



SCHOOL OF WILDLIFE CONSERVATION

Wildlife Economy
Lessons Learned Series

Case Study 5:

Non-timber forest products in the Zambezi Valley - Zimbabwe

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- provide stakeholders with practical examples of wildlife economy activities;
- provide consistent, comprehensive, easy-to-read case studies, published on a regular basis;
- organising a webinar related to each publication to raise awareness and build capacity related to the wildlife economy;
- use the case studies in class for ALU and other students;
- link to SDGs and reasons to unlock the wildlife economy with examples on how to do this, where it worked and why it worked – supporting data-driven decision-making in policy and practice; and
- show linkages between conservation and development promoting wildlife (fauna and flora) as an economic asset in Africa.

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DanChurchAid (DCA) is a Danish humanitarian and development organisation founded in 1922. It works to support some of the world's poorest and most vulnerable people in achieving a dignified life, regardless of race, religion, or political affiliation. In Zimbabwe, DCA primarily works through partnerships with local civil society organisations, government institutions, and community groups. Its key areas of intervention include building resilient livelihoods, improving food security, and promoting sustainable natural resource management. The organisation also supports communities to access and influence public services that are more accountable, equitable, and gender-responsive. https://www.danchurchaid.org/

About Bio-Innovation Zimbabwe
Bio-Innovation Zimbabwe (BIZ) develops markets for underutilised indigenous crops and wild plants, creating opportunities for smallholder farmers to diversify their production, strengthen their resilience, conserve biodiversity, and provide reliable, quality products for their families and consumers in Zimbabwe and beyond. BIZ works with plants that have food, medicinal, cosmetic, and even ornamental applications. https://www.bio-innovation.org/

Photographers
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DISCLAIMER
Although every attempt was made to collect data from as many sources as possible, both online and from numerous, varied other sources, this report is in no way exhaustive and there are a number of data gaps. For a number of the wildlife economy activities the 'latest' available data was often still 5-10 years old, highlighting a major gap in terms of relevant, recent, robust data to measure the value of the wildlife economy in Africa. The authors have taken care to ensure that the material presented in this report is accurate and correct. However, the authors do not guarantee the accuracy of the data or material contained in this report, and accept no legal liability or responsibility connected to its use or interpretation.

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List of acronyms

ABS - Access and Benefit Sharing

ALU - African Leadership University

CAMPFIRE - Communal Areas Management Programme for Indigenous Resources

CBD - Convention of Biological Diversity

DCA - DanChurchAid

EIA - Environmental Impact Assessment

EMA - Environmental Management Agency

ESC - Environmental Sub-Committee

EU - European Union

FPIC - Free, Prior and Informed Consent

MAT - Mutually Agreed Terms

MSME - Micro, Small, and Medium Enterprise

NGO - Non Governmental Organisation

NTFP - Non-Timber Forest Product

PIC - Prior Informed Consent

RDC - Rural District Council

SADC - Southern African Development Community

SAFIRE - Southern Alliance for Indigenous Resources

SOWC - School of Wildlife Conservation

USD - United States Dollar

ZELO - Zimbabwe Environmental Law Organisation

ZRBF - Zimbabwe Resilience Building Fund

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Background

Over the past three decades, governments, non-governmental organisations (NGOs), conservation bodies, and development agencies worldwide have promoted the collection and sale of non-timber forest products (NTFPs) as an off-farm livelihood strategy capable of improving incomes among poor households (Meinhold & Darr, 2019). **Non-timber forest products are broadly defined as biological goods and services derived from forests and other wooded lands, excluding industrial timber** (de Mello et al., 2020; FAO, 2026). These products include wild fruits and nuts, vegetables, medicinal plants, resins, fibres such as bamboo and grasses, as well as wild animals used for food and other purposes (Ibid.). In many contexts, the category also includes small wood-based products used for fuel or handicrafts, provided they are not harvested as industrial timber (de Mello et al., 2020).

NTFPs have long played an integral role in rural livelihoods, providing important support through food and nutritional security, income generation, cash savings, woodfuel, fodder, and traditional medicine, including in Zimbabwe (Shackleton & Pandey, 2014; Talukdar et al., 2021). Their value to rural communities often goes beyond market prices, as they contribute directly to human and livestock diets, support traditional practices and cultural identity, provide aesthetic benefits, and hold spiritual and sacred importance. These wider benefits can encourage local communities and resource managers to support the conservation and sustainable management of forest resources (de Mello et al., 2020; Lake et al., 2018).

In rural Zimbabwe, NTFPs continue to play an important role in meeting household needs, especially through the provision of food, firewood, construction materials, grazing resources, and traditional medicines (Mabhare et al., 2015; Shackleton & Pandey, 2014). Earlier national evidence showed that environmental resources contributed substantially to rural incomes, with poorer households relying more heavily on wild foods, fuelwood, woodland products, and grazing resources than wealthier households (Cavendish, 1999). More recent local evidence from Zimbabwe suggests that this pattern remains important, particularly in dry rural areas where households continue to depend on NTFPs for subsistence, income, and support during difficult farming seasons (Mabhare et al., 2015; Moyo & Kupika, 2025). Forest and biodiversity conservation therefore remain important, as forest products can provide a key coping strategy during periods of agricultural stress, including crop failure and food shortages (de Mello et al., 2020; Derebe et al., 2023).

In recent years, demand for NTFPs has increased significantly in both domestic and international markets. The baobab fruit (*Adansonia digitata*), for example, has in the past decade gained recognition as a "superfruit" due to its nutritional and health benefits (Ahmed et al., 2024). It has received "novel foods" clearance from the European Union (EU), enabling Zimbabwean producers to export to global markets (Bio-Innovation Zimbabwe, 2024). **Non-timber forest products represent an important opportunity to simultaneously support rural livelihoods, strengthen resilience to climate and economic shocks, and incentivise biodiversity conservation**. As interest in natural and sustainably sourced products continues to grow, there is increasing potential to develop inclusive NTFP value chains that generate local economic benefits while maintaining the ecological integrity of forest ecosystems. Understanding the governance, impacts, opportunities, and challenges associated with NTFP commercialisation is therefore vital for unlocking their contribution to sustainable development in the Zambezi Valley - Zimbabwe.

Institutional and legal arrangements

The commercialisation of NTFPs in Zimbabwe is regulated through a multi-tiered governance framework involving government institutions, legal instruments, community-based organisations, private sector actors, and supporting agencies. This integrated system seeks to balance sustainable resource use with economic development while ensuring equitable benefit sharing.

Government institutions

Source: DanChurchAid NTFP Working Group, 2023, pers. comm.

The Ministry of Environment, Climate and Wildlife plays a key role by developing policies to promote environmental sustainability, including guidelines for NTFP extraction and commercialisation. The Forestry Commission regulates forest management and harvesting activities, including the issuance of movement permits for NTFPs. The Environmental Management Authority (EMA) ensures that all commercial activities comply with environmental standards, while the Parks and Wildlife Management Authority oversees protected areas and enforces measures to prevent overutilisation. Other ministries also contribute to the governance framework. The Ministry of Lands, Agriculture, Fisheries, Water, and Rural Development supports rural development initiatives that incorporate sustainable forest resource use, and the Ministry of Local Government monitors NTFP utilisation and licenses potential commercial operations. Zimbabwe is a signatory to the Convention of Biological Diversity (CBD) and the Nagoya Protocol, which further strengthens its commitment to the sustainable use and fair and equitable sharing of benefits arising from biological resources.

Legal and policy framework

Source: DanChurchAid NTFP Working Group, 2023, pers. comm.

The governance system is supported by a number of legal and policy instruments. The Forest Act (Chapter 19:05) establishes the legal framework for forest resource management, including the regulation of harvesting and trade, the confiscation of illegally obtained forest produce, and the requirement for movement permits. The Environmental Management Act (Chapter 20:27) sets out environmental protection standards that influence NTFP commercialisation, and its provisions are complemented by Statutory Instrument 61 of 2009. This Regulation, which governs access to genetic resources and indigenous knowledge, vests rights in local authorities and requires people or organisations to obtain licences. It also outlines procedures for securing Prior Informed Consent (PIC) and negotiating Mutually Agreed Terms (MAT) to ensure fair and equitable benefit sharing. Other relevant legislation includes the Communal Lands Forest Produce Act, which regulates forest resource use on communal lands; the Traditional Leaders Act, which empowers traditional leaders to manage natural resources and address environmental degradation within their jurisdiction; and the Rural District Councils Act, which grants councils authority over environmental protection, water resource management, and wildlife conservation in communal areas, thereby linking national, provincial, and local

government in natural resource management. In addition, the National Biotechnology Act (Chapter 14:31 of 2006) governs bioprospecting, including research, development, importation, and exportation relevant to NTFPs. Trade and export regulations further specify procedures and permits required for exporting certain products.

Regulations

Source: DanChurchAid NTFP Working Group, 2023, pers. comm.

Although the regulatory framework is defined, some laws are outdated and law enforcement remains inconsistent, often constrained by limited capacity, expertise, and budgetary resources within responsible authorities. Operational measures have been established to ensure sustainable management. Rural District Councils are mandated to conduct resource inventories to determine the availability of NTFPs and to set annual harvesting volumes. Only resources with verified inventories are eligible for commercialisation. Private sector entities must obtain Free, Prior and Informed Consent (FPIC) from councils and local harvesting communities, together with MAT agreements that outline benefit-sharing arrangements, including financial, capacity-building, and community development provisions. Sustainability plans must be developed in collaboration with district authorities and submitted annually to the Rural District Council, the Forestry Commission, and the EMA. **Access and Benefit Sharing permits are issued by the council on the basis of compliance with FPIC and MAT agreements.**

Monitoring is conducted jointly by Rural District Councils, traditional leaders, and Environmental Sub-Committees (ESCs), which are ward-level environmental governance bodies that operate within local Rural District Council (RDC) structures, to ensure adherence to regulations. Violations such as harvesting beyond permitted volumes or without authorisation attract penalties that may include fines, suspension, or cancellation of permits. Harvesting seasons are strictly controlled, with RDCs having sole authority to declare opening and closing dates. Collectively, these arrangements establish a structured system that integrates legal control, institutional oversight, community participation, and private sector engagement to promote sustainable and equitable NTFP commercialisation in Zimbabwe.

Community-based management structures

Community-based management forms are an essential component of NTFP governance. Initiatives such as the Communal Areas Management Programme for Indigenous Resources (CAMPFIRE) empower local communities to manage forest resources and share in the benefits of commercialisation (Taylor, 2009). More recently, **the Parks and Wildlife Amendment Act, 2024 has strengthened this governance approach by promoting greater community participation, equitable benefit sharing, and increased local responsibility in wildlife conservation and management** (see Text box 1).

Private sector and market actors

Source: DanChurchAid NTFP Working Group, 2023, pers. comm.

The private sector is also an active participant in the NTFP value chain. Small-scale harvesters, including people and community groups, collect products such as baobab (*Adansonia digitata*), marula (*Sclerocarya birrea*), mopane caterpillar (*Gonimbrasia belina*), and medicinal plants (DanChurchAid, 2024). Commodity associations strengthen

Text box 1

Strengthening community-based governance of NTFPs and wildlife in Zimbabwe

Zimbabwe has recently strengthened its policy framework for community participation in wildlife and natural resource management through the Parks and Wildlife Amendment Act, 2024 and the approval of a new National Wildlife Policy in 2026. These reforms build on earlier programmes such as CAMPFIRE, but place stronger emphasis on decentralisation, equitable benefit sharing, and greater local responsibility in conservation and resource management.

The Parks and Wildlife Amendment Act, 2024 promotes principles of sustainable utilisation, community participation, gender equality, and equitable benefit sharing in wildlife governance. These principles are also relevant to the management of NTFPs, as many rural households depend on forest products for food, fuelwood, medicines, construction materials, and income. The Act further supports community conservancies and recognises the importance of involving local communities in decisions about how natural resources are accessed, managed, and conserved.

The new National Wildlife Policy, approved in 2026, further strengthens this direction by encouraging decentralised wildlife governance, public-private partnerships, and active community participation in conservation. The Policy also promotes equitable benefit sharing and recognises wildlife as a public resource that should contribute to rural development and climate resilience. Importantly, it prioritises mechanisms to reduce human-wildlife conflict, which remains a major challenge in rural areas such as the Zambezi Valley.

Together, these reforms suggest a growing policy commitment to more inclusive and community-based approaches to conservation in Zimbabwe. By strengthening local participation and benefit sharing, the reforms may create a more supportive environment for the sustainable management and commercialisation of both wildlife resources and NTFPs.

Sources: Government of Zimbabwe, 2024; Xinhua, 2026


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collective marketing, enhance bargaining power, and support quality control. **Aggregators and processors grade, bulk, process, and package products for both domestic and export markets, while private companies frequently serve as intermediaries linking small-scale producers with regional and international buyers.** Value addition plays an increasingly important role along this chain, as many NTFPs undergo transformation into higher-value products such as oils, powders, beverages, nutritional supplements, cosmetics, and herbal remedies. These processes not only improve product quality and shelf life but also enable producers to access premium markets and capture a larger share of the final product's value.

Non-governmental organisations and development partners

Source: DanChurchAid NTFP Working Group, 2023, pers. comm.

Non-governmental organisations and development partners complement these efforts by providing technical assistance, promoting sustainable harvesting practices, and facilitating market linkages. Organisations such as DanChurchAid, Bio-Innovation Zimbabwe, Southern Alliance for Indigenous Resources (SAFIRE), and Environment Africa work alongside research institutions and universities, which contribute to product innovation, value addition, and value chain development. International development agencies further support the sector through funding and expertise.

Economic impact

At the global level, NTFP-derived oils such as baobab, marula, and argan form part of a rapidly growing cosmetic oil market, valued at an estimated USD 59–66 billion between 2023 and 2025 (Swar, 2025). The sector is projected to expand further, reaching approx. USD 84–110 billion by 2030–2035, driven by increasing demand for natural, sustainable, and bioactive ingredients in cosmetic and personal care products (Grand View Research, 2024; Research Nester, 2025). Their market potential is reinforced by the rapid growth of related sub-sectors such as skincare oils (estimated USD 5.8 billion in 2026, projected USD 11 billion by 2033) and essential oils (USD 16.3 billion in 2022, projected USD 31.3 billion by 2031), where NTFP oils are increasingly valued for their natural, sustainable, and bioactive properties (Chavan, 2026; Transparency Market Research, 2023).

Non-timber forest products form a significant part of Zimbabwe's rich biodiversity, yet their economic contribution is largely unrecorded in official statistics. **The Zimbabwe Bioeconomy Report estimates the total subsistence value of NTFPs at approx. USD 500.3 million annually, which equates to an average of USD 17.20 per hectare across all natural land cover types** (MECW, 2023). Fuelwood and timber used for hut construction represent the most valuable category, contributing an estimated USD 227.2 million per year (Ibid.). Wild plant foods, particularly abundant in the miombo woodlands with diverse and favoured fruit tree species, are the second most valuable, with an annual value of USD 107 million. Mushroom harvesting follows at an estimated USD 76.2 million per year (MECW,2023). Other significant products include thatching grass, widely used for rural roofing, valued at USD 48.3 million; wild honey at USD 23.8 million; and mopane caterpillars (*Gonimbrasia belina*), an important source of both nutrition and income, at USD 17.9 million (Ibid.).

Despite this substantial global, regional and local value, NTFPs remain underutilised in terms of wealth creation for rural communities. **Achieving poverty reduction through forest products requires improved processing, value addition, and market access, alongside mechanisms that ensure a greater share of benefits is retained by local producers and harvesting communities** (Asamoah et al., 2023; Meinhold & Darr, 2019). At present, the aggregation of NTFPs is largely handled by intermediaries, who transport products to major cities and urban centres for sale. The participation of local entrepreneurs in processing and value addition remains limited, reducing opportunities for rural income generation (Asamoah et al., 2023). For example, Ilala palm leaves (*Hyphaene petersiana*), primarily used for basket and rug weaving, are collected in the lower Muzarabani and Nyaminyami districts but are typically sold unprocessed in Harare, the capital city (DanChurchAid, 2024).

There is both a need and considerable potential for the development of local enterprises capable of processing

NTFPs and adding value prior to their transportation to urban markets. Strengthening this capacity at the community level would not only increase local incomes but also create rural employment opportunities, diversify livelihoods, and reduce economic leakage from rural areas.

Social impact

In Zimbabwe, the social impacts of NTFP collection and the associated regulatory environment are complex, especially when viewed through the lens of indigenous knowledge systems, culture, and traditions. The commercialisation of NTFPs can contribute to livelihood diversification and income generation for rural and indigenous communities, especially where forest products supplement agricultural livelihoods and provide economic safety nets (Asamoah et al., 2024). **In the Zambezi Valley, collection and processing activities are often undertaken by women, particularly in the harvesting of wild fruits, fuelwood, thatching grass, and other household forest products**, while many processing activities are carried out within the home and alongside domestic responsibilities (DanChurchAid, 2024). Women's participation in NTFP value chains has also been associated with improved household welfare, livelihood resilience, and greater participation in local economic activities (Asamoah et al., 2024). When customary ecological knowledge is recognised and incorporated into resource management systems, communities may strengthen livelihood opportunities while supporting the preservation of cultural practices and sustainable harvesting traditions (Min et al., 2024; Sinthumule, 2025). The incorporation of mechanisms such as FPIC within regulatory frameworks may further help protect indigenous resource governance by ensuring that communities retain influence over access, harvesting, and benefit sharing (FAO, 2016).

Beyond economic benefits, **NTFP collection reinforces community bonds and strengthens cultural identity** (Cuni-Sanchez et al., 2019; Tamrakar & Dixit, 2023). The communal nature of harvesting often encourages collective decision-making and cooperation, which can strengthen social cohesion within rural communities (Asamoah et al., 2024; Tamrakar & Dixit, 2023). Where benefit-sharing arrangements are implemented effectively, they can strengthen local stewardship of natural resources and support the continuation of traditional knowledge and cultural practices linked to food, medicine, and community ceremonies (Asamoah et al., 2024; Min et al., 2024).

However, there are also challenges and potential adverse impacts associated with NTFP commercialisation. **Commercial pressures can lead to overharvesting and the replacement of traditional harvesting methods, which may contribute to biodiversity loss and the erosion of indigenous knowledge systems** (de Mello et al., 2020; Dube & Chitakira, 2024). In some cases, formal regulations and externally driven market systems may reduce the influence of local communities over forest resources, weakening customary governance structures and reducing the effectiveness of community-based management institutions (Schwaiger et al., 2024; Sinthumule, 2025). Where commercial arrangements are weak or local participation in value chains is limited, external actors and intermediaries may capture a larger share of benefits, reducing income opportunities for local communities and creating tensions around resource governance (Asamoah et al., 2023; Meinhold & Darr, 2019). Furthermore, tensions may emerge between commercial incentives and long-standing cultural practices where changes in livelihood strategies weaken the intergenerational transmission of traditional ecological knowledge, raising concerns about the preservation of cultural identity and sustainable harvesting practices (Min et al., 2024; Tamrakar & Dixit, 2023).

Environmental impact

The environmental impacts of NTFP collection and commercialisation in the Zambezi Valley, as well as for Zimbabwe as a whole, can be either detrimental or beneficial, depending on how harvesting practices are managed and regulated. **A primary concern is the risk of overharvesting when resource use shifts from domestic, small-scale, traditional collection to commercial-scale extraction** (DanChurchAid, 2024). Without effective regulation, intensive harvesting can lead to resource depletion, with key species being overutilised, their populations reduced, and ecological balance disrupted (de Mello et al., 2020; Shackleton et al., 2025). Such overutilisation can undermine the regenerative capacity of forest ecosystems, ultimately resulting in long-term biodiversity loss (Ibid.). The removal of critical species may alter habitat structure and affect associated flora and fauna, creating cascading ecological effects. At present, there is no documented evidence of overutilisation of NTFPs in the Zambezi Valley, largely because traditional harvesting remains low in volume and commercial extraction by the few buyers operating in the country is subject to quotas, local laws, resource assessments, and community input (DanChurchAid NTFP Working Group, 2023, pers. comm.).

Conversely, **when sustainable harvesting practices are implemented, negative environmental impacts can be reduced and in some cases replaced by positive conservation outcomes** (de Mello et al., 2020; Shackleton et al., 2025). More recent literature suggests that the sustainable commercialisation of natural resources, including NTFPs, can support both biodiversity conservation and rural livelihood development when supported by effective governance, equitable benefit sharing, and sustainable harvesting systems (Asamoah et al., 2024; de Mello et al., 2020). By assigning economic value to biodiversity and forest resources, local communities may have stronger incentives to engage in conservation practices that support the continued availability of these resources (Ibid.). Comprehensive resource inventories, annual harvesting assessments, and seasonal harvesting controls can help ensure that extraction remains within sustainable limits and does not exceed natural replenishment rates (FAO, 2022). When effectively implemented, such regulatory frameworks can strengthen forest conservation by linking local livelihoods more directly to the long-term sustainability of natural resources.

In addition, the **sustainable commercialisation of NTFPs may contribute to the preservation of traditional ecological knowledge by maintaining the cultural and practical value of local harvesting practices and resource management systems** (Min et al., 2024; Sinthumule, 2025). This body of knowledge, developed and refined over generations, includes harvesting techniques, seasonal practices, and resource management systems designed to maintain ecological balance and ensure the continued availability of forest resources (Ibid.). Integrating indigenous management systems with formal regulatory approaches is increasingly recognised as important for ensuring that resource use remains within ecological limits while also supporting local livelihoods and economic development (FAO, 2022).



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The findings presented in this section build directly on groundwork laid by two programmes in the Zambezi Valley: the Utariri and Ushingi Programmes. Both of these programmes place strong emphasis on developing NTFP-based livelihoods as a buffer against climate-related shocks and a source of off-farm income. Text Box 2 provides essential background on these two initiatives and draws together the results of a 2023 baseline survey and a 2024 resource assessment. They establish how communities across Muzarabani, Mbire, Hurungwe and Nyaminyami currently rely on, harvest, and manage NTFPs.

Text box 2

Baseline survey conducted under the Utariri Programme

The Utariri Programme (meaning *Stewardship* in Shona), funded by the Embassy of Sweden in Zimbabwe and implemented from 2022 to 2025, is a landscape-wide, one-health initiative designed to transform rural livelihoods, promote climate action, and enhance biodiversity conservation across the Zambezi Valley, specifically in Muzarabani, Mbire, Hurungwe and Nyaminyami districts.

Complementing this, the Ushingi Programme (meaning *Determination* in Shona), funded by the Zimbabwe Resilience Building Fund (ZRBF), aims to build the resilience of communities living in the Mid-Lower Zambezi Valley landscape (Hurungwe, Mbire, Nyaminyami and Binga districts). It seeks to enhance food and nutritional security while promoting climate action and the sustainable management of surrounding natural resources.

Both programmes place particular emphasis on developing NTFP-based livelihoods in the region, which provide important off-farm and off-season income opportunities. In years of poor rainfall, these products serve as an essential buffer against climate-related shocks, helping households to sustain their well-being and reduce vulnerability.

A baseline survey conducted under the Utariri Programme across Muzarabani, Mbire, Hurungwe and Nyaminyami districts in 2023 revealed the important role of NTFPs in local livelihoods. Of the 741 questionnaires administered, 98.66% of respondents reported collecting at least one NTFP. Among wild fruits, Indian plum (*Ziziphus mauritiana)* was the most collected (59%), followed by baobab (*Adansonia digitata*) at 47.5%, with clear spatial variation across the landscape. For non-fruit NTFPs, the most frequently harvested products included deadwood for fuel (93.9 %), thatching grass (66.9 %), and edible termites (36.2%).

Despite the widespread reliance on these resources, value addition and processing remain limited. Only a few entrepreneurs are engaged in these activities, primarily focusing on baobab and Indian plum. Insights from 31 key informants interviews and 10 focus group discussions highlighted emerging local initiatives. For example, women's groups such as the Kushinga collective in Muzarabanjam are producing jam and beginning to innovate around product development and commercialisation.

The baseline further showed that widely collected NTFPs in the Zambezi Valley include deadwood, wild fruits, thatch grass, edible termites, broom grass, honey, fish, and mushrooms. In some communities, small animals such as mice and birds are hunted for food, while other species are targeted for materials, such as skins or feathers, used in the production of apparel believed to possess healing properties. Harvesting practices are guided by strong traditional rules. For instance, sustainable harvesting of Indian plum (*Ziziphus mauritiana*) prohibits climbing trees, beating or cutting branches. Similarly, the felling of trees such as Indian plum (*Ziziphus mauritiana*), baobab (*Adansonia digitata*), marula (*Sclerocarya birrea*), and tamarind (*Tamarindus indica*) is strictly forbidden. However, despite these established norms, most collectors operate without permits due to the absence of a robust and functional permitting system.

In 2024, Bio-Innovation Zimbabwe conducted a resource assessment under the Utariri Programme with three main objectives:

- To map the occurrence and density of high-potential NTFP species across 15 targeted wards in Muzarabani and Mbire districts.
- To identify and prioritise five NTFPs for potential commercialisation.
- To develop preliminary commercialisation roadmaps for each of these species, including the identification of potential private sector partners for development and value addition.

The assessment identified Kalahari melon (*Citrullus lanatus*), large sour plum (*Ximenia caffra*), small sour plum (*Ximenia americana*), baobab (*Adansonia digitata*), marula (*Sclerocarya birrea*), and Indian plum (*Ziziphus mauritiana*) as having the highest commercial potential.

To support sustainable use, harvesting volumes were calculated to determine extraction limits that prevent overharvesting, support forest regeneration, and maintain food availability for wildlife. Quantifying resource availability and harvesting pressure is increasingly recognised as important for assessing the ecological sustainability of NTFP use and informing locally appropriate harvesting levels (Shackleton et al., 2025). Furthermore, strengthening transparent and efficient permitting processes could enable districts to capture greater economic value locally while reducing the risk of exploitation by intermediaries who might otherwise undervalue the resources.

Sources: Bio-Innovation Zimbabwe, 2024; DanChurchAid, 2024

Successes

The NTFP-focused initiatives in Mbire District have yielded notable successes in value addition, institutional strengthening, sustainable resource use, and community empowerment. These interventions were strategically designed and implemented based on a detailed NTFP resource mapping assessment, mentioned above, which provided critical evidence to guide targeted interventions. The following are some of the successful initiatives recorded in Zambezi Valley.

- **Local value addition and processing**: One of the most significant achievements has been the establishment of an Aggregation and Processing Centre in Mushumbi Pools, Mbire District, equipped with oil-pressing machines to process NTFPs locally. This has enabled value addition to take place at community level, strengthening local economies and reducing dependence on external processors.
- **Capacity building and organic certification**: Capacity building formed a key part of the initiative. In Mbire District, 66 lead collectors were trained and retrained as internal inspectors to support the organic certification of wild-collected products. In addition, 740 producers received training in sustainable, organic, and hygienic harvesting, processing, and storage techniques for products such as marula (*Sclerocarya birrea*), sour plum (*Ximenia caffra*), Kalahari melon (*Citrullus lanatus*), baobab (*Adansonia digitata*), and Indian plum (*Ziziphus mauritiana*).
- **Institutional strengthening and local governance**: Institutional development was supported through the formalisation of six ward-level NTFP groups and the registration of the Mbire District NTFP Association. These structures have enabled the groups to continue functioning independently, access markets, and assume collective ownership of the processing centre. Elected leaders from each ward were also trained in governance and leadership, leading to the establishment of a district-level coordination committee.
- **Improved nutrition and food security**: Nutrition-sensitive approaches were integrated into the programme through training on dietary diversity and the nutritional value of indigenous foods. As part of the initiative, 297 participants learned improved methods for harvesting, drying, and storing wild fruits and vegetables, as well as ways to fortify traditional meals using locally available ingredients. These efforts have contributed to improved food security and health outcomes.
- **Policy awareness and by-law development**: Awareness-raising sessions on NTFP-related legislation were conducted with local authorities and communities to strengthen understanding of the regulatory environment. These efforts culminated in the drafting of a district NTFP Bylaw aligned with national and international frameworks. Participatory consultations ensured that community feedback was incorporated, helping to make the Bylaw locally relevant and widely understood.
- **National coordination and sectoral expansion**: Beyond Mbire District, the initiatives have contributed to broader sectoral development. A national NTFP Working Group was established to facilitate knowledge sharing, awareness raising, and networking among stakeholders. The group currently includes 26 members representing 17 organisations across NGOs, academia, the private sector, and government institutions. Furthermore, NTFP resource assessments have been expanded to several other districts across the Zambezi Valley, including Nyaminyami and Binga, laying a foundation for scaling up and replicating successful approaches in other regions.

Together, these achievements have strengthened community resilience, improved livelihoods, and built momentum for a more coordinated and sustainable NTFP sector in Zimbabwe.

Challenges

Despite numerous successes, the sustainable utilisation and commercialisation of NTFPs in Zimbabwe also face a range of legal, institutional, and practical challenges. Many of these arise from gaps and inconsistencies in the regulatory framework, which create uncertainties and undermine efforts to balance economic development with environmental conservation.

- **Fragmented legislation:** Although Zimbabwe has established a relatively broad institutional and legal framework for the management and commercialisation of NTFPs, important gaps remain in how these arrangements are designed and implemented. Despite relevant legislation being in place, aspects of the legal framework governing NTFPs are fragmented, lacking comprehensive provisions on sustainable harvesting, resource management, and commercialisation. Responsibilities are also distributed across several institutions and legal instruments, which can create overlaps and inconsistencies. This fragmentation makes it difficult for stakeholders, particularly local communities and small enterprises, to navigate the regulatory environment and comply with multiple, and at times overlapping, requirements.
- **Unclear ownership and access rights:** A significant barrier is the absence of clearly defined ownership or tenure rights, particularly in communal and customary lands. While communities have historically managed NTFPs through traditional systems, these arrangements are not always fully recognised in formal law, creating uncertainty over tenure and discouraging long-term stewardship. Recent reforms under the Parks and Wildlife Amendment Act, 2024 may help strengthen community participation and local resource governance through community conservancies, although their effect on NTFP tenure rights remains uncertain.
- **Inadequate benefit-sharing mechanisms:** Although Zimbabwe has adopted the Environmental Management (Access to Genetic Resources and Indigenous Genetic Resource-based Knowledge) Regulations of 2009 and is a signatory to the Nagoya Protocol, implementation of the Access and Benefit Sharing (ABS) framework remains weak. The statutory instrument is not fully aligned with the Nagoya Protocol, particularly regarding benefit-sharing agreements, and enforcement remains limited, creating barriers for micro, small, and medium enterprises (MSMEs) and reducing opportunities for communities to benefit fairly from commercialisation (Bio-Innovation Zimbabwe, 2024; DanChurchAid, 2024). Awareness of ABS and related NTFP regulations also remains low at local level. However, the Parks and Wildlife Amendment Act, 2024 may help strengthen benefit sharing through greater community participation and local governance, although its practical impact on NTFPs remains uncertain.
- **Weak regulation and enforcement:** Even where laws exist, weak enforcement is a major challenge. Regulatory

agencies often lack the capacity, resources, or technical expertise to monitor and enforce sustainable harvesting practices effectively. This allows unsustainable practices, such as overharvesting or destructive collection methods, to occur.

- **Conflicts between customary practices and national law:** In many communities, customary laws and traditional knowledge systems have governed forest resource use for generations, often supporting sustainable harvesting. However, these systems are not always fully recognised in formal legislation, creating tensions and weakening community-level governance. While the Parks and Wildlife Amendment Act, 2024 places greater emphasis on community participation and cultural heritage, its ability to reduce tensions between customary and formal governance systems remains uncertain and will depend on implementation.
- **Barriers to commercialisation and market access:** Complex licensing procedures, stringent quality control standards, and export restrictions can deter local producers from engaging in NTFP commercialisation, even when demand is strong. The absence of streamlined processes and supportive policies limits the development of robust value chains.
- **Insufficient environmental impact assessments:** Large-scale NTFP harvesting and processing activities often require environmental impact assessments (EIAs) to avoid ecosystem harm. However, enforcement of EIA requirements is inadequate, leading to unregulated utilisation that can degrade biodiversity and compromise long-term resource sustainability.
- **Fragmented environmental by-laws:** District-level environmental by-laws are important for regulating NTFP utilisation and managing permits. Yet, in many areas, such by-laws are fragmented or absent, resulting in weak oversight and unsustainable harvesting practices.

At community level, several challenges, related to collecting NTFPs, were identified and are listed below (Bio-Innovation Zimbabwe, 2024; DanChurchAid, 2024):

- **Human-wildlife conflict:** In some communities, especially near Lake Kariba, NTFP collectors face dangerous encounters with wildlife, including elephants (*Loxodonta africana*), hippopotamus (*Hippopotamus amphibius*), and crocodiles (*Crocodylus niloticus*). Storing NTFPs at homesteads can also attract animals, creating additional risks. However, the Parks and Wildlife Amendment Act, 2024 introduces a Human-Wildlife Conflict Relief Fund to provide financial support to victims, which may help reduce some of the social and economic impacts of these incidents, although it does not remove the underlying risks.
- **Distance to harvest areas:** Many harvesters travel long distances to access forest resources. Without reliable transport, such as scotch carts and draught animals, moving products from harvesting sites is physically demanding and time-consuming.
- **Intense competition:** Certain high-value NTFPs, such as fruits, are subject to intense competition. Restrictions on outsiders, combined with the influx of commercial buyers, have sometimes caused tensions between locals and non-locals.
- **Unclear permit process and delays:** Local authorities are frequently slow to process permits for collectors, discouraging compliance and delaying market engagement.
- **Exploitation of collectors:** Buyers from outside the region often pay unfairly low prices, reducing incentives for sustainable harvesting and community investment.
- **Lack of mechanisation and processing equipment:** Most NTFPs are processed manually, and some, such as marula nuts (*Sclerocarya birrea*), require specialised, labour-intensive techniques. This affects product quality, increases contamination risks, and can discourage participation.
- **Seasonal and irregular participation:** NTFP collection is often treated as a fallback livelihood, with people participating only during times of need. While this flexibility offers a safety net, it results in unreliable supply, deterring consistent private sector engagement.
- **Inadequate storage facilities:** Collectors frequently lack safe, hygienic storage for perishable or organic produce. Spoilage and contamination not only reduce income but also disrupt supply chains and food security.
- **Overharvesting and unsustainable practices:** Without established harvesting thresholds, certain species may be overexploited, impacting local consumption, wildlife feeding patterns, and regeneration cycles.
- **Weak market linkages:** The absence of strong market connections makes it difficult for producers to secure stable demand and fair pricing, limiting income potential.
- **Private sector cash flow constraints:** Some private sector actors lack the working capital to invest in NTFP supply chains, reducing opportunities for scaling up production and for value addition.
- **Poor transportation infrastructure:** Weak rural road networks inflate transport costs and make remote harvesting areas less accessible, discouraging buyers despite high production potential.
- **Overlapping tenure regimes:** Customary tenure arrangements can result in overlapping claims to the same resources, creating uncertainty for producers and instability in supply chains.

Addressing these challenges will require coordinated reforms to policy, legislation, and market systems, alongside investment in infrastructure, community capacity, and institutional enforcement. Only through such integrated action can the NTFP sector in Zimbabwe reach its full potential as a driver of sustainable livelihoods and biodiversity conservation.

Lessons learned

- **Involving collectors in sustainability strategies:** Involving NTFP collectors in sustainability strategies is crucial because they hold valuable local knowledge about ecosystems and harvesting practices. Their participation fosters ownership, ensures that strategies are practical and equitable, and helps align conservation goals with livelihood needs. This inclusion also improves compliance, monitoring, and long-term commitment to sustainable resource use, making strategies more effective and locally accepted.
- **Training in product quality:** This is important to reduce losses and increase income. Poor handling, drying, or storage can lead to contamination, spoilage, or rejection by buyers. By improving quality, producers can meet market standards, fetch better prices, and ensure more of their harvest is saleable. This not only strengthens livelihoods but also encourages sustainable harvesting, as fewer resources are wasted.
- **Strengthening market linkages and legal compliance:**

Effective NTFP commercialisation depends on strong market connections and adherence to environmental regulations. Support for district authorities to develop NTFP-specific by-laws that incorporate Statutory Instrument 61 of 2009 and related legislation is essential. Key measures include establishing sustainable harvesting quotas in collaboration with communities and buyers. Additionally, involving traditional leaders in the creation and empowerment of forest management committees helps to enforce regulations and promote sustainable resource use.

- **Conducting resource assessments and understanding context:** Thorough resource assessments are vital not only for determining the availability of key species but also for evaluating the accessibility of collection sites, their proximity to homesteads, and their integration into existing livelihood strategies. Understanding community interest, capacity, and willingness to participate ensures that interventions are context-appropriate and responsive to local needs.
- **Ensuring supply meets demand:** Sustained engagement from both collectors and buyers depends on a consistent supply of products and adequate returns. Achieving this requires capacity building through collector training, peer learning with experienced producers from other districts, the development of efficient processing tools, and the cultivation of less abundant but high-value species. Expanding the supply base to include additional collection areas can also help meet market volume requirements.
- **Creating local demand through nutrition awareness:** Promoting the nutritional value of NTFPs can stimulate local demand, especially during droughts or food shortages. Nutrition training encourages communities to incorporate these products into their daily diets, improving food security while opening additional market opportunities within the value chain.
- **Adding value and attracting youth engagement:** Value addition, such as small-scale processing into dried fruits, fruit leathers, and wild fruit drinks, offers attractive business opportunities, especially for young people. Local, district, and provincial markets exist for these products, providing a pathway from raw product collection to entrepreneurship and employment.
- **Changing perceptions around traditional foods:** Addressing negative perceptions of indigenous foods and raising awareness of their health benefits can improve dietary diversity and resilience, especially in seasons of poor crop yields. This cultural shift strengthens the role of NTFPs in both nutrition and income generation.
- **Enhancing group sustainability through financial services:** Savings-led microfinance initiatives, such as savings and internal lending activities, can improve the sustainability of NTFP producer groups. These mechanisms enable members to pool resources, invest in productive activities, and maximise the impact of NTFP sales, which may be modest at the individual level.

Opportunities and recommendations

- **Expanding the natural oil market and value chains:** The natural oil market for cosmetics, as well as potential offtake from the food and beverage, tourism, and hospitality sectors, remains largely underdeveloped in Zimbabwe. Unlocking this potential will require targeted investment in local markets, the establishment of aggregation and processing centres, and the formation of commodity associations to improve coordination, standardisation, and bargaining power across the value chain. Strengthening these structures can enhance product quality, increase market access, and attract larger buyers.
- **Domestication and cultivation of NTFP species:** The domestication and cultivation of high-value NTFP species near homesteads offer a clear opportunity to strengthen supply while reducing pressure on wild populations. This approach not only improves the predictability of yields but also makes NTFP production more appealing to farmers and investors by lowering harvesting costs and minimising the environmental impact of wild collection.
- **Raising awareness of indigenous ingredients:** Limited awareness among consumers and industry about the value, nutritional benefits, and versatility of indigenous ingredients remains a major barrier to market growth. Strategic awareness campaigns, such as seed and food festivals, radio programmes, videos and recipe books, can stimulate local demand, foster pride in traditional foods, and attract new market players. By reshaping perceptions and highlighting nutritional benefits, these campaigns can drive both consumption and investment.
- **Strengthening the capacity of small-scale producers:** Although Zimbabwe has a handful of established natural oil producers, the sector is increasingly dominated by small-scale start-ups with limited capacity, fragmented operations, and minimal collaboration. This challenge is compounded by high production and transport costs linked to poor infrastructure, a landlocked geography, and limited support from trade development agencies such as ZimTrade. These constraints make Zimbabwean oils less competitive compared with products from neighbouring Southern African Development Community (SADC) countries. Targeted support in the form of infrastructure development, cooperative models, and technical assistance could help small-scale producers overcome these barriers.
- **Building stronger linkages with domestic industries:** Scaling up production and sales will require stronger partnerships with domestic food and beverage manufacturers, as well as the tourism and hospitality sectors. Indigenous ingredients can be incorporated into a wide range of value-added products, including cereals, flours, beverages, dairy products, and snacks. A notable example is Dairiboard's Baobab-flavoured cascade juice, which has become a flagship product in Zimbabwe and now consumes several tonnes of baobab powder each month. This positions Dairiboard among the world's largest users of baobab fruit powder. Replicating such models through partnerships with other large-scale manufacturers could significantly increase demand for NTFPs, enhance rural incomes, and strengthen the resilience of producer communities.

Conclusion

The NTFP sector in the Zambezi Valley demonstrates significant potential to strengthen rural livelihoods, improve resilience to climate shocks, and support biodiversity conservation. Recent initiatives have shown that, when supported by sustainable harvesting, local value addition, community participation, and effective governance, NTFP commercialisation can generate meaningful social, economic, and environmental benefits. However, challenges related to weak market systems, fragmented regulation, limited infrastructure, and institutional capacity continue to constrain progress. Looking ahead, sustained investment in community capacity, resource governance, and local enterprise development will be essential to unlocking the full potential of NTFPs as a driver of resilient livelihoods and sustainable natural resource management in the Zambezi Valley - Zimbabwe.



References

Ahmed, A.E.M., Mozzon, M., Shaikh, A. & Kovács, B. (2024). Baobab (*Adansonia digitata* L.) as a remedy to human livelihood challenges: a review. *Acta Agraria Debreceniensis*. DOI: http://dx.doi.org/10.34101/actaagrar/2/14170.

Asamoah, O., Danquah, J.A., Bamwesigye, D., Verter, N., Acheampong, E., Boateng, C.M., Kuittinen, S., Appiah, M. & Pappinen, A. (2023). Perceptions of commercialisation and value-addition of non-timber forest products in forest adjacent communities in Ghana. *Discover Sustainability*, 4, 30. DOI: https://doi.org/10.1007/s43621-023-00146-6.

Asamoah, O., Danquah, J.A., Bamwesigye, D., Boakye, E.A., Appiah, M. & Pappinen, A. (2024). Perception of Locals on Multiple Contributions of NTFPs to the Livelihoods of Forest Fringe Communities in Ghana. *Forests*, *15*(5), 861. DOI: https://doi.org/10.3390/f15050861.

Bio-Innovation Zimbabwe (2024). *Non-Timber Forest Products resource assessment and identification of commercial development and conservation enterprises opportunities for Mbire and Muzarabani districts, Zimbabwe*. Report prepared on behalf of DanChurchAid for the Utariri programme.

Cavendish, W. (1999). Empirical regularities in the poverty-environment relationship of African rural households. *Working Paper Series 99-9, Centre for the Study of African Economies Working Paper Series.* Available at https://www.staff.ncl.ac.uk/david.harvey/AEF806/Cavendish99ZimCase.pdf [Accessed 21st July 2025].

Chavan, S., (2026). *Skincare Oil Market Size, Share, and Growth Forecast, 2026 – 2033*. Available at https://www.persistencemarketresearch.com/market-research/skincare-oil-market.asp [Accessed 29th May 2026].

Cuni-Sanchez, A., Imani, G., Bulonvu, F., Batumike, R., Baruka, G., Burgess, N.D., Klein, J.A. & Marchant, R. (2019). Social Perceptions of Forest Ecosystem Services in the Democratic Republic of Congo. *Human Ecology*, 47, 839-853. DOI: https://doi.org/10.1007/s10745-019-00115-6.

DanChurchAid (2024). *Landscape Study Report: Zambezi Valley Livelihoods and Non-Timber Forest Products*. Available at https://www.utariri.org/wp-content/uploads/2024/12/2Landscape-Report-Livelihoods-and-NTFPs.pdf [Accessed 21st July 2025].

DanChurchAid NTFP Working Group (2023). personal communication.

de Mello, N.G.R., Gulinck, H., Van den Broeck, P. & Parra, C. (2020). Social-ecological sustainability of non-timber forest products: A review and theoretical considerations for future research. *Forest Policy and Economics*, 112, 102109. DOI: https://doi.org/10.1016/j.forpol.2020.102109.

Derebe, B., Alemu, A. & Asfaw, Z. (2023). Contribution of Nontimber Forest Products Earn to Livelihood in Rural Households and the Type of Use: A Systematic Review. *International Journal of Forestry Research*, 9643290. DOI: https://doi.org/10.1155/2023/9643290.

Dube, S.S. & Chitakira, M. (2024). Dynamics and socio-environmental impacts of mopane worm harvesting in rural communities in Zimbabwe: prospects for climate-smart approaches. *Frontiers in Sustainability*, 5, 1414058. DOI: https://doi.org/10.3389/frsus.2024.1414058.

Food and Agriculture Organization of the United Nations (FAO) (2016). *Free Prior and Informed Consent: An indigenous peoples' right and a good practice for local communities*. Available at https://openknowledge.fao.org/handle/20.500.14283/i6190e [Accessed 1st June 2026].

FAO (2022). *The State of the World's Forests 2022: Forest Pathways for Green Recovery and Building Inclusive, Resilient and Sustainable Economies.* Available at https://openknowledge.fao.org/server/api/core/bitstreams/f81551bf-0a78-498b-a0a6-17f21467389d/content [Accessed 1st June 2026].

FAO (2026). *Non-wood forest products*. Available at https://www.fao.org/forestry/nwfp/ [Accessed 29th May 2026].

Government of Zimbabwe (2024). *Parks and Wildlife Amendment Act, 2024.* Available at https://tfcaportal.org/repository/repository353.pdf [Accessed 29th May 2026].

Grand View Research (2024). *Cosmetic Oil Market (2024 - 2030)*. Available at https://www.grandviewresearch.com/industry-analysis/cosmetic-oil-market [Accessed 29th May 2026].

Lake, F.K., Emery, M.R., Baumflek, M.J., Friday, K.S., Kamelamela, K., Kruger, L., Grewe, N., Gilbert, J. & Reo, N.J. (2018). Cultural dimensions of nontimber forest products. In Chamberlain, J.L., Emery, M.R. & Patel-Weynand, T. (Eds.), *Assessment of nontimber forest products in the United States under changing conditions* (pp. 84-99). Asheville, NC: United States Department of Agriculture Forest Service.

Mabhare, V., Mujuru, L. & Gombe, J. (2015). *The socio-economic contributions of non-timber forest products (NTFPs) in Muzarabani district, Zimbabwe*. Available at https://foris.fao.org/wfc2015/api/file/552ce1169e00c2f116f8e371/contents/e4384347-a8e4-4f2c-8ed5-a371c6d5be33.pdf [Accessed 29th May 2026].

Meinhold, K. & Darr, D. (2019). The Processing of Non-Timber Forest Products through Small and Medium Enterprises—A Review of Enabling and Constraining Factors. *Forests*. 10(11), 1026. DOI: https://doi.org/10.3390/f10111026.

Min, S., Kim, E., Dayandante, P.B. & Park, M.S. (2024). Diagnosing the status and trend of research on traditional knowledge related to non-timber forest products as food. *Trees, Forests and People*, 17, 100646. DOI: https://doi.org/10.1016/j.tfp.2024.100646.

Ministry of Environment, Climate and Wildlife (MECW) (2023). *Zimbabwe biodiversity economy: Status report, investment blueprint and framework for natural capital accounting*. Available at https://www.awf.org/sites/default/files/2023-09/ZBE%20Report%20Final%20Copy%20-%20080923.pdf [Accessed 21st July 2025].

Moyo, T. & Kupika, O. L. (2025). Socio-Economic Contribution of Non-Timber Forest Products (NTFPs) Towards Rural Livelihoods in a Semi-Arid Savanna: Case Study of Mwenezi District, Zimbabwe. DOI: http://dx.doi.org/10.2139/ssrn.4855082 .

Research Nester (2025). *Cosmetic oil market*. Available at https://www.researchnester.com/reports/cosmetic-oil-market/6803 [Accessed 4th September 2025].

Schwaiger, J., Tas Kronenburg, Z.M., Auch, A., Bosker, T. & Ehrhardt, D. (2024). Customary Authorities and Environmental Governance in Africa: A Systematic Review. *Society & Natural Resources*, *37*(8), 1199–1217. DOI: https://doi.org/10.1080/08941920.2024.2338781.

Shackleton, C.M. & Pandey, A.K. (2014). Positioning non-timber forest products on the development agenda. *Forest Policy and Economics*, 38, 1-7. DOI: https://doi.org/10.1016/j.forpol.2013.07.004.

Shackleton, C.M., Cocks, M.L., Maroyi, A., Ntshanga, N. & Twine, W.C. (2025). The roles, significance and sustainability of wild plant and fungal non-timber forest product use in southern Africa: a systematic review. *South African Journal of Botany,* 184, 1386-1401. DOI: https://doi.org/10.1016/j.sajb.2025.07.029.

Sinthumule, N.I. (2025). The Role of Traditional Ecological Knowledge in Managing the Collection of Non-Timber Forest Products in Limpopo, South Africa: A Community-Based Resource Governance Approach. *Human Ecology*, 53, 959–97. DOI: https://doi.org/10.1007/s10745-025-00641-6.

Swar, V., (2025). *Cosmetic Oil Market Size, Share and Trends 2026 to 2035*. Available at https://www.precedenceresearch.com/cosmetic-oil-market [Accessed 29th May 2026].

Talukdar, N.R., Choudhury, P., Barbhuiyaa, R.A. & Singh, B. (2021). Importance of Non-Timber Forest Products (NTFPs) in rural livelihood: A study in Patharia Hills Reserve Forest, northeast India. *Trees, Forests and People*, 3, 100042. DOI: https://doi.org/10.1016/j.tfp.2020.100042.

Tamrakar, A. & Dixit, B. (2023). *The socio-ecological significance of non-timber forest produce in nurturing tribal livelihoods: A comprehensive review*. Available at https://www.researchgate.net/publication/376981477_THE_SOCIO-ECOLOGICAL_SIGNIFICANCE_OF_NON-TIMBER_FOREST_PRODUCE_IN_NURTURING_TRIBAL_LIVELIHOODS_A_COMPREHENSIVE_REVIEW [Accessed 21st July 2025].

Taylor, R. (2009). Community based natural resource management in Zimbabwe: The experience of CAMPFIRE. *Biodiversity and Conservation,* 18, 2563-2583. DOI: https://doi.org/10.1007/s10531-009-9612-8.

Transparency Market Research (2023). *Essential oil market – Global industry analysis, size, share, growth, trends, and forecast, 2022–2031*. Available at https://www.transparencymarketresearch.com/essential-oil-market.html [Accessed 4th September 2025].

Xinhua (2026). *Zimbabwe approves policy to promote sustainable use of wildlife resources*. Available at https://english.news.cn/africa//20260429/e8d33222f6674e6c955dcfe1902f894e/c.html [Accessed 29th May 2026].



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