
TRADITIONAL KNOWLEDGE, GENETIC RESOURCES AND INTELLECTUAL PROPERTY: INDIA'S ROLE IN THE EMERGING GLOBAL PROTECTION FRAMEWORK

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ABSTRACT

India's traditional knowledge and genetic resources journey has transformed from reactive opposition of disputed patents to multiple layers of patent protections such as patent exclusions, disclosure requirements, benefit sharing, and accessible searchable prior art. The question is whether or not this architecture is able to safeguard the interest of the community despite its compatibility with the evolving framework of multilateral cooperation on patent disclosure. More than a rough similarity, a doctrinal study of the Patents Act 1970 as well as the Biological Diversity Act 2002 (as amended) and some of the recent Indian judicial decisions and the World Intellectual Property Organization Treaty on Intellectual Property, Genetic Resources and Associated Traditional Knowledge demonstrates a significant convergence with some limits. The implementation of source disclosure and geographical-origin disclosure of biological material is already in place as is the case with TK and the separation of a biological-resource use regime. Recently issued High Court judgments have helped to define that compliance with the requirements of biodiversity does not factor into the patentability considerations and disclosure is an independent traceability function. Institutional evidence also reveals a rise in intellectual property applications related to the use of biological knowledge, documented receipts on access and benefit-sharing as well as high uptake of the TKDL in overseas patent examination. The upcoming treaty thus secures an “internationalisation” of the logic of disclosure, which is one that India has long championed but without itself establishing community rights in general. A robust patent examination, coupled with disclosure and community ID, benefit distribution, governance of the database, and precisely drafted positive rights is therefore essential for effective protection in India.

Keywords: Traditional Knowledge; Genetic Resources; Patent Disclosure; Access and Benefit Sharing; India.

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1. INTRODUCTION

The traditional knowledge for medicinal plants, agriculture, and biological resources reveal that traditional knowledge challenges the assumptions of the conventional intellectual property law. IP rights such as Patent systems focus on novelty, inventive step, attributable inventorship and a time limit of exclusivity, while TK can be cumulative and collectively held and can be passed on from one generation to the next. It is a question of legal aspects involved in inventions, which include sovereignty over biological materials, access and benefit sharing and genetic resources. The question that arises is not whether the older know-how can be patented or not, but whether patent examination, biodiversity governance and community interests can function as a single legal system and not as discrete controls.²

India is an especially relevant jurisdiction since the way its legal response has evolved was through controversy and institutional design. Conflicts over turmeric, neem and basmati brought to light the challenges for finding non-patent and vernacular prior art in foreign patent examination. The underlying issue has always been greater than the number of invalid patents - Misappropriation can and probably is done without any patent, and knowledge and resources can be commercialised without any community participation. As a result the Indian legislation intertwines patent exemptions, eligibility-to-grant requirements, and notification obligations with provisions for regulating biodiversity and sharing of benefits, and includes a dedicated t-knowledge database. This unprecedented layered system now affords a nice trial of a defensive protection's merits and limits.³

The main crux of the article is that India has already attained much of the new disclosure logic of the world and it has already built up a very good institutional capacity to avoid erroneous disclosures. But, there is greater strength in the architecture to resist unjustified exclusivity, than in establishing positive community rights. India's ongoing contribution to the global sphere thus requires substantive patent screening coupled with improved linkage of disclosure to consent, attribution, benefit sharing and community governance by knowledge emanating communities.⁴

² Chidi Oguamanam, *International Law and Indigenous Knowledge: Intellectual Property, Plant Biodiversity, and Traditional Medicine* 35 (University of Toronto Press, Toronto, 1st edn., 2006).

³ Daniel F. Robinson, *Confronting Biopiracy: Challenges, Cases and International Debates* 45 (Earthscan, London, 1st edn., 2010).

⁴ Sruthi Balaji, Allison Fish, et.al., "Disclosure of Country of Origin in Patent Applications Might Not Help to Protect Genetic Resources and Traditional Knowledge", 11 *Nature Plants* 4 (2025).

2. LITERATURE REVIEW

As the literature exposes, throughout history there has been an ongoing tug-of-war between the integrity of the patent system, and the development of Community Control and Biodiversity Governance. Later research examines the later work databases, benefit-sharing architecture and disclosure approach in India's context, including foundational scholarship, which explains why traditional categories of intellectual property imperfectly fit with TK. Recent research is not the only one raising doubts about whether disclosure alone can be followed up by the digital and distributive dimensions.

1. Dutfield demonstrates the limits of the patent concepts of 'novelty', 'inventorship and ownership' in relation to traditional knowledge and biogenetic resources.⁵
2. This Robinson associates biopiracy conflicts with imbalance in access to biological resources and the limited scope for challenges against claims to them using defensive patent strategies.⁶
3. Oguamanam brings together Indigenous knowledge and international law, emphasizing plural legal orders to proprietary responses and drawing attention to biodiversity congruences.⁷
4. Kuruk sets a foundation for comparison of sui generis protection and customary law/community-centred governance of TK.⁸
5. Kamau and Winter demonstrate the need to integrate the work of biodiversity regulation with IP and compliance frameworks for ABS.⁹
6. Thomas outlines some of the dilemmas within the TK Digital Library, in particular,

⁵ Graham Dutfield, *Intellectual Property, Biogenetic Resources and Traditional Knowledge* 89 (Earthscan, London, 1st edn., 2004).

⁶ Daniel F. Robinson, *Confronting Biopiracy: Challenges, Cases and International Debates* 45 (Earthscan, London, 1st edn., 2010).

⁷ Chidi Oguamanam, *International Law and Indigenous Knowledge: Intellectual Property, Plant Biodiversity, and Traditional Medicine* 35 (University of Toronto Press, Toronto, 1st edn., 2006).

⁸ Paul Kuruk, *Traditional Knowledge, Genetic Resources, Customary Law and Intellectual Property: a Global Primer* 341 (Edward Elgar Publishing, Northampton, 1st edn., 2020).

⁹ Evanson C. Kamau and Gerd Winter (eds.), *Genetic Resources, Traditional Knowledge and the Law: Solutions for Access and Benefit Sharing* 75 (Earthscan, London, 1st edn., 2009).

issues of defensive disclosure and community control.¹⁰

7. Fredriksson sees the Traditional Knowledge Digital Library not just as a patent-classification tool, but also as a redistribution of the authorship of knowledge.¹¹
8. Fredriksson also demonstrates how State strategies in defence can shield the national interest but not necessarily every community interest.¹²
9. The respect of collective cultural and moral interests is incomplete without the respect of positive community protection, Bhaduri argues, which should in turn be part of the consideration of licensing.¹³
10. In 2025, Balaji, Fish and Sherman ask: "Where nature is revealing innovation more and more via digitised biological information, why are we seeing so little origin disclosure?"¹⁴
11. Geethanjali & Shelke call Indian biodiversity & patent law complementary controls against biopiracy, as opposed to interchangeable controls.¹⁵
12. Chakrabarty and Kaur argue that the existing protection system of traditional knowledge in India is fragmenting and that a more inclusive legal system should be put in place instead.¹⁵
13. Disclosure study by the World Intellectual Property Organization sheds light on design choices and implications of the requirements for patent disclosure of genetic

¹⁰ Pradip N. Thomas, "Traditional Knowledge and the Traditional Knowledge Digital Library: Digital Quandaries and Other Concerns", 72 *International Communication Gazette* 659 (2010).

¹¹ Martin Fredriksson, "India's Traditional Knowledge Digital Library and the Politics of Patent Classifications", 34 *Law and Critique* 1 (2023).

¹² Martin Fredriksson, "Balancing Community Rights and National Interests in International Protection of Traditional Knowledge: a Study of India's Traditional Knowledge Digital Library", 43 *Third World Quarterly* 352 (2022).

¹³ Anik Bhaduri, "Communities as Inventors: Rethinking Positive Protection of Traditional Knowledge through Patents", 26 *The Journal of World Intellectual Property* 414 (2023).

¹⁴ Sruthi Balaji, Allison Fish, et.al., "Disclosure of Country of Origin in Patent Applications Might Not Help to Protect Genetic Resources and Traditional Knowledge", 11 *Nature Plants* 4 (2025).

¹⁵ K. V. Geethanjali and Atmaram F. Shelke, "Intellectual Property Rights and Biodiversity: Peculiarizing Issues of Biopiracy and the Prophylactic Measures Therein", 29 *The Journal of World Intellectual Property* 66 (2026).

¹⁵ Shambhu Prasad Chakrabarty and Ravneet Kaur, "A Primer to Traditional Knowledge Protection in India: the Road Ahead", 42 *Liverpool Law Review* 401 (2021).

resources.¹⁶

14. As shown in the compilation of the WIPO, there are significant differences among national disclosure triggers, information requirements, and sanctions.¹⁷

15. The Commission on Intellectual Property Rights situates TK in the arena of development policy and it tends to favor multiple protection systems.¹⁸

3. RESEARCH GAP

The mechanisms of biopiracy and access and benefits sharing are well explained in the literature, as is the concept of the Traditional Knowledge Digital Library. There are three pertinent lacunae in light of India's biodiversity amendments of 2023 and the World Intellectual Property Organization (WIPO) treaty of 2024 in the present inquiry.

Recently published Indian patent cases have yet to be interpreted in the context of the amended biodiversity ECHC and the new treaty disclosure standard.

- The literature generally looks at defensive patent protection and community benefit sharing individually, with their institutional dynamics unstudied.

Little focus is paid to how India is shifting from domestic norm innovator to a player under an emerging multilateral norm-setting process of genetic resources.

4. OBJECTIVES

The study brings together Indian doctrine, the practice of institutions and multilateral norm formation in an intertwined way. It aims purposefully to be narrow to enable testing of the legal coherence realistically and to avoid either an inventory of protection mechanisms or a narration, which is typical in historical compilations of biopiracy issues.

1. Examine India's current legal framework for traditional knowledge and genetic

¹⁶ World Intellectual Property Organization, *"Key Questions on Patent Disclosure Requirements for Genetic Resources and Traditional Knowledge"* (2nd edn., 2020).

¹⁷ World Intellectual Property Organization, *"Report on the Compilation of Materials on Disclosure Regimes Relating to Genetic Resources and Associated Traditional Knowledge"* (WIPO/GRTKF/IC/44/9, July 26, 2022).

¹⁸ Commission on Intellectual Property Rights, *"Integrating Intellectual Property Rights and Development Policy"* (2002).

resources.

2. Analyse judicial treatment of patentability, biodiversity compliance and source disclosure.
3. Assess defensive protection and benefit sharing as complementary mechanisms.
4. Compare Indian disclosure rules with the 2024 World Intellectual Property Organization treaty.
5. Identify workable reforms for community-centred and internationally coherent protection.

5. METHODOLOGY

The doctrinal method is chosen as the methodology for this study. It examines Indian patent and biodiversity laws, delegated instruments, reported judgments, World Intellectual Property Organization instruments and some of the international agreements. Secondary books and peer reviewed scholarships, institutional reports interpret and analyse the development of the Doctrine, identify gaps in the regulation and appraise India's contribution to the evolving global regime as a whole.

6. INDIA'S LEGAL AND INSTITUTIONAL ARCHITECTURE

The system in India best can be thought of as in layers, as there is no one traditional-knowledge right. While patent law determines eligibility and disclosure, the issue of access and benefits is covered by the biodiversity law, and specialised institutions render community knowledge legible for patent examiners. This design is based on proposals for plural and context-sensitive protection in general.

6.1 PATENT LAW AS DEFENSIVE PROTECTION

The first line of defense is provided by the Patents Act, 1970. Under Section 3(p) claims that are actually TK or are simply a collection of known properties of traditionally known features are excluded.¹⁹ Biological material must be separately identified in terms of its source and

¹⁹ The Patents Act, 1970 (Act 39 of 1970), s. 3(p).

geographical origin as called for in Section 10(4)(d).²⁰ Opposition/Revocation Grounds relates to defective disclosure and anticipation by knowledge available within the local or Indigenous community.²¹

These provisions detract from patentability, traceability and biodiversity compliance. This distinction is relevant, as the regulatory authority's permission to use biological material cannot be used to show novelty and/or inventiveness, while at the same time patent disclosure cannot fulfil the access and benefit sharing requirements.²²

6.2 BIODIVERSITY GOVERNANCE AND BENEFIT SHARING

Biological Diversity Act, 2002 includes access, conservation and distributive duties.²³ The amended regime is part of the CBD and Nagoya Protocol logic of regulated access and fair and equitable benefit sharing.²³²⁴ The Uttarakhand High Court found in favour of the benefit sharing and extended this mandate to an Indian commercial user in *Divya Pharmacy v. Union of India and Others*²⁵.

The realization of the revamped intellectual property registration process is illustrated in Figure 1. In 2025-2026, there were 1,077 applications involving Indian biological resources as compared to approximately 857 applications in 2024-2025 and Certificates of Registration grew from 792 to 885. The increased mandates show a growing possibility for regulation-progressive innovations in numerical management of biodiversity.²⁵

²⁰ The Patents Act, 1970 (Act 39 of 1970), s. 10(4)(d).

²¹ The Patents Act, 1970 (Act 39 of 1970), ss. 25(1)(j), 25(1)(k), 64(1)(p), 64(1)(q).

²² K. V. Geethanjali and Atmaram F. Shelke, "Intellectual Property Rights and Biodiversity: Peculiarizing Issues of Biopiracy and the Prophylactic Measures Therein", 29 *The Journal of World Intellectual Property* 66 (2026).

²³ The Biological Diversity Act, 2002 (Act 18 of 2003), as amended up to Act 10 of 2023, ss. 18, 21, 36, 41.

²³ Pallavi Mishra, "The Biological Diversity (Amendment) Act 2023: a Gateway to Sustainable Access?", 27 *Environmental Law Review* 31 (2025).

²⁴ SCC OnLine Utt 1035.

²⁵ Regulatory Reforms under Biological Diversity (Amendment) Act, 2023 Lead to Surge in IPR Filings, available at: <https://www.pib.gov.in/PressReleasePage.aspx?PRID=2247439&lang=1®=3> (last visited on September 20, 2026). ²⁷ National Biodiversity Authority Realises Rs. 21.26 Crore through Access and Benefit Sharing Mechanism in FY 202526, available at: <https://www.pib.gov.in/PressReleasePage.aspx?PRID=2266923&lang=1®=3> (last visited on September 19, 2026).

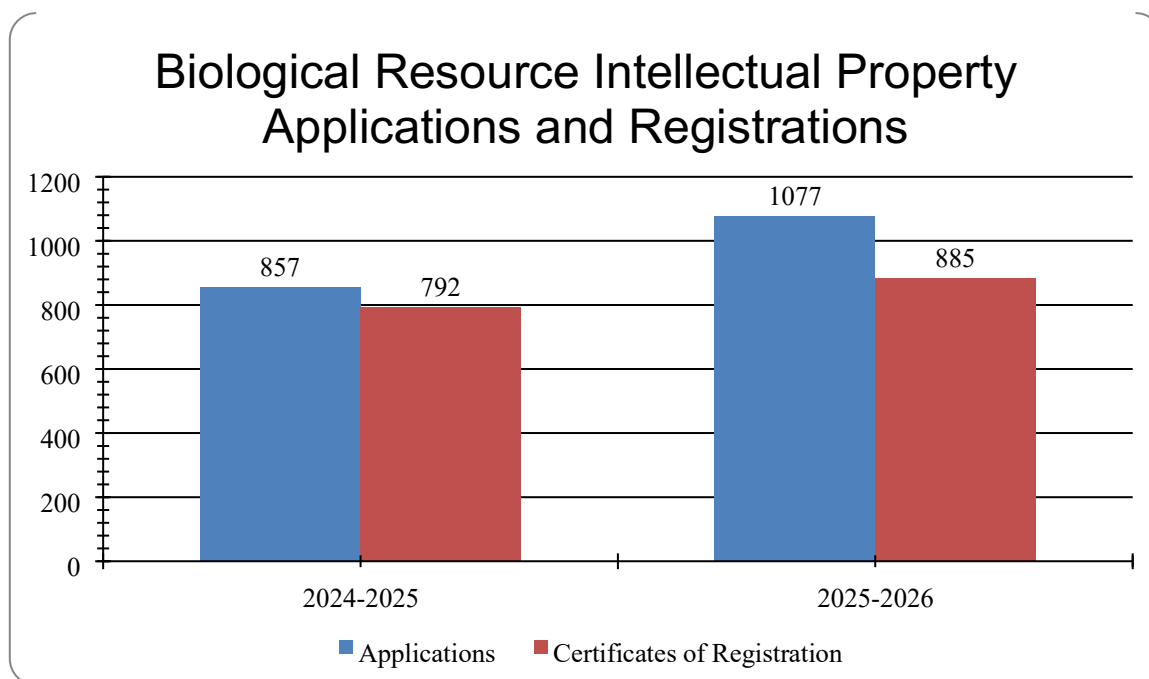


Figure 1: Intellectual Property Applications and Certificates of Registration, 2024-2026

As per Figure 2, the amount collected from access and benefit sharing in 2025-2026 was 21.26 crore rupees, which comprises 11.75 crore rupee in the seed sector. There is a new emphasis on concentration so as to be able to design effective protection that takes into account not only patent legitimacy, but also the equitable sharing of benefits based on biological resources.²⁷

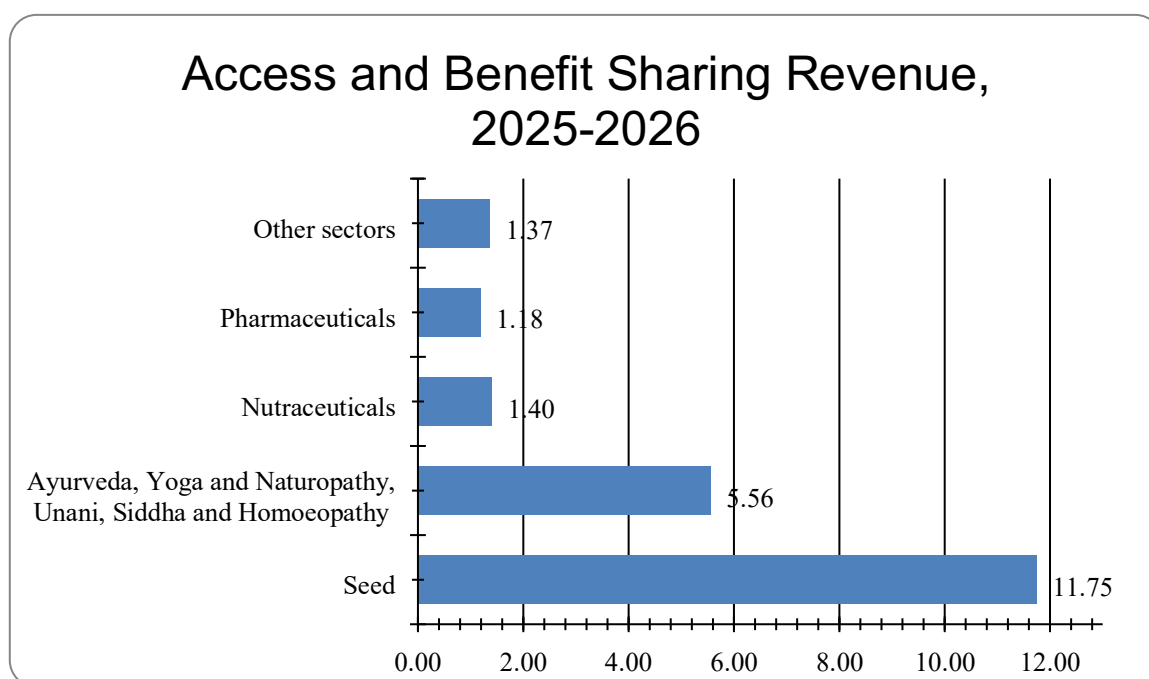


Figure 2: Access and Benefit Sharing Revenue by Sector, 2025-2026

6.3 TRADITIONAL KNOWLEDGE DIGITAL LIBRARY

The Traditional Knowledge Digital Library is a counter-attack against the invisibility of the prior art available in codified Indian medicine, in the form of a library of available documents and information. It signifies over 520,000 formulations and practices and access by eighteen patent offices and has helped to act against more than 375 Patent Applications. It is very effective, but it is not to the effect that the very provision of documentation is per se a positive community right.²⁶

7. JUDICIAL DEVELOPMENT OF THE INDIAN FRAMEWORK

Recent litigation has started to draw the lines between traditional knowledge, inventive step, biodiversity approval and biological-source disclosure. The cases have significance, as they put flesh on the bones of general statutory protection, and reveal the extent to which institutional roles need to remain distinct.

7.1 TRADITIONAL KNOWLEDGE AND PATENTABILITY

In *M/s. The Zero Brand Zone Pvt. Ltd. and Anand, Jayashree v. The Controller of Patents & Designs and Another*²⁷, the Madras High Court affirmed the refusal of the claims of panchagavya and plant materials by the Controller of Patents & Designs in this case. The decision illustrates the use of the inventive-step analysis in the context of Section 3(p): a conventional technical use of traditionally known properties does not move beyond the scope of 'conventional procedures of daily living' and the activity is therefore not patentable.

*Monsanto Technology LLC through the Authorised Representative Ms Natalia Voruz and Others v. Nuziveedu Seeds Ltd through the Director and Others*²⁸. In this case, the Supreme Court remanded validity concerns for trial, highlighting the need for evidence-based reasoning, when a biotechnology claim meets specific plant-variety protection.

²⁶ India and Australia Sign Agreement on Access to Council of Scientific and Industrial Research's Traditional Knowledge Digital Library to Strengthen Protection of Traditional Knowledge, available at: <https://www.csir.res.in/en/press-release/india-and-australia-sign-agreement-access-council-scientific-and-industrialresearchs> (last visited on September 18, 2026).

²⁷ 2024:MHC:2558.

²⁸ (2019) 3 SCC 381.

7.2 BIODIVERSITY COMPLIANCE AND DISCLOSURE

The Delhi High Court in *Manu Chaudhary v. Controller of Patents and Design*²⁹ ruled that mere delay in obtaining approval from the National Biodiversity Authority (NBA) was not a valid reason for refusing to register under the Patent Act. In *Shaaqi Naturcure LLP v. Assistant Controller of Patents and Designs*^{30,31}, the Court has reiterated that there is no displacement of Section 3(p) by the requirement of granting a biodiversity approval. The regulatory permissions and patentability are thus separated.

In *Fraunhofer Gesellschaft zur Forderung der angewandten Forschung v. The Controller General of Patents Designs and Trade Mark and Another*³³, the Calcutta High Court held that disclosure of geographical origin is a mandatory requirement. The conclusion substantiates a logical step-by-step argument: Regulation of authorised use by biodiversity law should ensure traceability through disclosure, and entitlement to use as exclusive right through patent law should be separately examined.

8. INDIA AND THE EMERGING GLOBAL FRAMEWORK

The 2024 World Intellectual Property Organization (WIPO) treaty translates a longstanding disclosure proposal into multilateral patent norm. In terms of India, its significance will be limited to internationalisation – features being broadly similar to disclosure trigger, remedies and community reach are matters of contention currently being already seen domestically.

8.1 THE 2024 TREATY DISCLOSURE STANDARD

Where an invention is claimed as “based on” genetic resources or associated TK, disclosure is required under the World Intellectual Property Organization (WIPO) Treaty on Intellectual Property and Genetic Resources and Associated Traditional Knowledge.³² The applicants specify the country of origin, Indigenous Peoples/local community or source, as applicable. The treaty makes patents more transparent, but doesn't establish a general proprietary right in TK.

²⁹ 2026:DHC:1095.

³⁰ 2026:DHC:5157.

³¹ LLBiz HC (CAL) 160.

³² WIPO Treaty on Intellectual Property, Genetic Resources and Associated Traditional Knowledge (adopted May 24, 2024), art. 3.

Inadequate or inappropriate measures in the case of non-compliance can be corrected in the treaty and ordinary means of correction exist. Indian law could be more stringent as the defects in the source or origin and community prior art are express opposition and revocation grounds. Implementation consequently must ensure that the rights of legitimate domestic mitigations are also maintained and that there is no inconsistencies between the authorities of the patent and the biodiversity.³³

Implementation is put in context in Figure 3. As at 21 September 2026, four instruments of ratification/commission/accession had been deposited, out of a total of 15 needed for the entry into force. The gap in the middle indicates that, normatively, the treaty is significant, but institutionally, it is not finished as a comprehensive global patent-disclosure mechanism.³⁴

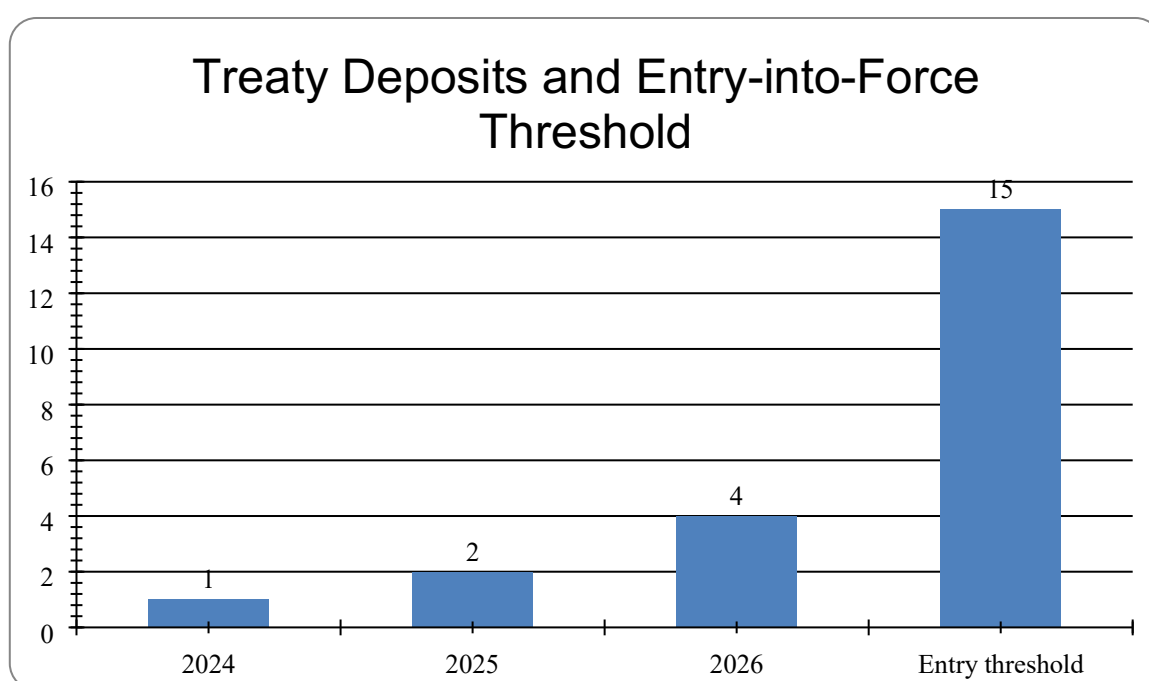


Figure 3: Treaty Deposits and Entry-into-Force Threshold

8.2 INDIA'S NORMATIVE ROLE AND REMAINING GAPS

The treaty adopted is a great reflection of India's longstanding support on international disclosure. What makes it unique is its blend of patent exclusions, disclosure of sources,

³³ Frédéric Perron-Welch, "Striking a Balance between Innovation and Tradition in the Global Patent System", 19 *Journal of Intellectual Property Law & Practice* 747 (2024).

³⁴ Contracting Parties to the WIPO Treaty on Intellectual Property, Genetic Resources and Associated Traditional Knowledge, available at: <https://www.wipo.int/wipolex/en/treaties/parties/19830> (last visited on September 17, 2026).

biodiversity controls and an extensive knowledge database for defense. So a future treaty engagement should therefore not be deemed as sufficient if symbols of adherence are displayed, but domestic implementation of the treaty must also follow.

There is a main gap, positive protection. However, the absence of invalid patents does not automatically mean that communities have control over who can attribute or license the use of patents, or that communities have control over who can benefit, or over culturally sensitive use.³⁵ The connection between innovation and access to biological resources is further undermined by digital sequence data, which means that disclosure is insufficient.

9. CONCLUSION

India's every day reveals that it is not enough to protect TK and GR with only a single intellectual property doctrine but is capable with legal coordination. Each of the patent exclusions, disclosure, biodiversity regulation and benefit sharing and searchable prior art speaks to a different place in which misappropriation or inequity might occur.

Strongest part of the Indian model is distinguishing between biodiversity permission, disclosure and patentability. Recent judgments provide a reinforcement of that structure; and the 2024 treaty is no longer just an Indian disclosure scheme but has been internationalised as well. The sticking point is distributive: defensive protection of knowledge against wrongful exclusivity doesn't necessarily mean that communities have control of that knowledge and meaningful benefits from it. The future India should be linked to the benefits distributed and positive community rights as part of the patent examination.

10. SUGGESTIONS

These changes would enhance the link between protection for traditional knowledge and genetic resource governance and patent administration, and make it more coherent and more community centred, without jeopardising the clarity of examination standards and the predictability of paths for potentially legal scientific research, commercialisation and innovation based on biodiversity.

³⁵ Anik Bhaduri, "Communities as Inventors: Rethinking Positive Protection of Traditional Knowledge through Patents", 26 *The Journal of World Intellectual Property* 414 (2023).

1. Adopt a treaty implementation roadmap: The Union Government needs to bring out an interministerial accession assessment. It should chart what the treaty obligations are and how they relate to current patent and biodiversity law.
2. Create an integrated disclosure protocol: There should be an interoperable source and origin field in the Indian Patent Office and National Biodiversity Authority. Any material changes should be synched electronically.
3. Define the disclosure trigger: There is a need to specify in patent rules what constitutes an invention on biological material or biological knowledge. Derivatives and Digital Sequence Information should be addressed in guidance.
4. Preserve independent patent examination: Novelty and inventiveness should not be demonstrated through national Biodiversity Authority registration. This doctrinal separation should be adhered to in patent guidance.
5. Strengthen community identification: For biodiversity applications, reasonable ascertainment should take place as to the relevant Biodiversity Management Committees and knowledge providers. The reasons for uncertainty should be reported.
6. Publish benefit-distribution outcomes: Annual collections, transfers and the beneficiary and the periods of disbursement should be reported by the National Biodiversity Authority.

Reporting should give indication of extent to which intended communities have been reached by benefits.

7. Govern defensive databases participatively: Knowledge "expansion" for Traditional Knowledge Digital Library should take into account communities that are sensitive to the knowledge. A different mechanism should govern access conditions between patent examination and general re-use.
8. Develop positive community rights: Union Government should consider a SU GENERIS right on attribution with restricted and benefit bearing licences. Remedies should be used as a complement to patent law.

9. Address digital sequence information: Guidance on tracing and benefit-sharing of DSI associated with Indian resources should be issued by the regulators of biodiversity. Demonstrative description of multilateral developments should be kept pace with guidance.
10. Institutionalise periodic review: Existing case law, treaty developments, compliance data should be subject of a Biennial Joint Patents-Biodiversity Committee review. There are concrete conflicts and reforms to be identified in published recommendations.

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