



# **REPORT ON FORMULATING A STRATEGY FOR PRODUCTION, VALUE ADDITION AND MARKETING OF PRODUCTS FROM ARID AND SEMI ARID (ASAL) IN THE IGAD REGION**

## **CASE OF DJIBOUTI**

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**MAINA KARABA**

*In honour and memory of all your contribution to the conservation and sustainable utilization of non-wood forest products including gums, resins, spices and honey in the IGAD region and beyond*

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# ACRONYMS

<b>ADDS:</b>	Agence Djiboutienne de Développement Social
<b>ASALs:</b>	Arid and Semi Arid Lands
<b>CERD:</b>	Centre d’Etude et de Recherche de Djibouti
<b>COMESA:</b>	Common Market for Eastern and Southern Africa
<b>DATE :</b>	Direction de l’Aménagement du Territoire et de L’Environnement
<b>DISED :</b>	Direction nationale de la statistique et des études démographiques
<b>EDAM-IS :</b>	Enquête Démographique Auprès des Ménages - Indicateurs Sociaux
<b>HDI:</b>	Human Development Indicator
<b>IGAD:</b>	Intergovernmental Authority for Development
<b>INDS:</b>	Initiative National de Développement Social
<b>ISERST:</b>	Institut Supérieur d’Etudes et de Recherche Scientifique et Technique
<b>IUCN:</b>	International Union for Conservation
<b>MDG:</b>	Millennium Development Goals
<b>MHUEAT :</b>	Ministère de l’Habitat, de l’Urbanisme et de l’Aménagement du Territoire
<b>NWFPS:</b>	Non Wood Forest Products
<b>PRSP:</b>	Poverty Reduction strategy Program

## Disclaimer

This report is prepared for the Inter-Governmental Authority on Development's Programme on Production, Value Addition and Marketing of Non Wood Forest Products from Arid and Semi Arid Lands (ASALs) in the IGAD Region. It was the need, to mainstream NWFPs into the national economy that led IGAD to facilitate the development of "a regional strategy for production, value addition and marketing of non wood forest products from Arid and Semi Arid Lands (ASALs) in the IGAD Region". The overall objective of the programme was to contribute to food security, income generation and alternative livelihoods in the ASALs by exploiting and promoting eco-(bio) enterprises from non timber products existing in the ASALs. The consultancy was commissioned by IGAD, as part of the larger study on strategy development, to i) Undertake review literature to identify underexploited and/or new crop species that exist in wild and/or in limited cultivation in the sub region with a view to promoting and increasing cultivation, multiplication and production; ii) Document, where available, the multiplication and release to research institutions of small quantities of seeds of most promising species cultivars and ecotypes; iii) Explore the present and future research on value addition and market chains (processing and packaging of the new foods and products) in IGAD member states; iv) Undertake preliminary studies on marketing systems for these products and foods to ensure a sustainability of production in IGAD and member states; v) Identify rural cottage industries and community groups for the processing and packaging of the respective foods and vi) Review the possibility of local and international exhibition of these products.

The designations employed and the presentation of material in this publication do not imply the expression of any opinion whatsoever on the part of either the Inter-Governmental Authority on Development (IGAD) or the member state (Djibouti, Ethiopia, Kenya, Somalia, Sudan and/or Uganda) concerning the legal status of any country, territory, city or area or its authorities concerning the delimitations of its frontiers or boundaries. The opinions expressed in this paper are solely those of the author and do not constitute in any way the position of the IGAD nor the institutions in the member states studied.

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## Executive summary

The communities in arid and semi arid lands (ASALs) in Djibouti, as those in other IGAD member states, are subjected to many hazards due to both climate and resource related seasonal food insecurity and poverty. More than one third of the Djibouti population depends on livestock, fisheries, remaining forests, woody areas and agriculture for employment and/or survival. The Djibouti economy is still dependant on external financial assistance and the earnings from service industry (port and tourism) and it remains highly vulnerable to exogenous shocks.

Economic instruments for sustainable use of natural resources are expected to play a key role in reducing the dependence and vulnerability by exploiting the enormous economic potential of Non Wood Forest Products (NWFPs) such as dyes, medicines, resins, gums, perfume, honey and other important emerging natural products made from indigenous plants. At the regional level, IGAD Parliamentarians have already concluded in 2008 that the potential of the ASALs in the IGAD region is underutilised and is much greater than it is realised in the past. Moreover, in the 2<sup>nd</sup> IGAD/IUCN conference of Directors of Finance and Planning and Directors of Conservations Ministries held on 9 – 13 March 2010 in Entebbe, UGANDA recommended IGAD should formulate a strategy to look into the potentials and products of arid and semi-arid lands, looking at marketing chains and value addition in IGAD.

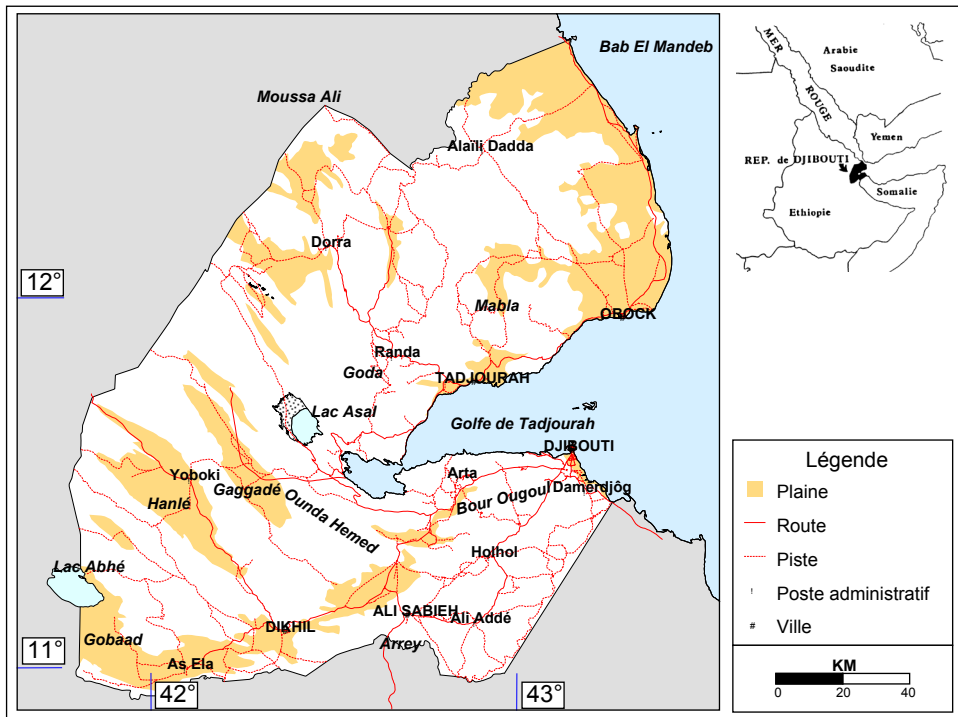
In this framework this report has been developed with the objective of ensuring sustainable use of natural resources by promoting contribution of NWFPs to food security, income generation and alternative livelihoods in IGAD ASALs by exploiting and promoting eco-(bio) enterprises from national and regional non timber products. Specifically, this report includes baseline information on the existing status of dryland products in Djibouti, the current legal and institutional frameworks and existing capacities of the NWFPs sector.

This document shows that Djibouti is endowed by interesting natural vegetation but the exploited value of NWFPs remains very low. Gums and resins from *Commiphora africana* and *Boswellia papyrifera*, dye from *Lawsonia inermis*, toothbrushes from *Salvadora persica*, shampoo and lotion from *Zizuphus mauritiana* are some of the common products found in the markets.

Many constraints such as very weak technical capacities, lack of formalized producers' organizations, absence of legal and institutional frameworks, very low access to information and communication tools, difficulties in credit access have continued to hamper the development of the sector. This report proposes some recommendations and suggests 11 prioritized areas of intervention among which, policy development, implementation of legal and institutional frameworks, financial support, market development and training are crucial, if the sub-sector is to contribute to the livelihood of producing communities and the general economy. From these areas, a log frame of prioritized activities has been proposed in Annex 1 for potential funding by IGAD or other development partners.

# 1. Introduction

With a total of 23 200 Km<sup>2</sup>, Djibouti is the smallest country in the IGAD region. It lies in the Horn of Africa at the entrance to the Red Sea, and is bordered by Eritrea, Ethiopia and Somalia (figure 1). The eastern coastline of Djibouti extends for approximately 372 Km along the Red sea, the Gulf of Tadjourah and the Gulf of Aden. Within the country, altitude ranges from sea level to 2,021 m above sea level at Mount Moussa Ali.



**Figure 1 : Map of Djibouti**

Population growth is expected to continue at 3 percent per year, while the net migration rate will vary between 1-3 percent, resulting in a net demographic growth of 4-6 percent per year. Total population will therefore double in less than 15 years, worsening Djibouti's already poor access to fresh water and increasing the country's disaster vulnerability. The human population of Djibouti is estimated at about 818,159 inhabitants most of which (70,6%) is urbanized and 58.1% is leaving in the capital, Djibouti (DISED, 2009). The rural population is estimated at 150,000 people, more than 80% of whom are nomads. The nomads, who depend on pastoralism, occupy a land area estimated at 2,000,000 ha .

Djibouti's economy is characterized by an extreme duality, as it is divided between a modern, outward-looking urban commercial sector and a rural, subsistence-based pastoral economy which has little access to public and private sector investments including infrastructure, services and markets. Changes in national economic indicators and activities which have taken place over recent decades have had little impact on the rural population, who continue to engage in semi-

nomadic, subsistence-level livestock production largely affected by economic decisions made in the capital (Emmertson, 1998).

The primary and secondary (industry and manufacturing respectively) sectors play a marginal part in the economy of the country although the first is extremely important in the rural level where livestock forms the basis of household and community livelihoods. Agriculture and livestock account for only 3.2 % of the GDP (Table 1).

**Table 1: GDP (%) contribution of each sector of the economy.** Sources: BCD and MEFPF

Year	Primary sector	Secondary sector		Tertiary sector	
	Agriculture, livestock and fisheries	Industry and energy	Building and public works	Transports and communication	others services
1990	2,7	9,5	9,7	14,9	63,2
1995	2,8	8,7	4,8	19,4	64,3
2000	3,1	7,5	5,9	24,4	59,1
2005	3,2	7,9	7,4	24,0	57,5
2006	3,2	7,6	7,3	23,6	58,3

With a GDP per capita of 890 U\$ in 2001, 1030 US \$ in 2006, Djibouti appears to have better economical conditions than its closest neighbours. However poverty and unemployment levels are still high (42% and 59%). If one considers, the UNDP’s human development indicator (HDI) which takes into account, the GDP, the education and the life expectancy, Djibouti ranks 150<sup>th</sup> out of 173 countries with a HDI value of the of 0.476 ahead of Eritrea and Ethiopia which are ranked 157<sup>th</sup> and 168<sup>th</sup> respectively (FEWSNET 2004).

Poverty is widespread with an estimated 42% of the population living below the poverty threshold, among which more than 50% are urban while the rest are rural. The World Bank (EDAM 2002) survey showed the incidence of relative poverty and extreme poverty during the period 1996 - 2002, had dramatically increased respectively from 45% to 75% and 9.6% to 45%. The incidence of poverty is more dramatic in the rural areas. More than 96% of rural population lives below the poverty threshold and 83% of them live in extreme poverty.

To achieve sustainable reduction of poverty by half and improve living conditions of all citizens, Djibouti launched her National Poverty Reduction Strategy Program (PRSP) in 2003. Within the framework of the PRSP, a mid-term Investment Programme for Rural Development (2004-2010) was implemented with the specific objective of ensuring the development of the agriculture, livestock and fisheries sectors to improve food security.

The PRSP is in conformity with the Millennium Development Goals (MDG) as indicated in the Djibouti’s DMO document developed in 2005. Moreover, to strengthen its commitment and will in poverty alleviation policy, the government initiated the National Initiative for Social Development (INDS 2007). The objective of INDS was to guarantee more equitable redistribution

of the economic growth and to reduce the number of the poorest Djiboutians currently living on the fringe of society.

In this global context of poverty and its alleviation, natural resources should play a special role in the life of the poor and particularly in rural areas. More than one third of the population depends on livestock, fisheries, remaining forests, woody areas, agriculture for employment and/or survival while Djibouti economy is still dependant on external financial assistance and is highly vulnerable to exogenous shocks. Economic instruments for sustainable use of natural resources should decrease this dependence and vulnerability by exploiting the enormous economic potential of Non Wood Forest Products (NWFPs) such dyes, medicines, resins, gums, perfume, honey and other important emerging natural products made from indigenous plants. The promotion of a natural products market at the national, regional and the international levels should open market and offer new sources of livelihood to rural communities which in return would protect natural resources for sustainable development.

Djibouti is benefitting from its natural vegetation by exploiting, albeit at a very small scale NWFPs, by harvesting and marketing otResins from *Commiphora africana* and *Boswellia papyrifera*, dye from *Lawsonia inermis*, toothbrushes from *Salvadora persica*, shampoo and lotion from *Zizuphus mauritiana* among others.. At the same time a research program aimed at enhancing productivity of commercially exploitable species has been undertaken by CERD (previously ISERST), which is unique research centre in Djibouti.

In Djibouti, the harvesting and consumption of NWFPs is mostly linked to the needs of nomadic populations. The production and consumption of the NWFPs is embedded in cultural, decorative or utilitarian purposes, which owe their origins to the ancient heritage that has remained fairly authentic and untransformed until fairly recently. For about a decade, new factors (advocacy undertaken by some NGO's and associations, tourism, promotion of natural products, efforts made to improve quality...) contributed to boost production and improve quality. Nevertheless, in a country where the internal market is still very limited, the prejudice arising from the presumed low or poor quality of the products has hampered the growth of local, regional and international markets. This has substantially slowed down the growth of the export market and profitability.

The present document has been written to contribute to and be part of the framework of recommendations of IGAD to formulate a strategy looking into the economic potential of arid and semi-arid NWFPs, the associated marketing chains and value addition activities. The paper gives a broad idea of the status NWFPs by clearly identifying under or over-exploited species that exist in wild or under limited cultivation in Djibouti with a view to promoting and increasing cultivation, multiplication and production. The objective of sustained exploitation of NWFPs is to contribute to the diversification of the livelihood systems in the ASALs by creating new opportunities for job and wealth creation, trade and availability of foods and products.

## 2. Background to the study

In the ASALs region of Djibouti, household and community livelihoods depend heavily on natural resources, including water, pasture, forests, scrublands and wild animals and insects,

making conservation strategies closely linked to sustainable rural development. In October 2008, the International Union for Conservation of Nature (IUCN) and IGAD facilitated a tour of IGAD Parliamentarians and journalists to the dry lands of Kenya, to learn firsthand from local communities about the challenges and successes in conservation and sustainable livelihood development in dry lands. The group visited community conservancies in the districts of Laikipia North, Samburu East and Garbatula. The Parliamentarians saw firsthand processed and manufactured products from ASALs indigenous plants and the effect products had on the local communities. The consensus of the participants on this tour was that goods and services from the arid and semi-arid lands are not understood, which restricts their effective exploitation and utilization. The Members of Parliament were unanimous that all IGAD member countries have the potential to develop their arid and semi-arid areas just as the communities in Northern Kenya have.

Attitudes towards the ASALs are changing, with new understanding about the value of dry lands environment, the way these environments function, and the way the inhabitants of those dry lands have adapted their livelihoods to the constraints and opportunities that the environment presents. In Kenya for example, 80% of the country is arid or semi-arid and contributes 25% of National GDP! Yet the dry lands are home to the country's highest poverty levels, conflict and insecurity. As a result of the new understanding, there is a growing level of innovation for sustainable dry lands development, particularly in consolidation of successful innovations that are scattered through these sparsely populated and poorly connected regions. At sub regional level it is possible to draw lessons from such successful innovations and use them to direct new investments and to help create supportive policy and planning that supports ASALs development.

Promoting sustainable land use in the dry lands therefore requires a regional perspective on the challenges that pastoralists face with greater attention on transboundary ecosystem management, markets and service provision. After visiting the three community conservancies, the IGAD Parliamentarians concluded that the potential of the ASALs in the IGAD region is much greater and underutilised than it is realised. It was recommended that for long-time sustainability, IGAD should identify and support a pastoralist development institute/dry land training institution to promote eco- and bio-enterprises in the arid and semi-arid lands. In addition, the 2<sup>nd</sup> IGAD/IUCN conference of Directors of Finance and Planning and Directors of Conservation Ministries held on 9 -13 March 2010 in Entebbe, Uganda recommended that IGAD formulates a strategy to look into the economic potential of NWFP products from arid and semi-arid areas, by looking at marketing chains and value addition among other factors.

In this framework the current report has been written to provide an broad outline of NWFPs current situation (ecology, production, marketing...) in Djibouti and to identify priorities for action.

### **3. Objectives of the study**

The overall objective of the study is to ensure sustainable use of natural resources by promoting their contribution to food security, income generation and alternative livelihoods in Djibouti. Exploiting NWFPs and promoting eco-(bio) enterprises from national and regional non timber products are expected to achieve this objective.

The specific objective includes a baseline survey of the status of dryland products to identify under or over-exploited species that exist in wild or limited cultivation in Djibouti with a view to promoting and increasing cultivation, multiplication and production. Such survey should help to develop in the coming future appropriate activities such:

- training modules to build capacity of producer groups, private sector and user communities to enhance the production and marketing of dryland products;
- market and product development for NWFPs through research, value addition and market chains;
- access to micro-credit for producers groups;
- Develop and strengthen community/private partnership to ensure the sustainability of the dryland products.

## 4. An overview of NWFPs in Djibouti

### 4.1 Ecology

The World Resources Institute had estimated to around 2,000 ha of forest and 68,000 ha of open woodlands in the country (CNE 1991). A complex of physiographic and environmental factors determines different habitat types and associated vegetation. Globally, the distribution of various vegetation types (Table 2) is associated with various altitude, rainfall, mountains and hillsides... (Audru *et al.* 1987). The country is covered mainly by shrub land dominated by *Acacia ssp.* (Plate 1) such as *A. tortilis* and *A. mellifera*.

In high mountains, forests are covered by species of Mediterranean and Ethiopian origins, including *Juniperus procera* (Plate 2), *Terminalia brownii*, *Olea africana*, *Aizoon canariense*, *Psidium punctulata*, *Euryops arabicus*. The high plateaux host succulent steppe vegetation dominated by *Euphorbia ssp.*, *Cissus ssp.*, *Caralluma ssp.* with occasional *Dregea ombet*, *Acacia etbaica* and *A. seyal*. In the plains and depressions, the main vegetation type is a graminaceous steppe associated with sparsely dispersed shrubs such as *Acacia tortilis*, *A. asak*, *A. horrida*... and occasionally thickets of *Cadaba rotundifolia* and *Salvadora persica*. Flooded plains and depressions are habitats for *Jatropha glauca* and woody species such *Acacia herenbergiana* and *A. nilotica*. In some areas of the country, marshes lands host Doum palms (*Hyphaena thebaica*) and rare species of *typha ssp.* In littoral areas, vegetation type includes grasslands, scrublands dominated by *Limonium sp.* or *Sueda sp.* Mangroves forests (Plate 3) are present long the Northern and southern coasts and in Moucha and Maskali Islands. Four species has been reported (*Avicennia marina*, *Bruguiera gymnorrhiza*, *Rhizophora mucronata* and *Ceripos tegal*).

Table 2 : Different agro-ecological zones (PSSA 1999).

Agro-ecological zone	Vegetation	Altitude (m)	rainfall (mm)	T° (C)	PET (mm)
mountains with marine climate	Forest unit with <i>Terminalia brownii</i>	536 -1100	200 - 300	25 - 27	1500-2000
mountains with continental climate	Shrub Steppe with <i>Acacia etbeïca</i>	448 -1019	150 - 200	25 - 37	1500-2500
Costal plains with marine climate	Shrub Steppe with <i>Acacia tortilis</i> et <i>Acacia asak</i>	6 - 20	100 - 150	25 - 35	2000-3000
Plains and depressions with continental climate	Grassy Steppe and wadis units ( <i>Acacia nilotica</i> , Doum plams...)	229 - 379	100 - 150	27 - 40	2300 - 3000



Plate 1: Shrub land dominated by *Acacia ssp.*



**Plate 2: Mountain forest (Day Forest) dominated by *Juniperus procera* and associated species such as *Olea African* and *Buxus hildebrandtii*.**



**Plate 3: Mangrove forest in Moucha Island**

In Djiboutian informal markets, some plant products are sold to be used for culinary, medicinal, beauty and cultural purposes. Most of these species are imported from Somalia, Ethiopia or the Arab peninsula while they exist in the national territory and/or could be easily cultivated. Like the major part of ASAL's countries, a large part of the national flora such as *Acacia ssp.*, *Boswellia*, *Lawsonia*, *Moringa*, *Aloe vera* and others can be used as NWFPs. Table 3 gives more precise in-

formation on the ecology of some commercially exploited species found in Djibouti which should be useful in the NWFPs development program.

**Table 3: Ecology of some interesting species in NWFPs development program**

Species	Ecology
<b><i>Azadiracta indica</i></b> <b>(neem, miramiri)</b>	<i>A. indica</i> , well known as neem (called miramiri in Djibouti) is native from India and Burma. <i>A. indica</i> is a member of <i>Meliaceae</i> family. It has been introduced in Djibouti for 30 years ago where it has since grown well. The tree grows almost anywhere it takes benefit from water supply. Neem is renowned for good growth on dry infertile sites. It performs on wide range of soils although stony and shallow soils seem to give best development. <i>A. indica</i> is not suitable for waterlogged areas.
<b><i>Boswellia papyrifera</i></b>	The genus <i>Boswellia</i> is related to the <i>Burseraceae</i> family. <i>Boswellia</i> is found in arid zones with rocky soils. The geographical distribution of <i>B. papyrifera</i> in Djibouti is particularly limited to the northern-eastern part of the country around 700 m altitude receiving a mean annual rainfall of 150 – 200 mm. <i>B. papyrifera</i> is naturally found on cliffs of the region of Tadjourah (and particularly in the locality of Ruelli and Ribta). Introduction of <i>B. papyrifera</i> in the Region of Arta has been successful. Humidity received from sea seems to be vital for a good development of the tree. <i>Boswellia</i> genus is used for frankincense and medicinal purposes. Currently the species is threatened by bad tapping and heavy pressure of overgrazing.
<b><i>Lawsonia inermis</i></b>	<i>L. inermis</i> is widely distributed throughout the Sahel and into Central Africa; it also occurs in the Middle East. It grows mainly along watercourses and in semi-arid regions and is adapted to a wide range of conditions. It can withstand low air humidity and drought. Henna requires high temperatures for germination, growth and development. In Djibouti <i>L. inermis</i> is found in all sandy and loamy soils of the country and particularly in irrigated gardens.
<b><i>Ziziphus mauritania</i></b>	<i>Z. mauritania</i> is a hardy tree that copes with extreme temperatures and thrives under rather dry conditions. Fruit quality is best under hot, sunny and dry conditions, but there should be a rainy season to support extension growth and flowering, ideally leaving enough residual soil moisture to carry the fruit to maturity. Native to the tropical and subtropical regions, <i>Z. mauritania</i> is normally widespread in areas with an annual rainfall of 300-500 mm. It is known for its ability to withstand adverse conditions, such as salinity, drought and waterlogging. To compensate lower mean annual rainfall (150- 250 mm/yr) in Djibouti, <i>Z. mauritania</i> is found around wadis particularly in mountains (Randa, Assa Gueyla, Goda...). It's always cultivated in gardens at different altitude. <i>Ziziphus</i> fruits are sweet and well appreciated.  Medicine: Leaves, fruits and bark are used medicinally. Pounded roots are added to drinking water and given to poultry suffering from diarrhoea and to humans for indigestion. Dried leaves are used to
<b><i>Hyphaene thebaica</i></b> <b>(Doom palm)</b>	<i>H. thebaica</i> Widespread in the Sahel with mean annual rainfall: (min. 50) 100-600 mm. it grows from Mauritania to Egypt, from Senegal to Central Africa and east to Djibouti in temporarily flooded plains like Agna or close to the coastal areas (Tadjourah, Djibouti...). The tree tends to grow close to groundwater but can also grow farther away in oases and wadis, and is widely distributed near rivers and streams. The tree can develop on silty to sandy soils and can tolerate medium salinity mostly on sandy soils. It does not do well in waterlogged areas it is very resistant to bush fires.  In Djibouti <i>H. thebaica</i> is appreciated for its fruit. Trees are also browsed to a limited extent by livestock, especially in dry periods. Palms are occasionally used for firewood and charcoal; leaves may also be used as fuel. Leaves are the most important part of the palm, providing the raw material used in basketry, making mats, brooms, coarse textiles, ropes, thatching and string. Timber from palm is borer and termite proof, decorative and durable. It is often used for construction, providing supports and rafters for houses, water ducts and wheels, railway sleepers, planks, fence posts and raft construction. In the Afar region, the terminal meristem <i>H. thebaica</i> is tapped for making palm wine. Roots could be used in the treatment of bilharzia, while fruit pulp is chewed to control hypertension. Sore eyes in livestock are treated using charcoal from the seed kernel. Other products: The hard seed inside the fruit, known as 'vegetable ivory', is used to make buttons and small carvings. Currently, population of Doom palm is threatened by several factors like bad tapping for wine fabrication, overgrazing, recurrent drought and increasing water and soils salinity.....

<b><i>Commiphora Africana</i></b>	<b><i>Commiphora africana</i></b> grows on rocky ground and escarpments at an altitude above 800 m. It's particularly found in the mountain of Goda in the region of Tadjourah in northern part of the country. It's uses by Egyptian are well known.....
<b><i>Cymbopogon schoenanthus</i></b>	<i>C. schoenanthus</i> grows in regions with a low rainfall (around 100-150 mm. per year). Whatever the topography, this plant is found in several sites in Djibouti. <i>C. schoenanthus</i> the gravelly-sandy soils (plains and depression of Gand Bara) of non-saline wadi beds (oued Dabadera near Dikhil) as well as on the gravelly-stony soils of collines (Asabahri). The plant is used as medicinal plant as diuretic and against nephritic colic
<b><i>Phoenix Dactylifera</i></b>  (Date palm)	Date palms Widespread from dry environment of Arabian Gulf, stretching westwards over North Africa to the Atlantic and eastwards to India and beyond. The tree tends to grow close to groundwater but can also grow farther away in oases and wadis, and is widely distributed near rivers and streams. The tree can develop on several types of soil from sandy to silty ones. It can tolerate salinity particularly on sandy and well drained soils. All the part of the tree are used. In desert and semi-desert conditions date palms give direct benefit from date fruit consumption, use of palm tree materials and prospects from income generation. It also has an extremely beneficial impact on desert microclimates which enables the planting of other crops and arrests the process of desertification.
<b><i>Salvadora persica</i></b>	Plant of arid zones, <i>S. persica</i> is found in flooded sandy plains or wadis (Hanlé (Tewao), Aseyla, Ribta, Ali Sabieh associated to <i>Cadaba rotundifolia</i> ... <i>S. persica</i> tolerate medium salinity. It's always found on sandy coastal areas like Khor Angar. It's often look like big monospecific circular covers. Upstream of Hanle wadi, bushes of <i>S. persica</i> grow on water carriage area. Branches are used as toothbrush.

## 4.2 NWFP resource mapping

The general distribution of Djiboutian flora was mapped in 1987 by Audru *et al.* (figure 2) but NWFPs resources have not yet been exhaustively and adequately mapped. Nevertheless, 30 high genetic potential sites (figure 3) for NWFPs were reported (ISERST 1988), among which Loubatanlou and Loubatanle, were recognized as the two (2) most important *Boswellia papyrifera* (frankincense species) growing sites. Loubantalou covers an area of about 500 ha with a good potential of gums production. However, plant regeneration is compromised by overgrazing and non sustainable and often crude methods of gum extraction.

All the identified sites are suffering from high animal pressure leading to overgrazing and human impacts such wood harvesting and unsustainable cultivation. Globally, the country faces a high loss of its forest cover, estimated at 3.3% each year (MHUEAT 2001). It is imperative that a well thought out and designed conservation program is implemented urgently to safeguard the valuable vegetation and natural resources in line with Djibouti's international commitments.

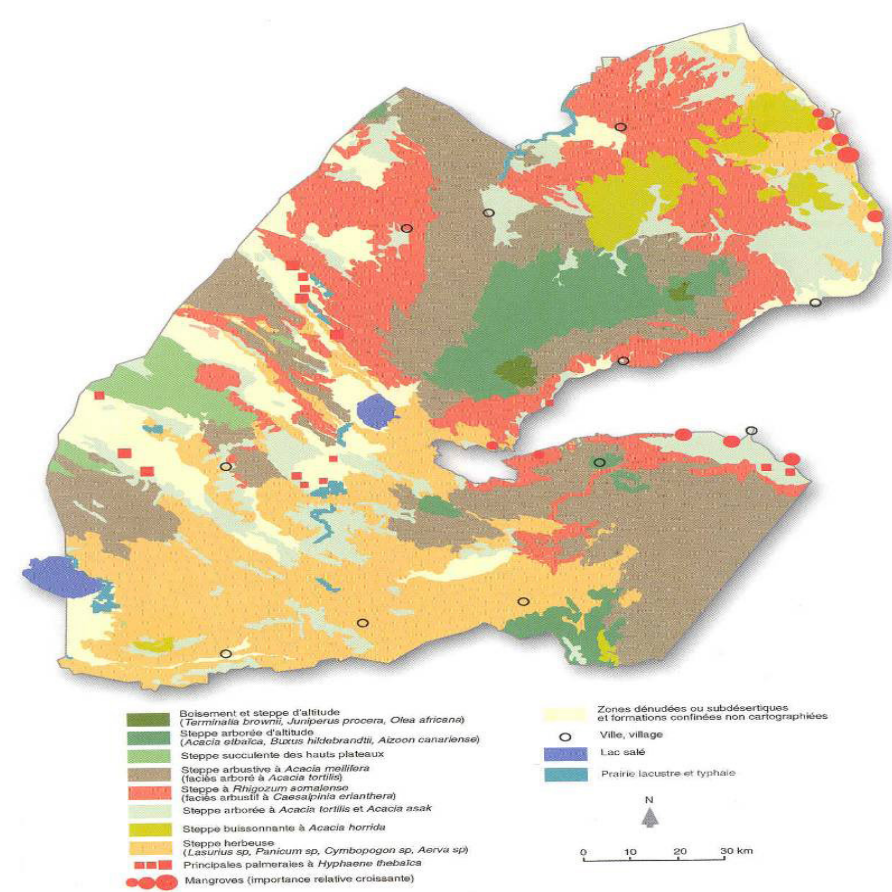
Djibouti is committed to play its role in the world environmental conservation process as demonstrated through the signing and ratification of the following important conventions:-

- a. Convention on Biological Diversity (CDB, 1996),
- b. Convention on Climatic Changes (UNCCC 1995)
- c. and Kyoto Protocol (2002),
- d. Convention against desertification (CCD 1997),
- e. Montreal protocol (1999), Bâle Convention (2001),
- f. Carthage Protocol (2002),
- g. Rotterdam Convention the 2004, CITES and Ramsar Convention among others

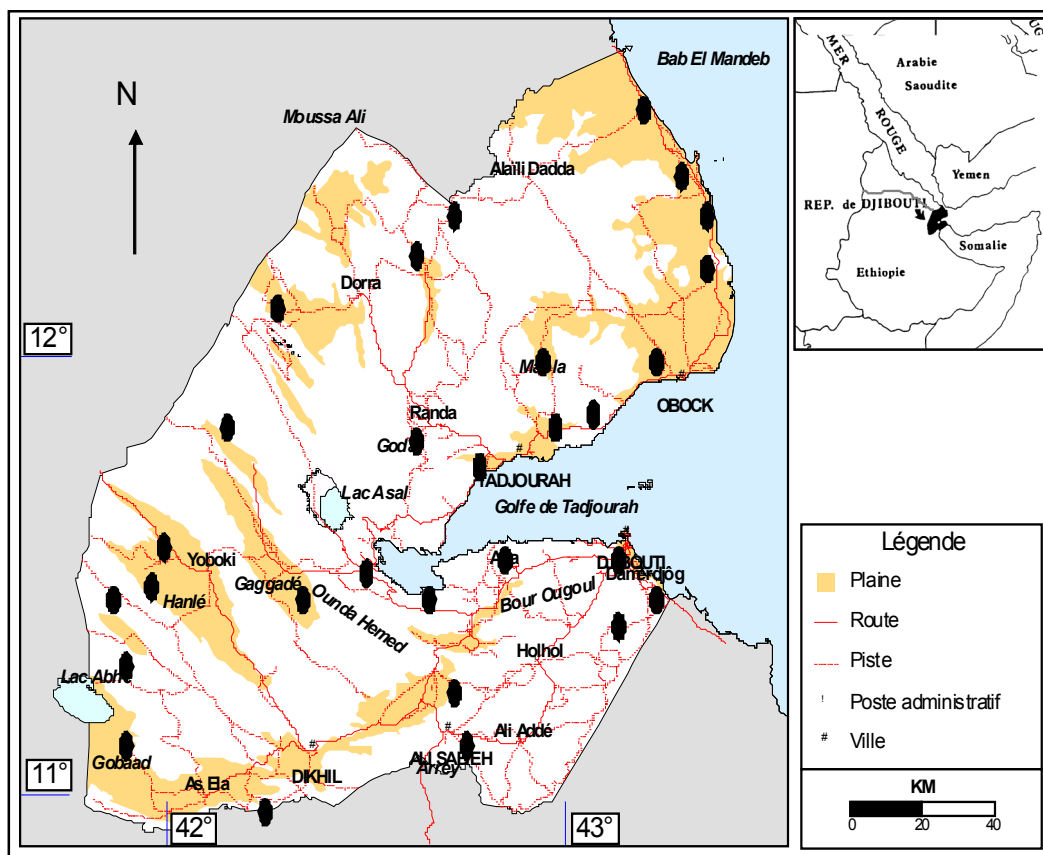
To fulfil its international obligations, Djibouti developed its National Action Program for Environment (NAPE) and its national monography for the biological biodiversity in 2000. The

supporting National Action Plan (NAP) against desertification and the first national communication for climatic changes were finalized in 2001. All these documents are aimed to the promotion of sustainable use of natural resources.

For concrete actions, Djibouti created a network of protected areas (Law N°45/An/04/5ème – 27 march 2004) distributed between terrestrial ones ( Day Forest, Mabla Forest, Lac Abhé and Lake Assal) and marine ones (Musha and Maskali Islands, Iles des Septes frères, Ras Syan, Khor Angar, Goddorya Forest and Haramous). The law, however, does not prevent all activities as the Government’s aim is to allow artisanal activities and ecotourism to continue, under regulated systems that take into account biodiversity values.



**Figure 2: Map of Djibouti flora**



**Figure 3: Localisation of high genetic potential for NWFPs**

#### **4.3 Production, processing and marketing of NWFPs**

NWFP production and marketing is largely meant to meet the local demand of the nomadic livestock producers. Whether the use is for cultural, decorative or medicinal purposes, the use of NWFPs have their origins embedded in the ancestral heritage and has remained so to date. The production and marketing of NWFPs have not yet gone through any substantial transformation because of weak producers' creativity, low returns realized from the products and the limited market. As a result the producers, traders and key actors in the public sector do not attach much value to NWFPs Marketing chains in Djibouti are either poorly defined or absent while the consumers prefer processed and branded imported NWFP products which they find to be more attractive.

It is important that Djiboutian producers take into account the increasing domestic, regional and international demand for natural products particularly in this last decade to value their production. This demand is partly being triggered by:

- The increasing shift to traditional medicines either as a fashion or due to the escalating cost of health care. Due to the high rate of poverty in Djibouti, a large part of the population extracts and lotions from different leaves, bark, seeds, roots are used to prevent a number of generalized, internal and skin diseases and infections.
- The promotion including advertising of natural products that are beginning to reach the Djiboutian population through the promotion made in Western countries. Beauty products extracted from trees such as jujube, *Lawsonia*, *allovera* are highly appreciated. The leaves of jujube, dried, crushed and mixed with water produces lotion used in facial, skin or/and hair care. In the Muslim religion, this lotion is a symbol of purification.
- The influx of tourists and the presence in Djibouti of a large European community
- The improved quality of NFWP coming from neighbouring countries, especially Yemen and Gulf countries. Locally produced and processed NFWP products can easily compete with imported products in the domestic market.

#### 4.4 Associations along the production and marketing chains

There is no organized producer or marketing association in Djibouti. NFWP production is still very artisanal while processing and marketing has remained poorly organized and funded. Most of the NFWPs production is from rural communities and some poor households close to the capital. There are many impediments that hinder these producers from being better engaged in the production, processing and marketing of NFWPs. Among the constraints to improved production, processing and marketing of NFWPs include low technical capabilities, high illiteracy, poor access to appropriate information and . The access to information is a critical need for the organizations to better plan their actions and value their products. Moreover, due to their very limited financial resources they cannot invest in production, value addition or marketing and/or diversify their production to include cultivated NFWPs. To compound the situation mostmostmm most rural organizations in Djibouti do not have a clear vision and long term strategies due to limited information and low literacy. Today most of young rural people do not see a future in exploitation of NFWPs and are more content to find lowly paying jobs in the private or public sectors in Djibouti town.

The solution lies in the capacity of the NFWPs producers to commit themselves to the establishment of co-operatives and/or associations which will be involved in the organization of the various NFWP market chains. These co-operatives and/or associations will function as “professional” organizations which help the producers to recover a greater fraction of the benefits accruing from value addition of their production. The co-operatives and/or associations support the communities with technical and marketing information to improve their economic well being. With the prevailing competition following economic liberalization the services provided by the co-operatives and/or associations will be serve to guarantee the growth and expansion of the NFWP industry.. To fund their projects, producers should take benefit from opportunities that INDS (National Initiative for Social Development) offered to them through the Djibouti Social Development Agency (ADDS). In Djibouti ADDS support initiatives aiming to develop micro-enterprises. In addition the ADDS is evaluating *Prosopis*, an invasive tree in Djibouti, as a source of animal feed and energy (charcoal and firewood).

#### 4.5 Economic contribution of NWFPs

Data on the economic contribution of NWFPs in Djibouti is presently nonexistent. Nevertheless, there is a non formal market to take in consideration particularly rfor traditional medicines, lotion, honey and bee wax (Table 3).

#### 4.6 Commercialization including laboratory production of NWFPs planting material

Production of NWFPs is still natural and commercialization including cultivation of NWFPs, process and extraction in specialized laboratories, is yet to take root. The most common use of NWFPs by the rural and peri-urban poor and animals is for medicines and food. Table 4 gives present the different uses of NWFPs and market prices.

Table 4 : Some plants used as NWFPs resources

Species	part of the plant	type of utilisation	quantity (g)	price (US\$/kg)
<b>Zizuphus Mauritania</b>	bark dried and ground leaves	medicine Lotion and Shampoo	100	0,75
			100	0,75
<b>Coffea ssp.</b>	dried berries	Medicine	100	0,80
<b>Balinites aegyptiaca</b>	bark		250	1.0
<b>Boswellia ssp.</b>	Gum, resin	incense medicines (urinal transit) perfume		3 to 6 kg
<b>Lawsonia inermis</b>	ground seeds	Beauty products and shampoo		3/Kg
<b>Hyphaena etbaica</b>	palms sap	artisanal alcohol beverage (after sap fermentation)		
<b>Cymbopogon shoenatus</b>	Dried leaves	Diuretic infusion urinal et intestinal transit		
<b>Pomegranate</b>	dried fruit peel	Heartburn		

#### 4.7 Policy and legal frameworks

The NWFP sub-sector is wholly subsistence and only concerted efforts to inject fresh and substantial investments can result in the integration of the sub-sector in the national economy.

Law n°149/AN/02/4<sup>ème</sup>L on the economic and social orientation of the Republic of Djibouti for the period of 2001-2010 defined the main actions and measures of reforms as to implement and put in place reference framework for the elaboration of the future NWFP programs and development plans. The strategic objectives of the artisanal, industry and commercial sectors

are to:

- Enhance the participation of the artisanal and the industrial sectors in the national production
- Value the natural resources including minerals
- Reduce the energy dependence, and
- Take benefit from COMESA and Sub-Arab regions memberships.

To achieve these objectives, it is suggested that Djiboutian authorities implement the following actions and measures:

- Develop the required skills in industry and marketing for the promotion of Djibouti as an adequate area for delocalisation and for regional and international markets;
- Identify and develop craftsmen products based on national resources;
- Offer greater incentives to investments allocated to the regions;
- Encourage and support new small industries and create facilities to new producers.

In his address to the Nation in May 2005, the President of the Republic of Djibouti emphasized the necessity of giving to the sector of craftsmen an important place (recognition) in the national economic and social development process. The President focussed on the urgent need to deeply reform the sector and engaged a global process to develop a suitable environment for the promotion of dynamic and competitive craftsmen profession. The government policy should focus on the organization and training of producers as well as the promotion of the sector at the national and international levels. Such policy requires a strategy based on strengthening competition of the sector and leading to the emergence of middle and small enterprises. The implementation of institutional and legal framework should create a favourable environment for such strategy.

The commitment of the government for the development of the sector aims to:

- reduce women and youth unemployment
- alleviate vulnerable population poverty
- enhance creation of small firms
- Reduce the rural exodus
- Strengthen decentralisation through the creation of economic poles in the regions.

To translate its commitment into actions, the government adopted in January 2007, the National Initiative for Social Development (INDS). This initiative aims at reducing social disparities and inequality. It also confirms the necessity of acting to strengthen the economy and to create conditions that would lead to sustainable development and thus helping the poorest amongst the Djiboutians to improve their livelihoods. INDS fixed some major priorities such as:

- i. access to social services
- ii. restructuring of productivity tools
- iii. assistance to vulnerable persons

Several institutions are involved directly or indirectly in activities linked to promotion of trade

and supporting craftsmen sector. Among them, are three institutions play a major role in trade exchange and private initiatives. These are the Ministry of Trade and Industry, the Chambre de Commerce of Djibouti and the National Agency for Investments. In the framework of NFWPs development, other institutions (like the State Secretary for National Solidarity and its Social Development Agency, the Ministry of Environment, the Ministry of Agriculture, the Research Centre of Djibouti, NGOs...) should also play an important role. As regional organisations, such as AU and IGAD should help in the identification of common regional projects (training, know-how exchange among IGAD member countries, improvement of products, organization of producers, marketing chains) and potential donors.

#### 4.8 Research and development

The Research Centre of Djibouti (CERD) and the University of Djibouti should play an important role in research and development of NFWPs. Currently, in CERD, the Life Sciences Institute and The Institute for Medicinal Sciences are undertaking research development programs in the sector of NFWPs. The Life Sciences Institute has already conducted a survey map NWFP and research to improve propagation of selected species such as *Boswellia ssp* and *Acacia nilotica*. The survey gave a much better understanding of the NWFP ecology and allowed the identification of high genetic potential species and the appropriate sites for their propagation. Moreover, an inventory of the national plant genetic potential has been done to identify species that can be commercialized, and those that are in pastoral (drylands) and forest. A program for the conservation of genetic resources *in-situ* and *ex-situ* was also initiated and is still being implemented. For *Boswellia papyrifera*, propagation of selected parents' cuttings have undergone rigorous testing and determination of the optimal cultivation conditions including the identification of suitable sites for their development in Djibouti.

Since 2007, the Life Sciences Institute of Djibouti has had a plant biotechnology laboratory which propagates tissue culture date palms trees selected to best suit the Djibouti environment. Currently, the laboratory has cloned some varieties for high quality fruits and vegetables for distribution to selected communities for multiplication and production. It is expected that these selected improved varieties will serve to improve local food production (access to food) and to meet domestic market needs (access to money to meet other needs). In the future, the laboratory plans to propagate high valuable plants for NFWPs production.

The Medicinal Sciences Institute, created in 2009 has undertaken an inventory of some medicinal plants of the country. Some of which are expected to be tested for their efficacy to treat some common diseases like malaria and skin ailments.

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#### 4.9 Constraints to optimal utilization of NFWPs in Djibouti

In Djibouti, a lot of constraints limit the optimal use of NFWPs including:

- The weak technical skills and knowledge of Djiboutian producers to add value to their products. This lack of the technical capacities reduces originality and creativity.
- The inadequate training strategy and financial support to add value their products. Many NWFPs are similar to those from the neighbouring countries which are more attractively packaged and competitive due to their lower prices.
- Most of rural producers are illiterate and have limited opportunities to benefit from the current increasing market demand due to poor access to information and communication. In addition the producers do not have access to up to date market information including the anticipated markets trends and thus do not produce NWFPs to meet any specific quality expectation
- The sector is marginalized and poorly promoted so it does not attract young people. In addition there are no public sector incentives to to promote the sector and attract private investment.
- The market chains are nonexistent and the consumers prefer to buy imported products. As a result, Djiboutian producers lose opportunities to sell their products and create employment and earn money. Therefore the contribution of the sector to the national economy is very low.
- Lack of legal and institutional frameworks to promote NWFPs marketing
- No clear measurements or facilities to support producers and guide them through the myriad of administrative formalities.
- Producers cannot access credit and thus cannot afford to increase or improve production and quality or invest in market information to better position their products
- No organisation representing the interest of producers
- No strategy and program for training producers to enhance the quality of the production and their capacity of negotiation
- There are no extension services to backstop the NWFP producers.

#### ***4.10 Recommendations and the way forward***

To promote the sector, a strategy to improve the legal, policy and institutional frameworks should be developed and implemented. These legal and institutional frameworks should lead to the adoption of policies and legislations outlining the roles and support structures for the producers, and the mandates of and funding to institutions involved NWFPs. At the same time, these frameworks should help to:

- Organize the sector and producers offering opportunities for training and financial support and establishment of producer organizations.
- Promote dialogue and partnerships between stakeholders to avoid duplication of efforts and enhance public interest for the associations and their products.
- Improve producers' skills training and supporting exchange visits to other producers in the IGAD region. Producers in Djibouti should benefit from transfer of technology as a result of collaboration with diverse National, regional or international producing countries and organisations.
- Facilitate access to credit through the establishment of a funding mechanisms supported by appropriate policies for the development of the sector. Access to new and modern tools should be promoted and financially supported.

- Conduct public awareness campaigns through media, in fairs and exhibitions of products, competitions among others with a special focus on the importance of NWFPs and the role they could play in poverty alleviation.

## 5.0 Preliminary expert interviews and identification of national resource persons

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- Malik Garad. Head of Studies and External Relationships – Central Banque of Djibouti. President of LEAD Association. Mobile; 827230. garad@yahoo.fr -
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- Adwa Abdo Ali – CERD -
- Mohamed Moussa Ibrahim (Director of Agriculture and forest) – Ministry of Agriculture. Balala\_ingenieur@hotmail.fr
- Omar Osman (Technician/CERD) - osman.omar@voila.fr -

## 6.0 Preliminary proposals for IGAD and other development partner funding investment

The following eleven areas of intervention have been identified as priorities to promote the NWFPs sector in Djibouti. They have also allowed elaborating a draft of the logical framework (Annex 1) to promote activities aiming to promote NWFPs.

### 6.1 Policy development

To consider NWFPs sector an instrument for economic development, employment and wealth creation, reduction of rural urban migration and the improvement of youth and women's lives, policymakers should include the development of this sector among the national priorities and development strategies.

## **6.2 Legal, policy and institutional frameworks**

To improve the legal, policy and institutional frameworks, the following actions should be implemented:

- Create structures that support production and marketing of NWFPs
- The adoption of legislation that recognizes and promotes NWFPs producers and adopt supportive trade regulations;
- Encourage the organization of producers into functional associations and cooperatives in order to champion their interests;

## **6.3 Institutional organization**

- Effective involvement of the government and regional structures for the promotion and development of the sector:
- The establishment of a mechanism for partnership between producers, private, and public sector and civil society.
- The creation of a structure to consolidate and coordinate actions.
- The gradual integration of informal sector operators in the formal artisanal sector.

## **6.4 Decentralization**

- facilitate creation of decentralized structures aimed at promoting the sector;
- Promote and develop the potential in each region in Djibouti;
- Create (if possible) national and regional (IGAD) labels;
- Develop standards to be used in all IGAD member states – these standards can be used to improve the quality of local products in Djibouti;
- Create and encourage local enterprises capable of meeting the needs of the country's industrialization.

## **6.5 Production and distribution**

- inventory of NWFPs resources
- Improve product quality;
- Implement a policy for the promotion of national products
- Improve marketing chains and market research;

## **6.6 Dialogue between Private Sector / Public Sector**

- Establish dialogue between stakeholders and public to ensure the sector's development.
- Involve actual producers, politics, municipalities, private sector representatives and those of civil society in promoting and developing the sub-sector.

## **6.7 Trade and intellectual and industrial property rights**

- Promote South-South cooperation and North-South sharing of experiences;
- Facilitate access to new technologies;
- Encourage producers to participate in regional and international fairs;
- Expose and promote products during national festivities;
- Protect intellectual and industrial property rights.

## **6.8 Fiscal and financial support**

- Facilitate access to credit;
- Make enterprises benefit from a Guarantee Fund;  
enable local enterprise to take benefit from small business credit opportunities;
- Establish a funding support policy for the development of the sector;
- Facilitate access to credit for artisans;
- Sustain and develop microfinance activities.

### **6.9 Accompanying measures**

- Help producers to develop and implement their programmes and/or projects;
- Facilitate access to public services including land, extension services and research
- Establish an incentive tax policy, flexible and responding to the needs of producers. This should, therefore, encourage and enable them to gradual integration of informal activities into the formal sector of the economy.  
Encourage creativity of producers by pricing the best producers;

### **6.10 In improving the skills of artisans and training:**

- Establish a training program that meets the specific needs of different NWFPs development and to the specific realities of this sector by:
- Involving the private sector especially in the process of training
- Strengthen the capacity of potential training centers,
- Monitor the labor market, for example by developing alternate training.

### **6.11 Public awareness rising**

Undertake an awareness campaign on the potential economic importance NWFP and potential role these products can play in poverty alleviation and wealth and employment creation at producer level. The focus should to show that NWFPs can contribute effectively to the economic development in all the regions of the country.

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Annex 1 A log frame of proposed priority activities

Program N°1 : Strengthening legal capacities			
Objectives	Outputs	Activities	Indicators
implement a legal framework aiming to promote the sector and creation of enterprises	NWFPs Producers status developed and adopted	<ul style="list-style-type: none"><li>Develop a statute for NWFPs including producers</li><li>Harmonize this statute with others related sectors</li></ul>	statute developeddeveloped
	The sector and the Professionals are recognize and valuated	<ul style="list-style-type: none"><li>Adopt the statute for NWFPs associations</li><li>Apply the statute</li></ul>	Statute adopted and published
	The sector is organized and regulated	<ul style="list-style-type: none"><li>Inform stakeholders on the adopted regulation</li><li>implement appropriate regulations</li></ul>	Number of person informed on the regulation.
	The producer is recognized as an economic agent	<ul style="list-style-type: none"><li>elaborate a nomenclature for the sector</li><li>adopt this nomenclature</li></ul>	effective implementation of the nomenclature

Program n°2 : Strengthening institutional capacities			
Objectives	Outputs	Activities	Indicators
<b>Clarify mandates and attributions of institutions</b>	Each institution has a clear mandate	<ul style="list-style-type: none"> <li>• elaboration of a text clarifying mandate of each stakeholder</li> <li>• adoption of this text</li> </ul>	text available conflict between institutions solved
<b>Improve production and make it competitive</b>	Sector is well organized	<ul style="list-style-type: none"> <li>• creation of a decentralized supporting, organizing and training structure</li> <li>• organization of training workshops</li> <li>• facilitate credits for producers</li> </ul>	decentralized structure operational number of workshops organized number of producers who have take benefit from credits
	Production quality enhanced	<ul style="list-style-type: none"> <li>• creation of cooperatives/ associations and micro-enterprises</li> <li>• strengthen the capacity of producers through a technical support from national, regional or international experts</li> </ul>	number of cooperatives/ associations/micro-enterprises number of person trained

	Training of professional is ensured	<ul style="list-style-type: none"> <li>• Identify types of required training</li> <li>• Implement a training program adapted to producers</li> </ul>	Training program
<b>Strengthen research and technical capacities to value NWFPs</b>	Strategy and action plan for NWFPs research developed	<ul style="list-style-type: none"> <li>• Gather research institutions for a brainstorming on NWFPs</li> <li>• Design a steering committee for the elaboration of the strategy and the action plan</li> </ul>	minutes of meetings Strategy and action plan available.
	Technology transfer ensured and know-how shared	<ul style="list-style-type: none"> <li>• Identify partnership among research institutions at regional and international level</li> <li>• Encourage training workshops for exchange of know-how</li> <li>• Develop techniques and technologies to value NWFPs</li> </ul>	number of conventions/ memorandum of understanding between institutions number of trainings

### Program 3 : Fiscal and Financial Supports

Objectives	Output	Activities	Indicators
<b>Facilitate access to credit and promote investment</b>	Taxes are reduced and credit available	Implement new tax measures helping producer Inform stakeholders on new opportunities of credit. Create a special fund to promote NWFPs	New measures adopted  Special fund available
	The informal sector is integrated to formal sector.	Implement special measures of accompaniments	new measures available

<b>Program 4 : Production and marketing of products and services</b>			
<b>Objectives</b>	<b>Output</b>	<b>Activities</b>	<b>Indicators</b>
<b>Production and marketing of products and services promoted</b>	<p>Modernize production</p> <p>Marketing chains are improved</p>	<p>Conduct a policy of communication aiming to promote national products</p> <p>Modernize tools of production ;</p> <p>Explore and apprehend opportunities of market offer and demand ;</p> <p>Reduce production costs;</p> <p>Improve competitive products and services;</p> <p>Create a national label ;</p> <p>Implement a partnership between producers and small and middle enterprises....</p>	<p>number of radio/tv advertising on NWFPs</p> <p>number of modernize tools</p> <p>products prices</p> <p>national label available</p> <p>number of recorded partnership</p>

**Program 5 : Promote export**

<b>Objectives</b>	<b>Outputs</b>	<b>Activities</b>	<b>Indicators</b>
<b>Encourage and develop exports of national products</b>	NWFPs Products Production and marketing are promoted	Collect information on foreign markets demand  Take benefit from some advantages and agreements in the framework of COMESA...  Create new marketing chains.	data on foreign markets demand available    Producers take benefit from advantages and bilateral agreements   number of marketing chains created

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