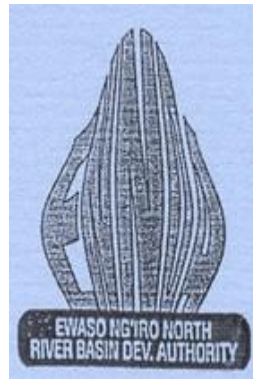


# Report on Course on Gum Arabic and Gum Resins Production, Quality Control and Marketing

Prepared by:

M. Muga<sup>1</sup> B. Chikamai<sup>1</sup>, S. Mbiru<sup>1</sup>, R. Ng'ethe<sup>2</sup>

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<sup>1</sup> KEFRI/NGARA

<sup>2</sup> GARA

# **Part 1: Background to the Training and Recommendations**

# List of Acronyms

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ADB	African Development Bank
AOP	Acacia Operation Project
ASP	Agro-Silvo-Pastoral
CBD	Convention on Biological Diversity
CCD	Convention to Combat Desertification
CDF	Constituency Development Fund
DEC	District Environmental Committee
DMP	Desert Margins Programme
ECRSWCE	Economic Recovery Strategy for Wealth Creation and Employment
EMCA	Environnemental Management and Conservation Act
ENNDA	Ewaso Nyiro North Development Authority
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
GARA	Gum Arabic and Resin Association
GDP	Gross Domestic Product
GEF	Global Environment Facility
GIS	Geographic Information System
KAPP	Kenya Agriculture Productivity Project
KARI	Kenya Agricultural Research Institute
KASL	Kenya Arid and Semi Arid Lands Research Programme
KEFRI	Kenya Forestry Research Institute
KFS	Kenya Forest Service
MENR	Ministry of Environment and Natural Resources
MTEF	Medium Term Expenditure Framework
NALEP	National Agriculture and Livestock Extension Project
NCC	National Coordinating Committee
NEMA	National Environment Management Authority
NGARA	Network for Natural Gums and Resins in Africa
NGO's	Non Governmental Organizations
NPC	National Project Coordinator
PEC	Provincial Environment Committee
PFM	Participatory Forest Management
PRA	Participatory Rural Appraisal
PRSP	Poverty Recovery Strategy Paper
PSC	Project Steering Committee
RCM&RD	Regional Centre for Mapping of Resources for Development
SRA	Strategy for Revitalisation of Agriculture
TCP	Technical Cooperation Programme
UNCCD	United Nations Convention to Combat Desertification
UNDP	United Nations Development Programme
WB	World Bank
WFP	World Food Programme

## 1.0 Introduction

### 1.1 Overview

Kenya's drylands cover an estimated 80% of Kenya's total land mass. About 25% of the human population and slightly more than 50% of the livestock population occupy these areas. These dryland ecosystems are endowed with a rich diversity of flora and fauna that the local people have depended upon for several generations. However, due to historical reasons, communities in these areas continue to rely heavily on pastoral livestock production systems. There is lack of diversity in commercialization of other dryland resources found in the area for development of alternative livelihoods.

The future for sustainable development of the drylands lies in the rational use of natural resources. This entails recognizing and developing the potential that exists in the vegetation resources for production of economically valuable products. A commitment by the government to address ASAL challenges has been made in the National Policy for the Sustainable Development of the Arid and Semi Arid Lands (Draft), Strategy for Revitalisation of Agriculture (SRA), Vision 2030 and Forest Policy, among others. Key amongst dryland commodities are gum resins i.e. myrrh, myrrh like resins (hagar and opoponax) and frankincense.

The Ewaso Ng'iro North Development Authority is a Regional Development Authority established in 1989 under the ENNDA Act of Parliament (Chapter 448) of the Laws of Kenya with the primary objective of promoting economic development in its area of jurisdiction which covers the districts of Garissa, Wajir, Mandera, Moyale, Marsabit, Samburu, Isiolo and Laikipia as well as parts of Meru North, Meru Central, Nyandarua and Nyeri. The main functions of ENNDA include;

- Coordination and planning of development in the Ewaso Ng'iro North River basin;
- Implementation of projects and programmes for conservation and management of natural resources including water, forestry, minerals, agriculture, wildlife and tourism;
- Management, Planning and Development of Water Resources;
- Formulating long range plans for social economic development in the Region.

ENNDA is currently executing the Ewaso Ng'iro North Natural Resources Conservation Project, which is funded by the African Development Bank (ADB) and the Government of Kenya. The objective of the Project is to reduce

poverty through sustainable natural resources conservation and management. Among the resources to be conserved are rangeland plants especially those with economic value like the gums and resins producing plants. This is going to improve the esteem of the community on rangeland resources and assist in their conservation. For this purpose the Project has set aside resources to improve the production of gums and resins within the Project area.

Considering that gum arabic and gum resins production and trade has been going on in the ASALs of northern Kenya since 1990 albeit in a discontinuous manner, and that local communities have some idea about the activity, the need to develop the capacity of technical officers from relevant line ministries and local communities for sound production and trade was identified as important activity of the project. KEFRI/NGARA was therefore approached by ENNDA (in the spirit of strengthening the current KEFRI-ENNDA MoU) to train practitioners in the production and marketing of gum arabic and gum resins with the ultimate objective of providing an alternative livelihood source (income generation) for the local community. The training of trainers (ToTs) was identified as an initial step in developing the capacity of local communities

The over all objective of the TOT was to:

- ❖ Promote activities for the development of gums and resins in the ASAL districts of northern Kenya within ENNDA's area of jurisdiction.

The specific objectives were to:

- ❖ Impart necessary knowledge and skills to extension staff and producers in the sound production of gums and resins in the target districts.
- ❖ Improve technology on better harvesting, value adding of gums and resins and to increase returns to the collectors.

## 1.2 Terms of Reference

### 1.2.1 Scope

The training covered the following topics:

- ❖ Relevant policies in forestry, environment and allied natural resources
- ❖ Challenges and opportunities in the ASALs
- ❖ Resource base i.e. gum and gum resin species (identification and ecological characteristics),

- ❖ Methods of production and post harvesting handling technologies, and uses
- ❖ Trade and marketing.
- ❖ Importance and establishment of databases

### 1.2.2 Target Group

These included subject matter specialists operating in the districts under the mandate of ENNDA comprising:

- Technical staff from ENNDA
- Extension staff from the relevant line ministries identified by ENNDA i.e. Ministries of Agriculture, Livestock Development, Kenya Forest Service, ALRMP, NEMA
- Extension staff from other relevant agencies e.g. NGOs and CBOs

### 1.3 Outputs

At the end of the training, the TOT's were expected to;

- Understand the policy environment, opportunities and operation framework in the ASALS
- Identify the main gum arabic and resins producing species in the field as well as possible adulterants,
- Know the physical nature of the major gums and resins as well as their uses (local and commercial),
- Understand the entire post harvest process from tapping to packaging,
- Have an understanding of the national and international markets,
- Be able to establish and strengthen the Producer Associations in Isiolo
- Effective trainers of the community

### 1.4 Implementation

The training was carried out between July and November 2007 at Isiolo Agricultural Training center (2), Marsabit Catholic Diocese and the Red Cross Resource Center in Wajir town. The training comprised of two main activities; technical training in plenary sessions and fieldwork. Both activities were offered in a participatory manner as per the programme given in Annexes 1. A total of 80 trainers-female and -male were trained. A full list of participants who attended the training is given in Annex 2.

## 2.0 Summary of the Training Sessions, Field visits and Emerging Issues

### 2.1 Summary of the Training Sessions

A total of four training sessions were carried out as indicated in annex 3A. During the each training session, participants were divided into groups in one of the sessions to discuss the status of the gums and resins in their districts and develop community-training modules. The results are summarized in annexes 3B and 3C.

### 2.2 Field Visits

The main objective of the field visits was to give the participants a practical activity in:

- Correct identification of the commercial gum arabic and gum resins producing species;
- Correct identification of other gum and gum resin producing species that are possible adulterants;
- Proper methods for tapping, handling and storage of gums and gum resins;
- Habitat preference for different gums and gum resins producing species.

A total of four-field training visits, one for each group, were made to selected areas well known for gums and/or gum resins production. These were as follows:

- Ngare Ndare – for participants from Isiolo and Laikipia Districts;
- Garba Tula - for participants from Samburu and Meru Districts;
- Laisamis - for participants from Marsabit and Moyale Districts;
- Dashe - for participants from Wajir, Mandera and Garissa Districts.

In **Ngare Ndare**, participants were shown extensive areas of *Acacia senegal* var. *kerensis*, the main gum arabic producing species in Kenya. Diagnostic characters that distinguish *A. senegal* from all other acacias (three thorns, flowers in a spike and papery pods) were demonstrated by use of live trees. The other gum arabic producing species, *A. seyal* was also found along the way to Ngare Ndare. Both varieties of *A. seyal* occurred here and participants were taught how to differentiate the two, var. *seyal* without ant-galls and var. *fistula* with ant-galls. Unlike *A. senegal* that occurred on

well drained rocky soils, *A. seyal* was found on black cotton soils. Other gum producing species found in Ngare Ndare were *A. paolii* and *A. mellifera*, possible adulterants of gum arabic. Their diagnostic features were demonstrated. Gum-resin producing species found here was *Commiphora africana*, a possible adulterant to commercial gum resins.

Proper methods of tapping *A. senegal* for sustainable gum arabic production were demonstrated by Abdi Somo using a “sonke”. Near the bridge site, participants visited a field collection and buying center for gum arabic where collection, handling, sorting and storage methods were demonstrated.

In **Garba Tula** participants were taught how to recognize *Commiphora holtiziana*, the tree species that produce the gum resin, hagar. It occurred in almost pure stands on reddish sandy soils. Tapping, collection, handling and storage of hagar was demonstrated in the field. Participants had the opportunity to visit some hagar traders in Garba Tula town where sorting and storage were again demonstrated. Another gum resin producing species found was *Boswellia neglecta*, the major source of frankincense.

On the way to Garba Tula both species that produce gum arabic, *A. senegal* var. *kerensis* and *A. seyal* were found. Participants were taught how to identify these species by use of the diagnostic characters, thorns, bark, flowers and pods. Other gums and gum resins producing species found were *A. mellifera*, *A. paolii* and *C. africana* that are possible adulterants of gum arabic and hagar respectively. In addition participants had the opportunity to see a stand of *A. senegal* var. *leiorhachis*, one of the three varieties of *A. Senegal* occurring in Kenya.

The third field visit was in **Laisamis** for the participants from Marsabit and Moyale. Participants from the two districts were taught how to identify *A. senegal* var. *kerensis* by use of diagnostic characters around Laisamis. They also got lessons on identification of *A. seyal* var. *seyal* and *A. seyal* var. *fistula* around Logologo. Other gums producing species found in Laisamis were *A. mellifera* and *A. paolii*. Gum resins producing species, *Boswellia neglecta* and *Commiphora holtiziana* were also found at Laisamis. Tapping, collection, handling and storage procedures of gum arabic and gum resins from *B. neglecta* and *C. holtiziana* were demonstrated.

Final field visit was at **Dashe** in Wajir for the participants of Wajir, Garissa and Mandera. Dashe area is well known for production of myrrh, commercial gum resin from *C. myrrha*. Other commercial gum resins found around Dashe were *B. neglecta*, *B. microphylla* and *C. holtiziana*. Participants were taught how to identify and differentiate between *C. myrrha* and *C. holtiziana* and also between *B. neglecta* and *B. microphylla*. At Dashe, participants had



the opportunity to meet a well-organized group of myrrh collectors. Tapping, collection, handling and storage procedures of myrrh, frankincense and hagar were demonstrated.

### **2.3 Key Emerging Issues are missing**

A number of issues emerged during the training and are classified under 8 areas namely: synergy and collaboration, policy related issues, ASAL resources and technologies, training and training materials, information dissemination, associations, marketing issues and health and safety. Details are given in Annex 4.

## **3.0 Conclusion and Recommendations**

### **3.1 Conclusion**

The TOT workshops provided an important opportunity for promoting networking within and between beneficiary groups and other stakeholders.

The participants were in agreement that gums and resins provide an opportunity for non destructive alternative livelihood in the target districts that will help relieve pressure of traditional systems on the land, generate additional income and help alleviate poverty. This will help facilitate self reliant and self-sustaining livelihood opportunities. To attain this, there are areas of policy **and structural changes** that require pro-active government intervention with respect to infrastructural needs (especially roads) and security improvement.