BAOBAB & into MARULA

New Solutions

TO GLOBAL WARMING AND FOOD SECURITY

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CHAPTER 2.2.

Baobab and Marula: the 'Silent Catalyst' for Gender Equality Gender Disparities and the Management of Non-Timber Forest Products (NTFPs)

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The baobab tree provides a number of highly valuable non-timber forest products (NTFP) in several African countries, playing an important role in providing nutritious food, fuel, income, and ecosystem services.

The tree is deeply entrenched in social traditions, with its uses extending from African cuisine and medicinal purposes to cultural rituals, craftwork, and income generation (Meinhold, Dumenu & Darr, 2022). Every part of the baobab tree, including its leaves, roots, fruit pulp, shells, seeds, and bark, is harvested for its significant economic and cultural value. In Burkina Faso, Mali and Benin, the mucilaginous leaves of baobab are used to thicken soups (Rashford, 2019). In Southern

African countries such as Zimbabwe and Zambia, the fruit pulp is used to make porridge, drinks, ice-lollies, sweets, and even to flavour yoghurt (Darr et al., 2020). These products serve not only as a source of nutrition, but also have economic benefits, generating income through the sales of ice-lollies, sweets, and baobab flavored yoghurt (Charade et al., 2009).

Marula tree is equally versatile, serving a variety of functions from beverage production, such as beer and wine, to providing nutritional food sources like jam and snacks, medicinal uses, and serving as shade trees. Marula tree leaves are used as fodder for livestock, and wood from dried trees is used for firewood. Additionally, some communities create sculptures from the tree (Mokganya et al., 2018; Sinthumule & Mzamani, 2019). Such contributions by baobab, marula and other multi-purpose trees are vital to the global food system.

2.2.1. Gender Disparities and the Management of Non-Timber Forest Products (NTFPs)

Although baobab and marula trees have significantly influenced the livelihoods of African communities for generations, gender disparities are prominent in the collection and processing of their products. This corroborates the view that the use, control, and benefits of Underutilized Plant Species (UPS) must also be analyzed from a gender perspective. Baobab collectors mainly sell two products: whole baobab fruit and baobab pulp, with the former being non-value-added and sold as-is, and the latter being a value-added product. The gender division of labour determines who can use various parts of these trees and for what purposes. Women have occupied crucial roles in collecting and harvesting NTFPs from baobab and marula, but they are often relegated to working with lower-value tree products due to traditional cultural norms. This perpetuates gender inequalities in NTFP utilization.

In Sub-Saharan Africa, women are typically tasked with gathering underutilized plant species for both subsistence and commercial use (Olumeh 2023). In Zimbabwe, for example, females of various ages are the primary collectors of marula fruit, representing 69% of collectors, compared to 31% of males, with some villages reporting up to 75% female harvesters (Mguni et al, 2023). The specialized occupation of collecting baobab fruit is predominantly undertaken by women, who rely on traditional knowledge to navigate forest ecology (Olowudun & Merten, 2023). This indigenous knowledge enables women to identify various forest food species, contributing to their households' dietary diversity (Vinceti et al., 2013). Baobab leaves are also used as vegetables for subsistence, an area with which women are well acquainted. Additionally, women use parts of the baobab tree, such as leaves, barks, and roots, for medicinal purposes. The commercialization of marula trees' byproducts by women significantly boosts household income. For instance, marula beer can generate an estimated $400 annually during the marula season, while marula oil production can yield around $1,290 (Mguni et al., 2023). Rural women also demonstrate skill in creating simple utilitarian products from forest resources, such as sponges, brooms, baskets, and wooden handles for farm tools (Adedayo et al., 2010). In Mali, women's expertise in making baobab sauce has enhanced their social standing and marriage prospects (Osseo-Asare 2005). While gender roles are deeply entrenched in the preparation of baobab byproducts, women particularly excel in daily food preparation, highlighting the intersection of gender dynamics and NTFP use.

The commercialization of marula trees' byproducts by women significantly boosts household income.

An elderly woman fetching baobab powder from a sack for sale at Adaklu Goefe in the Volta region of Ghana. Photo: Kenneth Fafa Egbadzor.

While the collection of NTFPs is often associated with women, it is inaccurate to exclusively attribute the collection of the products provided by baobab trees to them. This misconception arises partly because the migration of men of productive age to urban areas for work has left women to lead households and turn to baobab and other forest species for income-generating activities (Tacoli 2012). However, as business grows, products become more specialized, and market dynamics shift, men increasingly participate in the value chain. The growing commercial value of NTFPs has attracted men to the collection of baobab byproducts, especially as rising poverty rates both in rural and urban areas compel men to engage in activities traditionally dominated by women. The shift is notably observed in the northern region of Burkina Faso, where male household members participate in baobab harvesting, contrasting with the southern regions where the harvest is predominantly a female activity (Schumann et al., 2012). This regional

James Gakpo, a student of Prof. Kenneth Fafa Egbadzor interviewing a baobab fruit collector at Adaklu Agblefe in the Volta region of Ghana. Photo: Elorm Hayibor.

disparity is partly due to the taller baobab trees in the north, which are less accessible for women to harvest by climbing.

Furthermore, men are skilled in tasks such as producing rope from baobab bark fiber. Activities such as sculpture making, large-scale firewood collection, and gathering and preparing leaves for animal fodder, are predominantly carried out by men and boys. These highlight the complex interplay between gender, ethnic identity, and the household and subsistence use of baobab. The growing involvement of men in baobab fruit harvesting could potentially affect women's

A young woman buying baobab powder at Adaklu Goefe in the Volta region of Ghana. Photo: Kenneth Fafa Egbadzor.

livelihoods by restricting their access to these products and markets. Women can also lose the social networks that historically facilitated their access to baobab trees, as these resources gain increased significance for men.

2.2.2. Women and Access to NTFPs

Although baobab trees often grow on communal land, which is accessible to women on a first-come, first-served basis, reaching these areas can require long journeys, posing practical challenges for women and children.

During collection activities, women often gather parts of baobab trees for use as household energy sources. Given their dual role in both productive and reproductive activities, women typically collect baobab products in addition to fodder and firewood (Olumeh & Mithöfer, 2023). Yet, this task demands significant time and energy, especially when gathering firewood from open-access areas to meet household energy needs. The multiple uses of baobab are deeply intertwined with women's household responsibilities, driven by their caregiving roles or the gender norms that embed them more deeply in family and community ties than men. These activities are also closely related to women's access to land tenure, presenting a complex challenge. Access to land and trees is primarily dependent on ownership, which is often effectively controlled by male relatives and clans (Rocheleau & Edmunds, 1997). Although baobab trees often grow on communal land, reaching these areas may require long journeys, sometimes up to two hours, posing practical challenges for women and children. Marital status can further limit women's access to distant forests, as they may require permission from their husbands or male kin for such travel, hindering their ability to reach markets to sell their products. In such cases, women typically leverage their social networks to access privately owned baobab trees.

Similarly, harvesting marula products is mainly the domain of women, though some men also engage in this activity. In several regions of southern Africa, elderly women dominate this sector, with households that have more females relying more on marula products. Younger men and women show little interest in harvesting marula, citing low financial returns.

Facing unemployment and economic hardship, many young people from the rural regions are migrating to urban areas in search of better opportunities (Mguni, Chiwara & Gwate 2023). Consequently, in their efforts to process baobab products often without help from men, women often involve their children in preparing baobab leaves and fruit for family consumption. Any surplus is sold at local markets to supplement household income, typically used for essential expenses such as clothing, food, or school fees. Women's in-depth knowledge of the uses of baobab fruit pulp, seeds and leaves, along with market prices, equips them to make informed decisions about selling or conserving their surplus baobab products. While men usually determine which trees to plant, often favoring cash crops such as mango or cashew, women's attempts to influence these decisions to plant baobab trees or help them gain access to these trees are seldom successful (Kiptot & Franzel, 2012).

Understanding the societal implications of ownership and control of natural resources, such as baobab and marula trees, is therefore essential. It is widely recognized that women often face challenges in retaining land ownership or inheritance due to legal frameworks and patriarchal societies that predominantly favor men (Doss et al., 2018). This issue is particularly pertinent in agricultural societies where land typically falls under customary tenure without clear title or ownership. In some instances, rights are determined by clanship or state control, with both women and men granted only usage rights. Ensuring security of

tenure is crucial for delivering fair and equitable benefits to communities from the commercialization of NTFPs. This is especially significant in South Africa, where marula fruit are mainly sourced from communal lands. In Namibia, on the other hand, while communal land ownership is vested in the state, most marula fruit are harvested from private homesteads owned by individual households (Wynberg et al., 2003). Addressing such potential exclusions is vital in the use of the NTFPs, especially baobab and marula, to ensure that "no one is left behind".

2.2.3. Women and Conservation Practices

Baobab and marula trees are common in arid regions prone to drought, which has been linked to their decline in Botswana, Namibia and South Africa (Lisao, Geldenhuys & Chirwa, 2017; Venter & Witkowski, 2013). Reliance on wild harvesting has also contributed to the reduction in forest and woodland cover, especially in communal areas (Toillier et al., 2011). Despite these challenges, many communities view the preservation of baobab and marula trees as a duty, as they are considered vital sources of livelihoods. In Sudan, for example, Keding, Kehlenbeck & McMullin (2017), found that rural communities regard baobab trees as a safety net during crop failures, thus ensuring food security and reducing income vulnerabilities. In Limpopo province, South Africa, community members stress the importance of conserving marula trees by not cutting down the female fruit-bearing trees and instead using only dead marula trees for firewood. Most community members also refrain from cutting branches at harvest time, opting to wait for the fruit to fall naturally (Sinthumule, & Mashau, 2019). Those who gather materials for sculpture prefer dead and non-fruit-bearing male marula trees. This conservation practice mainly applies to trees on privately owned land, with higher marula tree populations compared to protected areas, where marula trees are often destroyed by elephants.

Another study in Kenya showed that both men and women hold similar values for baobab conservation, including knowledge about its uses (Schumann et al., 2012). In African households, women and girls are usually responsible for food storage and preparation. By using baobab and marula trees as alternative food sources during times of scarcity the need for women and girls to travel long distances for food can be reduced. They can instead prepare nutrient-rich meals using baobab pulp and marula fruit gathered nearby. In this vein, economic benefits from baobab and marula can enhance women's roles in tree conservation. However, women's specific contributions to conservation practices have varied (cf. Doss et al., 2017). Frausin et al (2014) for instance, highlight women's active involvement in soil conservation projects in Liberia and Sierra Leone, where they improve soil fertility using organic matter such as ash and food waste, drawing on traditional knowledge Frausin et al., 2014). Conversely, studies by the International Forestry Resources and Institutions (IFRI) in East Africa and Latin America show that female-dominated groups are less likely to adopt new sustainable technologies for resource monitoring due to limited awareness, gender bias in access to technology, labor constraints and restrictions on women's authority to enforce regulations (Mwangi et al., 2011).

In rural farming communities, women are often the most marginalized and impoverished members. Their access to information networks, such as government extension services and links with influential male farmers, is severely limited. During the processes of accepting and adopting new conservation practices, men often dominate, leading to programs that neglect gender biases, thus potentially worsening the economic deprivation of rural women. For instance, men often control marula processing technologies, including fruit and oil presses (Wynberg et al., 2003). Empowering women to take control of marula production could benefit the community, as women prioritize spending

their income on health and well-being of their family members and supporting their children (Wynberg et al., 2003).

In Southern Africa, the domestication of marula has played a role in its conservation and could improve food security and household income, directly benefiting women and children.

In southern Africa, the domestication of marula trees has played a role in their conservation (High & Shackleton, 2000), which could improve food security and household income, directly benefiting women and children. Wild trees take a long time to mature and have limited regenerative capacity, so domestication of wild fruit trees could significantly boost the income of the collectors and harvesters, who are predominantly women. This enhanced cultivation technique is also expected to meet local and international demand for these trees. Russel and Fanzer (2014) suggest that increased market opportunities can motivate farmers to plant trees or protect certain species. However, it is critical to recognize that the increased commercialization of baobab and marula might prevent certain groups from benefiting (Wynberg et al. 2012). Therefore, any public and private investment aimed at the commercializing these species should carefully consider gender dynamics and inclusivity.

2.2.4. Changing Gender Roles and NTFP Consumption

A cultural shift is taking place, particularly in urban areas of countries such as Kenya and South Africa, where an increasing number of people are adopting healthier eating habits and showing a growing interest in wild indigenous foods. This demand has even led fine-dining restaurants and large urban supermarkets to start offering indigenous leafy greens. But despite this promising demand, supply-side challenges persist. The pathway for baobab products to reach consumers is hindered by limited access to market information and transport. These prob-

lems affect both men and women, but gender imbalances exacerbate the situation. As women constitute the majority of collectors and harvesters, they often resort to selling their baobab fruit at their farms due to inadequate road infrastructure or the high costs of transport to formal markets. There is also a notable lack of access to technology and strategies for processing and marketing. In addition, women's extensive involvement in their reproductive household roles hampers their ability to allocate time to enhance their technical skills in processing and marketing.

Baobab and marula trees are often hailed as "superfoods". Baobab and marula trees are increasingly valued for their nutritional, medicinal, therapeutic, cosmetic, and weight management benefits, appealing mainly to women.

Baobab and marula trees are increasingly valued for their nutritional, medicinal, therapeutic, cosmetic, and weight management benefits, appealing mainly to women. Rahul et al., (2015) emphasize the high Vitamin C content in baobab fruit pulp (1.690 mg/kg), which is estimated to be six times greater than that in oranges. Baobab fruit pulp and leaves are also rich in calcium, phosphorus, carbohydrates, iron, and both soluble and insoluble fiber (Rahul et al., 2015). Given their significant nutritional and medicinal advantages, especially in the cosmetic and weight management industries, baobab and marula trees are often hailed as "superfoods". Baobab fruit pulp is particularly attractive to health-conscious consumers in developed countries (Jensen et al., 2011). The pulp and seed oil are celebrated for their antioxidant properties, offering therapeutic benefits (Rahul et al., 2015). In Zimbabwe, approximately 20,000 liters of baobab seed oil are produced annually, valued at US$100,000 (Venter, 2012). Cosmetic, therapeutic and weight management sectors, which generate billions of dollars annually, target women as their primary market. The recognition of baobab pulp as a food ingredient by the European Union and the United States in

Mechanical method of processing marula fruit into marula juice and oil done by women. Photo: Cecil Togarepi.

July 2008 has significantly enhanced the commercial value of these indigenous African trees (Anjarwalla et al., 2017; Charade et al., 2009). Thus, baobab and marula trees deserve recognition for promoting African heritage globally and are vital allies in the pursuit of gender equality.

2.2.5. Future Policy Directions

The discourse surrounding gender disparities in agricultural productivity has often overlooked the potential of underutilized plant species, such as baobab and marula. Addressing this gap requires a thorough understanding of gender dynamics in the use, domestication, and commercialization of these species. In an attempt to achieve Sustainable Development Goal 5 "Gender Equality", which advocates for women's equal rights to economic resources, such as land and technology, gender considerations must be integrated into climate change adaptation and mitigation strategies, as well as decent work and improved well-being for women. To that goal, we propose the following approaches.

First, to improve women's access to communal forest resources and technological empowerment, it is crucial to raise community awareness of the importance of the subject. Engaging community leaders and using mass media and government extension services to challenge

and reshape traditional gender norms are essential steps. Gender-sensitive techniques for the cultivation and commercialization of baobab and marula must be disseminated, prioritizing women and youth to ensure they are equipped with the skills to use these technologies effectively. This approach would ensure sustainable cultivation practices and address gender norms that limit women's access to and control over these valuable resources.

Second, the implementation of gender-transformative measures is crucial to promoting climate adaptation and mitigation efforts. This includes training programs that focus on women's negotiation skills and provide technical training in labour-saving technologies as well as in marketing strategies for indigenous tree products with a focus on female household members. These initiatives should recognize the different impacts of climate change on men and women, particularly in the cultivation of baobab and marula trees. By supporting women in these roles, we can harness their potential to contribute to local climate change efforts and transform gender relations. Interventions should also encourage women and girls in roles traditionally assigned to men and boys, and vice versa while ensuring that climate measures are informed by and complementary to the indigenous knowledge systems.

These strategies aim to improve women's access to baobab, marula, and other lesser-known species while challenging social norms, thereby advancing gender equality and empowering communities in the face of a pressing climate risk.

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