



## **Ethiopian Biodiversity Institute (EBI)**

### **Best Practices on the Commercialization of *Osyris Species* through Access and Benefit Sharing Scheme**

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## 1. Introduction

*Osyris species*, also known as East African Sandalwood, is an evergreen, dioecious shrub or tree that can grow up to 7 meters tall (Fig1). It is a root hemi-parasite, requiring a host plant to complete its lifecycle, and is recognized for its scented wood (Bekele *et al.*, 2019). This species is indigenous to East Africa and is part of the Santalaceae family (Erbo and Bejigo, 2021). In Ethiopia, *Osyris sp.* is found in various regions, including the Borena and West Guji zones in the Oromia region, as well as the Arba Minch Zuria and Banna-Tsemay Districts in Southern Ethiopia (Bekele *et al.*, 2019; Erbo and Bejigo, 2021)

*Osyris sp.* is valued for its scented wood and the extraction of essential oil. The tree is harvested from the wild for local use as food, medicine, and as a source of wood and materials. The wood is sold locally and traded internationally for its essential oil, which is used in the production of perfumes (Bekele *et al.*, 2019; Erbo and Bejigo, 2021).

The commercialization of genetic resources like *Osyris sp.* is governed by international agreements such as the Nagoya Protocol on Access and Benefit Sharing (ABS) (Greiber *et al.*, 2012). Ethiopia, a signatory to the Nagoya Protocol since 2012, has enacted national legislation to regulate access to its genetic resources. The laws include Proclamation No 482/2006 and Regulation 169/2009, which provide guidelines for accessing genetic resources and associated traditional knowledge provides the legal framework for granting access permits and ensuring fair and equitable sharing of benefits arising from the utilization of genetic resources. This legal framework mandates Prior Informed Consent (PIC) and Mutually Agreed Terms (MAT) between resource users and local communities, ensuring that benefits are shared with those who conserve and maintain these resources (Ashenafi, 2017).

The commercialization of *Osyris species* holds significant implications for biodiversity and ecosystem services (Pascual *et al.*, 2012). By creating economic incentives for the sustainable use of genetic resources, commercialization can promote the conservation of *Osyris species* and their



habitats. This, in turn, supports the maintenance of ecosystem services such as soil stabilization, water regulation, and biodiversity conservation. Additionally, the income generated from the commercial use of *Osyris* can enhance the livelihoods of local communities, fostering socio-economic development and reducing pressures on natural resources.



**Figure 1:** Morphological appearance of *Osyris* species (Bekele *et al.*, 2019)

## 2. The Commercial Access Permit Process on *Osyris sp.* and its Outcomes

### 2.1. Profile of Docomo oils PLC

Docomo Oils PLC is an international company with over 30 years of experience in the field of essential oils and cosmetics. The company has invested over \$3 million to start a first-of-its-kind industry in Ethiopia. This industry is 100% export-oriented and brings in a minimum of \$2 million of foreign revenue each year into the country.

### 2.2. Detailed Access Permit Steps

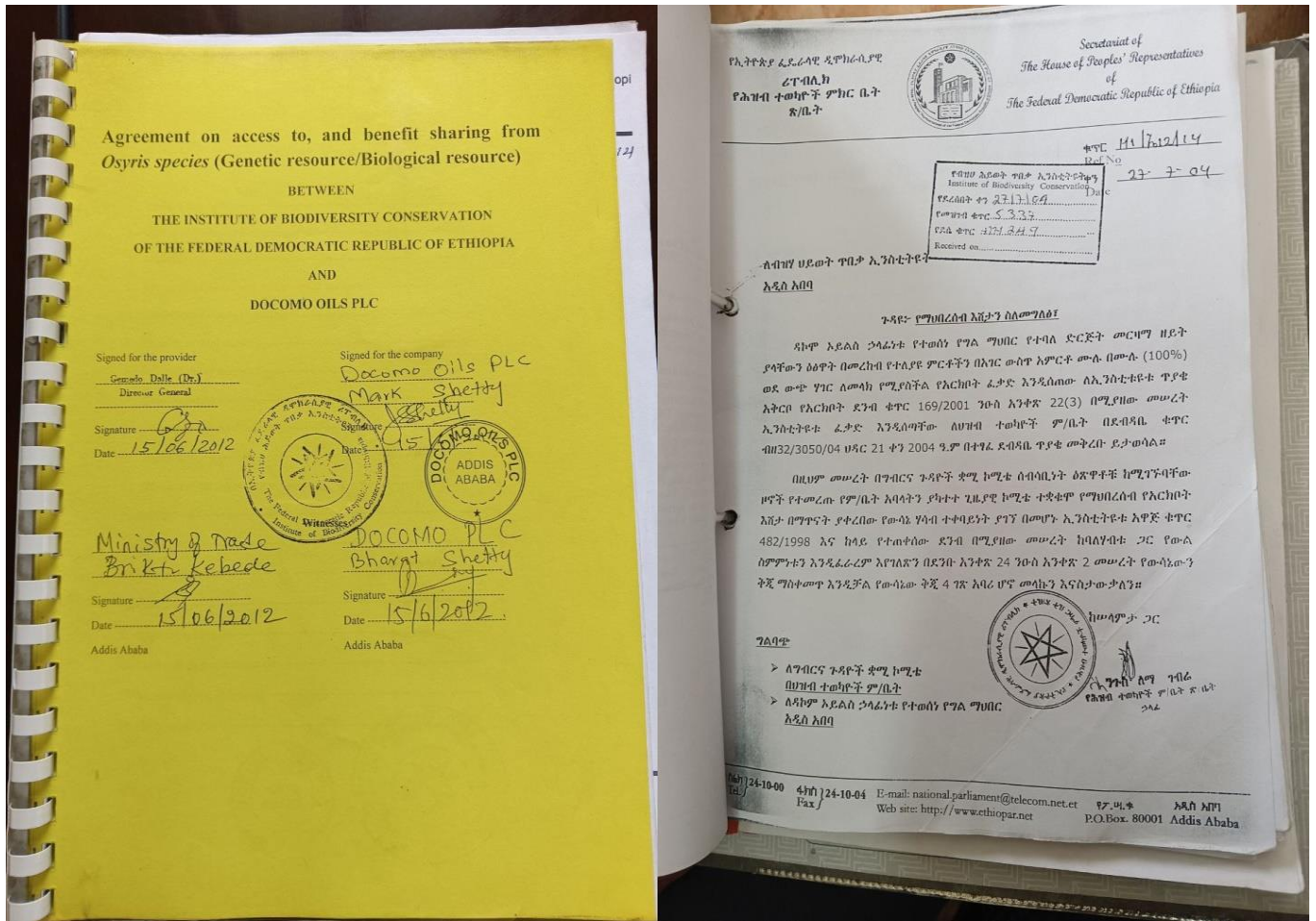
The process for obtaining an access permit for the commercialization of *Osyris* species by Docomo Oils PLC involved several steps. The process begins with submitting an access permit application to the Ethiopian Biodiversity Institute (EBI), the national authority responsible for regulating access to genetic resources (Fig. 2, left). In the application, Docomo Oils PLC provided detailed information about the intended use of the genetic material, the benefits that would be shared with local communities, and the measures taken to ensure sustainable utilization.

Prior to signing the agreement, the Ethiopian Biodiversity Institute (EBI) made efforts to obtain the prior informed consent of the community. This involved involving the regional state, people's house representatives, and other relevant stakeholders to facilitate the consent process (Fig. 2, right).

In summary, the commercial access permit process consisted of four steps: application submission, review and consultation, negotiation of terms, and approval and issuance.

- **Submission of Application:** Docomo Oils PLC submitted a comprehensive application to EBI, detailing their plan to develop essential oil products from *Osyris* species.

- **Review and Consultation:** EBI reviewed the application and conducted consultations with local communities and stakeholders to ensure that the proposed use was acceptable and beneficial.
- **Negotiation of Terms:** The terms of access and benefit sharing were negotiated, including upfront payments, royalties, and other benefits to be provided to the local communities.
- **Approval and Issuance:** Upon agreement, EBI granted the access permit, allowing Docomo Oils PLC to commence their activities.



**Figure 2:** The benefit-sharing agreement between Docomo Oils PLC and the Ethiopian Biodiversity Institute (left) and prior informed consent of the community as reported by people's house representatives secretariat (right)

### 2.3.Shared Benefits (Monetary and Non-Monetary)

The benefit-sharing agreement between Docomo Oils PLC and the Ethiopian Biodiversity Institute (EBI) included both monetary and non-monetary benefits.

- **Monetary Benefits:**

- **Upfront Payment:** Docomo Oils PLC made an upfront payment of USD 50,000 upon signing the agreement.
- **Royalties:** The agreement included an annual royalty of 3.5% of net profits.
- **License Fee:** Docomo Oils PLC also paid an annual license fee of USD 2,000

- **Non-Monetary Benefits:**

- The benefit-sharing agreement also included non-monetary benefits for the local communities. These benefits included employment opportunities, training and capacity building, involvement of youth and small and medium-sized enterprises (SMEs) along the supply chain, and infrastructure development

### 2.4.Societal and Economic Impacts on the Communities

The commercialization of Osyris species has brought about positive societal and economic impacts on the communities involved. The project has created employment opportunities, generated income, and reduced the vulnerability of rural communities.

#### 2.4.1. Employment and Income Generation

The project has created job opportunities and alternative revenue sources for thousands of people in rural areas, enhancing their economic resilience. More than 130 permanent jobs have been created for Ethiopians through the Osyris Project. These jobs provide stable employment and consistent income for individuals and families. The Osyris Project has also established associations in *Hamer*, *Bennetsemay*, and *Malie* for raw material harvesting. These associations supply and collect resources for the cosmetic industry under the guidance of local administration offices. A





total of 46 associations have been created across the three harvesting sites, providing employment and income opportunities for community members involved in the collection and supply of raw materials. Furthermore, Docomo Oils PLC has brought in USD 2,660,563 by exporting the oil, contributing to the foreign revenue of the country. Until 2021, the company has paid 11,675,770 birr to the association for raw materials in the South Omo zone, further supporting the local economy.

#### **2.4.2. Improved Livelihoods**

The income earned from the project has enabled community members to invest in other entrepreneurial activities, such as cattle fattening, further diversifying their income sources. This diversification of income not only increases their resilience but also improves their overall livelihoods. Additionally, Docomo Oils PLC has made a significant contribution to the well-being of the Lemat Village in Arba Minch. The company pays for the electricity required to pump water 24 hours a day to the village, where they have established their factory. This provision of water supply has greatly improved the living conditions of the village, addressing a basic need that was previously lacking.



### **3. Sustainability and Conservation issues**

#### **3.1.Sustainability of the project**

Unlike conventional crops, Osyris possesses unique characteristics that make it well-suited for cultivation in semi-arid and harsh conditions. It requires minimal care, does not displace indigenous vegetation, and does not rely on pesticides, herbicides, or excessive water. Furthermore, it can thrive without the need for arable land.

To ensure the long-term sustainability of the project, Docomo Oils PLC acknowledges the significance of collaborating with South Omo Zone officials. This collaboration enables the company to provide essential funding, technical information, and expertise to Zone and District experts. The primary objective is to establish nurseries within the districts, where Osyris seeds can be propagated and subsequently reintroduced into the rangelands. To facilitate the cultivation process, the company has developed a comprehensive training manual for Zone and District experts. This manual offers detailed, step-by-step instructions on how to grow Osyris from seed, utilizing techniques such as air layering and cuttings. Importantly, the manual has been translated into local languages to ensure accessibility for all stakeholders involved.

As part of their commitment to the project, Docomo Oils PLC has also allocated funds to support the districts. Up until 2017, approximately \$6,600 has been disbursed to the districts, further assisting cultivation efforts. By implementing these sustainable practices, the project aims to not only generate alternative revenue for rural communities but also promote the conservation and reestablishment of Osyris in the rangelands, fostering long-term environmental sustainability.

In addition to providing training for local experts, Docomo Oils PLC is dedicated to supporting the local community and promoting sustainability. As part of this commitment, the company pledges to contribute 2% of the cost of all raw materials purchased from the local community to establish nurseries. These nurseries will propagate new plants, benefiting both rehabilitation endeavors and long-term sustainability.



Furthermore, Docomo Oils PLC provides support to collection-site associations by paying them 30% of the purchase price of all raw materials acquired. This financial assistance aids the growth of these associations and supports other community initiatives.

### **3.2. Implication of the project for conservation**

The presence of Docomo Oils and their involvement in the Osyris seed collection project has had significant implications for conservation efforts. Prior to their arrival, Osyris was not widely recognized for its economic importance. However, as the local community began to earn money and improve their livelihoods through the project, Osyris gained popularity as a high-value plant resource. This economic value has elevated the priority for conserving Osyris and its genetic resources.

The implication here is that the Access and Benefit Sharing (ABS) project, facilitated by Docomo Oils, not only contributes to sustainable utilization but also plays a crucial role in the conservation of Osyris. By providing alternative sources of income for rural communities, the project incentivizes the conservation and sustainable management of Osyris populations. This aligns with the broader goals of the conservation movement, which seeks to manage and protect natural resources, including plant species and their habitats, for the benefit of future generations.

Conservation efforts are often driven by the recognition that the environment should be left in a better state than it was found. In the case of Osyris, the economic benefits generated through the ABS project have increased awareness and appreciation for the plant's value. This, in turn, fosters a greater commitment to its conservation and sustainable use. By promoting the long-term economic viability of Osyris, the project encourages local communities to actively participate in its conservation.

It is important to note that sustainable utilization of genetic resources, as facilitated by the ABS project, goes hand in hand with conservation efforts. The project not only focuses on the economic aspects but also emphasizes the need to protect and sustainably manage Osyris populations. By providing funding, technical information, and know-how to Zone and District experts, Docomo Oils ensures that nurseries are established and Osyris seeds are propagated for reestablishment in



the rangelands. This approach promotes the conservation of *Osyris* and its genetic diversity, contributing to the long-term sustainability of the species

Generally, the implication for conservation resulting from the ABS project is twofold. Firstly, the economic benefits generated through the project have increased the recognition and priority given to *Osyris* as a valuable plant resource. Secondly, the project's focus on sustainable utilization and the establishment of nurseries for propagation contribute directly to the conservation and long-term sustainability of *Osyris* populations. By integrating economic incentives with conservation efforts, the ABS project ensures the preservation of *Osyris* and its genetic resources for future generations.

#### **4. Challenges and Lessons Learned**

The Ethiopian Biodiversity Institute (EBI) faced significant challenges during the implementation of the project. One of the main challenges was the delay in ratifying the ABS fund management regulation. This delay hindered the effective utilization of funds shared through the ABS agreement for conservation and community development projects. The absence of a clear regulatory framework made it difficult to channel the financial benefits into projects that would directly support the sustainable management of *Osyris* species and improve community livelihoods.

Another challenge that arose was the overexploitation of the *Osyris* plant in certain areas (Erbo *et al.*, 2020; Erbo and Bejigo, 2021). The conservation of *Osyris* species is crucial due to its endangered status in specific regions. Overexploitation for commercial purposes poses a significant threat to its population. It is essential to raise awareness and promote sustainable cultivation practices to preserve this valuable species for future generations.

Lessons learned from the delay in ratifying the ABS fund management regulation highlight the importance of timely implementation of regulations. Timely ratification ensures the smooth execution of conservation and community development projects. It emphasizes the need for a clear regulatory framework that enables the effective utilization of funds and directs them towards



initiatives supporting biodiversity conservation and community livelihood improvement. This experience also emphasizes the significance of coordination and collaboration between relevant stakeholders to address challenges and ensure the successful implementation of biodiversity conservation efforts.

Regarding the overexploitation of the Osyris plant, lessons can be drawn to work towards its conservation and sustainable utilization. In addition to the efforts made by Docomo Oils PLC in establishing nurseries and propagating Osyris seeds, the Ethiopian Biodiversity Institute and other relevant stakeholders should focus on the conservation of the plant. This can be achieved by accessing the shared monetary benefits through the rapid ratification of the ABS fund management regulation. By doing so, the stakeholders can effectively allocate resources for conservation initiatives and ensure the sustainable utilization of the Osyris plant.

In conclusion, the challenges faced during the project implementation provide valuable lessons for future endeavors. Timely ratification of regulations, clear regulatory frameworks, coordination among stakeholders, and the conservation of endangered species all play crucial roles in the success of biodiversity conservation and community development projects. By learning from these challenges, stakeholders can work together to overcome obstacles and foster sustainable practices for the benefit of both ecosystems and local communities.



## Scalability and future prospects

The commercialization of Osyris species through the Osyris Project in Ethiopia serves as a promising example of a successful Access and Benefit Sharing (ABS) scheme. This project not only aligns with international and national biodiversity and ecosystem service goals but also demonstrates how commercial activities can be leveraged to support biodiversity conservation, promote sustainable development, and enhance community livelihoods.

The Osyris Project, guided by the principles of the Nagoya Protocol, has implemented a robust benefit-sharing framework. This framework ensures that the benefits derived from the use of genetic resources are shared equitably with local communities. By adhering to these principles, the project not only supports the conservation of Osyris species but also contributes to the socio-economic development of rural areas, empowering local communities and improving livelihoods.

However, the challenges faced during the project, particularly in the areas of fund management regulation and sustainability, underscore the importance of continuous improvement and adaptive management. It is crucial to address these challenges and incorporate the lessons learned from the Osyris Project into future ABS initiatives. This will help ensure that future projects are designed to maximize benefits for both biodiversity and local communities.

From a scalability perspective, the best practices and lessons learned from the Osyris Project can be applied in other countries and regions where similar genetic resources are found. By adapting and implementing a well-structured ABS scheme, countries can create positive impacts on biodiversity conservation, ecosystem services, and community development. The Osyris Project serves as a model for how the commercialization of genetic resources can contribute to sustainable development and environmental stewardship.

In conclusion, the Osyris Project serves as a valuable example of best practices in the commercialization of genetic resources. It demonstrates how a well-structured ABS scheme can create a positive impact on biodiversity conservation, ecosystem services, and community development. By incorporating the lessons learned from this project, future ABS initiatives can be



designed to maximize benefits for both biodiversity and local communities, contributing to the broader goals of sustainable development and environmental stewardship.

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