Toward the Legal Aspect on Developing Academics Intellectual Property Rights in University

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Abstract. The existence of IPR development at universities is important because universities are recognized as a forum for intellectual works that are the object of TRIPS protection and IPR development at universities is fully supported by WIPO. In subsequent developments, HKI has become a source of capital for major universities in the world. This success is a motivation for other universities in the world to develop intellectual property rights to become university entrepreneurs based on intellectual products. However, the development of intellectual property rights at universities is not only concerned with the registration and repository of intellectual property rights. The complexity of IPR development in universities can be understood as a logical consequence of the complexity of the IPR protection regime that brings together international law and national law in the fields of law, economy and technology. The stages of IPR development must go through the identification and analysis stages of the needs of universities, stakeholders and the socio-economic readiness of each university to make IPRs a valuable and sustainable intangible asset. In addition to economics and technology, the field of law is one of the keywords in the development of intellectual property rights at universities, but ironically the legal aspect is biased and may be limited as if it is only related to procedures and the validity of IPR registration. The bias of legal aspects in IPR will certainly limit the understanding and development of IPR itself. For this reason, this research will re-analyze what are the key issues in the legal aspects in the development of academic intellectual property rights based on the legal regime that applies, especially at universities.

Keywords: intangible assets · intellectual property rights · legal aspects · Introduction

1 Introduction

Basically innovation is difficult to predict, technology transfer from campus to society will only succeed if it is in accordance with industry needs and protected by adequate

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intellectual property [1]. Even that cannot guarantee commercial success. Given the vital role of innovation, many universities develop policies to protect their academic discoveries, help increase funding for research, the latest trend of starting start-ups and encourage greater interaction with industry to increase social, personal and national benefits [2].

Currently, 297 titles of articles with good reputation (indexed by Google Scholars and Scopus), 223 nationally accredited titles and 200 titles in scientific journals and international proceedings, 159 national books, 39 international books, and 1 art product were published in the period 2014–2016. To protect the work of academics, universities established the HKI Center which aids register IPR from research products. The research master plan document is explained in one of its targets, namely "Increasing the acquisition and commercialization of Intellectual Property Rights (IPR)" which is a complex issue towards academic.

Seeing the huge potential of IPR from the results of innovations, inventions, creations, and other works of university research, it is important to have IPR management through the University work unit. Examples of research results and university works that can become IPR assets are as follows: (1) Publication of research results in books, scientific journals, websites are protected by copyright, (2) Computer programs, Website designs, architectural designs, music are all copyright protected, (3) Simple tools design, machine design, packing, protected Industrial Design, (4) Logos, symbols, names owned by the university are protected by Copyright, Service Mark Rights, (5) The business methods, know-how developed are protected by Trade Secrets, (6) Machinery technology, machinery production processes, drug production processes, chemicals, etc. are protected by patents, (7) Integrated Electronics Design protected Integrated Circuit Layout Design, (8) Integrated Electronics Design protected Integrated Circuit Layout Design, and (9) Communal Intellectual Property Rights: geographical indications, traditional knowledge, cultural expressions that are generally in conflict with regional potential. Universities can become facilitators and open opportunities for collaboration with local governments.

Universities in Indonesia have a history of serving the community by providing research, teaching, and educational opportunities. Through various research and innovation activities conducted by higher education, it aims to increase the added value of students, produce trained and educated human resources in the fields of science, technology, and art, and provide sources of intellectual property rights. In addition to higher education participation in intellectual property rights, universities play a role in increasing the participation of the academic community in supporting institutional performance and making significant contributions to the community's economy. This shows a real commitment to promoting intellectual property rights. Participate in and play a significant role in the growth of Indonesia's National Innovation System or *Sistem Inovasi Nasional* (SINAS). Researchers and engineers in universities are expected to have a high awareness of the importance of acquiring Intellectual Property Rights (IPR) in teaching, research and service activities [3]. Universities have an important role as development to produce new discoveries in various fields of technology. IPR enhancement and protection will accelerate industrial growth, create new jobs, encourage economic change, and improve the quality of human life that meets the needs of the wider community.

The amount of intellectual property produced by lecturers certainly needs to be appreciated by never plagiarizing or reproducing the work without permission. All intellectual property produced by these lecturers can then be widely used. Examples are used as references for carrying out research activities, compiling final assignments, or other purposes. Of course, when used as a reference, there are various rules that accompany it, one of which is the rules for writing credit. Not only that, but the lecturers also need to take care of the Intellectual Property Rights (IPR). IPR management in the past few decades is still considered as something that is not so important. However, not in other countries where every work is immediately taken care of by IPR. Gradually, lecturers in Indonesia began to do this, which certainly had a lot of positive impacts.

IPR is a legal protection as an incentive for inventors, designers and creators by giving special rights to commercialize their creative products (**4).** Encouraging higher education academics to commercialize research results by providing IPR protection to achieve economic value is a must. However, before academics begin the process of obtaining IPR and marketing their IPR products, every academic must know what legal issues can be found during the process of obtaining IPR to provide legal certainty, justice and benefits and avoid legal problems. While the role of identifying, clarifying and analyzing these legal issues will require legal academics. Based on this background, this research will analyze how the legal aspects in the development of intellectual property rights for academics.

2 Discussions

A. *Intellectual Property Rights for University Academics: Why is It Essential?*

Intellectual property rights generated not only as a waiver of the obligations of an academician but can increase the reputation of the teacher and the institution that shelters it. This reputation has a close relationship with various IPR products which also increase along with the recognition of an intellectual right in the form of copyright, geographical indications, and others. Protection of IPR (Intellectual Property Rights) is the acknowledgment of intellectual property as a work or achievement achieved by lecturers by legitimizing it in accordance with the laws and regulations [5].

The quality of higher education is generally seen from how productive a university is in producing scientific publications. That's why in recent years, universities in Indonesia have been active to encourage each of their civitas to produce scientific research. Not only universities, but the Ministry of Research, Technology and Higher Education also issues regulations that provide incentives for students and lecturers to be interested in conducting research. With high competence, lecturers are expected to be able to create scientific works in the form of journals as a tool to filter research substance. Where, the research conducted will be more focused. Another goal is to improve the welfare of the Indonesian people by making new findings that provide solutions to the problems that are currently happening.

The trend of copyright applications in 2020 grew significantly during the Covid-19 pandemic with applications for copyright protection reaching 64,784 applications which were dominated by registration of books, written works, and computer programs.

Table 1. List of 2020 Copyrights Applicant

No.	Institution	Amount
1.	Universitas Komputer Indonesia	1610994
2.	Universitas Negeri Malang	1102
3.	Universitas Padjajaran	994
4.	LPPM Universitas Negeri Jakarta	863
5.	Universitas Indonesia	827
6.	Universitas Tridinanti Palembang	683
7.	Universitas Surabaya	670
8.	LPPM Universitas Andalas	665
9.	Universitas Muhammadiyah Yogyakarta	661
10.	Sentra HKI Universitas Udayana	502

Source: https://www.dgip.go.id/

Applications for protection of video recordings also increased sharply in the same year reaching 4,213 applications from only 1,329 in 2019 [6]. This trend shows that the productivity of the Indonesian people is increasing as well as growing awareness to register works as a form of protection for the economic rights and moral rights of their creators.

On the university side, the Report of the Director General of Intellectual Property of the Ministry of Law and Human Rights released applicants for copyright protection in which the top ten copyright registrants were educational institutions (Table 1).

The reports and data above indicate that universities are leaders in the production of knowledge and recognize the need to protect the intellectual property of academicians. However, the awareness of the importance of copyright protection has not been fully understood by most universities and their teachers. This can also be reflected in the low number of registrations for copyright protection in several other universities. Currently, the cumulative number of copyright registrations in the last five years has not reached 10 applications. This is the thought that then underlies the need to increase awareness to encourage registration and application of IPR. This situation arises because there is still a lack of awareness of the position of copyright and an understanding of the benefits of the existence of these rights for creators and the institutions that protect them.

Registration of copyright and other intellectual property rights is relevant as a terminal in the protection of works produced by lecturers. Referring to the Law No. 12 of 2012 on Higher Education, lecturers are declared as professional educators and scientists who have priority tasks to transform, develop, and disseminate science and technology through education, research, and community service [7]. As an educational person, the publication of works is already a complete series of performances produced in the tri dharma process of higher education. Therefore, along with the development of technology and digitalization, registration of copyright protection is necessary because the principles in intellectual property rights are territorial and have two different principles,

namely the declarative principle (who publishes it first) and the constitutive principle (who registers it first).

Information and knowledge are examples of intellectual property that not only have moral values but also have economic values [8]. Morally, lecturers will be branded as creators. Moral rights, the name of the lecturer who finds or produces his work is recognized, written as the owner of his invention. Indirectly, the lecturer/inventor has an existence, which cannot be removed and cannot be deleted by anyone. Even if the copyright has changed. Many forms of copyright are protected. Some of them are in the form of books, educational aids, written works, translated maps, computer programs, anthology, and even architectural works. Copyright in the field of art also exists. For example, fine arts, traditional culture, modification of expression, photographic works, cinematography, batik art, motif art to cinematography art, and many more.

Economically, lecturers will benefit in the form of money from the results of their discoveries. For example, for IPR in the art of music, the creator will get economic value from the sale of the song. The importance of managing intellectual property rights produced by lecturers is to help gain economic benefits [9]. So, every lecturer who has taken the time, cost, and energy to take care of IPR for the work he has made will not lose. Besides being widely known by the public as the creator of a work, you can also get passive income. Because a creator will be entitled to a commission or royalty for all his works that are published, reproduced, and sold. Although there are also works that do not produce economic value. Other than economic values, IPR is very essential to academics and lecturers are as based on these motives:

1) *Branding as Creators*

Lecturers need to take care of IPR because it helps on their branding. This leads to more moral benefits. Where the name of the lecturer will be listed in the work that has been taken care of by IPR. Therefore, their work will be forever widely known by the public as the creator of the work. There is no possibility that another lecturer's name will replace the first lecturer's name. Because IPR has been taken care of or patented, until the work is reproduced in any amount, the name of the creator will remain the same.

An example is a work in the form of a book. This book is then managed by the IPR by the author's lecturer. Every time the book will be reprinted, it is all with the knowledge and permission of the lecturer. Then his name will always be listed as the author, be it the main author or contributor. In the future, when the title of the book is mentioned, the public will only know the name of the author, namely the lecturer who took care of the IPR. It is certainly important to introduce the name of the lecturer as a professional writer. At the same time informing the public that the book is a quality book written by an expert lecturer in a scientific field.

2) *Appreciation for Other Academician's Work*

The process of compiling works and then managing intellectual property produced by lecturers certainly takes a long time. When the lecturer managed to complete the management. So in addition to feeling satisfied, it will also be easier to appreciate the work of others. The lecturer will really appreciate every book written by his fellow

lecturers. Because no matter how thin a book is, it is guaranteed that there will be a long struggle that accompanies it. Lecturers not only need to spend time and energy to write, but also costs to ensure the work is published to the public.

Thus, by taking care of IPR, it will be easier for every lecturer to appreciate the work of lecturers and owners of other professions. So that they can enjoy the work of other lecturers. So that they can contribute so that they receive royalties and become more enthusiastic in writing and creating other gold works. Every lecturer is very important in protecting the intellectual property produced by the lecturer. So that his name can be known as the creator and receive economic benefits from the management of the IPR.

3) *Enhancing Enthusiasm in Creating*

Through IPR, lecturers can already feel the benefits of managing the IPR. For example, you can receive royalties which can be referred to as savings in the future. Not to mention the awards given by the wider community for their useful work. Hence, it is guaranteed that the lecturer will be more enthusiastic to work again, do more research, write, and publish more books, and so on. Because his hard work in printing a work does get an award.

IPR recognition will certainly have a good impact on the progress of science and technology in the country. Because more and more lecturers are productive in their work and patent these works as their creations. This work can then be introduced to the whole world and include the name of the lecturer as the creator.

B. *Legal Development of Intellectual Property Rights for University Academics*

In addition to the institution's commitment to facilitating the process of obtaining intellectual property rights for the various potentials possessed by these universities, encouraging the growth in the acquisition of intellectual property rights in universities requires the active participation of a number of parties, beginning with the leadership, lecturers, and students. The National System of Research, Development, and Application of Technology Law Number 18 of 2002 also mandates the creation and bolstering of the IPR center. Moreover, it is governed by Government Regulation of the Republic of Indonesia Number 37 of 2009 regarding lecturers, which states that lecturers are entitled to protection of intellectual property rights in accordance with the laws [10]. For all types of academic and/or professional works, the intellectual property rights mentioned in paragraph (1) include copyrights, patent rights, trademark rights, industrial design rights, trade secret rights, and rights to integrated circuit layout designs.

All parties must unquestionably encourage and support the protection of intellectual property rights (IPR) as a means of preserving intellectual property. Observing Law Number 18 of 2002 where Higher Education as one of the institutional elements in the National Research System is burdened with the obligation to seek to disseminate information on the results of research and development activities as well as their intellectual property, if it does not reduce the interests of protecting intellectual property. The obligation in question means that the Higher Education as the producer of intellectual property has sought legal clarity on the relationship between intellectual property and the holder or inventor first.

Additionally, it is mandated by Law Number 18 of 2002 on the National System of Research, Development, and Application of Science and Technology, Article 13 paragraph 4, that all intellectual property and the outcomes of engineering and innovation activities that are funded by the Government and/or regional governments must be managed and used appropriately by universities. Article 13 paragraph 1 suggests that universities must manage intellectual property; as a result, there must be a university institution specifically tasked with managing intellectual property. Article 13 paragraph 3 of Law No. 18 of 2002, which mandates that universities seek the establishment of IPR centers in accordance with their capacities and capabilities in order to improve intellectual property management, also makes reference to the existence of this institution that manages intellectual property [11]. The IPR center that must be established is envisioned as an organization that serves to manage and utilize intellectual property as much as possible as well as a center for information and services for IPR, including marketing the findings of its research.

After analyzing the essentiality of IPR towards university academician, it is concluded that academics, specifically lecturers must understand the IPR has a particular role in ensuring protection towards their work. Yet, this does not mean that academician are satisfied by registering their work to copyrights or other IPR forms, because legal development of IPR for university academics is far comprehensive with adjustments as follow:[12].

1) *Ownership*

Three general methods for identifying ownership of intellectual property developed at universities and research institutions are outlined below [13].

a) *Verify with National Legislation*

Institution is responsible for IP ownership on national legislative provisions. An institutional IP Policy must coincide with national regulation provision which an individual does not have a choice to terminate contract out of legislation. National law is could either be private or transparent for interpretation. Thus, institutional IP can be customized to the institutional target and IP commercialization's objective. In certain countries, IP ownership provisions are found in their IP legislation, whereas in other countries, IP ownership provision is a result of employment law, contract law, research funding restraints, and other laws regarding IP Institution and technology transfer. Moreover, numerous non-regulation instruments such as policies, government actions, fiscal rules, government funding agencies provision, research funding regulation, court ruling, and code practices might include constraint on IP ownership and technology transfer.

Universities and non-institutional public research institutions often have different rights to intellectual property. In addition, different ownership standards may apply depending on whether the work was produced with public or outside funding and on the employee's status (professor, assistant, technical personnel, etc.). Additionally, some provisions of national law might be enforceable, while others create a default position that Institutions can change through employment agreements, intellectual property policies, and/or specific agreements with business partners.

b) *Consider Established and Best Practices*

An IP policy may consider the institution's historical/established norms in many academic disciplines and international best practices. This holds true for customs and traditions as well. Some governments or organizations, including Knowledge Commercialization Australasia (KCA), ACCT Canada, the International Centre for Environmental Technology Transfer (ICETT), the Association for University Research and Industry Links, and the Association of University Technology Managers (AUTM), have established "best practices" for Institutional IP ownership and management (AURIL). Even though such recommendations are typically not legally enforceable, they might be useful to consider.

c) *Circumstances that Institution Owns IP*

The fundamental factor is that the goal is to provide as much access to the Institution's intellectual property and research as possible while maximizing economic and societal benefits. Within the bounds of any applicable national legislation, the Institution should provide clarity, in at least the alternatives listed below, on whether IP developed by its Staff Members, Students, or Visitors the Institution will own are publicly funded research, IP generated by significant use of the Institution's resources, privately funded commissioned work, private work of Employees, scholarly works, student theses, IP generated by Students and Visitors, IP generated by Students and Visitors, IP generated by Students and Visitors, IP generated by Students and Visitors, IP generated by Students and Visitors,

2) *Commercialization and Transfer Technology*

Academic research, on average, produces significant benefits for local, regional, and national economies. In this setting, Intellectual Property Management Office (IPMOs) are increasingly embracing IP management practices that enable alternative commercialization channels. Commercialization is an essential step for university IPR [13]. Instead of pursuing established firm licensees, IPMOs are increasingly making IP decisions that allow for the commercialization of institution-developed technology via professor and student-led start-ups.Commercialization of IP is related with transfer of technology as commercialization pathway especially in university scope [14]. The process of commercialization, which involves product, process, and service availability on the market along with research disclosure evaluation IP protection licensing/assignment/startup formation, is not linear. Therefore, it must be established thoroughly (Fig. 1).

Since academic inventions are closer to basic research, scientists and policymakers are concerned that patenting specific inventions would stymie downstream development. In the case of research tools, for example, granting a patent could stifle spread by increasing the price and complexity of employing such tools in applied research. As a result, funding agencies and research institutions have implemented a strategy that discourages superfluous patenting and promotes non-exclusive licensing.

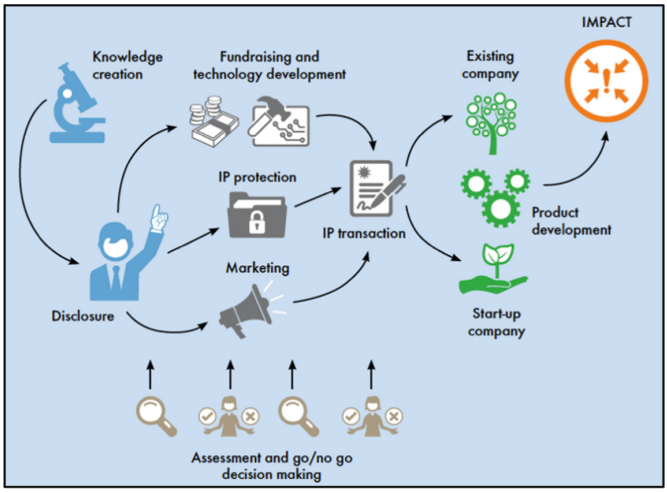

Fig. 1. The Knowledge Transfer Process

a) *Licenses*

Licensing can take the form of exclusive licensing, non-exclusive licensing, sole licensing, or cross licensing [15]. All license contracts can be contractually restricted by geographical region, time, industry, and application fields.

- When a licensee receives an exclusive license, all rights to use the intellectual property are transferred to that party. In other words, the Recipient forfeits the right to make use of the Intellectual Property or grant any further, subsequent License(s) to another party. The Intellectual Property should be made available to the recipient for non-commercial use, as well as for further research and development.
- A non-exclusive license allows the recipient to give one or more parties the freedom to make use of the intellectual property, including the freedom to do so personally. Under a non-exclusive License, the Recipient may grant the licensee sub-licensing rights.
- Sole License means that the recipient assigns to the licensee all rights to exploit the Intellectual Property but maintains the right to utilize the Intellectual Property himself.
- To use their intellectual property for both commercial and non-commercial purposes, two or more intellectual property owners can cross license with one another. In a cross-licensing transaction, the other party grants rights in return for the rights granted by the first party. Cross-licensing agreements may stipulate the payment of a licensee fee or royalty in cases where the parties' rights are not valued equally.

b) *Publications*

Most of a research institution's output is directly made available to the public through journal publication or free distribution. Maintaining the ability of researchers to publish

is necessary. On the other hand, businesses or sponsors might worry that publishing the results of the research might reveal confidential information or lead to a loss of intellectual property. In these situations, industrial contracts and IP protection must be examined, for instance by educating academics on the necessity of filing a patent application prior to publishing and - enabling industry partners to request publication delays to accommodate intellectual property protection.

Staff and students should be aware of the need to prevent premature disclosure of research results to third parties, including any form of publication of such results, before completing an IP Disclosure and considering the need for IP protection. An invention's intellectual property may not be protected or commercialized if it is revealed to the public before it is ready [16]. Therefore, it is essential to comprehend which disclosures are novelty-destroying in accordance with national and international patent regulations.

c) *Access and Benefit Sharing*

A portion of the commercialization revenue is the most common incentive for academic researchers to commercialize their research outputs. Statutory provisions may not be effective in implementing such incentives, or they may be institutional decisions made to achieve their goal. In recent years, laws requiring minimal benefit sharing arrangements have been adopted in a few nations. Governments play a crucial role in fostering the growth and commercialization of university research output, which is consistent with this situation.

IP that is shared in the benefits is dependent on how the state chooses to implement it. For instance, South Africa gives IP Creators a minimum benefit sharing provision on Gross IP Revenue (i.e., IP Revenue before IP Expenses are deducted) and a minimum portion of Net IP Revenue. China mandates benefit sharing generally, while Brazil has a legal provision that specifies the minimum and maximum percentages that must be shared. The national government or the Institution, as appropriate, has the authority to choose which approach to use.

d) *Contracts*

According to WIPO, Research Contracts are not an exhaustive representation of Research Contracts in general but rather a guide to the appropriate IP terms for each type of Research Contract. As a result, the relevant Institution policy is mentioned here [17]. It is crucial to realize, however, that Research Contracts may only be concluded, or signed, by a person with authorized authority or authorized delegated authority; otherwise, the contract is void and presumed to have not been completed.

The intellectual property provisions in the Research Contract must be either prepared or revised to satisfy any governmental requirements and to ensure that the Institution's interests are protected. As a result, it should be standard best practice within the Institution for IPMO to review and make changes to the content of the Research Contract. This enables the IPMO to monitor progress in this area as the research advances and to be aware of any prior commitments made to the external party/sponsor. In addition, it enables the IPMO to not only identify potential difficulties but also to make a note of the Study Contract that is being signed.

Table 2. Types of Creators

IP Creator	Examples	Statutory
Inventor	Invention (including genetically modified plant varieties)	Patent
Author/ Proprietor	Functional or aesthetic design	Design
Breeder	Plant variety	Plant Breeders' Right
Proprietor	Mark	Trade mark
Author	Literary/Musical/Artistic works Cinematograph films Sound recordings Broadcasts Programme-carrying signals Published editions Computer programmes etcetera	Copyright

The main difficulty is figuring out what intellectual property has been created and whose it is. The outside party or sponsor might try to get their hands on the study outputs for commercial reasons. Ownership of all research results should be addressed in the research contract as soon as possible. Based on elements like funding source and desired goals, these contracts can take a variety of forms. After that, the funding source and the intended result are considered when drafting the intellectual property clauses in the research contracts. The results of research are typically held by institutions, though depending on the legal framework, an outside party or sponsor may be given the right to use the results for their own purposes.

e) *Incentives and Disputes*

Institutional incentives are critical in improving the effectiveness of knowledge transfer. Incentive emphasizes the significance of addressing reward systems that are compatible with increased entrepreneurial engagement. Incentives are intended for two categories which are creators and enablers.

- For innovators and researchers who actively contribute to the creation of intellectual property because of their research or intellectual endeavors are the target audience for incentives (Table 2).

- Incentives may also be created for IP Enablers, who play a supportive role in the creation of IP but are not directly responsible for it by making an intellectual contribution to solve the issue at hand in a creative and original way. Instead, they simply follow instructions and carry out standard procedures. GC-MS analysis, tissue culture, DNA sequencing, data cleaning, and other tasks might be performed by a technician, for instance.

Institutions are expected to enforce their intellectual property policies consistently and openly. However, exercise some caution. The traditional culture and activities of a university may be severely impacted by an overly strict enforcement of the IP Policy. Authoritarian bureaucracy and excessively harsh penalties for IP Policy violations should be avoided by universities. The IP process should be engaged in voluntarily, not under duress, by aspirant inventors and creators. Each organization must choose how strictly to implement the IP Policy [18]. It is crucial to include Alternative Dispute Resolution procedures in the IP Policy in addition to using the legal system to resolve disputes. If ADR is unsuccessful, this can be done in place of or in addition to notifying the courts.

3 Conclusions

Based on the research above, there are two main conclusions described as follow:

Intellectual Property Rights for university academics is essential because IPR ensures economic value of the academicians' work. Furthermore, it also provides moral and ethical support such as branding, support, and enthusiasm.

Legal development of intellectual property rights for university academicians are not only limited to registration but it includes considerations of ownership, commercialization and transfer technology, licenses, publications, access and benefit sharing, contracts, incentives, and disputes.

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