



Day 2: BioMoT session 19 September 2025

BioMoT

A species and market intelligence tool for public and private use supporting the SA biotrade sector



C. BIA phase II objective with the IT tool

BioInnovation Africa Phase I

Output A: Sector-specific knowledge products to improve efficiency of national ABS frameworks

Biotrade and bioprospecting value chain visualisation

Stakeholders and value chain relationships

ABS across the value chain

Artificial intelligence and machine learning for natural product research and monitoring in South Africa (IT monitoring tool)

ABS guide for business

Arising from ABS coaching support for 15 biotrade SMEs

Business guide for compliance with South African ABS legal framework

Section 1 - Introduction, executive summary, key concepts and legislation
Section 2 - Preparing for permit applications
Section 3 - Discovery phase: Notification and permit applications
Section 4 - Commercialisation phase: Biotrade, Bioprospecting and Integrated Permit Applications
Section 5 - Material Transfer and Benefit-Sharing Agreements
Section 6 - Templates and resources

ABS decision tree for researchers

A guide to ABS legislation in South Africa

SAHRA

Ministry of Forestry, Fisheries & the Environment
Department of Forestry, Fisheries & the Environment
GIZ

BIO INNOVATION AFRICA

Output 2:

*“Strengthening national capacities to promote biodiversity-based value chains and to **reduce market barriers including ABS** are strengthened at national level in **South Africa**”*

Bioprospecting, Access and Benefit Sharing permitting system

A permit or notification in terms of the Act may only be issued to or submitted by:

- a. A juristic person registered in terms of South African law;
- b. A natural person, who is a South African citizen or a permanent resident of South Africa; or
- c. A juristic person that is not registered in terms of South African law or a natural person who is not a South African citizen or a permanent resident of South Africa, if that juristic person or foreign national applies jointly with a juristic or natural person referred to in paragraphs (a) or (b) above

The following activities require a permit:

- a. To utilise any indigenous genetic and biological resources for biotrade or for research, application or development of drugs, complementary medicines, nutraceuticals, industry enzymes, food flavours, fragrances, cosmetics, emulsifiers, oleoresins, colours, extracts, and essential oils a bioprospecting or biotrade or integrated biotrade and bioprospecting permit is required.
- b. To utilise traditional knowledge associated with any indigenous genetic and biological resources for biotrade or for research, application or development of drugs, complementary medicines, nutraceuticals, industry enzymes, food flavours, fragrances, cosmetics, emulsifiers, oleoresins, colours, extracts, and essential oils a permit is also required.
- c. To export from the republic any indigenous genetic and biological resources for a research to generate scientific data by non-commercial sectors, an export permit is also required.

Monitoring and evaluation needs?

BioMoT
Developed by:



One World Analytics

About

Publications

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Africa Studies

ABS Permits



Welcome to One World Analytics

We specialise in the analysis of social and environmental issues using text mining, statistics, geographic mapping and network visualisation. We focus on biodiversity and genetic resources, traditional knowledge and new and emerging areas of science and technology. Our aim is to make the invisible and neglected contributions of biodiversity and traditional knowledge to innovation and human welfare visible to inform policy decision-making.

Paul Oldham: <https://oneworldanalytics.com/>

SANBI Public Sector Pilot Project timeframe: (July 24-Oct 25)

OVERALL OBJECTIVE OF PUBLIC SECTOR PILOT PROJECT: to maximally inform the potential long-term hosting by SANBI of BioMoT for the benefit of the South African Public Sector, post September 2025

The pilot as conceived intends to achieve four objectives:

Objective 1. Increase the value of BioMoT to SANBI in respect of its own work, to improve delivery on its mandate, most particularly in relation to the work of the Scientific Authority.

Objective 2. Convincingly demonstrate the usefulness of BioMoT to select but diverse Public Sector stakeholders to better deliver on their mandates.

Objective 3. Interrogate the (Public Sector) user pay model, envisaged to enable affordable long-term hosting of BioMoT by SANBI.

Objective 4. Reveal to SANBI the feasibility of engaging with One World Analytics as a key BioMoT partner beyond the pilot phase, and the feasibility of providing an ongoing service to the Public Sector.

Public Sector element	Focus area
DFFE BABS Unit	BABS permitting compliance, including support of the work of the Bioprospecting Advisory Committee (BAC), and Bioprospecting Economy (NBES) policy development, monitoring (including of DSI) and evaluation
National Research Foundation (NRF)	Mapping of academic activity and collaboration networks of rated researchers working on SA IBRs including relevant Research Chairs and the relationship of foundational research to the commercialization of South African IBRs (through patent activity monitoring)
Technology Innovation Agency (TIA) of the DSI	To inform policy and operations of TIA in respect of technological innovation and entrepreneurship linked to South African IBRs, IKS support programmes, hubs, incubators and phytochemical platform, and to support M&E of their related operations
Industrial Development Corporation (IDC)	Indigenous Natural Products Fund, Agro-processing Sector in support of policy development in relation to SA IBRs, and M&E
Scientific Authority of SA	TOPS taxa and CITES, science informing conservation policy and regulations

AI search results to the question:

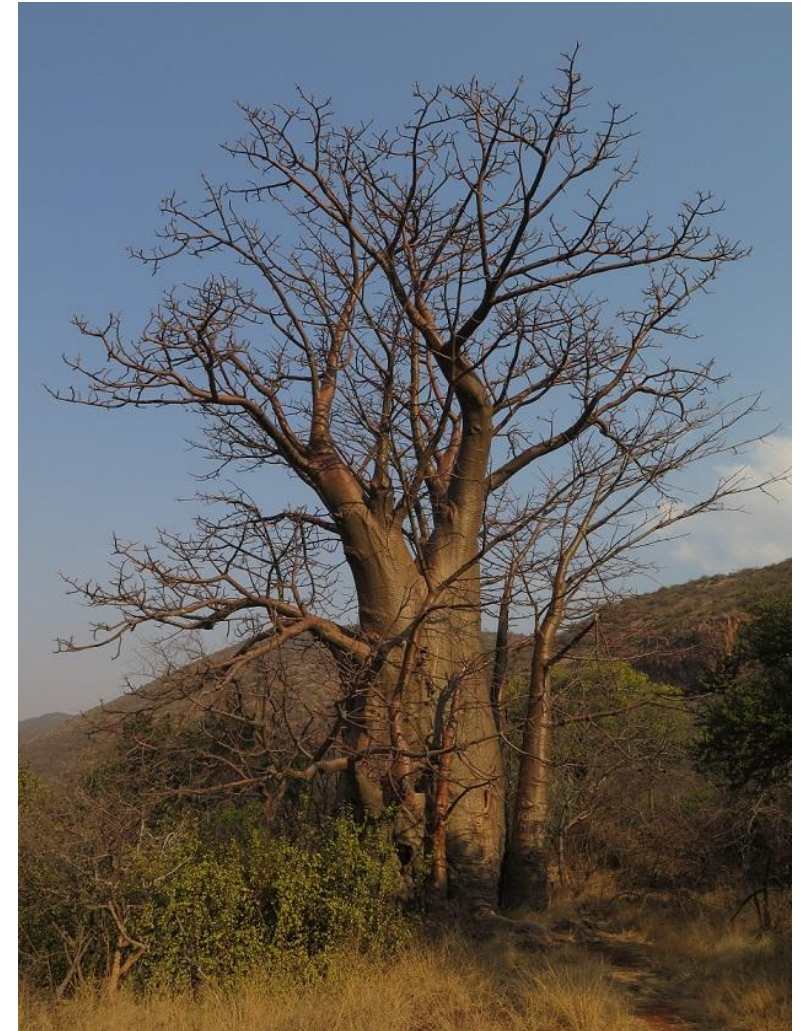
What are the main new market opportunities for baobab based natural products from South Africa? Also, include potential new geographical markets that may not have been explored. Your audience is companies and business associations.

AI interrogated: **Deep Search** and **Copilot**

Could compare and contrast these two sets of answers using ChtGPT5

Compared and contrast these tools w.r.t. categories:

- 1. Product Categories & Market Opportunities**
- 2. Geographical Market Opportunities**
- 3. Market Development Strategies**
- 4. Emerging Trends**



Conclusion

BioMoT provides a **much more detailed and actionable analysis** than **Copilot**, with concrete examples, market data, and a clear focus on strategic partnerships and certification processes. It also goes into detail about specific market opportunities, competitive landscape, and emerging trends. This depth makes it more useful for business associations and companies looking to leverage baobab products.

Copilot offers a **broader overview** and lacks the specificity and actionable steps that are present in the **BioMoT** report. While it still identifies key trends and markets, it is more general in its approach and offers fewer examples and partnerships. This makes it suitable for an introductory or high-level overview but less effective for companies seeking a detailed roadmap for market entry or expansion.

In summary, **BioMoT** is a **more practical and in-depth resource**, while CoPilot provides a **high-level view**, suitable for a broader audience but lacking in concrete, actionable strategies.



How can co-operative governance in South Africa proceed to ensure optimal realisation of the Bioeconomy strategy of DSTI and the Bioeconomy Strategy of DFFE?

What will the impact be on existing benefit sharing arrangements for traditional knowledge holders of rooibos once the IKS Protection Act of the DSTI is commenced and regulated in conjunction with the ABS regulations of Act 10 of 2004 of the DFFE?

Within the South African ABS context what would be a reasonable and appropriate percentage of the value of products on shop shelves to ensure equitable and fair sharing of benefits derived with legitimate stakeholder ABS beneficiaries? The answer should take into consideration international best practices in this regard.

Early warning of trends in commercial wildlife trade through novel machine-learning analysis of patent filing

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 Check for updates

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Unsustainable wildlife trade imperils thousands of species, but efforts to identify and reduce these threats are hampered by rapidly evolving commercial markets. Businesses trading wildlife-derived products innovate to remain competitive, and the patents they file to protect their innovations also provide an early-warning of market shifts. Here, we develop a novel machine-learning approach to analyse patent-filing trends and apply it to patents filed from 1970–2020 related to six traded taxa that vary in trade legality, threat level, and use type: rhinoceroses, pangolins, bears, sturgeon, horseshoe crabs, and caterpillar fungus. We found 27,308 patents, showing 130% per-year increases, compared to a background rate of 104%. Innovation led to diversification, including new fertilizer products using illegal-to-trade rhinoceros horn, and novel farming methods for pangolins. Stricter regulation did not generally correlate with reduced patenting. Patents reveal how wildlife-related businesses predict, adapt to, and create market shifts, providing data to underpin proactive wildlife-trade management approaches.

Which succulent plant species indigenous to South Africa feature most prominently in international trade, and prioritise the top 20 in relation to IUCN RED listing threat assessments at a national level?

Rank	Species/Genus	Prominence in Trade	IUCN Red List Status (National Level)
1	<i>Conophytum</i> spp.	High (particularly <i>Conophytum burgeri</i>)	Threatened, Endangered, Critically Endangered (some functionally extinct) ^[1]
2	<i>Eriospermum</i> spp.	Moderate	Data Deficient (likely threatened due to trade pressure)
3	<i>Tylecodon</i> spp.	Moderate	Data Deficient (likely threatened due to trade pressure)
4	<i>Haworthia</i> spp.	Moderate	Data Deficient (subject to illegal collection)

National Research Foundation (NRF)

Priority Information Needs of the NRF:

- Identification of high-impact and socially relevant research themes, institutions and researchers in relation to SA IBRs
- Comparison of international trends relative to SA research activities
- Reporting on productivity, research networks and other aspects of research activities in general as this relates to NRF funded research
- Gaining insight into foundational and applied research that leads to patents and subsequent commercialisation, or socially relevant outcomes

Which scientists funded through the National Research Foundation of South Africa are listed on world patents that protect current commercialisation of South Africa's biodiversity, as evidenced by products on shelves in local and international markets?

Which projects funded through the Technology Innovation Agency of South Africa have resulted in the successful commercialisation of indigenous South African plant species?

Project Name	Indigenous Plant Species	TIA Funding Amount	Commercialization Metrics	Impact Assessment
Setsong Tea Crafters	Wild-harvested indigenous plants	Not publicly available	Brand recognition, retail distribution	Job creation, preservation of traditional knowledge ^[2]
Shanti Natural Care	Indigenous plant extracts (CBD)	Not publicly available	CBD skincare line launch	Sustainable use of indigenous plants, promotion of African traditional knowledge
Rooibos Industry (Indirect)	Rooibos (<i>Aspalathus linearis</i>)	Broader support for bio-innovation	Global market presence, export revenue	Economic empowerment of Khoi and San communities, cultural preservation

Unearthing further details regarding TIA's diverse project portfolio and quantifying specific commercialization metrics necessitates a deeper dive into TIA's annual reports, comprehensive project databases, and collaborative initiatives with esteemed organizations such as the Council for Scientific and Industrial Research (CSIR) and leading South African universities. The ultimate

Further queries on BioMoT Pilot Phase implementation:

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Thank you for your attention

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Cyril Lombard and Marthane Swart are contracted by BIA to support the initiative



SANBI

South African National Biodiversity Institute



Biodiversity for Life