India's Biodiversity Framework at a Crossroads: Industry Perspectives on the Biological Diversity Act and ABS Regulations, 2025

News & Updates • June 16, 2026

First published by Lexology.

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Introduction

India's biodiversity is one of its greatest strategic assets. As a megadiverse nation, the country has rightly sought to establish a robust legal framework that promotes conservation, sustainable use of biological resources, and fair and equitable sharing of benefits arising from their utilization. The Biological Diversity Act, 2002 and the recent Biological Diversity (Access and Benefit Sharing) Regulations, 2025 represent important steps towards achieving these objectives.

Industry across sectors such as fragrances, flavours, food and beverages, biotechnology, cosmetics, nutraceuticals, animal nutrition, and bio-based manufacturing strongly support biodiversity conservation and equitable benefit-sharing. However, as implementation of the new framework progresses, businesses are encountering significant practical, legal, and operational challenges that risk undermining both compliance and the broader objective of promoting sustainable use of biological resources.

The challenge before policymakers is not whether biodiversity should be protected, but how conservation objectives can be pursued through a regulatory framework that is predictable, proportionate, and innovation friendly in a sustainable manner.

Regulatory Certainty: A Critical Requirement for Compliance

A recurring concern among industry stakeholders is the lack of clarity regarding the scope of regulated biological resources in view of the definition of biological resources to include "derivatives" and exclude value-added products. For sectors that routinely process natural ingredients into complex formulations, the absence of clear guidance makes it difficult to determine whether a particular ingredient, extract, formulation, or finished product attracts Access and Benefit Sharing (ABS) obligations.

Such ambiguity increases compliance risks, creates inconsistent interpretations across industries, and

discourages investment in biodiversity-based innovation.

Similarly, the absence of clear definitions for emerging concepts such as Digital Sequence Information (DSI) creates uncertainty for biotechnology companies, research institutions, and digital biology innovators. At a time when biological research increasingly relies on data-driven innovation, the absence of a clear domestic framework for DSI risks creating regulatory uncertainty that may impede scientific collaboration and research.

Benefit Sharing Must Remain Fair and Equitable

The principle of "fair and equitable benefit sharing" lies at the heart of the Biological Diversity Act.

The ABS Regulations, 2025 have moved away from the earlier framework that permitted benefit-sharing calculations based on either the purchase price of the biological resource or the value of the final product. The removal of the purchase-price methodology and the shift toward turnover-linked calculations raises questions regarding proportionality and fairness.

In many products, biological resources represent only a small fraction of the final product formulation. A flavour formulation, fragrance composition, cosmetic product, or food ingredient may contain numerous inputs, of which only a limited number are biological resources subject to ABS requirements. Yet benefit-sharing obligations may be calculated on the value of the entire finished product rather than on the value attributable to the biological resource itself.

This creates situations where products containing minimal quantities of biological resources attract the same benefit sharing obligations as products predominantly derived from biological materials. Such an approach risks disconnecting obligations from actual biodiversity utilization.

The concern becomes particularly pronounced in products that combine exempt and non-exempt ingredients, cultivated and wild-sourced materials, or biological and non-biological components. Without a mechanism to distinguish between these categories, benefit-sharing calculations may become detached from the actual resource use that the ABS framework seeks to regulate.

The Risk of Discouraging Sustainable Alternatives

An unintended consequence of the current framework may be the disincentivizing of sustainable and bio-based innovation.

Across multiple sectors, companies are increasingly replacing synthetic materials with renewable biological alternatives to meet sustainability commitments, climate goals, and consumer demand for natural products. However, if regulatory and financial obligations remain constant irrespective of the quantity or significance of the biological resource used, companies may face economic incentives to avoid biological materials altogether.

Such outcomes would run counter to India's ambitions in biotechnology, bio-manufacturing, green chemistry, and sustainable industrial development.

A successful biodiversity framework should reward traceability, responsible sourcing, cultivation, and sustainable innovation rather than create barriers to their adoption.

Bio-Innovation and Intellectual Property

India has made significant efforts to promote innovation-led growth and strengthen its bioeconomy. Stakeholders continue to seek greater clarity regarding the interface between biodiversity regulation and intellectual property protection.

Questions remain regarding when an invention is considered to be "based on" a biological resource. Minor use of bioresources in an invention, such as for testing purposes, which do not have any claims directly to bioresources should be clearly out of purview of the compliance requirements under the biodiversity regulations.

Further, modern innovation frequently involves complex formulations, blended technologies, digital tools, synthetic biology techniques, and multiple sources of knowledge. In many cases, a biological resource may be only one component within a broader research process.

The absence of clear thresholds creates uncertainty for innovators seeking patents and other forms of intellectual property protection. This is particularly relevant for biotechnology, life sciences, food innovation, flavours, fragrances, and advanced materials sectors where research increasingly combines biological and non-biological inputs.

Greater clarity would help encourage innovation while preserving the core objectives of benefit sharing.

The Exemption Framework

Section 40 of the Biological Diversity Act contemplates exemptions for biological resources that are normally traded as commodities.

Industry stakeholders have highlighted that the current framework lacks a transparent mechanism for identifying, reviewing, expanding, or updating such exemptions. Many globally traded food ingredients, plant-derived materials, and commodity products continue to face uncertainty regarding their regulatory status.

The absence of objective criteria and a structured process for additions to the Normally Traded as Commodity (NTAC) exemption list creates uncertainty for both domestic manufacturers and multinational enterprises operating in global supply chains.

A transparent and periodically reviewed commodity-exemption mechanism would help align regulatory implementation with legislative intent while reducing unnecessary compliance burdens for routine commercial trade.

A Collaborative Path Forward

The concerns raised by industry should not be viewed as opposition to biodiversity conservation. Rather, they reflect a desire for a framework that is practical, transparent, and capable of achieving conservation objectives while supporting innovation and sustainable economic activity.

Following suggestion are made that could help strengthen the effectiveness of India's biodiversity regime:

- Reintroducing benefit-sharing methodologies linked to the actual value or quantity of biological resources utilized.
- Clarifying definitions relating to biological resources, derivatives, value-added products, and Digital Sequence Information.
- Establishing transparent timelines and approval pathways with focus on sustainable use and ease of doing business.
- Creating objective criteria for NTAC exemptions and a mechanism for periodic review.
- Providing proportional treatment for products containing mixed biological and non-biological ingredients.
- Ensuring that benefit-sharing obligations remain linked to actual biodiversity utilization.
- Preventing duplication of benefit-sharing obligations across regulatory frameworks.
- Simplifying compliance obligations for low-risk and low-volume users.

Conclusion

India's biodiversity framework has the potential to become a global model for balancing conservation, sustainable use, and equitable benefit sharing. Achieving this objective, however, requires a regulatory system that commands confidence among both biodiversity custodians and resource users.

A framework built on clarity, proportionality, transparency, and stakeholder engagement will not only strengthen biodiversity conservation but also encourage responsible innovation, sustainable sourcing, and long-term investment in India's growing bioeconomy.

The ultimate objective should be a system where conservation and commerce are not viewed as competing interests but as mutually reinforcing pillars of sustainable development.

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