

EXPANDING VALUABLE HARVESTS, CREATING VIABLE EMPLOYMENT

UNDP assists with production of Burkina Faso's Non-Wood Forest crops



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VISION	MISSION	VALUES
A multilateral partnership to develop national capacities in order to achieve the MDGs	Deliver efficient development services in the areas of governance, energy & environment, HIV/AIDS with focus on a better and more fair Burkina Faso	Transparency Integrity Equity Tolerance Innovation



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Foreword

We know from past experience that our common efforts to reduce poverty and achieve the Millennium Development Goals to help people build a better life need to go hand in hand with a sustainable management of our natural resources. At the same time we have witnessed that exogenous shocks like rising oil prices, natural catastrophes or the impact of climate change affect the most vulnerable groups of society disproportionately and therefore impede our attempts towards a more inclusive and equitable society around the globe.

In Burkina Faso, the United Nations Development Programme (UNDP) has been working with the Government since 2007 on a programme that increases food security for vulnerable groups known as ARSA/PFNL in its French acronyms, standing for *Amélioration des Revenus et de Sécurité Alimentaire pour les groupes vulnérables, composante exploitation rentable des Produits Forestiers Non Ligneux*.

Working in the disadvantaged eastern regions of Burkina Faso, the Non Wood Forest Products programme importantly contributes to household food security and nutrition while at the same time demonstrating viable employment opportunities for local people through the harvest of the crops gum Arabic and *Balanites aegyptiaca*, also called the desert date fruit. Moreover, it provides raw material that can be further processed to produce food, pharmaceuticals and cosmetics. Additionally, awareness of the economic value of these crops helps focus attention on the need to support biodiversity conservation and preserve the natural environment.

Today, awareness of the fragility of our environment is like a tolling bell, a constant reminder of the importance of nurturing our resources while avoiding exploitation of the vulnerable eco-system. In the Sahel region, covering so much of Burkina Faso's territory, environmental concerns take on a heightened significance since they directly affect the livelihoods

of people who have almost no natural resources at their disposition and who are already confronted with decades of drought and water resource shortage.

Desertification, with almost all tree cover gone, is not just an ominous term but a daily reality for those living in these semi-arid regions. Considering these and other effects of global warming, such as erratic rainfall patterns, makes growing any crop on a commercial basis a huge challenge for the people in these regions. This is why it is especially important to support initiatives where the value of indigenous tree products is tapped and used for the communities concerned.

UNDP Burkina Faso, in partnership with the Ministry of the Environment, looks forward to further develop this innovative programme and play a leading role in the management of vital African biological resources in an environmentally sustained manner.

Babacar Cissé
UNDP Resident Representative
Burkina Faso



Babacar Cissé, Resident Representative UNDP, admires Non-Wood Forest Products during his visit to Boura

Gum Arabic comes from the acacia tree and has no synthetic substitute

Background



A worker can take hours to amass 1k of gum Arabic

Expanding forestry enterprise and employment opportunities

As forests everywhere are being destroyed or seriously degraded by encroachment, desertification, and the search for fuel wood, pro-environment strategies to expand forestry enterprise and build on traditional approaches to planting and cultivation are vitally needed.

UNDP's programme for Non-Wood Forest Products comes under the strategic area of reducing poverty and protecting the environment. The importance of reducing poverty is the overarching aim of the Millennium Development Goals (MDGs) to which Burkina Faso is committed.

The Non-Wood Forest Products programme is designed to respond to the needs for expanded opportunities for employment and income-generating activities, especially for young people and women, and to improve food security for vulnerable groups through assisting with the sustainable management of natural resources.

Other programmes in this area are designed to support development of a national strategy for microfinance and assist with improved income and food security for vulnerable groups.

Natural products from local trees

The nurturing of remaining tree cover is of high importance for areas which are most severely affected by desertification. In resource-poor areas the managed exploitation and marketing of natural products generated in the forest by solar energy is of enormous economic benefit to vulnerable populations.

Activities for tapping the productivity of local trees and harvesting the non-wood products gum Arabic and balanites are being coordinated through projects at different stages of development in Burkina Faso's most disadvantaged Sahel region and eastern regions.

Enhanced understanding of biodiversity and conservation

As these projects assist in expanding production of the crops and creating viable employment opportunities they are also contributing importantly to an enhanced understanding of the value of natural resources, of maintaining biodiversity and the urgency of conservation measures to protect fragile environments.



Dried in the sun, gum Arabic glows like pink crystal

Forest harvest: balanites and shea nuts both give a lustrous buttery oil when crushed

THE UNDP BURKINA FASO PROGRAMME

The United Nations Development Programme (UNDP) has been partnering with the Government of Burkina Faso since 1966.

UNDP is the UN's global development network, advocating for change and connecting countries to knowledge, experience and resources to help people build a better life. UNDP is on the ground in 166 countries, working with them on their own solutions to global and national development challenges. As they develop national capacity, they draw on the people of UNDP and its wide range of partners.

In an overall context of achieving the Millennium Development Goals (MDGs) by 2015, programmes are designed around the key concepts of Governance, Poverty Reduction, Disaster Prevention and Emergency Relief, Energy and Environment, HIV and AIDS.

In its 2006-2010 programme the focus is on 3 strategic areas:

- Achieving the Millennium Development Goals (MDGs), reducing poverty and protecting the environment
- Promoting good governance
- Combating HIV and AIDS



Abdulai Dibelo, left, has built a team of 25 gum Arabic collectors

FEATURE STORY

A gift of nature - harvesting gum from the acacia tree improves livelihoods and increases food security for vulnerable groups

It is a sizeable pile of what looks like chunks of pink crystal. They have been heaped on to a plastic sheet in front of the office of the Union of Gum Arabic Producers in Dori, Northeastern Burkina Faso, and dragged out into the light for display. Now they glitter as they catch the warm late afternoon sunlight. The pretty chunks are not destined to make costume jewellery though; the pile represents the work of many patient hours of harvesting for a team of gum Arabic collectors.

The pink hue has come from drying the gum in the sun. To sell it on from here to the wholesaler who transports it to Europe for processing, the chunks are packaged into 1 kilo plastic bags. The Gum Union pays 50 FCFA (US 10 cents) per kilo, with a kilo taking one worker several hours to amass. It's a hugely valuable commodity in a community where there are no other resources, and where cultivation of any kind is a continuing struggle against parching drought.

Dori's straggling, dust-swirled main street bears witness to the generalised poverty of this remote arid region of the country. At the Union building one gum Arabic collector, Abdullai Bari Amadou Dibelo, has earned himself the nickname of "The King" since it is his team that brings in the largest quantities of the product during the three harvest months from October onwards.

"Sometimes I take a few bags home to show the children" says Abdullai, laughing. "I tell them, 'It's this that provides the food we eat!'" he says. He describes how he began to harvest gum in a small way twelve years ago. With some 25 collectors in his team today, his wife works with him to glean, sort, dry and package the crop, ensuring consistent quality. Formerly, Abdullai was a small trader in commodities like salt and rice, but admits his income in no way compared to what he earns today.

Gum Arabic is no new discovery. Small quantities are

available for sale in markets all over Burkina Faso and the other countries of the Sahelian fringe, known for its properties of easing stomach ache, eye problems and sore throat. In ancient Egypt it was used for embalming the Pharaonic mummies and since Biblical times it has been an essential component in the preparation of inks, paints and dyes.

No synthetic substitute has been found for its emulsifying capacity, which ensures substances which would normally not mix well remain integrated. In the modern industrial era there is huge global demand for gum Arabic as it's utilised for manufacturing ceramics, detergents, textiles, cosmetics, lotions, vitamin pills and painkillers, among myriad other products. It's needed in printing and photography, as the binder for colour pigment in crayons and in the adhesive that sticks every postage stamp to its letter.

Extremely soluble in water and without taste, while slowing the speed with which sugar crystallizes, its modern day applications in the food industry are many and growing, including in beverages such as sodas like Coca Cola, chewing gum, jellies, soup mixes, confectionery and cough drops.

Outside Dori a wide swathe of thousands upon thousands of acacia senegal and acacia laeta trees stretches away to the haze-obscured horizon. It is from this forest that the gum Arabic comes. At harvest time the trees, from which the sap exudes as gum a few weeks after the bark of selected branches has been slit, are without leaves. Averaging some three metres tall, the trees are able to withstand the sandy terrain, erratic rainfall and scorching winds of the Sahel, their spiky branches fanning out to form the tree's graceful circular silhouette.

Step up to the trunk and the exuding gum, still white at this stage, can be clearly seen near the division of one or two branches, crystallizing into tear-shaped masses about the size of a thumb. These are removed

by the collectors using a hand-made, long-handled tool with a thin, sharp blade. “This forest stretches for at least ten kms from here,” says Abdullai, “We walk and we walk - but as we’re on foot there’s no way we can exploit all the gum that’s there naturally, or cut the trees ourselves to provoke more flow.”

Other constraints he and his team experience are the lack of gloves to protect themselves against the acacia’s spikes, the absence of any motorised method of getting to the trees. Since 2007, when the UNDP-assisted project to expand non-wood forest products, under the Government’s programme for increasing food security for vulnerable groups (known as ARSA) came on stream, some of these concerns are being addressed.

Abdullai’s team and those 30 others contributing to the Gum Union, including one team entirely made up of women, are now receiving training to help them upscale, manage and coordinate their work. Assistance from ARSA/PNFL with linking up producers’ associations like the Dori Union with the markets for their crops, forms an important part of this.

ARSA/PNFL has selected the teams working the gum Arabic forests for support since it is evident how the managed exploitation of the crop is contributing significantly to household security and nutrition. Another factor is that the potential for increasing the yield and bringing in more teams of collectors focuses attention on the preservation of the natural environment. In Sudan, the world’s major producer, gum “gardens” are commercially managed for mass production in a way that Burkina Faso could consider replicating.

Serge Zoubga, from the Forestry Department of the Ministry of Environment, has a warning note to sound on this subject saying, “It’s vitally important the acacia trees are handled wisely, not over-exploited. If treated



Gloves are needed to protect collectors against the acacia’s spikes

properly they will produce gum every ten days in the harvest season for a period of 23 years or more.” The trees are low maintenance, surviving without needing watering, fertiliser or extensive tending and pruning.

Even as the acacia trees cease to yield gum their value to the community continues: the wood is useable as fuel or making charcoal, the dark heartwood is so hard it is suitable for the regions’ traditional weavers to use as a shuttle on their carpet looms, while the fibre from the roots can be made into rope.

Gazing at the abundant belt of acacias outside Dori, Zoubga explains, “There is the equivalent of three plantations here, trees that were planted to slow desertification 14 years ago. Now that they’re being tapped for the gum in a coordinated way and the communities can see the value of the trade, local people are realising the value of preserving the forest.”

In accordance with ARSA/PNFL plans for expansion it is possible more could be planted as, even in the face of global warming, the tree still flourishes like little else does on the sandy dryland soils of the region. And as for the households of the resource-poor communities on the Sahel fringe, gum Arabic remains a welcome gift of nature on which they can increasingly come to depend for their livelihoods.



Facts about acacia senegal and gum Arabic, nature’s gift to the Sahel

Gum Arabic is the hardened sap of the acacia Senegal tree. The tree is found across a belt of arid lands from Senegal on the coast of West Africa, right the way east across the continent, and all the way to India and Pakistan.

The trees grow up to three metres in height and have light green feathery leaves and sharp spikes on their branches. They are highly drought resistant.

Left unprotected, the trees will be browsed by sheep, goats, camels, impala and giraffe. The seed pods are up to 5 inches long and make excellent fodder for livestock. Dried and preserved seeds are eaten by some people as a vegetable

Most gum Arabic comes from Sudan which has soil conditions which promote the acacia’s widespread growth in all regions of the vast country. It is harvested over a period of three months from October, as the cooler season starts and the trees have shed their leaves.

Gum is collected from mature trees which have been slit in order for the sap to exude. It hardens to a crystalline mass which can be hand-picked or removed with a sharp tool. After drying in the sun the gum takes on a pink or amber hue.

A tree can be tapped repeatedly every ten days at this time and will produce gum for 23 years or more.



Sap exudes from the slit bark and hardens to a crystalline mass, ready for picking

Fruit of the Sahel – the “desert date” offers health-giving products and a new horizon for women farmers

It is dark brown and knobbly, a hard little fruit you might overlook as it lay among dried leaves and sandy dust if you were out walking under the low trees of the Sahelian scrub landscape. For Rose Marie Thiombrano however, the fruit, from the tree *balanites aegyptiaca*, commonly called the “desert date”, is a revelation that has provided her with a cottage industry and the inspiration to involve other women in a potentially highly productive income-generating activity.

At Rose Marie’s house, down a quiet street in the town of Fada, Eastern Burkina Faso, the yard presents an unusual sight. Piled high wherever you look against the walls and the perimeter fence are great stacks of the fruit, carefully wrapped in sacking or tarpaulin bundles for protection against the boring insects it attracts and the rain that will rot it. The huge reserve stock of dates indicates the scale of Rose Marie’s business with the *balanites* crop, as well as her acumen as an entrepreneur and organiser.

Like 90 percent of Burkina Faso’s population, Rose Marie relies for her living on subsistence agriculture. As a rural resident of this most arid and resource-poor region in one of the world’s poorest countries, a constant concern of hers is how to make the most of what is available.



Oil from the *balanites* enriches soap, creams and lotions

She backtracks to explain how she stumbled across the idea of extracting oil from the *balanites* fruits when, as a small farmer, she was experimenting with crushing them for animal feed. The small bushy trees are common in the desert-fringe woodlands, flowering with a green-yellow blossom in April. Slow-growing, they can live for over 100 years.

Rose Marie had noted that browsing goats, sheep, cattle and camels would all seek out the bushy tree in the wild and nibble its shoots – so why not exploit the fruits as fodder, since otherwise they would lie neglected on the ground?

Her concern for maximising natural products is shared by the Government’s UNDP-assisted programme for increasing food security for vulnerable groups (known as ARSA). As Serge Zoubga, from the Forestry Department of the Ministry of Environment explains, “Women represent 62 percent of the rural population and bear the brunt of most agricultural work. Encouraging new forms of self-sufficiency by giving small grants to entrepreneurs like Rose Marie is a key strategy.”

Every rural woman in this region is familiar with another Sahelian fruit, the nut known as shea, which renders a lustrous, buttery oil when crushed and is widely used for the rich texture it gives cosmetics. Sharing the shea nuts’ property of a hard outer husk very tough to crack and crush, the *balanites* proved resistant but Rose Marie and her helper, Adissa Naba, nevertheless persevered with the hand mill, convinced the end product would be worth the effort.

In her makeshift garage “laboratory” Rose Marie worked for three years by trial and error on formulas for using the resultant oil which she eventually extracted. Its effectiveness as a syrup for indigestion was one early discovery. It’s a highly-priced commodity though, at 6000 CFA (US \$ 12) per litre, so she researched ways of diluting the oils’ benefits into other products.



Rose Marie Thiombrano, entrepreneur and Kari-Force Association founder

She tried mixing it with shea butter for soap (300 CFA per bar) and a range of soothing skin creams (2-3000 CFA). “It really helps – see for yourself!” she says, smiling with her wide, infectious grin and proffering a small plastic container of the rich-textured yellow cream, selling for 200 CFA. Locally, this has been a major success, since just a tiny quantity has an emollient effect applied to the cracked dry skin of the feet, from which many of the women farmers suffer due to the parching Sahelian climate.

Convinced also of the oil’s healing properties if taken internally, Rose Marie splashes in a spoonful when cooking her own dishes, and is sure that, added to broth, it would bring rapid relief in cases of malnutrition. She is not a young woman but her level of vitality is evident as she demonstrates the production processes and says, with an embracing sweep of her arm, “I want my sisters to know about this, so they can share the benefits.”

Such is her enthusiasm that she founded an association named “Kari Force” to disseminate the technical know-how and up production. Today Kari Force’s 1000 associates are formed into small groups with members who undertake either collection or production. Collectors pick the dates and shea nuts from where they have fallen under the trees, since only then can they be sure they are fully ripened. One *balanites aegyptiaca* tree can yield a crop of 10,000 dates in a year.

The women and children collectors, who gather them up quickly so they don’t ripen further, split or begin to germinate, may harvest up to 40 kilos a day in the months of December and January. At this time of year a daily path is beaten to Rose Marie’s door by a stream of women bearing brimming baskets and calabashes on their heads. She pays a team of five or six women a daily wage of 1000 CFA (US \$ 2) to crush the dates.

Serge Zoubga describes how they are researching into a mill that will de-husk the fruits mechanically, removing this difficult task from the women and speeding production massively. Hearing him, Adissa

sighs in agreement as she holds out her reddened hands to show their swollen joints. “It can take up to four days to crush just 2.5 kilos,” she says.

“Women, get up and work for your own development! – that’s what I tell them,” says Rose Marie, enthusiastic that her work ethic is adopted widely by the women farmers of the region. She has used local radio to get out the word about the potential of *balanites*, and recently took a stand at the UNDP-sponsored regional agricultural fair to share information. Her dream is to expand further to have a production training centre established, complete with a shop selling the whole line of products.

“We have this forest product of ours here for the taking. It needs no cultivation and nothing’s wasted in our production, even the husks we can use for fuel and to make charcoal,” she concludes, in full acknowledgment of how the desert date has opened new horizons for her, and keen for others to see their own ways forward to draw benefit from it too.

Facts about *Balanites aegyptiaca* and the “desert date”

The tree’s botanical name *Balanites aegyptiaca* is linked with its origins in the valley of the River Nile. It is native to African woodlands along the southern fringe of the Sahara desert and in the drier regions of northern Africa and is also found in India, Israel and Pakistan.

For animals it is an important forage plant; goats, sheep, cattle and camels eat the fresh young shoots.

Usually low-growing and bushy, its maximum height is 10 metres. It is slow growing and can live for more than 100 years. Very drought resistant, it grows well in dark clay soil but can thrive in sandy terrain.

It flowers with a yellow-green blossom in April and the fruits, similar to those of the date palm, ripen and fall in December and January. One tree can yield up to 10,000 dates each year.

The *balanites* fruit has a hard dark brown outer husk. When shelled, it can be safely consumed by humans, having a sweetish flavour. A solution from the fruit is lethal to guinea worm and can therefore be used to treat drinking water

Future directions

By promoting Non-Wood Forest Products (NFWP), the Government of Burkina Faso intends to diversify – and potentially broaden– the range of income-generating activities available to people in rural communities across the country, with the objective of helping them in the fight against poverty.

Efforts are already underway to diversify revenue for people in rural areas. A recent study assessed the economic potential from the exploitation of NFWP, the opportunities to promote these products, as well as the existing constraints. This study, conducted in 2007, clearly highlighted the fact that Non Wood Forest Products are not, as yet, sufficiently exploited.

In light of an economic climate increasingly favourable to organic products, the future direction in the medium to long term for the Revenue and Food Security Improvement Programme (ARSA/NFTP) will focus on activities in four main areas:

- Formulating a national strategy to promote Non-Wood Forest Products, based on experience drawn from the field. To this end, an active partnership is being developed between UNDP, FAO and other technical and financial partners, with a view to ensuring synergy and follow-up.
- Increasing the capacity of key stakeholders through establishing formal organizational structures (national, regional and community associations), and supporting them through training. These formal structures should encourage further partnerships to mobilize resources and access various national and international marketing networks.
- Promoting micro-enterprises, whether family-, individual-, or sector-based, and assisting businesses that deal with Non-Wood Forest Products to adopt appropriate technologies to achieve the required quality standards.
- Developing a database of statistics and performance indicators within the parameters of the Poverty Reduction Strategy Paper to help Non-Wood Forest Products contribute more effectively to poverty reduction efforts.

Above and beyond the participatory and consultative approach that underlies all Non-Wood Forest Products activities, emphasis will be placed on mainstreaming gender, particularly given the significant role played by women in the Non-Wood Forest Products industry.

Overall, this Non-Wood Forest Products promotion project has the potential to significantly reduce poverty in Burkina Faso by providing project stakeholders with new income generating opportunities and by improving their living conditions.



The gum is a hugely valuable commodity in an arid region with few resources



Working with a hand tool it can take up to four days to crush 2.5 kilos of balanites

ACRONYMS

- ARSA** French acronym for Government of Burkina Faso programme for increasing food security for vulnerable groups
- CIFOR** Centre for International Forest Research
- FAO** United Nations Food and Agriculture Organisation
- INERA** Institute for Environment and Agricultural Research
- MDG** Millennium Development Goal
- NGO** Non Governmental Organisation
- PFNL** Non Wood Products
- UNDP** United Nations Development Programme



Baobab fruit



Baobab fruit



Karité nuts



