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PROFOR

AGROFORESTRY SHEA PARKLANDS OF SUB-SAHARAN AFRICA: THREATS AND SOLUTIONS

Highlights

- Shea parklands cover 300–350 million hectares of Sahel-Sudanian-Savannah Africa, provide 10–25% of household income for shea-production villages, and contribute 7–10 kg of dietary fat per person annually in many communities.
- Shea export targets the international cosmetics and confection markets exporting 300,000–350,000 tons of shea kernels annually.
- Land-use change, uneconomical fuel and water consumption, insecure land tenure policies, and social, cultural, and political issues all effect the proper management and cultivation of shea parklands.
- Price volatility in the international confection market and other volatilities in the cosmetics market hinder maximum export potential.
- Incorrectly perceived as wild, untameable, and slow to mature, shea trees are quite conducive to improved management.
- Recently, eight donor-funded and local initiatives such as the USAID-funded Global Shea Alliance have begun to tackle issues in shea parkland preservation and production.
- Development partners can play a part in stimulating and catalysing the formation of a Parkland Alliance that would include private sectors stakeholders from the agricultural and agroforestry industries, policy makers, urban planners, financiers, investors, pastoralists, conservationists, civil society representatives, and research facilities.

Introduction

Naturally growing and managed shea agroforestry parklands cover 300–350 million hectares (ha) of Sahel-Sudanian-Savannah Africa. Over millennia, indigenous wild woodlands have been converted to wooded and farmed parklands in which naturally regenerating trees are selected, protected, and managed through a rotational farm-fallow system. Shea butter and other non-timber forest products (NTFPs) or tree crops are staples of village diets and secure 10–25% of household incomes through village-level production. Women suffering from poverty are heavily reliant on tree crops such as shea butter for their livelihoods.

Shea forms the hub of a carefully-managed food and wood fuel agroforestry production system with the majority of collected shea kernels destined for local consumption. Shea butter is of major dietary importance across an African zone home to 200 to 300 million people. Shea annually provides 7 to 10kg of dietary fat per person in many communities.

In addition to its nutritional value, shea is traditionally used for personal care. Shea butter became a key ingredient in the international personal care industry in the 1980s when the firm L'Occitane first began using it in boutique cosmetics. Most consumers, researchers, and development workers alike incorrectly perceive that the hand-crafted, cosmetic use of shea is its main sale.

In fact, shea use in cosmetics is only 10% of total exports. The greatest international demand for shea is for use in the confectionery industry, which demands high-tech processing. Since 1960, fractionated shea stearin has been increasingly used as an ingredient in cocoa butter alternatives (CBAs) in chocolate. Since the EU cocoa and chocolate directive 2000/36/EC came in to force in August 2003, there has been a 600% surge in annual demand for shea kernels. Annual exports have risen from an average of about 50,000 to between 300,000 and 350,000 equivalent tons of shea kernels.

At least 50% of collected shea kernels are used to make butter or oil for local consumption in West Africa. A group of about 10 multinational firms tightly control sourcing, extraction, fractionation, formulation technology, and marketing of shea products. Forty-five percent of the West African crop is sold to this group of companies for production of shea stearin. Only 10% of all shea exports are destined for the international personal care sector and only half of this amount is from village-crafted sources. Most press and publicity material on shea focuses on this small, village-crafted segment of the market.

Threats to Shea Parklands

Parklands across Sahel-Savannah eco-zones are significantly threatened by invasive land use change. Millions of shea and other native trees are being cleared to make way for modernized farming, urbanisation, mining, and wood fuel extraction. Rapidly declining tree densities in parkland landscapes are linked with soil erosion, poor water infiltration, and erratic or reduced rainfall, each of which has a detrimental impact on agricultural productivity. In addition, fallows, which are vital for wood fuel production and for regeneration of the forest system, are shrinking or

disappearing while at the same time herbicides stunt plant growth. Insecticides, coupled with habitat and fodder loss, reduces insect populations—notably honey/stingless bees—resulting in lower shea fruit yields and fewer resources available for migratory bird populations.

Fuel and water needs also stress the shea parkland environment. As the most common tree in the native landscape, shea trees are frequently used for firewood and charcoal. However, without fallows for regeneration, the decline in shea trees is now a major threat to parkland sustainability. Further, the growth of the industrial post-harvest processing of shea kernels requires large amounts of water and wood fuel. Very limited research and few development efforts have been focused on sustainable water usage and reduced wood fuel use in shea processing.

In addition, land tenure, political, and cultural issues threaten the shea market and production processes. Land tenure security and tree usufruct arrangements do not encourage the protection and planting of shea and other native trees. Attempts at mechanization of processing largely benefit men and international firms, but not women. Mass outward migration, terrorism, political instability, urbanization, climate change, and unregulated mineral extraction further threaten the shea industry. Instability, tribal, and religious tensions have increased across the shea zone. Insecurity and clashes are rife in Mali, Central African Republic, South Sudan, northern Nigeria, and even Burkina Faso. This instability has a major impact on the ability of governments and aid agencies to implement programs and policy changes in the region. Instability further negatively impacts private sector operations in shea production. Finally, attempts at governmental control, monopolized marketing boards, inappropriate taxation, and price fixing have acted as disincentives to investment and growth.

Parkland depletion strongly effects shea kernel collection and production at the village level. More and more labor and time are required to collect shea fruit in highly depleted parklands. As a result, despite high gross margins, annual personal income from shea kernels sales is small and continues to decline. Despite growth in exports of shea kernels and butter, most value is added outside the parkland zones.

Finally, market insecurities and tempered demand limit shea's contribution to food security and real income. International edible oil regulatory conditions constrain potential demand and use of whole shea. Whole shea remains a fraction of the shea market. The export market for shea kernels is therefore largely a derived demand as the majority is destined for use as a CBA in confections. Further, shea kernel price is dependent on the relative prices of cocoa butter and other legally approved alternative fats. In addition, there is a lack of global uniformity regarding the legal definitions of the term *chocolate* that prevents further expansion of shea's use in confections. In the personal care sector, the international market for shea butter in cosmetics is limited by price, supply chain transparency, and the quality and existence of alternative ingredients.

Solutions

Addressing the threats to shea parklands requires changes to international markets, innovative technologies, water and fuel economy, and the mitigation of social and political threats. International buyers must understand that rapid, on-going parkland degradation is threatening long term supply positions. Incorrectly perceived as wild, untameable, and slow to mature, shea trees are quite conducive to improved management. Shea is easily propagated from both fresh seed (fruition within 7–15 years after planting) and grafted scions (fruiting within 3–5 years). With tenurial changes, skill transfer, and financing solutions, parkland restoration can become a viable option. Incentives need to be offered for commercial shea nurseries and the breeding of early maturation, regular-, and high-yield varieties. On-farm trials of intercropped shea, farmer-managed natural regeneration (FMNR), and the replanting of shea with other indigenous trees can be a part of climate-smart agroforestry programs that can increase both annual tree and crop productivity.

Unsustainable wood fuel and water use in the shea supply chain can be addressed through certification schemes to ensure that shea production uses sustainably sourced fuel and water. Experiments should be undertaken to find more energy efficient processing methods and to determine whether centralised toll-curing of kernels is profitable to women as a viable and energy efficient option. Sustainable wood fuel production should be promoted using NTFP-woodlots, hedgerows, rotational fallows, and coppiced-FMNRs. Alongside landscape fire control programs, low cost irrigation and water-sourcing solutions for tree planting are needed.

Land reforms must ensure secure land tenure and tree usufruct rights for those planting, protecting, and tending on-farm trees. Local government authorities require education on the urgent need to empower tree-planting farmers and the need to combat taboos on the planting and protection of native tree species. Government production licenses and agribusiness loans can be conditioned upon tree planting and green energy targets. These conditions can include the preservation of shea and other indigenous trees and restoration/re-planting of parklands and woodlands.

Village-level, female-orientated technological advances in oil-seed collection and processing should be disseminated to increase local profitability and efficiency in upstream shea production. Surveys to assess the nutritional and economic importance of shea need to be undertaken in different parts of the zone. In addition, a major sales and marketing campaign should be undertaken to promote the use of whole and fractions of shea butter in foods in Africa and overseas. A consumer-facing label and brand should be developed to differentiate and market village-crafted shea butter independent of industrially processed butter. Multilateral and bilateral donors should be encouraged to include shea butter as a key source of edible oil in supplementary feeding programmes. Finally, linkage with green (tree-planting) markets should be encouraged and U.S. GRAS and global CODEX regulations should be revised to permit or to more clearly define the edible uses of whole refined shea butter and its fractions.

Progress to Date

Until recently, shea tree research has remained limited. Parkland sustainability programs such as those championed by the USAID-sponsored Global Shea Alliance are just beginning. Challenges to restoration abound and include tenurial insecurity, poor environmental control, the scarcity of resources such as seedlings, and proper management skills. However, landscape restoration experts have begun to unite and target their efforts to restore shea parklands. Currently a range of restoration activities are beginning across the shea zone and include projects and institutions such as:

- Sustainable Shea Initiative (USAID and GSA members) – Ghana, Nigeria, Togo, Benin, Côte d'Ivoire, Mali, Burkina Faso;
  - FEATS project (Global Affairs Canada) – Ghana;
  - Great Green Wall – regional;
  - Evergreen Agriculture (EU) – Mali, Ghana (with World Vision and ICRAF amongst others);
  - AgNRM (USAID) – Ghana;
  - ProAgri – Benin;
  - CRIG – Ghana (including involvement of FAO); and
  - NIFOR – Nigeria.

Recommendations

Considerable damage has been done to the health and sustainability of shea parklands over the last 10 years. The sooner key stakeholders accept that there is a serious problem and that all parties need to take responsibility for the solution, the sooner the situation can be reversed. Approximately 100 million ha of parklands need at least 5–10 shea trees per ha to be planted over the next 10 years. This is a total of 500 million to 1 billion seedlings. This level of sowing should be sufficient to supply both domestic and export needs in the coming 10–20 years. Business cases and business plans for farmers and investors must be drafted. These plans must include information on how proper agroforestry can improve soil conditions and food production. Further, governments can provide information on how the private agriculture and forestry sectors can become involved in the propagation, breeding, and planting of shea and other indigenous species.

Even if all stakeholders were to collaborate more closely to achieve these goals, existing national and regional organizations working in the sector lack the resources to meet current demands. Coordination and funding across the entire shea parkland area are required. The World Bank can play a part in stimulating and catalysing the formation of a Parkland Alliance that would include private sectors stakeholders from the agricultural and agroforestry industries, policy makers, urban planners, financiers, investors, pastoralists, conservationists, civil society representatives, and research facilities to name but a few. As a first step, an immediate, high level regional meeting in the African shea zone is highly recommended.

The Program on Forests (PROFOR) multi-donor partnership generates innovative, cutting-edge knowledge and tools to advance sustainable management of forests for poverty reduction, economic growth, climate mitigation and adaptation, and conservation benefits. Through its programs, PROFOR is advancing forest-smart development, which recognizes forests' significance for sustaining growth across many sectors, including agriculture, energy, infrastructure, and water.

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