

# The Nagoya Convention, Traditional Medicines, and Biopiracy in Angola: Challenges and Perspectives

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## Abstract

This article examines the relationship between the Convention on Biological Diversity (CBD), the Nagoya Protocol, and the role of traditional medicine in Angola, with particular attention to the risks of biopiracy. Despite the fact that nearly 60% of the Angolan population relies on traditional medicine for primary health care, these practices remain vulnerable due to cultural erosion, lack of institutional recognition, and increasing global demand for biological resources.

Although Angola ratified the Nagoya Protocol in 2014, the country still lacks a comprehensive national legal framework to regulate access to genetic resources and ensure fair and equitable benefit-sharing (ABS). Weak inter-institutional coordination and the absence of formal Prior Informed Consent (PIC) mechanisms further increase exposure to biopiracy.

Using a qualitative approach—based on documentary research, legal analysis, and exploratory interviews with traditional practitioners and institutional actors—this study highlights both the central role and the fragility of traditional medicine in Angola. Comparative experiences from South Africa, Namibia, and Ethiopia show that clear laws, recognition of communities, and benefit-sharing agreements can mitigate risks while promoting sustainable innovation.

The article concludes that Angola urgently needs inclusive policies and strong institutional capacity to protect its biocultural heritage, combat biopiracy, and promote sustainable development.

**Keywords:** Nagoya convention, traditional medicines, Biopiracy, Angola

## 1. Introduction

Biodiversity is internationally recognized as a strategic resource for health, well-being, and the sustainable development of nations (Convention on Biological Diversity [CBD], 2010). In particular, traditional medicines play an essential role in health systems in Africa, where a significant proportion of the population relies on medicinal plants and ancestral practices to meet basic healthcare needs (World Health Organization [WHO], 2022). It is estimated that approximately 60% of the Angolan population resorts to traditional medicine as a first therapeutic option, especially in rural areas where access to biomedical services remains limited (National Institute of Statistics [INE], 2023).

In Angola, knowledge related to the use of medicinal plants is transmitted orally across generations of traditional healers and local communities. Although resilient, this intergenerational transmission is increasingly threatened by processes of cultural erosion, urbanization, and pressure from global markets on natural resources (Barume, 2010). At the same time, the increasing interest of the pharmaceutical and cosmetic industries in bioactive compounds derived from African biodiversity raises significant risks of biopiracy. This practice involves the unauthorized appropriation of genetic resources and associated traditional knowledge, often without adequate recognition or fair benefit-sharing mechanisms (World Intellectual Property Organization [WIPO], 2020). In response to these challenges, the international community.

To address these challenges, the international community adopted the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from Their Utilization in 2010, within the framework of the Convention on Biological Diversity. This treaty establishes legal mechanisms to ensure the Prior Informed Consent (PIC) of knowledge-holding communities and the Fair and Equitable Sharing of Benefits (ABS) derived from the use of genetic resources (CBD, 2010). Angola ratified this instrument in 2014, committing itself to the development of national access and benefit-sharing policies. However, the absence of

specific legislation and implementation mechanisms has limited the effectiveness of this commitment (Ministry of Environment of Angola, 2021; African Union, 2015).

Accordingly, this article analyzes the relationship between the Nagoya Protocol, traditional medicines, and the fight against biopiracy in Angola. It seeks to understand the progress and limitations in the implementation of the Protocol, as well as to reflect on strategies for integrating traditional knowledge into biodiversity policies, ensuring both cultural valorization and protection against exploitative practices.

## 2. Methodology

This research adopted a qualitative, exploratory, and descriptive approach aimed at understanding the relationship between the implementation of the Nagoya Protocol, the protection of traditional medicines, and the risks of biopiracy in Angola. This approach enabled the analysis of both normative and institutional documents and the perceptions of social actors involved in the issue.

### 2.1 Data Collection Techniques

To ensure methodological triangulation, multiple data collection techniques were employed (Creswell, 2014):

#### 2.1.1 Literature Review

A systematic literature review was conducted using international databases (Web of Science and Google Scholar), institutional sources (WHO, WIPO, African Union), and academic forums (3rd National Meeting on Flora and Vegetation of Angola: *Biodiversity – A Value with a Future*). The review focused on studies addressing traditional medicine, biopiracy, and the implementation of the Nagoya Protocol in Africa. Scientific articles, technical reports, and public policy documents were included (WHO, 2022; WIPO, 2020; Barume, 2010). The growing global interest in biodiversity has intensified debates on the protection of traditional knowledge and the equitable sharing of benefits derived from genetic resources. The Nagoya Protocol, adopted under the Convention on Biological Diversity, represents an important international legal instrument aimed at regulating access to genetic resources and ensuring fair and equitable benefit-sharing (ABS).

However, in many African countries, including Angola, the legal and institutional mechanisms necessary for the effective implementation of the Protocol remain weak or incomplete. Scholars such as Dutfield (2017) and Robinson (2010) emphasize that traditional medicinal knowledge is particularly vulnerable to biopiracy, especially where local communities lack formal recognition of their intellectual rights.

#### 2.1.2 Documentary Analysis

Legal and institutional documents were analyzed, including the Nagoya Protocol (CBD, 2010), the National Biodiversity Plan (Ministry of Environment, 2021), reports from the National Institute of Statistics (INE, 2023), and African Union guidelines (2015). This analysis provided insight into Angola's legal and institutional framework regarding access and benefit-sharing (ABS).

#### 2.1.3 Exploratory Interviews

Semi-structured exploratory interviews were conducted with traditional medicine practitioners and public officials involved in biodiversity management. The objective was to understand local perceptions regarding the protection of traditional knowledge and to identify gaps in the application of national regulations. Ethical principles of informed consent and confidentiality were respected, in accordance with best practices in qualitative research (Patton, 2015).

### 2.2 Data Analysis

The collected data were analyzed qualitatively using content analysis techniques, following the methodological framework proposed by Bardin (2011).

#### 2.2.1 Literature Review and Document Analysis

The reviewed literature and documents were examined through thematic analysis, which made it possible to identify key analytical categories, including access to genetic resources, fair and equitable benefit-sharing, the protection of traditional knowledge, and institutional challenges in Angola (CBD, 2010; WIPO, 2020; African Union, 2015).

#### 2.2.2 Exploratory Interviews

The interviews were fully transcribed and subjected to open coding, following the procedures of grounded theory (Strauss & Corbin, 1998). The emerging categories were compared with documentary and bibliographic data, identifying convergences and divergences between official discourses and local knowledge systems (Patton, 2015).

### 2.2.3 Triangulation

According to Creswell (2014), the integration of different types of data (literature, documents, and interviews) enables methodological triangulation, thereby increasing the validity and robustness of interpretations. This process was essential for understanding how biopiracy and the protection of traditional medicines are simultaneously legal, political, and cultural issues in Angola.

## 3. Results

### 3.1 Status of Traditional Medicine in Angola

Traditional medicine plays a central role in the lives of a large proportion of the Angolan population, particularly in rural areas where coverage of the national health system remains insufficient. According to the National Institute of Statistics (INE, 2023), a substantial proportion of the population regularly consults traditional medicine practitioners as a first point of healthcare, reflecting both cultural factors and economic considerations. This pattern is consistent with estimates from the World Health Organization (WHO, 2022), which report that up to 80% of the population in Africa relies on traditional therapies as a primary means of treating common illnesses.

A defining characteristic of Angolan traditional medicine is the oral transmission of endogenous knowledge, often passed down through generations within families, lineages, or specific communities. According to Barume (2010), while this form of transmission ensures cultural continuity, it also renders knowledge highly vulnerable to cultural erosion, particularly in the context of urbanization, globalization, and changing lifestyles. The absence of written records or structured documentation systems increases the risk of knowledge loss as well as its misappropriation by external actors—a phenomenon associated with biopiracy.

Despite its strong social presence, traditional medicine in Angola still enjoys limited institutional recognition. Although there are isolated initiatives aimed at regulating the practice and establishing forms of collaboration with the formal health system, the country lacks a consolidated policy for the full integration of traditional medicine into national health services (Ministry of Environment, 2021; WHO, 2022). This gap contrasts with regulatory and institutional developments observed in other African countries, notably South Africa and Mozambique, where legal frameworks and public policies have progressively enabled the formal recognition of traditional medicine and the integration of traditional practitioners into national health systems (WHO, 2013).

In comparison, the Angolan context reveals a dual dynamic: although traditional medicine plays a crucial role in community health and constitutes an important component of national cultural heritage, it remains insufficiently institutionalized. This situation increases its vulnerability to marginalization, external appropriation, and erosion of legitimacy, particularly in the absence of clear mechanisms for legal recognition, valorization, and protection. This tension underscores the need for public policies that combine legal recognition, protection of traditional knowledge, and gradual integration of traditional practices into formal health services.

### 3.2 Implementation of the Nagoya Protocol in Angola

Angola ratified the Nagoya Protocol in 2014, reaffirming its commitment to the Convention on Biological Diversity (CBD, 2010) and to the principles of access to genetic resources and the fair and equitable sharing of benefits arising from their utilization (ABS). This accession represented an important milestone, as it formally acknowledged the relevance of national biodiversity and associated traditional knowledge as strategic assets for sustainable development.

However, to date, Angola does not yet have specific legislation regulating in detail the procedures for access and benefit-sharing. This normative gap undermines the effective implementation of the Protocol by leaving undefined key elements such as: (i) authorization requirements for access to genetic resources; (ii) the designation of competent authorities; (iii) monitoring and enforcement mechanisms; and (iv) modalities for the participation of traditional knowledge-holding communities (African Union, 2015). As a result, a noticeable gap persists between international commitments and their incorporation into the national legal framework. A further challenge concerns limited interministerial coordination. The governance of genetic resources and associated knowledge involves multiple sectors—including environment, health, agriculture, culture, science, and technology—yet Angola does not have an integrated institutional arrangement capable of ensuring effective coordination, policy coherence, and the prevention of overlapping mandates.

This administrative fragmentation leads to inefficiency and difficulties in clearly assigning institutional responsibilities (Ministry of Environment, 2021). Neighboring countries such as South Africa and Namibia have already made progress in establishing national competent authorities and specific licensing systems for access to and use of genetic resources, thereby enhancing their regulatory and monitoring capacity (CBD Secretariat, 2020).

A third major issue relates to the absence of formal mechanisms for Prior Informed Consent (PIC), which constitutes a fundamental principle of the Nagoya Protocol. PIC requires that local communities and Indigenous peoples are consulted and provide authorization before access is granted to their biological resources or associated knowledge, thereby ensuring fair and equitable benefit-sharing (CBD, 2010). In the Angolan context, the lack of clear regulatory frameworks and officially recognized community institutions limits the effective implementation of this principle and weakens the protection of holders of endogenous knowledge (Ministry of Environment, 2021).

The convergence of these factors—the absence of specific legislation, limited institutional coordination, and the lack of Prior Informed Consent (PIC) mechanisms—renders Angola particularly vulnerable to biopiracy and the misappropriation of its biological resources. This vulnerability is further intensified by the country's extensive biodiversity, one of the largest in Southern Africa, which presents substantial potential for pharmaceutical, cosmetic, and biotechnological applications (INE, 2023).

At the same time, regulatory gaps limit opportunities to transform this wealth into a legitimate source of scientific innovation and socio-economic benefits for local communities, as has occurred in countries that have more successfully internalized the Nagoya Protocol (Union for Ethical BioTrade, 2019).

Thus, the effective implementation of the Nagoya Protocol in Angola depends not only on formal ratification but, above all, on the establishment of a robust national legal framework, the creation of a national competent authority, the definition of clear PIC procedures, and the promotion of effective interministerial coordination. Without these elements, the international commitment risks remaining largely symbolic, without producing the expected positive impacts in terms of biodiversity protection, valorization of traditional knowledge, and promotion of inclusive sustainable development.

### 3.3 Vulnerability and Risks of Biopiracy

The absence of a robust legal framework and effective regulatory mechanisms places Angola in a situation of high vulnerability to biopiracy, particularly given its rich biodiversity and the presence of associated traditional knowledge. Biopiracy refers, according to Shiva (2001) and Dutfield (2017), to the unauthorized appropriation of biological resources and Indigenous or local knowledge by external actors—generally pharmaceutical, cosmetic, and biotechnology companies—without the fair sharing of benefits with the communities that hold such knowledge. In the Angolan context, this vulnerability manifests at several levels:

#### 3.3.1 Poorly Protected Biological Wealth

Angola possesses one of the largest biodiversity reserves in Southern Africa, including endemic medicinal plant species used in traditional practices (Heywood, 2017; Komba Muizu, 2021; Duarte, 2021; Catarino, 2021). The lack of systematic inventories and official records of traditional uses of these species increases the risk of misappropriation by external agents. Figure 1, in the annexes, illustrating medicinal plants sold in markets, highlight the diversity of endemic species used in traditional practices that remain neither officially inventoried nor scientifically documented.



Figure 1. Sample of various products derived from medicinal plants sold in a local market (Dundo, Lunda Norte Province, Angola)

Source: Komba Muizu A.

### 3.3.2 Oral Transmission and Cultural Erosion

Traditional medical knowledge—including plant identification, preparation methods, and therapeutic practices—is transmitted orally from generation to generation. This mode of transmission, vulnerable to cultural erosion and the loss of knowledge holders, facilitates appropriation without formal recognition of communities (INE, 2023; WHO, 2022).

### 3.3.3 Absence of Prior Informed Consent (PIC) Mechanisms

Without the institutionalization of PIC, local communities lack legal instruments to ensure control over their knowledge and biological resources. This gap favors exploitative practices in which researchers or companies collect information and genetic materials without adequate compensation (CBD, 2010; Ministry of Environment, 2021).

### 3.3.4 Global Biotechnology and Pharmaceutical Markets

Growing international demand for active compounds derived from African plants for medicines, supplements, and cosmetics creates strong incentives for biopiracy. Similar cases have been documented in neighboring countries such as South Africa and Namibia, involving species like *Hoodia gordonii* and *Pelargonium sidoides*, serving as warnings for the Angolan context (Wynberg, 2010).

### 3.3.5 Social and Economic Impacts

The misappropriation of natural resources and traditional knowledge leads to the marginalization of local communities, depriving them of potential economic benefits and cultural recognition. It also undermines trust between knowledge holders and research institutions, creating barriers to scientific collaboration (Posey & Dutfield, 1996).

In sum, the risks of biopiracy in Angola stem from the convergence of biological richness, institutional vulnerability, and the absence of mechanisms to protect traditional knowledge. This situation underscores the urgent need for public policies aligned with the principles of the Nagoya Protocol, promoting both community protection and the sustainable valorization of genetic resources.

## 4. Discussion

### 4.1 Main Challenges

The analysis of the results shows that Angola faces a set of structural and institutional challenges that hinder the effective implementation of the Nagoya Protocol and the protection of traditional medicinal knowledge. These challenges can be classified as follows:

#### 4.1.1 Absence of Specific National Legislation on Access and Benefit-Sharing (ABS)

Despite ratifying the Nagoya Protocol in 2014, Angola still lacks a national law clearly regulating procedures for access to genetic resources and the fair and equitable sharing of benefits. This legislative gap creates a legal vacuum that leaves the country vulnerable to biopiracy and reduces the State's capacity to monitor and control research or commercial exploitation activities (CBD, 2010; African Union, 2015).

#### 4.1.2 Invisibility of Traditional Practitioners in Policymaking Processes

Another critical challenge is the marginalization of traditional medicine practitioners in public policy formulation processes. Although traditional medicine plays a vital role in Angola's healthcare system—particularly in rural areas—its practitioners are rarely included in decision-making arenas (INE, 2023; WHO, 2022). This institutional invisibility reflects historical biases against traditional knowledge and the lack of formal mechanisms for representation and legal recognition.

#### 4.1.3 Institutional Gaps and Lack of Community Awareness

The implementation of the Nagoya Protocol requires coordination among multiple governmental institutions, yet Angola faces serious difficulties in this regard. Administrative fragmentation across sectors results in overlapping mandates, unclear allocation of responsibilities, and inefficient policy implementation (Ministry of Environment, 2021). In addition, many local communities have limited access to information regarding their rights related to access to and use of genetic resources, which reduces their ability to prevent biopiracy (Barume, 2010).

Overall, Angola's difficulties in implementing the Nagoya Protocol can be understood as operating at three interrelated levels: normative, marked by the absence of access and benefit-sharing legislation; political, reflected in the marginalization of traditional practitioners; and institutional and social, characterized by administrative fragmentation and low levels of community awareness.

The findings suggest that although Angola possesses rich biodiversity and a strong tradition of medicinal knowledge, the regulatory framework governing access to genetic resources remains underdeveloped. This

situation creates a structural vulnerability that may facilitate biopiracy. Furthermore, the absence of clear procedures for prior informed consent (PIC) and benefit-sharing mechanisms limits the capacity of local communities to protect their knowledge and participate in the economic benefits derived from biological resources. Strengthening national legislation and institutional coordination is therefore essential for aligning Angola's governance framework with the principles of the Nagoya Protocol.

#### 4.2 Opportunities and Good Practices

Despite the challenges identified, Angola also presents significant opportunities to align biodiversity management and traditional knowledge protection with the principles of the Nagoya Protocol. These opportunities can be understood through comparison with other African countries such as South Africa, Namibia, and Ethiopia.

##### 4.2.1 South Africa's Experience

South Africa is often cited as a model of good practice in operationalizing the Nagoya Protocol. The country implemented national ABS regulations as early as 2004, including formal benefit-sharing agreements between pharmaceutical companies and local communities. The case of *Hoodia gordonii*, traditionally used by the San people as an appetite suppressant, resulted in a pioneering benefit-sharing agreement with the pharmaceutical industry (Wynberg, 2010).

##### 4.2.2 Namibia's Experience

Namibia developed a model of community-based governance in conservation and genetic resource use. Through community conservancies, the country promotes participatory biodiversity management and ensures that benefits derived from its use flow directly back to communities. This approach strengthened local autonomy and reduced vulnerability to biopiracy, while creating a precedent of inclusive governance that can inspire the Angolan case (Mackey & Liang, 2012).

##### 4.2.3 Ethiopia's Experience

Ethiopia stands out for having established specific ABS legislation as early as 2006, which set out clear procedures for Prior Informed Consent (PIC) and Mutually Agreed Terms (MAT). In this regard, Teshome (2016) highlights an emblematic case involving the use of teff, a traditional Ethiopian cereal, in which the government intervened to ensure legal protection and to prevent international appropriation without benefit-sharing. The Ethiopian experience shows that a national regulatory framework can be decisive in protecting both biological resources and traditional knowledge within a globalized market.

##### 4.2.4 Opportunities for Angola

In light of these African experiences, Angola can identify several opportunities, such as:

- Adopting national ABS legislation inspired by already well-established African models (African Union, 2015).
- Creating community participation mechanisms that ensure the effective involvement of traditional medicine practitioners.
- Establishing national inventories of genetic resources and traditional knowledge, thereby strengthening documentation and legal protection against misappropriation.
- Promoting partnerships between universities, communities, and the private sector, transforming biodiversity into a source of sustainable innovation and inclusive development (Heywood, 2017).

Thus, although Angola still faces significant challenges, comparison with other African countries shows that there are concrete and already tested pathways on the continent to reduce vulnerability to biopiracy while simultaneously valuing endogenous knowledge.

#### 4.3 Comparative Perspective: Lessons From African Experiences on National ABS Laws

A comparative analysis of African countries that have advanced in transposing the Nagoya Protocol into domestic law reveals a set of concrete measures—legal, institutional, and procedural—that can guide Angola in building a national Access and Benefit-Sharing (ABS) regime. The key features of three relevant experiences and the lessons applicable to the Angolan context are summarized below.

##### 1) South Africa — Regulatory Framework and Benefit-Sharing Agreements

South Africa has developed a comprehensive regulatory framework for bioprospecting and ABS integrated into its biodiversity legislation. This regime provides for access permits, requirements for benefit-sharing agreements (both monetary and non-monetary), and mechanisms that recognize and involve communities holding traditional knowledge in negotiations (analyses of the South African model highlight the regulatory structure and cases of agreements, such as the Hoodia case). These measures offer legal instruments for traceability, transparency, and accountability of users of genetic resources (Godoi, E. L., Mendes, T. A., & Batalhão, A. C. S., 2022).

According to the above-mentioned authors, Angola can draw on this experience to:

- Prioritize the establishment of a clear licensing regime (competent authority, documentary requirements, timelines).
- Include mandatory clauses on Mutually Agreed Terms (MAT), which may provide for financial benefits, technology transfer, capacity-building, and cultural recognition.

## 2) Ethiopia — Specific Legislation and PIC/CPI Procedures

Ethiopia adopted national ABS legislation (Proclamation No. 482/2006, with subsequent regulations) that establishes procedures for Prior Informed Consent (PIC/CPI) and Mutually Agreed Terms, and clearly defines the national competent authorities responsible for granting access. According to Kamau, E. C., Fedder, B., & Winter, G. (2010), the Ethiopian experience illustrates how a detailed legal framework can institute the operational procedures necessary to protect local resources and knowledge, while at the same time facilitating investments and scientific partnerships in compliance with the Protocol.

### Lessons for Angola

According to Laird, S. A., Wynberg, R. P., & Rourke, M. (2020), Angola should:

- Establish rules that define explicit PIC/CPI procedures and the minimum instruments required for an ABS agreement (MAT);
- Appoint or structure a national competent authority with the power to issue licenses and register agreements, thereby increasing legal certainty for both providers and users.

## 3) Namibia — Community-Based Approach and Local Governance Instruments

Namibia has moved forward with a national ABS law (Access to Biological and Genetic Resources and Associated Traditional Knowledge Act, 2017) that places strong emphasis on the protection of community rights and on the community-based management of benefits, complementing community conservation instruments (conservancies). Namibia demonstrates the value of models that combine community rights over resources with administrative processes that allow communities to say “yes” or “no” to access and to negotiate terms (Jones, B. T. B., Weaver, L. C., & Shackleton, S., 2015).

Based on this experience, according to these authors, Angola could, for example:

- Develop mechanisms for the legal recognition of communities and instruments that ensure their direct participation in ABS negotiations (registration of knowledge holders, recognized representatives);
- Link ABS regimes to local governance approaches (e.g., conservancy models or community forums) to ensure that benefits effectively reach their places of origin.

### Key Cross-Cutting Lessons and Strategic Recommendations for Angola

#### 1). Clear Laws + Operational Procedures

Having an ABS framework law is not sufficient; operational regulations are required (registries, application forms, timelines, requirements for PIC/CPI and MAT). Ethiopia and South Africa show that legislation combined with detailed regulations reduces legal uncertainty (Convention on Biological Diversity, 2011).

#### 2). National Competent Authority and the ABS Clearing-House

Establishing a national authority with an interministerial mandate and integrating it into the Nagoya Protocol’s ABS Clearing-House enhances transparency, enables the issuance of certificates of compliance, and facilitates the monitoring of uses (Convention on Biological Diversity, 2010).

#### 3). Inclusion and Recognition of Communities

The formal recognition of knowledge-holding communities (community registries, accredited representatives) and local governance instruments (conservancies, forums) strengthens communities’ bargaining power and their capacity to negotiate benefits (Posey, D. A., & Dutfield, G., 1996).

#### 4). Types of Benefits and Benefit-Sharing Models

Legislation should provide for both monetary and non-monetary benefits (capacity-building, technology transfer, co-authorship in publications, access to medicines at fair prices), as demonstrated by the experiences cited (Convention on Biological Diversity, 2011).

#### 5). Development of Inventories and Ethical Documentation

Investing in national inventories of genetic resources and in ethical research protocols (documentation of traditional uses with consent) reduces the risk of biopiracy and supports evidence-based negotiations Morrison, C. (n.d.).

## 6). Institutional and Community Capacity-Building

Implementation requires technical training (for authorities, researchers, and community facilitators) on ABS procedures, the drafting of MAT, and benefit management. Lack of capacity is one of the key barriers that Angola needs to prioritize (Convention on Biological Diversity, 2011).

## 5. Limitations of the Study

This study presents several limitations that should be taken into account:

### 5.1 Reliance on Secondary Sources

The analysis is based predominantly on institutional reports (INE, 2023; Ministry of the Environment, 2021) and international literature (CBD, 2010; African Union, 2015). The absence of empirical field data, such as systematic surveys of local communities and traditional practitioners, limits the depth of understanding of the actual dynamics of use and protection of endogenous knowledge.

### 5.2 Scarcity of Specific National Statistics

In Angola, official data on traditional medicine practices, the number of recognized practitioners, and documented cases of biopiracy remain fragmented or unavailable. This lack of reliable statistics constrains the development of robust quantitative analyses and limits comparability with other African contexts.

### 5.3 Exploratory Nature of the Comparative Approach

The comparison with countries such as South Africa and Ethiopia is based on documented legislative frameworks and policy experiences, without direct empirical assessment of their practical implementation. Consequently, the comparative analysis should be interpreted as illustrative of prevailing trends and identified good practices rather than as definitive evaluations.

### 5.4 Limitations of Representativeness

Although the study acknowledges the importance of local communities and traditional practitioners, it does not include systematic interviews with these stakeholders. Their perspectives are therefore insufficiently represented, a limitation that could be addressed in future research.

### 5.5 Evolving Context

Public policies on biodiversity and traditional medicine in Angola are currently undergoing transformation. New legislative initiatives or institutional programs may significantly alter the landscape described in this article, making continuous updates to the analysis necessary.

## 6. Conclusion

The analysis conducted in this article demonstrates that Angola is at a strategic crossroads regarding the protection of its biodiversity and the traditional knowledge associated with medicine. The ratification of the Nagoya Protocol in 2014 represented a significant step toward aligning the country with international commitments on the conservation and sustainable use of biological diversity. However, the absence of specific legislation on access and benefit-sharing (ABS), the limited inclusion of traditional practitioners in public policy-making processes, and persistent institutional shortcomings continue to weaken governance in this sector. Moreover, Angola possesses substantial genetic resources and a rich body of traditional medicinal practices, which play an essential role, particularly in rural areas where access to conventional medicine remains limited (INE, 2023; WHO, 2022).

Yet this heritage is threatened by cultural erosion and biopiracy, which exploit normative and institutional weaknesses (Barume, 2010). The effective implementation of the Nagoya Protocol therefore requires not only the establishment of a robust legal framework for access and benefit-sharing (ABS), but also a firm political commitment that ensures the participation of local communities and traditional practitioners in decision-making processes.

The experiences of other African countries demonstrate that it is possible to build legal and institutional mechanisms that ensure both biodiversity conservation and fair benefit-sharing (CBD, 2010; African Union, 2015). These examples demonstrate that the recognition of traditional knowledge, when combined with inclusive policies and legal protection mechanisms, can not only strengthen a country's scientific and cultural sovereignty, but also promote a model.

Ultimately, Angola faces a strategic choice: to valorize its medicinal heritage and protect community rights, or to remain vulnerable to biopiracy. The future of the Nagoya Protocol's implementation will depend on coherent articulation between legislation, public policies, and social awareness—an ethical and cultural imperative for safeguarding sovereignty over biological resources and ancestral knowledge. More than an international

obligation, it constitutes an ethical and cultural imperative to ensure sovereignty over biological resources and ancestral knowledge that underpin the identity and well-being of the Angolan population.

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