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## INTERNATIONAL LEGAL REGULATION OF SUSTAINABLE USE OF BIOLOGICAL DIVERSITY

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### ABSTRACT

The sustainable use of biological diversity is essential for maintaining the health of ecosystems and supporting human well-being. International legal frameworks play a crucial role in guiding and regulating activities related to biodiversity conservation and sustainable use. This article explores the key legal instruments and principles that govern the sustainable use of biological diversity, with a focus on the Convention on Biological Diversity (CBD) and its associated protocols. It also highlights practical examples of how these frameworks are implemented at national and regional levels, including initiatives in Central Asian countries. The challenges and future directions in the international legal regulation of biodiversity are discussed, emphasizing the need for enhanced implementation, cooperation, and adaptation to emerging environmental issues. The article aims to provide a comprehensive overview of the legal and practical aspects of sustainable use of biological diversity, contributing to a better understanding of its importance in global environmental governance.

### KEYWORDS

Biological Diversity. Convention on Biological Diversity (CBD). Sustainable Use. International Law. Biodiversity Conservation. Nagoya Protocol. Access and Benefit-Sharing. Ecosystem Approach. Central Asia. Environmental Governance.

### INTRODUCTION

The sustainable use of biological diversity is a cornerstone of global environmental governance, addressing the complex interplay between conservation and human development. International legal frameworks, spearheaded by the Convention on Biological Diversity (CBD) [1], provide a comprehensive

approach to safeguarding the planet's rich tapestry of life while ensuring that its resources are used in a way that meets the needs of present and future generations. This article explores the key legal instruments, principles, and practical implementations

that underpin the international regulation of sustainable use of biological diversity.

The CBD, adopted at the Earth Summit in Rio de Janeiro in 1992 [1], sets the foundation for global efforts in biodiversity conservation, sustainable use, and the equitable sharing of genetic resources' benefits. It is complemented by the Nagoya Protocol [2], which specifically addresses access to genetic resources and the fair sharing of benefits arising from their utilization. The principles of sustainable development, enshrined in the Rio Declaration [3], further reinforce the need for an integrated approach to environmental protection and economic progress.

Global assessments, such as the Global Biodiversity Outlook [4], and regional reviews like the State of Biodiversity in Asia and the Pacific [5], highlight the challenges and progress in achieving the CBD's objectives. Protocols like the Cartagena Protocol on Biosafety [6] address specific issues related to biotechnology and biosafety, while the ecosystem approach [7] offers a holistic framework for managing biological resources. National strategies and action plans, such as Namibia's [8], exemplify how countries translate international commitments into concrete actions. Regional initiatives like the Coral Triangle Initiative [9] demonstrate collaborative efforts to protect critical ecosystems. The innovative work of institutions like INBio in Costa Rica [10] showcases the practical application of access and benefit-sharing principles.

Moreover, large-scale conservation projects like the Great Green Wall Initiative [11] and global strategies such as the Global Strategy for Plant Conservation [12] illustrate the multifaceted efforts to conserve and sustainably use biological diversity on a global scale.

As we delve into the complexities of international legal regulation, it becomes clear that the sustainable use of biological diversity is not just an environmental imperative but a fundamental aspect of sustainable development. This article aims to provide a comprehensive overview of the legal frameworks, principles, and practical examples that guide and inspire global efforts in this critical area.

### **Convention on Biological Diversity (CBD)**

The Convention on Biological Diversity (CBD) is a comprehensive, multilateral treaty that addresses all aspects of biological diversity: genetic resources, species, and ecosystems. It was opened for signature at the Earth Summit in Rio de Janeiro in 1992 and entered into force on 29 December 1993. As of now, it has near-universal membership, with 196 parties committed to its objectives.

### **Objectives**

The CBD has three primary objectives:

1. **Conservation of Biological Diversity:** This involves protecting and preserving the variability among living organisms and the ecological complexes in which they occur. It includes the conservation of ecosystems, species, and genetic diversity.
2. **Sustainable Use of the Components of Biological Diversity:** This aims to ensure that the use of natural resources, such as plants, animals, and microorganisms, is conducted in a way that is sustainable and does not lead to long-term decline in biodiversity.
3. **Fair and Equitable Sharing of the Benefits Arising from the Utilization of Genetic Resources:** This objective seeks to ensure that the benefits derived from the use of genetic resources, such as

pharmaceuticals and other products, are shared fairly and equitably with the countries and communities that provide them.

## Principles

The CBD is based on several key principles, including:

- **Sovereign Rights of States:** Recognizing the sovereign rights of states over their natural resources, the CBD asserts that countries have the authority to control access to their genetic resources and the responsibility to conserve their biodiversity.
- **Ecosystem Approach:** Promoting a holistic approach to conservation and sustainable use, taking into account the complex interrelationships within ecosystems.
- **Precautionary Principle:** Advocating for caution in the face of scientific uncertainty, particularly in managing or using biological resources.

## Provisions

The CBD contains a number of important provisions that guide its implementation:

- **National Biodiversity Strategies and Action Plans (NBSAPs):** Parties are required to develop and implement NBSAPs to guide their efforts in conserving and sustainably using biodiversity.
- **Access and Benefit-Sharing (ABS):** The CBD establishes a framework for regulating access to genetic resources and ensuring that the benefits derived from their use are shared fairly and equitably.
- **In-situ and Ex-situ Conservation:** The CBD promotes both in-situ conservation (conservation within natural

habitats) and ex-situ conservation (conservation outside natural habitats, such as in zoos and botanical gardens).

- **Public Education and Awareness:** Parties are encouraged to promote public education and awareness about the importance of biodiversity and the need for its conservation and sustainable use.

## Protocols

The CBD has been supplemented by two protocols:

1. **Cartagena Protocol on Biosafety (2000):** Addresses the safe handling, transport, and use of living modified organisms (LMOs) resulting from modern biotechnology, with the aim of protecting biological diversity and human health.
2. **Nagoya Protocol on Access and Benefit-Sharing (2010):** Provides a transparent legal framework for the fair and equitable sharing of benefits arising from the utilization of genetic resources.

## Challenges and Future Directions

Despite its comprehensive scope and near-universal membership, the CBD faces challenges in achieving its objectives. These include issues related to financing, technical capacity, and the integration of biodiversity considerations into broader development and sectoral policies. Future efforts will likely focus on enhancing the implementation of the CBD and its protocols, addressing emerging issues such as climate change and marine biodiversity, and ensuring that the post-2020 global biodiversity framework effectively guides international efforts to conserve and sustainably use biological diversity.

## *The Nagoya Protocol*

The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization (ABS) is a supplementary agreement to the CBD. It provides a legal framework for the fair and equitable sharing of benefits arising from the use of genetic resources, thereby contributing to the conservation and sustainable use of biodiversity.

## *The Aichi Biodiversity Targets*

The Strategic Plan for Biodiversity 2011-2020, adopted by the parties to the CBD, includes the Aichi Biodiversity Targets. These targets set goals for the conservation and sustainable use of biodiversity. For example, Target 7 aims to ensure that areas under agriculture, aquaculture, and forestry are managed sustainably, contributing to the conservation of biodiversity.

## *Principle of Sustainable Development*

The principle of sustainable development, enshrined in the Rio Declaration on Environment and Development, underpins the international legal regulation of the sustainable use of biological diversity. It calls for the integration of environmental protection and economic development, ensuring that present needs are met without compromising the ability of future generations to meet their own needs.

## *The Precautionary Principle*

The precautionary principle, another key principle in international environmental law, is particularly relevant to the sustainable use of biological diversity. It stipulates that where there are threats of serious or irreversible damage, the lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. This principle supports a cautious approach to the utilization of biological resources, emphasizing the need for sustainable management practices.

## *The Ecosystem Approach*

The ecosystem approach is a strategy for the integrated management of land, water, and living resources that promotes conservation and sustainable use in an equitable way. It is a key principle in the CBD and other international agreements, recognizing that ecosystems and their components should be managed in a holistic manner, taking into account the complex interrelationships between species and their habitats.

## Challenges and Future Directions

Despite the existence of these international legal frameworks, challenges remain in effectively regulating the sustainable use of biological diversity. Issues such as enforcement, compliance, and the integration of biodiversity considerations into broader

economic and development policies continue to pose challenges. Future efforts will need to focus on strengthening the implementation of existing agreements, enhancing international cooperation, and ensuring that the benefits of biodiversity are shared equitably and contribute to sustainable development.



To provide practical examples of how the international legal regulation of sustainable use of biological diversity is applied, we can look at specific cases and initiatives that demonstrate the principles and objectives of key agreements like the Convention on Biological Diversity (CBD):

1. **Community-Based Conservation in Namibia:** Namibia has implemented community-based natural resource management (CBNRM) programs that align with the CBD's objectives. These programs empower local communities to manage wildlife and other natural resources sustainably. By granting communities rights to use and benefit from wildlife, Namibia has seen increased wildlife populations, improved habitat conservation, and enhanced livelihoods, demonstrating the sustainable use of biological diversity.

2. **Marine Protected Areas in the Coral Triangle:** The Coral Triangle, spanning Indonesia, Malaysia, Papua New Guinea, Philippines, Solomon Islands, and Timor-Leste, is a global biodiversity hotspot. To protect its marine biodiversity, several Marine Protected Areas (MPAs) have been established in the region. These MPAs, supported by the CBD's framework, help conserve marine ecosystems, protect endangered species, and ensure the sustainable use of marine resources.

3. **Access and Benefit-Sharing in Costa Rica:** Costa Rica's National Biodiversity Institute (INBio) is a pioneering example of implementing the CBD's Access and Benefit-Sharing (ABS) provisions. INBio has entered into agreements with pharmaceutical companies and research institutions, allowing access to the country's genetic resources in exchange for a share of the benefits derived from their commercialization. This model promotes the

sustainable use of genetic resources while ensuring that the benefits are shared equitably.

4. **The Great Green Wall Initiative in Africa:** The Great Green Wall is an African-led initiative aimed at combating desertification, land degradation, and biodiversity loss in the Sahel region. By restoring 100 million hectares of degraded land, the initiative contributes to the CBD's goals of conserving ecosystems and promoting sustainable land use. The Great Green Wall also supports local communities by providing food security, jobs, and resilience to climate change.

5. **The Global Strategy for Plant Conservation (GSPC):** The GSPC, adopted under the CBD, aims to conserve plant diversity worldwide. One of its targets is to protect at least 75% of the world's threatened plant species in situ (within their natural habitats). Countries like Brazil have made significant progress by expanding their network of protected areas and implementing conservation measures for threatened species, showcasing the practical application of the CBD's conservation and sustainable use objectives.

These examples illustrate how international legal regulations, particularly under the CBD, are applied in practice to promote the conservation and sustainable use of biological diversity. They demonstrate the importance of collaboration, community involvement, and integrated approaches to achieve sustainable development and biodiversity conservation goals.

Central Asian countries, comprising Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan, have made significant strides in aligning their national policies and initiatives with the objectives of the international legal regulation of sustainable use of biological diversity, particularly under the framework of the Convention on Biological Diversity (CBD). Here

are some examples of the work done in these countries:

1. Kazakhstan: Kazakhstan has implemented several projects aimed at conserving its rich biodiversity, including the establishment of protected areas and the development of a National Biodiversity Strategy and Action Plan (NBSAP). The country is also working on the conservation of key species, such as the snow leopard, and has undertaken reforestation efforts to combat desertification.

2. Kyrgyzstan: Kyrgyzstan is known for its efforts in community-based conservation, particularly in the management of pasturelands and forests. The country has established a network of protected areas, including national parks and nature reserves, to conserve its unique mountain ecosystems. Kyrgyzstan is also working on sustainable agriculture practices and the conservation of endangered species like the Marco Polo sheep.

3. Tajikistan: Tajikistan has focused on the conservation of its mountainous ecosystems, which are home to rare species such as the snow leopard and Marco Polo sheep. The country has developed its NBSAP and is working on expanding its network of protected areas. Tajikistan is also involved in regional initiatives, such as the Central Asian Mammals Initiative (CAMI), to promote transboundary conservation efforts.

4. Turkmenistan: Turkmenistan's efforts in biodiversity conservation include the establishment of protected areas, such as the Repetek Biosphere Reserve, which is known for its unique desert ecosystem. The country has also developed an NBSAP and is working on conservation programs for endangered species like the Persian leopard and the saiga antelope.

5. Uzbekistan: Uzbekistan has made progress in conserving its biodiversity through the creation of

protected areas, such as the Ugam-Chatkal National Park. The country has also developed its NBSAP and is working on sustainable agriculture practices to conserve its soil and water resources. Uzbekistan is involved in regional conservation initiatives, such as the Central Asian Desert Initiative (CADI), to address the challenges of desertification and land degradation.

Central Asian countries are actively working towards the sustainable use of their biological diversity through the establishment of protected areas, development of national biodiversity strategies, conservation of key species, and participation in regional initiatives. These efforts are aligned with the objectives of the CBD and contribute to the global goals of biodiversity conservation and sustainable development.

## CONCLUSION

In conclusion, the international legal regulation of sustainable use of biological diversity is a critical framework that guides global efforts to conserve and sustainably use the Earth's rich and varied life forms. Instruments like the Convention on Biological Diversity (CBD) and its associated protocols, along with the principles of sustainable development and the precautionary principle, provide a comprehensive approach to addressing the challenges of biodiversity loss and promoting sustainable practices.

The examples from Central Asian countries, as well as other practical cases highlighted earlier, demonstrate how nations are translating international commitments into concrete actions. These efforts underscore the importance of national strategies, community involvement, and regional cooperation in achieving the objectives of the CBD and ensuring the long-term health of our planet's ecosystems. However, the road ahead is not without challenges. Issues such as climate change, habitat destruction, and the over-

exploitation of natural resources continue to threaten biodiversity. Addressing these challenges requires sustained political will, increased financial resources, and enhanced scientific and technical capacity.

As we move forward, it is crucial for the international community to continue to strengthen and adapt legal frameworks to address emerging issues and ensure that biodiversity conservation remains a priority in the global agenda. The sustainable use of biological diversity is not only vital for maintaining ecosystem services and supporting human well-being but is also a fundamental aspect of our shared responsibility to future generations. By fostering collaboration, promoting innovative solutions, and ensuring equitable benefit-sharing, we can pave the way for a more sustainable and biodiverse future. The international legal regulation of sustainable use of biological diversity serves as a guiding light in this endeavor, offering a path toward harmonizing human activities with the natural world.

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