



## THE IMPACT OF DESERTIFICATION CONTROL AND GUM ARABIC IN NIGERIA

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### ABSTRACT

Nigeria simply due to consistency in high quality, Nigeria farmers should therefore maintain good reputation on their products and meet the highest standards.

Food and agricultural organization (FAO) in 1996 made a review and discovered that the products taken into the market were adulterated because it was poorly produced, processed and so poor quality. This was attributed to lack of proper coordinating body to control the rate of competition amongst producers and to ensure consistent production methodology and quality.

The restructuring of the only existing association into national association of gum Arabic producers, processors, and exporters of Nigeria (NAGAPPEN) has been largely responsible for Nigeria's position back on the ladder of production, (Okoro et al), generating foreign exchange of over US \$6 billion within a period of 4 year needs to be further strengthened. Established same in the state which have the vehicle through which informal training can be conducted, should be encouraged, with financial institutions taking the lead.

Proper supervision to ensure non tempering with the original quality which reduces its market value, creating had impression on the product must be put in place hearing in mind, every shipment is tested to ensure its optical rotation, solubility. Color and moisture content (5% moisture or less is considered stable).

The inclusion of Nigeria in the second phase of acacia operation project (AOP) organized by the network for natural gums and resins in Africa (NGARA) with a national focal point and the national project coordinator domiciled in federal ministry of environment aimed at enhancing best practices in the production of gum Arabic is to be taken more serious by the government. There should be close relationship with the associations involved in its production and quality control (physical and physiochemical determination).



Trained trainers, although slow to dissemination of this information, have made concerted and targeted efforts to improve practices in several state. Training needs should be conducted through workshops for stakeholders and other beneficiaries, some states have started adopting the reports of last workshop on best practices notably, enforcement of traceability and improved silvicultural practices, including the village level cleaning, sorting and use of breathable (jute) bags to avoid gum caging.

Total cooperation amongst exporters of the product and the clusters form exporters to farmers must be maintained to allow for competition and encourage localization of the consuming industries in the country. This will turn encourage farmers to lay more participatory emphases in the production of gum Arabic as a raw material.

Federal ministries of environment. Agriculture and rural development concerned with the use of the plant species mostly for the reclamation of degraded land should be properly funded.

## KEYWORDS

Gum Arabic , Impact , Nigeria , Desertification , Control , Export.

## INTRODUCTION

Desertification is defined as land depredation in arid and semi-arid sub humid areas resulting from various factors including climate variations and human activities, desertification and persistent drought constitute the most serious environmental problems facing the northern parts of Nigeria located between latitude 40 and 140 north of the equator, and longitudes 20 and 140 east of the Greenwich mean time (GMT), and bordered to the north by niger republic and chad, east by cameroon republic, south by atlantic ocean and west by benin republic.

With a population of over 130 million people, the country's land mass is being exerted with great pressure which has continued to take a toll on the environment resulting to desert encroachment in the north. Presently, the region is said to be losing above 350,000m<sup>2</sup> of land mass to desert conditions and increases at a rate of 0.6km per annum.

Causes of desertification

Desertification I caused by a lot of factor, broadly classified under natural and human factors. Natural factors include climatic variations while human activities include farming, human, over-grazing, urbanization, roads construction, bush burning, fuel wood gathering, poverty and many others. The United national sudam – sahelian office (UNSO) has identified forest depletion as one of the most serious agents of desertification. Cause of desertification there for have to be tackled at both national and international levels in order to totally wedge the menace.

Efforts to control desertification have been made in the past but with little results due to lack of coordination and inconsistent policies. The united nation convention to combat desertification (UNCCD) advised on the bottom-up approach on issues of desertification control and the mitigation of effects of drought through effective coordination and partnerships.



### Impacts of desertification

- Socio-economy of the effected people
- Land and water resource,
- Destruction of habital and lost of biodiversity and
- Resource use conflicts.
- Controlling desertification Nigeria

The impact of desertification has attracted concern from government and has been carrying out appropriate interventions towards tacking and controlling the menace. In the past, a number of approaches have been adopted and cross-sectoral approaches that emphasize a botton up, collaboration and partnership. The new strategies advocate active participation of communities, coordination among actors partners and collaboration at all levels.

### Institutional and legislative framework

- Establishment of federal environment protection agency in 1988, national environment policy, and state environmental protection agencies (SEPA) and
- Creation of federal ministry environment and the department of drought and desertification amelioration. (DDDA)

The creation of DDDA in the ministry of environment has further fostered and strengthened the working relationship amongst the institution towards the implementation of the CCD in the country.

Afforestation and reforestation through shelter-belt establishment, woodlot plantations and other related programs are key components to control. The green wall sahara was initiated to wedge desert encroachment, reclaim and restore degraded lands, provide wind breaks, stabilize sand dunes, supply fuel wood, generate employment and alleviate poverty,

### ACACIA SPECIES AND DESERTIFICATION OCNTROL

Generically, acacia has over 600 tree species belonging to the family. Leguminoceae or fabacease as recently identified by taxonomists, sub-family mimosoideae and genus acacia. They are found growing in dry arid zones of Africa from latitudes 10 degree and above, small average sized and thromy with an average height of 20-25m, bearing many branches that terminate with the narrow pinnate decidurous leaves. It survives temperatures of 450c and above, withstands dry wind, sand storms and grows in areas with annual rainfall between 100mm – 800mm, and 5 – 11 months dry periods. This enable it to serve as a desertification control plant.

The plants are known to produce creamy gummy exudates known as Gum Acacia, meska or Senegal gum. The most useful and costly types, (Grades 1 and 2) are derived from A. Senegal and A. seyal. These are found to be among the 30 different species that are most economically exploited by farmers and entrepreneurs for sustainable income desertification control as well as boosting food production. Apart from uses locally for fuel wood and charcoal for personal use or for sale, poles and fence posts in construction, tool handles, weaver’s shuttles and strong ropes are other uses. A Senegal is propagated through its brownish seeds obtained from well dried pods. The seeds are carefully selected in December by professional s in the field, to avoid mix-up with the seeds of other species of Acacia. (Pix showing the pod, seeds).

### GUM MOSIS

This is a process through which the gummy exudates are harvested form the tree stands. It commences when the tree have just started shedding their leaves and normally between the months of October and November. A Senegal attain their gestation periods within 3 to 7 years of age.



A stand reaches full maturity between the ages of 20-25 years, when the oozing of exudates starts slowing down, but in the case of a seyal, some get to the age of 40 years. The gestation period can be reduced through genetically induced clones to increase production. The maturity of the plants determines the quantity of gum it produces.

### USES OF GUMARABIC

Gum Arabic is a very important industrial raw material world wide due to its solubility in cold and warm water, emulsification, acid stability, low viscosity at high concentration, adhesive and regards to color, taste and odor.

Historically. Gum Arabic was first know as an article of commerce since 400BC in Egypt during the pharaoh civilization in the preparation of ink, dyes and water colors. It is presently imported by counties such as the Grades 2 and other mixed grades.

Apart from its minor uses in the fields of traditional medicines, domestic and other aspects, it's used as an industrial raw material worldwide for the following;

Confectioneries and baked goods

Beverages

Encapsulated flavors

Pharmaceuticals

Cosmetics

Textiles

Brewing and many other allied industrial aspects.

### GUM ARABIC IN NIGERIA

Nigeria was once the third leading producers of gum Arabic in the world. Records have shown that borno state alone was able to export a total of 48,966 tons of the produce between 1968 and 1979, bringing a foreign exchange of N204 million annually (Anon, 1979). There was subsequent linear increase in figures. (The Guardian news papers 1996). It once lost the position in production due to the fact that it lacked good seeding production and harvesting techniques which led to poor quality. The loss of its share of the grade I gum Arabic market in the U.S. markets was lost in 1998 was on some reasons. It's now however, known to be one of the main exporters amongst several African nations such as manuritanin, niger, chad and sudan, maintaining its position in the worl, after sudan an chad.

The table below indicates the year Nigeria last exported the product due to mishandling effects and adulteration.

Year	1997	1998	1999	2000	2001
Sudan	17,400	24,200	21,000	23,000	24,000
Chad	2,400	3,200	3,200	3,100	3,300
Nigeria	1,000	500	0	0	0

Exportation of the commodity to U.S. has so far commenced because farmers have improved on new



harvesting techniques. The first shipment of gum Arabic from Nigeria to the U.S. was after 5 years in 3 season in 2003.

The few acacia Senegal plantations in Born, Yobe, jigawa and some traces in Sokoto states are owned by governments. Little activities with regards to harvesting of the commodity in Nigeria therefore are made from the wild existing stands sparsely seen on different locations by nomads who know it as an economic crop.

In order to boost the production and exportation of gum Arabic, the Nigerian sector of the associations of gum Arabic producers. Processor, and exporter (NAGAPPEN) was initiated with the following objectives.

- To ensure a reliable and sustainable supply of quality gum Arabic from Nigeria to US industries
- To plant trees in order to control environmental degradation
- To reduce poverty in the country
- To strengthen the capacity and the ability of Nigerian stakeholders to produce and market quality gum Arabic.
- To increase income, create, jobs, and diversify Nigeria's foreign exchange earning and by taking full advantage of the new US market opportunities.

Application of the above innovation and the adoption of the silvicultural practices of 2003, program of activities took place in five Northern states and yielded better results, which went a long way in boosting the production of the produce. Records have revealed that, the total world gum Arabic exports from Africa in 2008 including that of Nigeria was estimated at 60,000 tones, having re-covered from the 1987-89 and 2003-

2005 crises caused by the destruction of trees by desert locusts.

## CONCLUSION

The persistence of desertification as an environmental problem threatening the lives of millions of residents living within latitudes 4 and 14 degree of the equator can not be environment of government.

Tree planning in different parameter such as shelter-belts, woodlots and hedges form the basic components and most appropriate way of desertification control. However, an integrated partnership and collaboration between stakeholders as advocated by the UNCCD remains the most appropriate method of desertification control, hand in hand with bottom – up approach.

The production and supply of gum Arabic as a raw material must be sustained by protecting and replace the existing stands of A. Senegal in and semi and zones. Training of trainers. Collectors in gum an good storage to improve its quality needs to be supported by financial institution with the authorities of central bank of Nigeria.

Furthermore, individual and corporate organizations including government need to be encouraged to identify with the commercial production of gum Arabic to improve foreign exchange earning of the country.

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