Case Study on Intellectual Property Rights in Establishing a Traditional Knowledge Database in Korea

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I. Introduction

Traditional knowledge is a generic term referring to a type of knowledge which is held by a traditional community, transmitted and developed under local laws and customs. Traditional knowledge has played, and continues to play, an important role in areas such as food safety, agricultural development and medical treatment.

Generally, western science does not recognise the value of traditional knowledge, nor does it impose any regulation in its usage; thereby accelerating the loss of traditional knowledge by destroying communities' livelihoods and cultures. However, recently western science has paid more attention to traditional knowledge, believing it may help to develop effective solutions to modern day problems.

Likewise, despite the growing recognition of traditional knowledge as a source of valuable knowledge, it has been considered 'free information' under the public domain of the Intellectual Property (IP) system. Furthermore, in some cases, traditional knowledge has been misappropriated by researchers and private companies in various forms, without adequate benefit-sharing with the holders or the original creators of the traditional knowledge under

the current intellectual property system.

On the other hand, traditional knowledge is the precious cultural heritage that is a reflection of the communities themselves and their culture. Most traditional knowledge is acquired through personal observation and practices by oral tradition rather than in written form. Therefore, traditional knowledge, in principle, is open to the public and is accessible to all members of a specific community who holds the traditional knowledge as well as other individuals. As a result, it is difficult to verify the original owner of the specific element of knowledge.

However, since the adoption of the Convention on Biological Diversity (CBD) in 1992, which calls for the conservation of biological-diversity, sustainable use for its components, and the fair and equitable sharing of benefits arising from genetic sources, the issue of traditional knowledge has also received much attention. Hence, many scholars, international organisations and governmental organisations are seeking various measures to protect traditional knowledge. In particular, the protection of traditional knowledge has been frequently discussed mainly in the World Intellectual Property Organization (WIPO), while developing countries' have actively been urging for recognition of traditional knowledge as a part of Intellectual Property.

It's noteworthy to say that since there was no binding multilateral instrument for the safeguarding of intangible cultural heritage, the United Nations Educational, Scientific, and Cultural Organization (UNESCO) moved to adopt the Convention for the Safeguarding of Intangible Cultural Heritage at the General Conference of UNESCO in 2003, Paris.

Article 11 of the intangible cultural heritage Convention stipulates that each State Party shall take necessary measures to ensure the safeguarding of their country's intangible cultural heritage. Furthermore, Article 12 mandates each State Party to draw up one or more inventories of the intangible cultural heritage present in their territory, and to regularly update these inventories.

As of today, Korea has inscribed seven of its cultural heritage elements onto the UNESCO Memory of the World Register, thus ranks sixth (together with France and Denmark) among countries who have largest number of items on the list after Germany (11 items), Australia (10 items), Poland/Russia (9 items), Mexico (8 items). In this sense, Korea is respected as one of the countries having the most affluent intangible cultural heritage elements which need respect and protection. Among these seven inscribed items, Dong Ui Bogam, a synthesised a medical book on traditional Korean medical knowledge which is included on the list.

Regarding the establishment of a database on traditional Korean medicine and intellectual property, the following issues appear: first, the inapplicability of intellectual property law in protecting traditional Korean medical knowledge owing to it being freely shared by people; second, protection and transmission of un-published secret medical knowledge; third, Korea's possible dispute with its most important rival in this field, China, over the issue of 'originality' regarding medical knowledge; fourth is a concern over the issue of information-sharing. Therefore, this presentation will attempt to grasps the major points of the abovementioned issues and will seek for possible counter-measures in response to these problems.

II. Establishment of a Traditional Knowledge Database and Protection of Intellectual Property

Defining the term, 'Traditional Knowledge,' is closely related to defining the scope and subject of protection. However, the difficulty in distinguishing traditional knowledge from other types of knowledge created the challenges in developing an internationally accepted definition of Traditional Knowledge has risen. Thus, 'traditional knowledge' may simply refer to the generic knowledge held by indigenous and traditional communities.

Such definition of the concept has something in common with the Convention on Biological-diversity. Article 8(j) contains a phrase which mentions, 'Knowledge, innovations and practices of indigenous and local communities'. By taking into account Article 8(j) of the Convention on Biological-diversity, traditional knowledge can be understood as a shortened term of 'traditional knowledge, innovation, and practices'.

WIPO defines 'traditional knowledge' as innovations and creations which have derived from intellectual activities in the field of industry, science, literature or arts including; literature, art, scientific publications, designs, marks, names and symbols, classified information and others.

Other concepts that need to be compared with 'traditional knowledge' are 'genetic resources' and 'traditional cultural expressions/folklore or expressions of folklore'. Above all, 'genetic resources' refers to the materials that contain genetic information and biological information. The Convention on Biological-Diversity defines genetic resources as genetic materials of actual

or potential value. Meanwhile, traditional Cultural Expressions/Expressions of Folklore refers to a type of traditional knowledge produced in the form of traditional artistic expressions such as traditional drawings, songs, and literature.

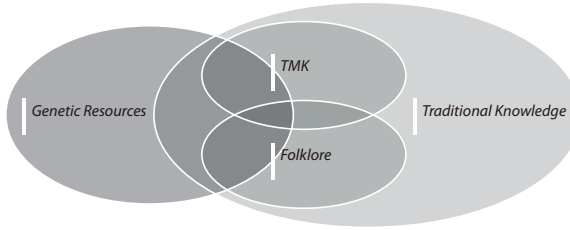

Figure1 Relationships among Traditional Knowledge, Traditional Medical Knowledge, Expressions of Folklore and Genetic Resources

To sum up, traditional knowledge is a generic term referring to the knowledge that has been traditionally transmitted. Thus, any derivatives of intellectual activities created under traditions are included in the domain of traditional knowledge. In accordance with this definition, many elements of cultural heritage in Korea fall into the category of traditional knowledge, most prominently, traditional Korean Medicine.

Traditional medical knowledge is frequently being discussed in the international society as a specific example of the valuable traditional knowledge that requires intellectual property protection. Thus, the databases comprising of information on traditional medical knowledge serves the purpose of providing information as a prior art document, preventing unlawful acquirement of patent rights, and also promoting research and development of new inventions by disseminating traditional knowledge.

1. Establishment of a Traditional Korean Medicine (TKM) Database

Before studying the establishment of a traditional Korean medicine database, let us examine cases from other countries: India and China.

In the case of India, the database called Traditional Knowledge Digital Library (TKDL) is being established. The documentation process of traditional knowledge under the TKDL project prevents inventors from unlawfully using traditional knowledge. This project is gaining much attention in India. The Indian government successfully annulled the patents granted on 'Turmeric' and 'Basmati' by the United States patent office, as well as 'Neem' by the

European Patent Office, by arguing that India is the holder of this traditional knowledge.

In the meantime, China has been compiling traditional knowledge databases since the 1980s, and as of now, China holds around 50 databases. The Traditional Chinese Medicine Database System contains more than 477,000 references and abstracts on literature regarding traditional Chinese medicine. This database includes information on Chinese medicine, Gigong exercises, acupuncture, Chinese massage, health promotion, and other topics. More than 42,000 records are added to this system and the system is maintained in English and Chinese versions.

In Korea, the traditional knowledge and database system is being established in two languages, Korean and English, to be utilised as prior art documents during the process of patent examination at the patent offices in Korea and abroad. Furthermore, it aims to prevent foreigners from obtaining patent rights for products developed by using traditional Korean knowledge. Traditional Knowledge database also serves the purpose of bringing about academic and industrial development in related fields, such as in traditional Korean medicine, by systemising and providing fundamental information for research and development.

Table1 Annual Update of DB Establishment: Contents and Forms (2003-2010)

Project Title	Contents	Type	File Type	Quantity	Service
2003 Digitalisation of Traditional Korean Medical Knowledge Information Source	• Information on ancient Korean medical texts - Original texts, images, and annotations from 168 ancient medical books (including, Eui Bang Yu Chi, Jae Jung Shin Pyung, Imweon Kyung Jaeji)	Text	XML	87,000 (pages)	Web
		Image	JPG	50,000 (pages)	
		Text	XML	1,800 (annotations)	
	• Information on treatment techniques of Traditional Korean Medicine - Traditional Korean Medical treatment techniques, educational sources, etc.	Text	XML	5,000 (pages)	Web
		Image	JPG	10,000 (images)	
2004 Digitalisation of Traditional Korean Medical Knowledge Information Source	• Ancient Korean Medical Texts - Original texts, images, and annotations from 157 rare and valuable books on Tradition Korean Medicine	Text	XML	800,000 (words)	Web
		Image	JPG	14,000 (pages)	
		Text	XML	1,800 (pages) (annotations)	
	• Information on treatment techniques of Traditional Korean Medicine - 50 books on Korean Medical Prescriptions and Treatment Techniques	Text	XML	Original Text 13,000,000 (words)	Web

Project Title	Contents	Type	File Type	Quantity	Service
2004 Digitalisation of Traditional Korean Medical Knowledge Information Source	• Glossary of Traditional Korean Medicine - Annotations of major Traditional Korean Medical terms	Text	XML	Text 6,000,000 (words)	Web
	• Thesaurus of Traditional Korean Medicine - Traditional Korean Medicine thesaurus descriptions	Text	XML	3,000 (descriptions)	Web
2005 Digitalisation of Traditional Korean Medical Knowledge Information Source	• Ancient Korean Medical Texts - Original texts, images, and annotations from 47 rare and valuable books of Korean Medicine	Text	XML	1,500,000 (words)	Web
		Image	JPG	7,500 (pages)	
		Text	XML	1,000 (pages) (annotations)	
	• Information on Specialised Traditional Korean Medicine - Texts, images, 2D flash on Medical Herbs	Text	XML	4,000 (pages)	Web
		Image	JPG	2,000 (images)	
		2D	SWF	50 (pages)	
	• Information on Health and medicine - Traditional treatment (Aliment therapy, Doe-in, prohibitions)	Text	XML	2,000 (pages)	Web
		Image	JPG	500 (pages)	
	• Thesaurus of Traditional Korean Medicine - Traditional Korean Medicine thesaurus descriptions	Text	XML	3,000 (descriptions)	Web
2007 Digitalisation of Traditional Korean Medical Knowledge Information Source	• Ancient Korean Medical Texts - Original texts, images, annotations on 14 rare and valuable books of Korean Medicine	Text	XML	44,446 (pages)	Web
		Image	JPG	44,446 (pages)	
		Text	XML	1,000 (pages) (annotation)	
	• Multimedia Information on Korean Medicine - Medical Herbs, tales of traditional medicine, Gigong exercises	Video	WMV	30 minutes	Web
		2D	SWF	70 parts	
	• Information on Health and Medicine - Traditional treatment (Aliment therapy, Doe-in, prohibitions)	Text	XML	2,000 pages	Web
		Image	JPG	500 (images)	
2008 Establishment of DB on Ancient/ Classical Korean Medical Books	• Ancient Korean Medical Texts - 312 ancient books on Traditional Korean Medicine (Includes Chugan Uian, Jinyang Shinbang)	Text	XML	43,740 (pages)	Web
		Image	JPG	44,229 (pages)	
	• Korean Medical Health Information - Information on traditional medical knowledge in Korea/traditional treatment	Text	XML	2,015 (pages)	
	• Video on Gigogong Exercises	Video	WMV	30 (minutes)	

Project Title	Contents	Type	File Type	Quantity	Service
2009 Establishment of DB on Ancient/ Classical Korean Medical Books	• Ancient Korean Medical Texts - 276 ancient books on traditional Medicine (includes Chugan Uian, Donguibogam etc.)	Text	XML	38,800 (pages)	Web
		Image	JPG	38,800 pages	
	• Video on Gigogong Exercises	Video	WMV	60 (minutes)	
2010 Establishment of DB on Ancient/ Classical Korean Medical Books	• Ancient Korean Medical Texts - Chugan/Ancient Literature	Text	XML	58,974 (pages)	Web
		Image	JPG	58,974 (pages)	
	• Upgrading of Application Software				

2. Traditional Korean Medicine DB and Protection of Intellectual Property

Traditional medical knowledge is recognised as a part of valuable traditional knowledge in need of protection. With the advent of incurable diseases such as chronic diseases, cancer, in addition to HIV and AIDs in the mid-20th century, western medicine found itself with inherent limitations for countering these diseases. At the same time, as the 21st century medical industry began moving toward placing more focus on prevention rather than treatment, the interest in traditional medicine began growing for its relatively safe and long standing usage among the eastern world.

Leading countries in the medical industry have been investing much research capital, human resources, and technology into the development of traditional medical knowledge and genetic resources, to find solutions to incurable diseases; and in return, they have been generating a large sum of economic remuneration. Traditional medical knowledge, used as the basis for modern medicine, is contributing to the success of new inventions.

As a patent is granted to a new invention developed by using traditional knowledge, a dispute over the issue of benefit-sharing between the holders of the traditional knowledge and the inventors appears. When a patent is granted to a newly invented medicine, in most cases the benefits go to the new inventor who applied for a patent. In such a case, the holders of traditional knowledge are excluded from the generated benefits, thus becoming problematic. How to protect traditional knowledge from such misappropriation is an important point of discussion.

Protecting traditional knowledge by establishing a database is a negative and defensive form of protection. This type of protection prevents people other than the customary custodian of the traditional knowledge and generic resources from applying and obtaining intellectual property rights, such as patent rights. Thus, it protects the rights of developing states' in relation to their traditional knowledge. Nevertheless, since this type of protection does not grant or guarantee the exercise of rights, it is different from the positive form of protection. Positive protection recognises certain rights of property and provides measures for remedy in case a third party violates the right.

India is an example of a country which has taken a negative protection approach to protect its traditional knowledge. The most important effort that India has brought forth in protecting its traditional knowledge is the documentation of its traditional knowledge through the establishment of a 'Traditional Knowledge Digital Library'. This is a negative and defensive form of protection aimed at preventing other countries from misappropriating India's traditional knowledge, but it doesn't serve the purpose of safeguarding and promoting the traditional knowledge itself.

Traditional Korean medicine and medical techniques were already far developed in the ancient Choseon Dynasty, and during the period of three kingdoms and the Goryeo Dynasty, pharmaceutical medicine was developed based on private medical experiences. Chinese medical knowledge was combined with existing medical knowledge and standardised traditional Korean medicine. During the Choseon Dynasty, independent Korean medical science appeared and developed to be what Korean medicine is today. As a result, Korea could have compiled rich traditional medical knowledge comprising of generic resources (herbs), medical books, and other various types of secret medical knowledge. Such traditional medical knowledge can be protected by using an intellectual property system, implementing a new form of legal protection, or by establishing a database, thus providing negative protection. In Korea's case, we prevent non-custodians of traditional knowledge, especially other countries from obtaining a patent by establishing a database.

III. Conclusion

With the issue of establishing a traditional knowledge database and intellectual property, the major problem lies in the fact that traditional knowledge cannot actively obtain its rights as a subject matter of protection. For this very reason, the non-holders of traditional knowledge, especially from other states, can easily obtain patent rights as opposed to the holders of the knowledge.

As a countermeasure to prevent such unlawful obtaining of patent rights, especially by other states, India's TKDL sets a good example. The primary purpose of this project is to establish a comprehensive DB on traditional knowledge, and making it searchable at any place in the world by digitising it. Thereby, the information on the database can be used as a prior art document during the process of patent examination, preventing the wrongful granting of patents.

Nevertheless, Deveinder Sharma opposes this project by arguing that there is a possibility that TKDL can be abused, thus strongly recommends this project to be halted until there is a worldwide consensus on this issue. Alternatively, he suggests the amendment of the national patent law, just as in China's case, as the best possible option to protect their nationals as of now.

Despite such criticism of creating their own justification, TKDL can no doubt send a clear warning message to potential literary pirates, and be used as powerful evidence in the patent annulment procedure. Furthermore, by allowing users to obtain relevant information in a fast and accurate manner, it can contribute to the further advancement of R&D in the field of traditional medicine, regardless of there being a possibility of abuse of the system. Therefore, India's advanced efforts to protect its traditional knowledge have many implications to Korea.

It is necessary to establish adequate management systems of rights when publicising traditional knowledge through the DB system. Therefore, legal protection on edited materials should be treated differently from the defensive protection of traditional knowledge in case of publicising it through the DB system. This is to say that, protection should be granted to the edited materials under the copyright law.

Currently, 'Chinese Acupuncture' is becoming an issue, being dubbed as a 'Traditional Korean Medicine Project', because it reflects China's ambition to gain the upper hand from traditional Korean medicine. In 2006, China attempted to inscribe 8 of its traditional medical elements, including theories

of Chinese medicine, recuperation, herbal treatment, and so on, onto the UNESCO Representative List of Intangible Cultural Heritage of Humanity. However, the scope of the elements was too broad and complicated so the inscription of these elements was postponed. Nevertheless, China again filed for acupuncture to be on the UNESCO Representative List of nominations in 2010, after breaking down the scope of acupuncture. Such a movement can be analysed as China's ambition to dominate a US $2 billion global traditional medicine market by gaining the upper hand from its rival, traditional Korean Medicine.

To counter China's movement, Korea should establish a traditional knowledge database, and attempt to secure international legitimacy on traditional Korean medicine, mainly by using traditional medical books, such as Dongui Bo Gam. At the same time, Korea should examine a way to inscribe Korean traditional medical knowledge onto UNESCO's Representative List. Furthermore, considering the fact that China is providing concentrated government assistance to promote its traditional medicine, such as the establishment of a traditional Chinese medicine museum and transmission centre, Korea should also bring forth such legal and institutional methods to promote its own traditional medicine. Methods to foster traditional Korean medicine may include providing incentives to the holders of secret medical knowledge, encouraging the trainees of their efforts to learn traditional knowledge, financially assisting the service provider of traditional Korean medicine DB.