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### THE PROTECTION OF TRADITIONAL KNOWLEDGE IN INDIA: CHALLENGES AHEAD

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#### ABSTRACT

*The protection of traditional knowledge (TK) is still protracted subject matter in globalised context. As one of the mega biodiverse country like India is still identifying an appropriate method for protection of TK. Even today, a large number of local and indigenous communities rely on goods that are largely based on their traditional knowledge for their survival. However, this equation has been challenged by technological advancements in particular. The field of biotechnology clearly reveals the significance of TK in the research and development of new commercial products. Probably, this has enabled industries to get protection for these products through the formal architecture of Intellectual Property (IP). However, the same technological advancement had a negative impact on the TK-holding societies' means of survival and jeopardized biodiversity. Besides, there is also a growing concern over the loss of biodiversity and associated TK due to the increasing globalization. Without protection, there is a risk that TK will vanish as the custodians who are holding it do. Although India continued its commitment to the cause through Biological Diversity Act, 2002 (BDA); Protection of Plant Varieties and Farmers' Rights Act, 2001 (PPVFR); Patent Amendment Acts, 2005 etc., but the implementation of the same has not been satisfactory. TK protection is spread across various laws, rules, and regulations resulting in a fragmented approach rather than integrated one for the treatment for conservation of biological resources. In this context, the chapter is going to critically analyse the behaviour of State in the protection of TK which are associated with GR in the neo-liberal context and look into the potential challenges faced by the State in the formulation of a law for protection of TK in India.*

**Keywords:** Traditional Knowledge (TK), Intellectual property, Globalization, Identification of Communities, Traceability issues.

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## Introduction

The knowledge economy is now accessible to everyone, and globalisation has made it easier for ideas to spread freely. However, an uneven distribution of economic and political power between rich and developing countries has controlled the transfer of knowledge. Globalisation also influenced various countries to be more open towards the introduction of Intellectual Property Rights' (IPR) laws in their domestic legal systems. It should also be noted that technological advances through intellectual property rights have led to the misuse of TK and the chances of its potential use being translated into commercial benefits without proper authorization and benefit sharing has increased drastically. The misappropriation of valuable knowledge, with the support of technology saves time, money and investment in the development of new technology, especially for modern biotech companies and other industries. This has adversely affected TK owners' rights and led a call for the protection of TK through an international mechanism. Although the international community failed to reach an international consensus on the same, this led to many more deliberations on this topic. It has been identified that even though neoliberalism has brought in many benefits to the population, these benefits has not reached the lower strata of society.

## Changing ROLE OF THE STATE AND ITS IMPACT ON THE PROTECTION OF TK

The State, as an institution, was initiated for the well-being of society. Therefore, the state's principal function is not merely political; it also owes its inhabitants moral duties by offering services that improve their quality of life. However, this role of state has been largely diminished due to the ongoing process of globalization. In a globalised world, the state has an important role to play in the establishment and preservation of an "even playing field" and an enabling environment for private enterprise, individual creativity and social action.<sup>2</sup>

The major dimensions of the contemporary globalization process that have affected the role of the State and its bureaucracy include the following:

- (a) The globalization of market ideology.
- (b) The globalization of the emerging neo-liberal State.
- (c) The globalization of the business-like administrative model.<sup>3</sup>

The prevailing world-wide dominance of market ideology advocated by the capitalist States, transnational corporations, international financial institutions and new-right think tanks, have

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<sup>2</sup> C. S. Reddy, Globalisation and the Sovereignty of the Nation-State, *available at* <https://www.jstor.org/stable/48566255> (last visited on May 16, 2023)

<sup>3</sup> Haque, M. Shamsul. "Impacts of Globalization on the Role of the State and Bureaucracy in Asia" *available at* <http://www.jstor.org/stable/25611308> (last visited on June 6, 2023).

affected most of the developing countries, including India, resulting in the replacement of their previously existing State policies based on nationalism, development and socialism by more business-friendly policies guided by the principles and beliefs inherent in this contemporary global ideology.

Prior to 1980s, the State and its bureaucracy remained deeply engaged in almost all social sectors, directly involved in economic production, distribution and exchange. In the past, the constitutional and officially proclaimed role of the state and bureaucracy was to address the basic needs and concerns (for example, food, health, education, transport) of common citizens, especially the under-privileged sections of the population left out by the market forces. Recently, this direct role has been replaced that of facilitating rather than directing economic activities and has initiated and implemented market oriented policies, such as privatization and deregulation, while reinforcing the rationale that it would improve efficiency, growth, share ownership, technology and market competition. Most of the current reform initiatives India have emphasized the function of the government and its bureaucracy in managing these market-based standards and concerns, rather than developing an overall societal progress.

The successive governments in India has endorsed and embraced market-driven programs such as structural adjustment guided by neo-liberal principles, since 1980s. This also ensured a conducive business atmosphere for the local and foreign private capital. In the case of India it is obvious that the State itself has evolved into a more market-driven, neo-liberal form of government. Under the effect of current globalisation, India's state and bureaucracy are changing, with significant ramifications for all segments of society<sup>4</sup> and has also influenced policy making in various sectors of the legal system, including the laws relating to the protection of TK. The changes in the character of State and its mechanisms, particularly the establishment and expansion of knowledge induced into market mechanisms, including fictitious commodities, and the 'duty' of States to maintain this 'new' form of market exchange.<sup>5</sup>

In earlier societies, TK associated with GR was considered as a collective resource that was held in common, shared, cultivated, and maintained by communities for the sake of the societies' interests as a whole. The introduction of the modern market systems and intellectual

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<sup>4</sup> Id.

<sup>5</sup> Chakkri Chaipinit and Christopher May, The Polanyian Perspective in the Era of Neoliberalism: The Protection of Global Intellectual Property Rights", available at <https://so03.tci-thaijo.org/index.php/jpss/article/view/84688>(last visited on April 9, 2023).

property into this ‘common and shared property’ of the communities invariably disturbed the existing traditional modes of economic and social activities and reshaped economic power relations. The process of Commodification of bio-resources and associated TK, through international trade and IPR regimes, is a consequence of the liberalism and neo-liberalist policies. It has been observed that even though State should be intervening in the market to prevent the use of knowledge as ‘monopolistic commodities’ as occurred with patent regime, it could not further this principle due to the pressure from market forces. Similarly, due to their TRIPs and CBD commitments, States were under an obligation to promote IPR-related laws, which led not only to the commoditization of knowledge but also “integration of knowledge and intellectual labour into production the appearance of severe social costs has undermined the attempt to present IPRs as a neutral and technical market solution, allowing the reassertion of a politics of IPRs”.<sup>6</sup>

### **Protection of Traditional Knowledge in India: Analysis of State Behaviour**

Establishment and enforcement of national rules that are compatible with the internationally agreed standards of market-access is an essential process under globalisation.<sup>7</sup> In order to integrate the ‘market economy’ into the ‘market society’, as well as to adopt an international legal regime into a national level, States have taken a prominent role in creating a conducive economy.<sup>8</sup> A self-regulating market and its associated fictitious commodities requires State intervention by establishing a set of rules for proper function of neoliberal market mechanism, where private property must be guaranteed and incentives must be given to compete for scarce resources. This needs to be understood in the context of broader changes that occurred during the 1970s and 1980s that brought about a more intense regime of valorization and competition in global markets, leading many developing States to view biodiversity within their territories as a resource whose use would enhance their income and as a key component of their growth regimes. The goal of this new growth regime was to make India an internationally competitive economy. India declared that PGRs are sovereign property in the late 1980s as part of a defensive-assertive state strategy that aimed to both prevents biopiracy, which was stoked by nationalist outrage over neo-colonial expropriation, and to make India a competitive player in the world's agricultural and biotech markets. Realising this potential allowed India to become a new focus for biotechnology expertise and a globally competitive nation with a superior ability to turn genetic resources into income. For instance, India insisted during the CBD negotiations on both moving towards a property regime based on the principle of national

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<sup>6</sup> *Id.* at 113.

<sup>7</sup> *Id.* at 110

<sup>8</sup> *Id.* at 110

sovereignty over genetic resources and making access to them dependent on the transfer of biotechnologies developed in frontier economies in order to support India's developing modern biotech sector.<sup>9</sup>

Since the 1990s, the competitive biotech sector has grown as a new growth regime capable of producing ecological surplus. This has attracted the attention of policymakers from all political backgrounds who view it as a potent enabling technology that will not only revolutionise India's agriculture but also help the country become a knowledge superpower in the world. Although this new growth regime supported indigenous rights in many international fora, it did not result in their effective or actual realisation domestically and instead placed a greater emphasis on the generation of ecological surpluses in comparison to other players in the global market. When contesting the validity of the U.S. Patent Office's claims about basmati rice and turmeric, this effect was also discernible. Though this strengthened India's reputation as the guardian of national genetic resources, it was argued that India only focused on the interests of Indian exporters when it came to these lawsuits, not the farmers who depended on these crops and received no advantages from the legal challenges.<sup>10</sup>

This must also be examined in light of how the Indian State has established specific technological, scientific, and legal frameworks pertinent to PGRs associated TK in the context of the Plant Variety and Farmers Right Act 2001, Biodiversity Act 2002, and Patent Act 1970. With regard to these laws, the State has been actively engaged in conflicts with a variety of groups over the ownership, use, and access to genetic resources. At times, the State appears to have shifting priorities depending on the situation, the parties involved, and the way it has attempted to balance domestic and international pressures. After a long persuasion from civil society activism, the Plant Variety and Farmers Right Act, Patent Act Amendment with regard to TK came into reality. It has been stated that the above said legislation made no recognition of community rights, who have significantly contributed for of biological diversity and inevitable for the great majority of rural people's means of subsistence. At the same time, the Act provided a vast array of initiative to protect the existing knowledge either through document or to catalogue all over the Indian subcontinent. As a signatory to the CBD, which acknowledges the inclusion of communities in the governance of biodiversity, it demonstrates that India fails to recognise the fundamental and customary rights of indigenous people who have lived in these areas for centuries. It is interesting to note that India emerged as a major

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<sup>9</sup> Valbona Muzaka, "Stealing the common from the goose: The emergence of Farmers' Rights and their implementation in India and Brazil", available at <https://doi.org/10.1111/joac.12398> (last visited on May 17, 2022)

<sup>10</sup> *Id.* at 366.

proponent of itself for the new growth regime, either through the establishment of suitable property laws or investing in high-tech clusters and biotechnology R&D, which is not necessarily advantageous to the holders of TK. India currently lacks a distinct sui generis law to safeguard such TK and its associated GR and the protection of TK and its elements are spread across various laws, rules and regulations resulting in a fragmented approach rather than integrated one for the treatment for conservation of biological resources and TK protection. It has been forwarded that this fragmentation affecting its implementation indicates the reluctance on the part of the Indian state to effectively enforce the legislation and to recognise ownership of TK associated GR rests with the community and has compromised meaningful implementation of these acts in many respects.

### **Challenges in Formulating Policies for TK Protection: Owners of TK**

There are many unresolved issues, such as how to protect TK and GRs and whether to do so from the perspective of inherent rights and human rights or from the perspective of economic rights and property rights. The complexity of TK is further increased by technical problems like the issue of collective ownership and the methods of right enforcement. In the Indian context also, questions such as who are the owner and bearer of TK and for whose benefit should TK be “protected” exist and the legal framework has not adequately addressed these issues. Due to its diversity, identifying the legitimate owner of TK in the Indian context is still challenging. Thus it can be seen that it is essential to devise a fair and effective mechanism for the protection of TK, which would also address the interest of different stakeholders in the protection of TK.

Land and related knowledge have historically had a strong connection to indigenous identity, and they are characterised by a communal relationship to resources, as well as to social and spiritual well-being. Despite the fact that this identity is tied to Indigenous Peoples' nature and livelihood, it is difficult to accurately identify and trace the knowledge holders due to complex collective ownership. It is interesting to note that dynamic nature of culture, changes over time, and geographical dispersion across communities and nations, defining the ethnic and cultural boundaries of an indigenous group is difficult. It can be difficult to define what constitutes an indigenous person, whose prior informed consent should be sought, and with whom. This is due to factors like social, legal, and political ambiguity as well as cultural heterogeneity. Hansen and Van Fleet have thus classified the knowledge claims in this context as: known and used by an individual; known and used by a group of people or a community; or diffused widely and in the public domain.<sup>11</sup> Traditional knowledge can be seen in India in the following forms:

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<sup>11</sup> Stephen A. Hansen and Justin W. VanFleet, “A Handbook on Issues and Options for Traditional Knowledge  
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- Knowledge that is practised and preserved by particular communities, particularly tribal groups, institutions, or families frequently found in particular territories of the country. Different traditional techniques are used to transmit this knowledge from one generation to the next.
- Knowledge that has no particular community, institution, or family acting as its custodian but is used to support the livelihoods of numerous people dispersed throughout India.

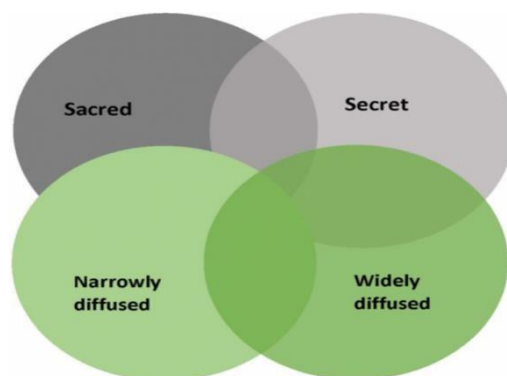


Fig.1: Representation of Tiered and Differentiated Approach to TK/TCEs

Source: Chidi Oguamanam, 2018.

The fig.1 shows that traditional knowledge in India falls into the following categories: secret, sacred, narrowly diffused, and widely diffused. The classification's main goal is to distinguish between the more limited types of rights for commonly used TK and TCEs.<sup>12</sup>

The "tiered approach" to conserving traditional knowledge (TK) may be advantageous in nations like India that are rich in TK and have numerous layers and degrees of TK. It will then be possible to assess which types the national government can represent and which ones require further protection.<sup>13</sup> An exclusive right (strong right) would therefore be granted to the indigenous group, which has kept it hidden and out of the public eye. After the policy is implemented, the mechanism would ensure that the stakeholders would share benefits in a stratified manner.

The implementation of this, however, faces some challenges due to the lack of consistency among indigenous leaders, the scientific uncertainty of the facts beyond a certain point in the past, the restoration of retroactive positions taken before the colonial era, and the assessment

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Holders in Protecting their Intellectual Property and Maintaining Biological Diversity", available at <http://www.icimod.org/resources/353>(last visited on August 7, 2022).

<sup>12</sup> Shambhu Prasad Chakrabarty and Ravneet Kaur, "A Primer to Traditional Knowledge Protection in India: The Road Ahead", available at visited <https://link.springer.com/article/10.1007/s10991-021-09281-4>(last on April 5, 2023)

<sup>13</sup> Javed, G etal., "Protection of Traditional Health Knowledge: International Negotiations, National Priorities and Knowledge Commons", available at <https://doi.org/10.1177/2393861719883069>(last visited on February 2 2023)

of the effects of knowledge piracy.<sup>14</sup> Throughout the IGC deliberations, India regularly gave instances of its highly developed traditional health systems, including Ayurveda and other AYUSH systems. These systems originated in recognised communities and were transmitted from one generation to the next as well as becoming widely used.<sup>15</sup> The Indian delegation has argued in favour of putting national authorities under the concept of beneficiaries in cases where TK could not be directly linked to a local community.<sup>16</sup> Additionally, it has been argued that specific types of undisclosed or narrowly disseminated knowledge require additional protections, such as exclusive use, adherence to specific moral and cultural standards, and equitable benefit sharing.<sup>17</sup> A nation state must be granted the fiduciary duty when it is suitable after discussing with local communities. Because of this, nation states' responsibility to protect collectively owned knowledge and their fiduciary duty to indigenous communities are crucial.<sup>18</sup> India still faces difficulties in identifying the owners of knowledge because the term "indigenous people" as a whole is not recognised.<sup>19</sup> The term "local communities" has been used by Indian BDA in place of "indigenous" in its legislative framework. Due to the rights associated with land and their right to "self-determination," which were deemed unacceptable in the Indian context, the term has now come to be rejected. Even back when it simply used the word "Indigenous," India backed the 1957 ILO Convention on Indigenous and Tribal Population. Given that so many indigenous populations in India are not recognised as scheduled tribes, the process is actually "more political than legal."<sup>20</sup> Determining what constitutes an indigenous and non-indigenous person for the purposes of laws and regulations raises a number of serious issues, particularly regarding the preservation of TK which is intimately linked to their way of life. Additionally, it should be noted that without these rights, communities are unable to enforce PIC and assert control over GR on their property. Knowledge holders are wary because local communities' rights to their TK or resources are not recognised by the law. This flaw effectively creates obstacles to the ownership of, access to, and utilisation of biological resources and knowledge. It has been reported that this government attitude is contrary to the true spirit of the CBD and Nagoya agreements, which made clear that the indigenous peoples are owners of such resources. In India, the question of "who are the people indigenous to India" is still open to debate. Indigenous perspectives are thus rarely heard in the Indian debate over TK. Despite the fact that their absence is generally excused by a lack

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<sup>14</sup> *Id.* at 419.

<sup>15</sup> *Supra* note 12 at 108.

<sup>16</sup> *Id.*

<sup>17</sup> *Id.* at 110

<sup>18</sup> *Id.* at 111

<sup>19</sup> *Supra* note 11 at 409

<sup>20</sup> *Id.*



of interest, illiteracy, and low linguistic ability, research demonstrates that there are many indigenous communities members and traditional healers who can and do articulate themselves fairly eloquently on traditional knowledge policy.<sup>21</sup> However, they frequently face political repression, and they are frequently prevented from getting more fully involved in what is thought to be a somewhat less urgent issue due to the need to safeguard their land and life.<sup>22</sup> In this situation, the legal system's structure and operation show that the government is using a variety of strategies. But State is unable to divide its responsibilities and bargain its commitments to specific communities, such as indigenous rights, in such a situation. Lack of knowledge owners' identification may result in a number of issues. First, the role of national legislation in protecting TK owners may be diminished; second, the healthy exploitation, dissemination, the growth of the cultural treasures in TK could be hindered and third, during the exercise procedure, unnecessary transaction fees could be incurred, enforcing, and TK rights transactions, especially when consumers (buyers) and suppliers (sellers) of TK come from different nations. Fourth, when it comes to prior informed consent and benefit sharing, distributive justice may be compromised, resulting in disputes between unidentified right holders.

At the WIPO IGC in 2019, India's basic position was to consider establishing minimum requirements, comparable to those in IPR agreements, and leave specifics to national authorities. India claimed that its position should be to ensure agreement on sovereign rights over biological assets and the "rights of local communities" in relation to TK protection. India has consistently argued that it is challenging to identify the creator and holder of TK in various countries like India because of the complexity of the resources; it is challenging to locate the proprietors of genetic resources in this situation. As a result, in India, the State makes decisions, manages resources, and grants PIC for resource access. As there is no systematic data on how much and to what extent TK exists widely within a country or across borders, it may not be possible to identify any, or even all, of the potential TK holders in this situation. The PIC could be obtained from the actual suppliers of the resource and associated TK, who are qualified to negotiate benefits and rights, in cases where the TK is widely dispersed throughout the nation

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<sup>21</sup> Thomas R. Eimer, "Global Wordings and Local Meanings: The Regulation of Traditional Knowledge in India and Brazil", *available* at [https://www.mattersburgerkreis.at/dl/qKorJMjLKMjQx4KooJK/JEP-2-2013\\_03\\_EIMER\\_Global-Wordings-and-Local-Meanings-The-Regulation-of-Traditional-Knowledge-in-India-and-Brazil.pdf](https://www.mattersburgerkreis.at/dl/qKorJMjLKMjQx4KooJK/JEP-2-2013_03_EIMER_Global-Wordings-and-Local-Meanings-The-Regulation-of-Traditional-Knowledge-in-India-and-Brazil.pdf) (last visited on July 26, 2023).

<sup>22</sup> Thomas R. Eimer, "Global Wordings and Local Meanings: The Regulation of Traditional Knowledge in India and Brazil", *available* at [https://www.mattersburgerkreis.at/dl/qKorJMjLKMjQx4KooJK/JEP-2-2013\\_03\\_EIMER\\_Global-Wordings-and-Local-Meanings-The-Regulation-of-Traditional-Knowledge-in-India-and-Brazil.pdf](https://www.mattersburgerkreis.at/dl/qKorJMjLKMjQx4KooJK/JEP-2-2013_03_EIMER_Global-Wordings-and-Local-Meanings-The-Regulation-of-Traditional-Knowledge-in-India-and-Brazil.pdf) (last visited on July 26, 2023).

and there are numerous known potential communities that can lay claim to the TK.<sup>23</sup> A public fund system could be established, allowing holders of the same TK to share benefits and profits among the communities.

### **Traceability and related benefit sharing concerns**

When the resource and its associated TK are used by communities outside of one country, things get more complicated. For instance, the natural distribution of resources, like that of basmati and turmeric, spans multiple nations, making the TK associated with these resources common. This brings up the question of who should gain from the agreement, and it may not be appropriate to demand the consent of the entire community or nation. As a result, it is challenging to pinpoint the origin of bio-resources due to the complicated movement of those resources across geographies. Due to a lack of traceability on the origin of accessed biological resources, several SBBs are currently struggling to distribute benefits to the communities and BMCs even though users have shared the benefits with them.<sup>24</sup> The State Biodiversity Fund must be utilised for biodiversity promotion, research, and conservation programmes when the material's origin is unknown. It is troubling that so few commercial ABS agreements have been reached in India, which points to GRs among potential customers, as well as onerous rules, as causes of the disappointing performance. Different stakeholders have pushed for an easy mechanism to access the same in order to overcome these obstacles. It is clear from the discussion above that ownership ambiguity and disputes regarding biodiversity and TK make the system complex and reckless. Therefore, it is urgent to amend the Act in light of recent developments so that the legal barrier that has separated scientists from national policy-making bodies regarding biodiversity can be lifted. This will help to strike a balance between the need for regulation and the need for innovation

### **Concerns of Scientific community**

The majority of TK associated GR users are biotechnology companies, the academic research community, and the scientific community. These groups are also the ones who are most affected by the current ABS regimes' stringent regulatory requirements and high transaction costs. Being the main source of raw materials for the industry, therapeutic plants and herbs are

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<sup>23</sup> Chenguo Zhang, "How is the Owner of Traditional Knowledge Right? A Perspective of International Law and the Case of China", available at <https://www.abacademies.org/articles/how-is-the-owner-of-traditional-knowledge-right-a-perspective-of-international-law-and-the-case-of-china-7175.html> (last visited on March 15, 2022)

<sup>24</sup> Shreyas Bhartiya, "Good Practice of Access and Benefit sharing," Indo-German Biodiversity Program, available at <https://www.giz.de/de/downloads/giz2019-good-practices-access-and-benefit-sharing.pdf> (last visited on June 3, 2023)

crucial for research and development, they believe that the current mechanisms are restrictive in nature and restrict access to resources like these. Due to the emergence of new technologies like combinatorial chemistry and synthetic biology, actual access to biological substance is currently less significant than it formerly was...<sup>25</sup> According to the scientific community, conservation biologists and taxonomists, a vanishingly small constituency, have little clout in the legislative process because their agendas, while well-intentioned but not prioritizing science, get tangled up.<sup>26</sup> As a result, there is now national legislation that severely restricts research. Additionally, it contends that international cooperation and national regulations that were implemented in many countries with a high biodiversity in anticipation of commercial benefits have stifled domestic scientific research on biodiversity. The argument goes on to say that the burden frequently necessitates substantial financial and human resources in typically drawn-out approvals processes and the inability to acquire approval, as researchers have noted, for example, in India and Indonesia.<sup>27</sup>

Due to the bilateral character of these regimes, their inherent limitations, the interplay of different laws, and the emphasis on financial profits instead of value creation and sharing, the existing ABS framework is a barrier to sustainable development.<sup>28</sup> They also struggle with not being able to track down people with whom to consult and share benefits when using resources. They also noted that when industries buy products from the local market, it can be challenging for them to identify the product's origin or source.

## Conclusion

From the analysis above, it can be concluded that states are currently having a difficult time protecting TK as a result of pressure from numerous stakeholders. The protection of TK is approached differently by each stakeholder. The result was incomplete international restraint mechanisms, hazy protection systems, and imperfect legislation. The discussion above makes it clear that the government's policy on traditional knowledge did not aim to give the communities themselves full "ownership" of the tradition. It demonstrates how the government has neglected to acknowledge the cosmovisions and worldviews of TK holders, which bestow rights on knowledge keepers as well as reciprocal obligations to their communities and the

<sup>25</sup> D.A Dias, et al. "A Historical Overview of Natural Products in Drug Discovery", *available at* doi: 10.3390/metabo2020303 (last visited on March 18, 2023).

<sup>26</sup> K. Divakaran Prathapan, et al., "When the cure kills-CBD limits biodiversity research", *available at* 10.1126/science.aat9844 (last visited on May 2, 2022)

<sup>27</sup> Id.

<sup>28</sup> <sup>151</sup>R. Sara, et al. "A need for recalibrating access and benefit sharing: How best to improve conservation, sustainable use of biodiversity, and equitable benefit sharing in a mutually reinforcing manner? How best to improve conservation, sustainable use of biodiversity, and equitable benefit sharing in a mutually reinforcing manner?" *available at* doi: 10.15252/embr.202153973 (last visited on August 4, 2022).

ecosystems in which TK is used. Beyond this notion, though, there is the actual challenge of determining the structure in which such "ownership" might vest, particularly in terms of identifying the legal representatives and acknowledged decision-making levels. The customary law of the relevant communities holds great promise in the protection of TK because TK holders do not understand the concept of "ownership" as it is known in intellectual property, and instead view themselves as merely custodians on behalf of past, present, and future generations. However, for political reasons, governments did not accept it. In order to clarify the legal status and relationship between TK holders, their knowledge, and their ecosystems, it is urgent to take another look at the current mechanism. Therefore, TK holders or beneficiaries of those holders must be included in the definition of a community for TK holding purposes under the relevant customary law. Additionally, the top-down approach to traditional knowledge governance, in which the national and state governments are given enormous responsibility for TK protection, is disrespectful of the collective rights of TK and ignores the existence of TK custodians who are given responsibility over access, use, and control of TK under customary law. As a result, it has been suggested that rather than focusing solely on individual property rights, a sui generis system should consider biological diversity, human rights, community rights, and cultural heritage. The preservation of TK should be founded on government property rights and supported by community property rights, and the system of governance should progressively shift from the current system of having one department exercise control over the other to one department exercising control over it all. In addition, the current multiple departmental laws that protect genetic resources should be replaced with specific legislation designed to protect these resources, and the protection gaps that currently exist should be closed with the help of special legislation that is tailored to the protection steps.

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