflict in 2016 there were some migrators coming from Sudan to Renk and Wadkona to tap and collect gum. Those migrators were brought by the local traders and companies or those traders come from Sudan.

The government of South Sudan does not support producers, that is why owners of the farm rent their Acacia trees to either local traders and companies or those traders who came from Sudan, owner of the farm only gets what they have agreed upon, the rest it's the traders or companies to deal with. The owner of the farm receives from the traders 100 Rattle per each labor, therefore, whatever the quantity the trader gets its between trader and labor/migrator who is working. That is why most traders are bringing labors from Sudan, because they are fast and can tap big areas of acacia trees and they can also collect big quantity of gum Arabic per a day.

In some cases, it's the local traders or those traders come from Sudan to pay the producers in advance in form of dura or cash depends on the price they have agreed upon normally the price is very low, so that they can produce for them the gum Arabic, then when the time of harvest come first the producers will work for traders (that is first collection) after that the remaining quantity will be paid to the labor who worked with the current price in the market. Sometimes local traders do not pay producers in time, due to low price in the

market, even some producers do not get their money. So those are the reasons why productivity is very low, does not mean that South Sudan does not have big areas of gum Arabic, but only that producers are discouraged and they prefer to clear acacia trees for either charcoal making, fuel wood or brick making, because price of charcoal is higher and there is market for it. In some other cases they clear big areas of acacia tree for the agriculture.

On the other hand, during the tapping the producers organize themselves to work in groups, today for one person the other day for the other person, then each producer's role is to provide food and drinks when it's your turn, when comes on the time of collection its only family members who collect the gum.

Therefore, at the end of harvest, it's those traders or companies to pay taxes to: Taxation department, Revenue authority, customs office, if going to Sudan, Standard Bureau, County treasure, Forestry Department, Zakat if its Muslim, security and CID each is paid 1,500 SSP per sack of 50 kg, Gum Arabic Union of Renk, and finally loading and offloading is paid with 120 Rattles of Gum Arabic.

### 3.7 Existing capacity in the gum Arabic sector in terms of value addition and markets

Country	Strengths	Weaknesses	Opportunities	Threats
South Sudan	<ul style="list-style-type: none"> <li>❖ Big areas of gum-producing potential in terms of natural formations</li> <li>❖ Existing of Forest Policy for the management of forest resources in general</li> <li>❖ Development partners like SNV trained local communities on gum Arabic post-harvest</li> <li>❖ Higher demand for the gum Arabic in the international market;</li> </ul>	<ul style="list-style-type: none"> <li>❖ Degradation of natural gum trees in the production of gum Arabic areas due to higher demand for the charcoal and higher demand for pastoral and agricultural activities, wild fires for collecting wild honey, bush meat, etc.);</li> <li>❖ Lack of gum Arabic policy in the country</li> <li>❖ Limited information about the exactly areas under gum Arabic.</li> <li>❖ No fixed price and producers get low price due to poor market information</li> <li>❖ Lack of political will and poor institutional capacity for raising awareness on economic benefit of gum Arabic to the local producers.</li> </ul>	<ul style="list-style-type: none"> <li>❖ South Sudan has huge potential for the production of gum Arabic and resins.</li> <li>❖ Most of gum producers in gum producing areas are trained in post-harvest handling.</li> <li>❖ Establishment of the Inter ministerial Task Force for Gum Arabic in 2010</li> <li>❖ South Sudan neighbouring countries has higher demand for gum Arabic</li> <li>❖ Establishment of gum Arabic certificate of origin and Phytosanitary certificate.</li> </ul>	<ul style="list-style-type: none"> <li>❖ Insecurity in gum Arabic production areas,</li> <li>❖ Lack of relative peace and poor implementation of peace agreement signed in 2015.</li> <li>❖ Lack of gum Arabic policy</li> </ul>



3.8 Review of existing national policies, laws and frameworks relevant to the Arabic gum production, management, restoration, and development, processing and trade of gum Arabic (or non-timber forest Products) in the countries.

**SWOT analysis on policies/laws/institutions guiding production, markets and trading in gums and resins**

Country	Policies/laws/ institutions	Strengths	Weaknesses	opportunities	Threats
South Sudan	<p>i. Policies</p> <ul style="list-style-type: none"> <li>• CAMP (Comprehensive Agriculture Master Plan)</li> <li>• South Sudan Forest Policy 2015</li> <li>• Climate Change Policy enacted</li> </ul>	<ul style="list-style-type: none"> <li>• Develop so many projects in forest sector</li> <li>• Forest policy is already in place</li> <li>• Climate change policy in Place</li> </ul>	<ul style="list-style-type: none"> <li>• No adequate budgetary in to implement those projects</li> <li>• Poor Forest Policy implementation</li> <li>• Climate Change policy not Implemented</li> <li>• Lack of resources to implement the climate change policy</li> </ul>	<ul style="list-style-type: none"> <li>• Development of CAMP</li> <li>• Development of policy for the NTFP</li> <li>• Develop financial products and credit facilities for gums and resins</li> <li>• Support by the government for the Implementation</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of relative peace to implement those projects</li> <li>• Lack of development of relevant forest law for the forest sector</li> <li>• Inadequate budgetary support to NTFPS at National and County levels</li> <li>• Climate Change threats to gums and resin and their production in most part of gum production areas</li> </ul>

				of Climate change policy	<ul style="list-style-type: none"> <li>Land degradation and declining natural populations due to charcoal burning and others</li> </ul>
	<p><b>i. Laws</b></p> <ul style="list-style-type: none"> <li>Republic of South Sudan Constitution 2011</li> <li>Environmental Conservation &amp; Management Act 2015</li> </ul>	<ul style="list-style-type: none"> <li>The Constitution promotes forestry &amp; environmental issues to a higher moral and legal level</li> <li>Constitution provides requirements for multi-stakeholder participation in formulating policies and legal instrument</li> <li>Regulation for development of the sector in place</li> </ul>	<ul style="list-style-type: none"> <li>Lack of forest bill in place</li> <li>Lack of forest laws for implementation by State government</li> <li>Weak capacity both at National and State for enforcement and self-regulation of the Forest Law in the State, counties and communities</li> </ul>	<ul style="list-style-type: none"> <li>government vision of cutting one plant</li> <li>Develop county law prototype to domesticate national forest law aligned to dryland forests that is in tandem with community land tenure</li> <li>Higher opportunity for development of the sector</li> <li>Develop guidelines for environmental management</li> </ul>	<ul style="list-style-type: none"> <li>Political interference in key policy and legal issues in the forestry sector</li> <li>Inadequate resources for implementation of laws, plans and programmes</li> <li>Forest degradation due to unsustainable forest practice</li> <li>Increased forest degradation and challenges in quality control and value addition</li> <li>Increased ecosystem degradation and conflict of interests among stakeholders</li> <li>Duplication and contradiction of roles between environmental</li> </ul>

			<ul style="list-style-type: none"> <li>committees &amp; Use groups in CFAs'</li> </ul>	committees & use groups in CFAs	committees and Community Forest Associations
	<p><b>ii. Institutions</b></p> <ul style="list-style-type: none"> <li>Ministry of Environment and Forestry</li> </ul>	<ul style="list-style-type: none"> <li>Formulation of policies and guidelines, rules and regulations for the management, conservation, and utilization of dryland forests</li> <li>Develop forest management plans in collaboration with relevant owners</li> <li>Issuance of certificate of origin and Phytosanitary certificates</li> <li>competent authority for enforcement of gums rules and regulations and</li> </ul>	<ul style="list-style-type: none"> <li>None enactment of draft Gums and resins rules and regulations, hence enforcement</li> <li>Inadequate funds and technical capacity at both National and State to support the gums and resins value chain</li> <li>Inadequate staff and skills in gums and resin</li> <li>Inadequate funding to forestry and gums and resins</li> </ul>	<ul style="list-style-type: none"> <li>Enforce compliance of existing laws and regulations on NTFPS.</li> <li>Ratification adoption and domestication of international conventions, treaties and agreement in forestry</li> <li>Establish business incubation centers in gum producing areas</li> <li>Lobby for the enactment of the draft natural resources (benefits sharing bill) and the draft</li> </ul>	<ul style="list-style-type: none"> <li>Lack of political good will at both National and State levels</li> <li>Lack of relative peace and insecurity</li> <li>Lack of experienced staff</li> </ul>

		<p>development of gums and resins management plans</p> <ul style="list-style-type: none"> <li>• Lobbying, advocacy and Mobilization of key stakeholders</li> <li>• Training and capacity building of extension service providers in collaboration with key partners</li> <li>• NGARA is the potential development partner for development of the gum Arabic sector</li> </ul>	<ul style="list-style-type: none"> <li>• Poor roads and infrastructure in gum producing areas</li> <li>• Double taxation of gums and resins</li> <li>• Lack of suitable policies and legislation</li> </ul>	<p>Forest (Gums and resins) regulations</p> <ul style="list-style-type: none"> <li>• Resource mobilization and increase budgetary support to gums and resins</li> <li>• Increase training and capacity building</li> <li>• Promote business incubation and mentoring</li> <li>• Enact forest policies and legislation</li> <li>• Harmonise taxes/movement permit</li> </ul>	
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### 3.9 Strengthening relevant institutional framework in South Sudan with proper multi-sectoral coordination at national and regional levels

A multi-sectoral coordination means involving all sectors of society - governments, business, civil society organizations, communities and people living within and around the gum produced areas. Such a response requires action to engender political will, leadership and coordination, to develop and sustain new partnerships and ways of working, and to strengthen the capacity of all sectors to make an effective contribution.

The main strength of a multi-sectoral approach is that it creates a mechanism for information sharing and coordination, supporting the inclusion of all major stakeholders in society, regardless of their sector or work and their organizational affiliation.

The need to implement a multi-sectoral, multifaceted approach to gum Arabic is urgent. Multi sectoral programmes through partnerships between government ministries and departments and between government and civil society and private sector is crucial.

Multilevel interventions that seek to involve a variety of partners in coordinated action have been shown to be more successful than those that work in isolation (UNAIDS, 1999, 2000a). Furthermore, coordinated economic, political and social efforts at national level are needed to reduce the vulnerability of particular groups and sections of society and must complement programmes and interventions operating at the level of the individual and the community.

Hence, a multi-sectoral approach is highly dependent on the capacity of those involved to effectively use existing networks and develop others, from national to community level, and to coordinate multiple strands of action. Lack of sufficient persons with such skills could limit the effectiveness of the response

Since a successful multi-sectoral approach must be relevant to a particular situation, it is not possible to prepare guidelines that can be followed step by step in every situation or in every country. The guidelines therefore introduce the main components of a multi-sectoral approach, remaining flexible enough to be adaptable for planning at the national and regional level and also be of practical assistance to planners at county or community level.

However, in July 2009, MAF, in partnership with SNV Sudan, FAO, and USAID funded BRIDGE Programme convened the first Gum Arabic workshop in South Sudan in Juba. The meeting was attended by the 74 participants including Scientists, Policy Makers at GoSS and State Government levels, NGOs, donors, leaders of community groups, traders at local, regional and international levels over three days. The objective of this workshop was to facilitate creation of a forum for different actors in Gum Arabic Value Chain to come together to share experiences, learn from one another, identify opportunities, gaps/challenges and agree to undertake joint action for increased gum production and creation of dynamic gum market leading to increased income for the rural household.

Therefore, the key to a successful strengthening of relevant institutional framework in South Sudan with proper multi-sectoral coordination at national and regional levels, the following has to be considered.

- Gender equity demands a ‘gender lens’ be applied to all aspects of the multisectoral approach
- Be dynamic, flexible, strategic and coordinated;
- Take account of the size of the problem, identifying the vulnerable, high-risk groups;
- Involve national leaders, all government ministries and departments, with each taking responsibility for pre-determined aspects of the overall response and making the best use of its resources;
- Include sectors outside government - business, civil society organizations, local communities, and developmental partners, with full recognition being given during the development of the response to existing activities which should be built upon.
- Particular attention should be given to supporting vulnerable community coping strategies;
- Define roles and responsibilities, based on the comparative advantage of each player/stakeholder.
- It is not always necessary or appropriate for every sector to be involved in every area of activity;

### 3.9.1 Strategic planning

A successful multi-sectoral coordination requires the multi-sectoral approach to be integrated into the planning process at all levels. Strategic Planning for a multi-sectoral response should be guided by the following principles:

- Respect for human rights, with particular attention to the gender dimension; ·
- Evidence-based decision-making;
- Accountability for programme decisions and funding allocations;
- Openness in stating objectives and expected results and reporting back to the public;
- A broadly participatory process which will in many cases expand the scope of existing partnerships and include new ones.

### 3.9.2 Key challenges of multi-sectoral coordination in South Sudan

Some key challenges in capacity building for a multi-sectoral response are: -

- Ensuring multi-sectoral collaboration among government and private institutions;
- Addressing the short and long-term skills development of managers, implementers and service providers;
- Developing systems for improving performance and ensuring quality;
- Ensuring functional basic infrastructure that helps individuals communicate and network;
- Developing resource pools of local trainers and facilitators;
- Recognizing and responding to the need for management of institutional change; and
- Recognizing the effect of socio-cultural and religious influences.

### 3.10 Profile and review existing institutional frameworks and arrangements

Currently the only capable and available institution for gum Arabic management is the Ministry of Environment and Forestry, however the institution needs to develop relevant policy for the NTFP and develop financial products and credit facilities for gums and resins. However, the Ministry of Environment and Forestry (MoE&F) is lacking relevant forest law for the forest sector and inadequate budgetary support to NTFPS at National and County levels. In terms of law, lack of forest bill in place, forest laws for implementation by State government and weak capacity of both National and State governments for enforcement and self-regulation of the Forest Law in the State, counties and communities.

Therefore, to re-organize and to strengthen development of gum and resins in South Sudan, MoE&F should develop relevant bill for gum Arabic sector, implement the government vision of cutting one plant five, develop county law prototype to domesticate national forest law aligned to dryland forests that is in tandem with community land tenure and government should allocate enough funds.

The status of gum and resins association in South Sudan varies from one State to another, for example in Kapoeta South in Eastern Equatoria State, there is no association in place for gum and resins, while in Renk and Wadkon of Upper Nile State they have associations for gums and resins but the capacity of the association is weak and lacking funds for running the association and no relevant laws to govern their associations.

To strengthen the status of gums and resins association in South Sudan, there is need for creating awareness and training in how to tap, collect, sort and storage, further more they also need training on how to form associations and how to write constitutions.

NGARA, FAO and other developmental agencies need to build capacities of the existing associations and train them on how to form the association and make them aware on the importance of formation of associations, demarcate boundaries of individual gum areas to avoid conflict, because when communities become aware about the economic value of gum to their livelihood, it will create tensions among themselves. Moreover, they need to be assist through funds.

### 3.11 Training Needs Assessment (TNA) report

Based on the field work, in Kapoeta South about 70 % of the local community received training on how to tap, collect, cleaning and sorting on gum Arabic by SNV in 2011, since then there is no any training given to them. All of them did not receive training on formation of associations, management of the gum Arabic farms, no policies and regulations at all the levels been it the National government, State government, counties as well as producer's level.

However, in the Renk and Wadkona the situations is different than in Kopeota South, here in upper Nile State generally, the owners of the gum Arabic trees (local communities or producers), majority of the local communities or producers rent their acacia trees or acacia farms to either Arab traders who come from Sudan or South Sudan local traders or companies before tapping, then those traders or companies are the ones who bring their own labors, mostly they bring labors from Sudan, because those labors in South Sudan have limited experience and they are not fast in tapping and collecting. It's the traders or companies who pay for the transportation of those labors, their feeding, medications and accommodations. Therefore, owner of the farm (local community), will receive 100 Rattles from each migrator from the trader or company. If the company brought 50 labors, means owner of the farmer will receive 5000 Rattles of gum Arabic per season.

Normally, those migrators are paid in form of kind or cash, in most cases each migrator is paid with 100 Rattles of gum Arabic for their work (1 guntar) or they can convert 100 Rattles of the gum Arabic to money with the price of the gum Arabic at that time. At the end of the harvest, the traders or companies will take one third of the total production from each migrator and the balance of the gum Arabic he/she has produced will be paid based on the current price on the market and agreement will not allow the migrator to sell the remain production to any other trader or company only to the trader or company who brought you or process you coming to South Sudan.



About 80 % have experience in tapping, collecting, storage, protection measures from the labors that are coming from neighbouring Sudan, but they receive limited training from various NGOs and private sectors as well as government, hence most of the producers are organized in associations/cooperatives in Upper Nile State. Although, they are organized in associations/cooperatives they didn't receive any training on formation of associations or cooperatives, establishment and management of gum acacia trees, policy formulations, accessories and protective equipment, processing technology, storage methods after harvesting, distribution, management and protection of the gum acacia, and policy regulation and institutional framework.

### 3.12 Proposed training curriculum

The proposed training curriculum for all the potential produced gum areas are: Curriculum on how to establish gum Arabic nurseries, tapping, collecting, sorting, storage and add values, policy formulation, establishment and management of acacia farms, protection measures, formation of cooperatives, and etc.

## 4.0 Conclusion and recommendations

### 4.1 Conclusion

Gum Arabic has great potential for diversifying income and improving the livelihoods of rural people in the gum producing areas and ensuring environmental sustainability and reversal of the loss of biodiversity. However, sustainable management of gum Arabic requires an enabling policy and institutional framework to safeguard social and environment concerns associated with the commercialization of the natural products from communal lands.

Gun collection in remote and highly productive untapped areas of the gum belt in South Sudan will be possible only if infrastructure such as water sources, storage facilities, and access roads are developed. Support in these critical areas is necessary and urgent for increased production and marketing of quality gums.

Private sector participation is central to the development of the sub-sector and increased production by the communities.

There is urgent need to group the local communities/gum producers into associations/cooperatives for easy training and support, this is more specially in Kapoeta South where there are no single associations/cooperatives formed. For the areas in the north that have associations, there is need to review their capacities for strengthening.

## 4.2 Recommendations

The following interventions are recommended in order to enhance the sustainable commercialization of gum Arabic in South Sudan:

- Inclusion of gum Arabic issues in the harmonized National and State government policies and laws in order to enhance community participation in their conservation and management;
- Promotion and strengthening gum Arabic value chains for sustainable commercial production;
- Research and technology development for improved productivity and quality
- Knowledge management, especially, on market information
- Capacity of the local people to benefit from these natural resources
- Enhancing partnerships, synergies and complementarities including public private partnerships for resource mobilization and investment on NTFPs

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