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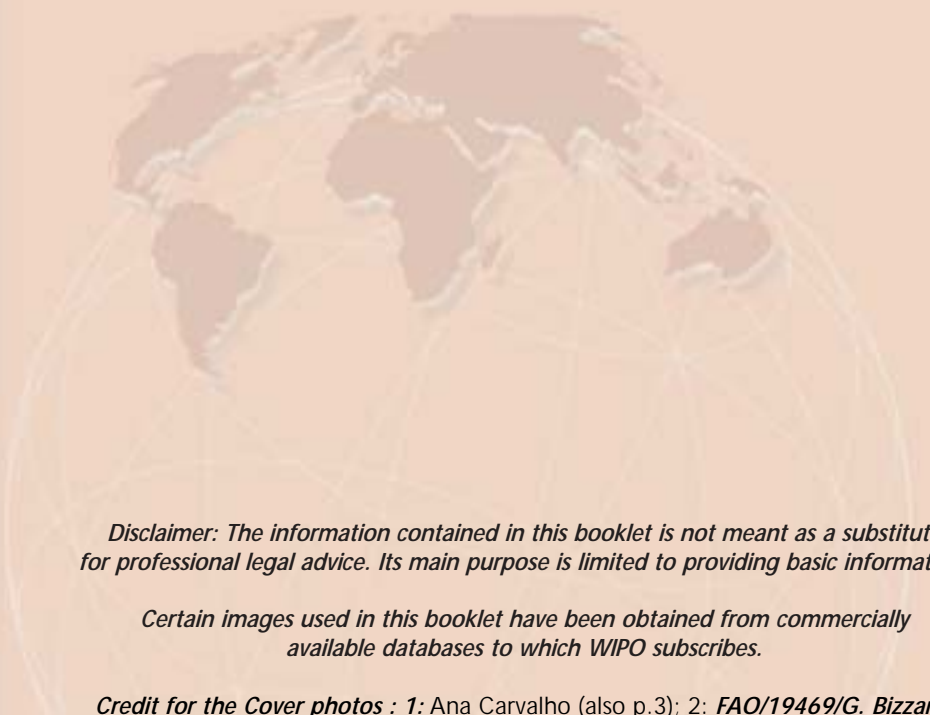



INTELLECTUAL PROPERTY AND TRADITIONAL KNOWLEDGE



Booklet n° 2

This is one of a series of Booklets dealing with intellectual property and genetic resources, traditional knowledge and traditional cultural expressions/folklore



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Traditional Knowledge: Key to a Diverse and Sustainable Future

Indigenous and local communities justly cherish traditional knowledge (TK) as a part of their very cultural identities. Maintaining the distinct knowledge systems that give rise to TK can be vital for their future well-being and sustainable development and for their intellectual and cultural vitality. For many communities, TK forms part of an holistic world-view, and is inseparable from their very ways of life and their cultural values, spiritual beliefs and customary legal systems. This means that it is vital to sustain not merely the knowledge but the social and physical environment of which it forms an integral part.

TK also has a strong practical component, since it is often developed in part as an intellectual response to the necessities of life: this means that it can be of direct and indirect benefit to society more broadly. There are many examples of important technologies being derived directly from TK. But when others seek to benefit from TK, especially for industrial or commercial advantage, this can lead to concerns that the knowledge has been misappropriated and that the role and contribution of TK holders has not been recognized and

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respected. One of the challenges posed by the modern age is to find ways of strengthening and nurturing the roots of TK, even in times of social dislocation and change, so that the fruits of TK can be enjoyed by future generations, and so that traditional communities can continue to



thrive and develop in ways consistent with their own values and interests. At the same time, TK holders stress that their TK should not be used by others inappropriately, without their consent and arrangements for fair sharing of the benefits; more generally, it leads to calls for greater respect and recognition for the values, contributions and concerns of TK holders.

A Brief Overview A Brief Overview

This kind of challenge arises in a host of immediate, practical ways. Some examples:

- a recent agreement would give traditional healers in Samoa a share of the benefits from a new AIDS drug drawing on their knowledge of the *mamala* tree;
- the Kani tribe of South India is to share in the benefits from a new sports drug that is based on their knowledge of the medicinal plant *arogyapaacha*;
- representatives of TK holders have opposed patents drawing on their TK (e.g. concerning the use of extracts from the *neem* tree, and the use of turmeric as a wound-healing agent);
- traditional ecological knowledge held by Aboriginal communities in Canada has proven to be valuable in environmental planning and resource management;
- for some communities, TK provides a pathway to social and economic development and new, more culturally appropriate forms of tourism: the Seri people of Mexico use the *Arte Seri* mark to distinguish their craftworks based on their TK and associated genetic resources, and to support a sustainable trade in these products;



- Portugal recently passed a law to protect the TK and plant varieties of Portuguese farmers, adding this to a growing collection of so called “*sui generis*” laws on TK in a range of countries around the world;
- In 2001, China granted more than 3000 patents on innovative developments within the field of Traditional Chinese Medicine (see box on p.19).

The wider significance of TK means that it arises in international discussions on a host of issues – food and agriculture; biological diversity, desertification and the environment; human rights, especially the rights of indigenous peoples; cultural diversity; and trade and economic development. TK has also moved towards the center of policy debate about intellectual property (IP). This leads to some challenging questions. Is the IP system compatible with the values and interests of traditional communities – or does it privilege individual rights over the collective interests of the community? Can IP bolster the cultural identity of indigenous and local communities, and give them greater say in the management and use of their TK? Has the IP system been used to misappropriate TK, failing to protect the interests of indigenous and local communities? What can be done – legally, practically – to

ensure that the IP system functions better to serve the interests of traditional communities? What forms of respect and recognition of TK would deal with concerns about TK and give communities the tools they need to safeguard their interests?

With these questions in mind, WIPO started to work on TK in 1998. The first step was to listen directly to TK holders, learning of the needs and expectations of some 3,000 representatives of TK-holding communities in sixty locations around the world. Their insights and perspectives still guide WIPO's work. The WIPO Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore (“IGC”) was established in 2001 as an international policy forum. WIPO's work therefore ranges from the international dimension of TK and cooperation with other international agencies, to capacity building and the pooling of practical experience in this complex area. This booklet gives an overview of this work, discusses some key concepts and describes various national approaches to protecting TK against misuse or misappropriation.



Key Concepts

Definitions and use of terms

What is traditional knowledge? Can the astonishing diversity of indigenous and local intellectual traditions and cultural heritage be bundled together into one single definition, without losing the diversity that is its lifeblood? Is it feasible or even desirable to find one form of international protection for TK? For that matter, what is it to “protect” TK: what is to be protected, and what is it to be protected from, for what purpose, and for whose benefit? These questions, important in themselves, lead to some deeper questions. What is valuable and distinctive about TK: what makes it “traditional”? How can those qualities gain greater recognition and legal protection beyond the traditional circle, indeed worldwide, but in a way that remains appropriate, useful and beneficial for the communities that maintain TK systems?

No single definition would fully do justice to the diverse forms of knowledge that are held by traditional communities; and no form of legal protection system can replace the complex social and legal systems that sustain TK within the original communities. One form of protection, but one form only,

is the application of laws to prevent unauthorized or inappropriate use of TK by third parties beyond the traditional circle. This is the IP form of protection – recognition of the need to prevent third parties from misusing TK in certain ways. This has been achieved in many different ways in national laws – not necessarily by creating property rights in TK, although this approach has been taken in some cases. A common thread has been the need to refocus existing legal laws or to create new ones to clarify and strengthen the legal constraints against various forms of misuse or misappropriation of TK.

Traditional Knowledge and Traditional Cultural Expressions/Folklore

This form of protection focuses on the **use** of knowledge such as traditional technical know-how, or traditional ecological, scientific or medical knowledge. This encompasses the content or substance of traditional know-how, innovations, information, practices, skills and learning of TK systems such as traditional agricultural, environmental or medicinal knowledge. These forms of knowledge can be associated with traditional cultural expressions (TCEs) or expressions of folklore, such as songs, chants, narratives, motifs and designs. A traditional tool may embody TK but also may be seen as a cultural expression in itself by virtue of its

design and ornamentation. This means that for many communities TK and its form of expression are seen as an inseparable whole.

This has led to calls for policymakers to respect the holistic context of TK and TCEs, and to recognize the linkages between these aspects of the life and culture of traditional communities. For example, the same body of customary law is likely to apply to both TK and TCEs.

When it comes to providing specific legal protection beyond the traditional community against misuse by third parties, in practice it has been found that some legal tools are most useful in preventing third

parties from misappropriating TK. Other legal tools are more effective against misuse of TCEs. Protection of TCEs/Folklore also touches directly on other policy areas, such as cultural and artistic policy. It is a policy and legal domain that is in practice distinct from, but related to, protection of TK. A separate booklet (*“Intellectual Property and Traditional Cultural Expressions/Folklore”*, WIPO Publication No. 913 E) therefore deals with the complementary protection of TCEs, and this booklet focuses on the protection of TK as such – that is to say, the content or substance of knowledge. This reflects the diversity of choices made in many countries: frequently TK and TCEs are protected through distinct legal mechanisms; in some cases, the two aspects are protected under the one comprehensive law.



The hoodia plant



Some examples of traditional knowledge

- Thai traditional healers use *plao-noi* to treat ulcers
- The San people use *hoodia* cactus to stave off hunger while out hunting
- Sustainable irrigation is maintained through traditional water systems such as the *aflaj* in Oman and Yemen, and the *qanat* in Iran
- Cree and Inuit maintain unique bodies of knowledge of seasonal migration patterns of particular species in the Hudson Bay region
- Indigenous healers in the western Amazon use the *Ayahuasca* vine to prepare various medicines, imbued with sacred properties.

The “tradition” in TK

What makes knowledge “traditional” is not its antiquity: much TK is not ancient or inert, but is a vital, dynamic part of the contemporary lives of many communities today. It is a form of knowledge which has a traditional link with a certain community: it is knowledge which is developed, sustained and passed on within a traditional community, and is passed between generations, sometimes through specific customary systems of knowledge transmission. A community might see TK as part of their cultural or spiritual identity. So it is the relationship with the community that makes it “traditional”. TK is being created every day, and evolves as individuals and communities respond to the challenges posed by their social environment. This contemporary aspect is further justification for legal protection. It is not only desirable to develop a protection policy that documents and preserves TK created in the past, which may be on the brink of disappearance; it is also important to consider how to respect and sustain the development and dissemination of further TK that arises from continuing use of TK systems.

While the options and the technicalities of protection systems are diverse, a common thread is that protection should principally benefit the holders of the knowledge, in

particular the indigenous and traditional communities and peoples that develop, maintain and identify culturally with TK and seek to pass it on between generations, as well as recognized individuals within these communities and peoples. Representatives of these communities often stress that the approach to protection should take account of their customary laws and practices, rather than imposing an unworkable mechanism that takes no account of their needs and expectations.

Some TK is closely associated with plants and other biological resources, such as medicinal plants, traditional agricultural crops and animal breeds. TK often provides researchers with a lead to isolate valuable active compounds within biological resources. Such genetic and biological resources are linked to TK and traditional practices through the utilization and conservation of the resource, which has often occurred over generations, and through their common use in modern scientific research. The protection of TK is often closely linked to protection of biodiversity, in particular under the Convention on Biological Diversity (CBD). A separate booklet in this series (*“Intellectual Property and Genetic Resources”*) will deal in more detail with genetic resources.

In **South India** the medicinal knowledge of the Kani tribes led to the development of a sports drug named Jeevani, an anti-stress and anti-fatigue agent, based on the herbal medicinal plant **arogyapaacha**. Indian scientists at the Tropical Botanic Garden and Research Institute (TBGRI) used the tribal know-how to develop the drug. The knowledge was divulged by three tribal members, while the customary rights to the practice and transfer of certain traditional medicinal knowledge within the Kani tribes are held by tribal healers, known as **Plathis**. The scientists isolated 12 active compounds from **arogyapaacha**, developed the drug Jeevani, and



The arogyapaacha plant from which the Jeevani drug was developed and subsequently patented by the Indian research institute TBGRI.

filed two patent applications on the drug. The technology was then licensed to the Arya Vaidya Pharmacy, Ltd., an Indian pharmaceutical manufacturer pursuing the commercialization of Ayurvedic herbal formulations. A trust fund was established to share the benefits arising from the commercialization of the TK-based drug.



Kani tribal member identifies components of the arogyapaacha plant



JEEVANI is a product of the Arya Vaidya Pharmacy which is an Indian company.

What are the challenges confronting TK holders?

TK holders face various difficulties. In some cases, the very survival of the knowledge is at stake, as the cultural survival of communities is under threat. External social and environmental pressures, migration, the encroachment of modern lifestyles and the disruption of traditional ways of life can all weaken the traditional means of maintaining or

passing knowledge on to future generations. There may be a risk of losing the very language that gives the primary voice to a knowledge tradition and the spiritual world-view that sustains this tradition. Either through acculturation or diffusion, many traditional practices and associated beliefs and knowledge have been irretrievably lost. Thus, a primary need is to preserve the knowledge that is held by elders and communities throughout the world.

Another difficulty facing TK holders is the lack of respect and appreciation for such knowledge. For example, when a traditional healer provides a mixture of herbs to cure a sickness, the healer may not isolate and describe certain chemical compounds and



describe their effect on the body in the terms of modern biochemistry, but the healer has, in effect, based this medical treatment upon generations of clinical trials undertaken by healers in the past, and on a solid empirical understanding of the interaction between the mixture and human physiology. Thus, sometimes the true understanding of the value of TK may be overlooked if its scientific and technical qualities are considered from a narrow cultural perspective. In fact, many consumers in Western countries are turning to treatments based on TK, on the understanding that such “alternative” or “complementary” systems are soundly based on empirical observation over many generations.

Yet another problem confronting TK holders is the commercial exploitation of their knowledge by others, which raises questions of legal protection of TK against misuse, the role of prior informed consent, and the need for equitable benefit-sharing. Cases involving natural products all bear evidence to the value of TK in the modern economy. A lack of experience with existing formal systems, limited economic resources, cultural factors, lack of a unified voice, and, in many cases, a lack of clear national policy concerning the utilization and protection of TK, results in these populations often being placed at a decided disadvantage in using existing IP mechanisms. At the same time, the lack of understanding and clear rules concerning the appropriate use of TK creates areas of uncertainty for those seeking to use TK in research and development of new products. There is a common need for well-established, culturally appropriate and predictable rules both for the holders and legitimate users of TK.

A further challenge is to address the international dimension of the protection of TK and benefit-sharing for associated genetic resources, while learning from existing national experiences. Only through the participation of communities and countries from all regions can this

work go forward to produce effective and equitable outcomes that are acceptable to all stakeholders.

These challenges are diverse and far-reaching, and involve many areas of law and policy, reaching well beyond even the most expansive view of intellectual property. Many international agencies and processes are engaged on these and related issues. But responses to these problems should be coordinated and consistent, and need to provide mutual support for broader objectives. For instance, IP protection of TK should recognize the objectives of the CBD

concerning conservation, sustainable use and equitable benefit-sharing of genetic resources. In general, the preservation and protection against loss and degradation of TK should work hand-in-hand with the protection of TK against misuse and misappropriation. So when TK is recorded or documented with a view to preserving it for future generations, care needs to be taken to ensure that this act of preservation doesn't inadvertently facilitate the misappropriation or illegitimate use of the knowledge.



Oryza longistaminata grows in the marshes and river banks of Mali.

Oryza longistaminata is a wild rice growing in **Mali**. Local farmers considered it a weed, but the migrant **Bela** community developed detailed knowledge of its agricultural value. The Bela community developed systematic understanding of the distinct properties of this and other kinds of rice, and recognized that *oryza longistaminata* has stronger resistance to diseases such as rice blight than many other local kinds of

rice. Guided by this traditional knowledge, researchers subsequently isolated and cloned a gene named Xa21, which conferred this resistance in rice plants.

What kind of legal protection for TK?

The protection of TK is important for communities in all countries, particularly in developing and least developed countries. First, TK plays an important role in the economic and social life of those countries. Placing value on such knowledge helps strengthen cultural identity and the enhanced use of such knowledge to achieve social and development goals, such as sustainable agriculture, affordable and appropriate public health, and conservation of biodiversity. Second, developing and least developed countries are implementing international agreements that may affect how knowledge associated with the use of genetic resources is protected and disseminated, and thus how their national interests are safeguarded. Patterns of ownership of TK, cultural, scientific and commercial interest in TK, the possibilities for beneficial partnerships in research and development, and the risk of the misuse of TK, are not neatly confined within national boundaries, so that some degree of international coordination and cooperation is essential to achieve the goals of TK protection.

A comprehensive strategy for protecting TK should therefore consider the community, national, regional and international dimensions. The stronger the integration and coordination between each level, the more likely the overall effectiveness. Many communities, countries and regional organizations are working to address these levels respectively. National laws are currently the prime mechanism for achieving protection and practical benefits for TK holders. For instance, Brazil, Costa Rica, India, Peru, Panama, the Philippines, Portugal, Thailand and the United States of America have all adopted *sui generis* laws that protect at least some aspect of TK (*sui*



generis measures are specialized measures aimed exclusively at addressing the characteristics of specific subject matter, such as TK). A WIPO background paper entitled “*Consolidated analysis of the legal protection of traditional knowledge*” analyses these laws in more detail. In addition, a number of regional



organizations, such as in the South Pacific and in Africa, have been working on defining the specific rights in TK and how to administer them. Various TK holders and other stakeholders in different countries have already found existing IP rights useful and their TK protection strategies make some use of the IP system.

While there are diverse national and regional approaches to protection, reflecting the diversity of TK itself and its social context, some common elements arise in policy debate. For instance, it is stressed that protection should reflect the aspirations and expectations of TK holders and should promote respect for indigenous and customary practices, protocols and laws as far as possible. Several *sui generis* measures, as well as conventional IP law, have recognized elements of such customary law within a broader framework of protection. Economic aspects of development need to be addressed and the effective participation by TK holders is also important, in line with the principle of prior informed consent. TK protection should also be affordable, understandable and accessible to TK holders. The view is widely voiced that holders of TK should be entitled to fair and equitable sharing of benefits arising from the use of their knowledge.

The international legal framework, within and beyond the IP system, is also an important consideration. Where TK is associated with genetic resources, the distribution of benefits should be consistent with measures established in accordance with the Convention on Biological Diversity (CBD), providing for sharing of benefits arising from the utilization of the genetic resources. Other important international instruments include the International Treaty on Plant Genetic Resources for Food and Agriculture of the Food and Agriculture Organization (FAO), the International Union for the Protection of New Varieties of Plants (UPOV), and the UN Convention to Combat Desertification (UNCCD). Other areas of international law, notably human rights and cultural policy, are also part of the context for protection of TK.

Forms of protection

Two key demands on the IP system in particular have arisen in policy debate: first, the call for recognition of the rights of TK holders relating to their TK, and, second, concerns about the unauthorized acquisition by third parties of IP rights over TK. Two forms of IP-related protection have therefore been developed and applied:

- positive protection: giving TK holders the right to take action or seek remedies against certain forms of misuse of TK; and
- defensive protection: safeguarding against illegitimate IP rights taken out by others over TK subject matter.

Stakeholders have stressed that these two approaches should be undertaken in a complementary way. A comprehensive approach to protection in the interests of TK holders is unlikely to rely totally on one form or the other.



The international policy framework

TK protection involves important policy issues beyond the domain of IP. This is a brief overview of the work currently undertaken by various international bodies and processes.

Environment

- ➔ The **United Nations Environment Programme** (UNEP) provides leadership and encourages partnerships in caring for the environment by inspiring, informing and enabling nations and people to improve their quality of life without compromising that of future generations. In the framework of its Capacity-building Initiative, UNEP works to observe, monitor and assess the state of the global environment, and improve the scientific understanding of how environmental change occur, and how such change can be managed by action-oriented national policies and international agreements [for more information, see www.unep.org].
- ➔ In **1992**, the United Nations Conference on Environment and Development was held in Rio de Janeiro under the auspices of UNEP and led to the Rio Declaration on Environment and Development establishing the **Convention on Biological Diversity** (CBD) to promote the conservation of biological diversity, the sustainable use of its components

and the fair and equitable sharing of benefits arising out of the utilization of genetic resources. Provisions on the respect and recognition of TK are a key element of the CBD, and important work is under way within the CBD framework to implement these provisions [see www.biodiv.org].

- ➔ Concluded in **1994**, the **UN Convention to Combat Desertification** (UNCCD) provided for the protection of traditional knowledge in the ecological environment as well as the sharing of benefits arising from any commercial utilization of this TK [see www.unccd.int].

Health

- ➔ In **1978**, the World Health Organization (WHO) first recognized the relevance of traditional medicine as a source of primary health care in the **Primary Health Care Declaration of Alma Ata**. The topic has been addressed since 1976 by the WHO Traditional Medicine Team, including through the development of the WHO Traditional Medicine Strategy [see www.who.int].

Trade and Development

- ➔ While the World Trade Organization (WTO) **Agreement on Trade-Related Aspects of Intellectual Property Rights** (TRIPS) has no specific provisions

on the issue of traditional knowledge, the relationship between TK and TRIPS standards has been a subject of active debate and a number of proposals. The Doha Declaration adopted, at the Doha WTO Ministerial Conference, in 2001, instructed the TRIPS Council to examine *inter alia* the protection of TK and folklore [see www.wto.org].

- ➔ In **2000**, the United Nations Conference on Development (UNCTAD) in its Plan of Action stressed the importance of studying ways to protect traditional knowledge, innovations and practices of local and indigenous communities and enhance cooperation on research and development on technologies associated with the sustainable use of biological resources. At its Eleventh Session, in 2004, UNCTAD adopted the Sao Paulo Consensus, which referred to “lack of recognition of intellectual property rights for the protection of traditional knowledge” as an issue in assuring development gains for the international trading system and trade negotiations [see www.unctad.org].

- ➔ The United Nations Development Programme (UNDP) conducts extensive capacity building work on TK, including on aspects of legal protection and equitable benefit-sharing. [see www.undp.org].

Food and Agriculture

- In **1983** the UN Food and Agriculture Organization (FAO) adopted the ***International Undertaking on Plant Genetic Resources*** (IUPGR), as a non-binding instrument in order to ensure that plant genetic resources for food and agriculture will be preserved, explored and made available for plant breeding and scientific purposes. In 1989 the FAO Conference recognized Farmers' Rights and in 1991 it agreed that Farmers' Rights would be implemented through an international fund for plant genetic resources. In 1993, the FAO Conference decided to renegotiate the International Undertaking as a binding international instrument in harmony with the CBD and for the realization of Farmers' Rights. After seven years of negotiations, the FAO Conference adopted the ***International Treaty on Plant Genetic Resources for Food and Agriculture*** which provides in Part III for the recognition of farmers' rights, including "the protection of traditional knowledge relevant to plant genetic resources for food and agriculture" [see www.fao.org].

Indigenous Rights

- Since **1993**, the Declaration on the Rights of Indigenous Peoples has been under negotiation. The draft refers to the entitlement of indigenous peoples in relation to their cultural and intellectual property.

Intellectual Property

- During **1998** and **1999** WIPO conducted ***fact-finding missions*** in 28 countries in order to identify the IP-related needs and expectations of traditional knowledge holders (FFMs). Indigenous and local communities, non-governmental organizations, governmental representatives, academics, researchers and private sector representatives were among the more than 3000 persons consulted on these missions. The results of the missions were published by WIPO in a report entitled "Intellectual Property Needs and Expectations of Traditional Knowledge Holders: WIPO Report on Fact-finding Missions (1998- 1999)" (FFM Report).
- In late **2000**, the ***WIPO Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore*** (the Committee) was established. The Committee has made substantial progress in addressing both policy and



practical linkages between the IP system and the concerns of practitioners and custodians of traditional knowledge. Various studies have formed the basis for ongoing international policy debate and assisted in the development of practical tools. Drawing on this diverse experience, the Committee is moving towards an international understanding of the shared objectives and principles that should guide the protection of TK. All these materials are available from the Secretariat at WIPO and at <http://www.wipo.int/tk/en/tk/index.html>

- ➔ As part of its broader program on TK, WIPO also organizes workshops and seminars, expert and fact-finding missions, commissions case-studies, and carries out and provides legislative drafting, advice, education and training.
- ➔ The *International Union for the Protection of New Varieties of Plants* (UPOV) Convention provides a *sui generis* form of IP protection specifically adapted for plant breeding, with the aim of encouraging the development of new plant varieties. This system of protection provides for a “breeder’s exemption”: no restriction applies to acts done for the purpose of breeding other varieties, so as to maximize the availability of genetic resources for plant breeders and thereby maximize breeding

progress for the benefit of society. The “farmer’s privilege” concerning farm-saved seed is an optional benefit-sharing mechanism, under which UPOV Member States may permit farmers to use part of their harvest of a protected variety for the planting of a further crop on their own farms. The “distinctness” requirement under the UPOV Convention provides that protection shall only be granted after an examination to determine if a variety is clearly distinguishable from all other varieties, whose existence is a matter of common knowledge, regardless of their geographical origin. This provides a legal basis for defensive protection in relation to existing plant varieties. Under the UPOV system, only the person, who may for example be a farmer, who breeds a new plant variety can claim protection for that variety [see www.upov.int].

- ➔ Work on traditional knowledge protection is also continuing elsewhere in the United Nations system. For instance, the United Nations University has issued a report on “The Role of Registers and Databases in the Protection of TK”.



Positive Protection – Recognition of IP Rights in TK

Diversity is the very essence of TK systems, precisely because they are so closely intertwined with the cultural identity of many diverse communities. It is therefore not surprising that practical experience so far with the protection of TK has shown that no single template or comprehensive “one-size-fits-all” solution is likely to suit all the national priorities and legal environments, let alone the needs of traditional communities in all countries. Instead, effective protection may be found in a coordinated “menu” of different options for protection. This could perhaps be underpinned by an internationally agreed set of common objectives and core principles that could form part of the international legal framework. The key is to provide TK holders with an appropriate choice of forms of protection, to empower them to assess their interests and choose their own directions for the protection and use of their TK, and to ensure there is adequate capacity to carry through protection strategies.

The way in which a protection system is shaped and defined will depend to a large extent on the objectives it is intended to serve. Protection of TK, like protection of IP in general, is not undertaken as an end in

itself, but as a means to broader policy goals. The kind of objectives that TK protection is intended to serve include:

- Recognition of value and promotion of respect for traditional knowledge systems
- Responsiveness to the actual needs of holders of TK
- Repression of misappropriation of TK and other unfair and inequitable uses
- Protection of tradition-based creativity and innovation
- Support of TK systems and empowerment of TK holders
- Promotion of equitable benefit-sharing from use of TK
- Promotion of the use of TK for a bottom-up approach to development

The diversity of already existing TK protection systems and the diversity of the needs of TK holders require a degree of flexibility in how the objectives are implemented at the national level. A similar situation prevails in other branches of IP law as existing IP instruments give countries flexibility in how they make protection available.

The options for positive protection include existing IP laws and legal systems (including the law of unfair competition), extended or adapted IP rights specifically focussed on TK (*sui generis* aspects of IP laws), and new, stand-alone *sui generis* systems which give rights in TK as such. Other non-IP options can form part of the overall menu, including trade practices and labeling laws, the law of civil liability, the use of contracts, customary and indigenous laws and protocols, regulation of access to genetic resources and associated TK, and remedies based on such torts as unjust enrichment, rights of publicity, and blasphemy. Each of these has been used to some extent to protect various



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aspects of TK – some examples of the use of IP rights are discussed in the WIPO publication *“Consolidated analysis of the legal protection of traditional knowledge”*. For a brief practical introduction to trade marks and designs, see *“Making a Mark”*, WIPO publication No. 900E and *“Looking Good”*, WIPO publication No. 498E. Future guides in this same series will cover patents and copyright.

On the ground, TK holders already use an array of legal tools to safeguard their interests, drawing on IP laws and other areas of law as needed. This requires access to skills and resources. A number of NGOs are stepping in to support local communities in contractual negotiations and IP strategies (including on TK) concerning access to genetic resources and traditional knowledge. For example, the Centre for Research-Information-Action in Africa - Southern Africa Development and Consulting (CRIA SA-DC) assists local communities in Namibia in the sustainable exploitation of natural botanical resources, and to implement appropriate IP strategies, for instance on an indigenous fruit project, to achieve community development goals.

Use of existing intellectual property laws

The policy debate about TK and the IP system has underlined the limitations of existing IP laws in meeting all the needs and expectations of TK holders. Even so, existing IP laws have been successfully used to protect against some forms of misuse and misappropriation of TK, including through the laws of patents, trademarks, geographical indications, industrial designs, and trade secrets. However,

certain adaptations or modifications to IP law may be needed to make it work better. For example, TK is often held collectively by communities, rather than by individual owners – this is often cited as a drawback in protecting TK. Yet it is possible to form associations, community corporations or similar legal bodies to act on behalf of the community. In some countries, government agencies take an active role acting in trust for the community. Some forms of protection, such as remedies against unfair competition and breach of confidence, do not require specific right holders. Communities' concerns about TK typically span generations, a much longer time-frame than the duration of most IP rights. But some IP rights, especially those that rely on a distinctive reputation, can continue indefinitely. There are also concerns that the cost of using the IP system is a particular obstacle for TK holders. This has led some to explore capacity building, evolution of legal concepts to take greater account of TK perspectives, the use of alternative dispute resolution, and a more active role for government agencies and other players.

Existing IP rights have been used in the following ways:

- Unfair competition and trade practices laws: these allow for action to be taken against false or misleading claims that a product is authentically indigenous, or has been produced or endorsed by, or otherwise associated with, a particular traditional community. For instance, a company has been legally barred from describing various hand-painted products as “certified authentic” and “Aboriginal art” when they were not painted by Aboriginal people and had not undergone any certification process.
- Patents: when practitioners innovate within the traditional framework, they have been able to use the patent system to protect their innovations. For example, in 2001 China granted 3300 patents for innovations within the field of Traditional Chinese Medicine (see box on p.19). Equally, systems have been developed to ensure that illegitimate patent rights are not granted over TK subject matter that is not a true invention (see “defensive protection” below).
- Distinctive signs (trade marks, collective marks, certification marks, geographical indications): traditional signs, symbols and terms associated



(54) Title: A KIND OF CHINESE TRADITIONAL MEDICINE HAVING EFFICACY OF REDUCING BLOOD-FAT

(54) 发明名称: 一种降血脂中药

(57) Abstract: The invention relates to a drug treating hyperlipodemia, especially relates to a Chinese traditional medicine preparation, which can nourish Yin to clear away liver-fire, and promote blood circulation and stimulate the menstrual flow, especially can treat hyperlipodemia due to Yin-deficiency of liver and kidney and blood stasis. The preparation of the invention can be prepared by mixing and extracting five Chinese herbs which are Sickle senna seed (*Semen Cassiae*), fruit of Chinese wolfberry (*Fructus Hoveniae*), White mulberry fruit (*Fructus Mori*), fruit of hawthorn (*Fructus Crataegi*) and Safflower (*Flos Carthami*).

(57) 摘要

本发明涉及一种治疗高脂血症的药物,特别是滋阴清肝、活血通络,主治肝肾阴虚兼血瘀型高脂血症的中药复方药物,本发明的中药复方药物制剂由决明子、枸杞子、桑椹、山楂、红花五味中药经提取加工制成。

An international application under the Patent Cooperation Treaty (PCT), No. 2004/052382 A 1, on the use of traditional chinese medicine (TCM) to reduce blood-fat, which claims an invention that combines teaching of TCM with modern medicine

with TK have been protected as marks, and have been safeguarded against third parties' claims of trade mark rights. For instance, the Seri people of Mexico, faced with competition from mass production, registered the *Arte Seri* trademark to protect authentic ironwood products that are produced by traditional methods from the *Olneya tesota* tree. Conservation of this unique species of tree was also a factor in protecting the trademark. Also in Mexico, the appellations of origin *olinalá* and *tequila* are used to protect lacquered wooden products and the traditional spirit derived from the blue

agave plant, both products of traditional knowledge that derive their unique characteristics also from the indigenous genetic resources of these localities.

- The law of confidentiality and trade secrets: this has been used to protect non-disclosed TK, including secret and sacred TK. Customary laws of communities often require that certain knowledge be disclosed only to certain recipients. Courts have awarded remedies for breach of confidence when such customary laws are violated. A group of North American indigenous communities, the Tualip Tribes, have

developed Storybase, a digital collection of their TK. Some of the TK may be disclosed for patent review. Community leaders identify other information as for use exclusively within the Tulalip community, according to customary law; the latter is protected as undisclosed information. Digital repatriation projects that involve the restoration of indigenous knowledge to original communities often need to apply confidentiality carefully to comply with customary law constraints on access to the knowledge.

Publication of sacred-secret materials has been successfully prevented using a breach of confidence action. In *Foster v Mountford* members of the Pitjantjatjara Council obtained an interlocutory injunction, on the basis of breach of confidence, to restrain the publication of a book entitled *Nomads of the Australian Desert*. The plaintiffs successfully argued that the book contained information that could only have been supplied and exposed in confidence to the anthropologist Dr Mountford, thirty-five years ago. The plaintiffs also successfully argued that the “revelation of the secrets contained in the book to their women, children and uninitiated men may undermine the social and religious stability of their hard-pressed community”.

Case Study from “Stopping the Rip-offs”, Australian Attorney-General’s Department at www.ag.gov.au

Adaptations of existing IP through *sui generis* measures

A number of countries have adapted existing intellectual property systems to the needs of TK holders through *sui generis* measures for TK protection. These take different forms. A Database of Official Insignia of Native American Tribes prevents others from registering these insignia as trademarks in the United States of America. New Zealand’s trade mark law has been amended to exclude trademarks that cause offence, and this applies especially to Indigenous Maori symbols. India’s Patent Act has been amended to clarify the status of TK within patent law. The Chinese State Intellectual Property Office has a team of patent examiners specializing in traditional chinese medicine.

Use of *sui generis* exclusive rights

In some communities and countries, the judgement has been made that even adaptations of existing IP rights systems are not sufficient to cater to the holistic and unique character of TK subject-matter. This has led to the decision to protect TK through *sui generis* rights. What makes an IP system a *sui generis* one is the modification of some of its features so as to properly accommodate the special

characteristics of its subject matter, and the specific policy needs which led to the establishment of a distinct system.

Here are a few national experiences in using *sui generis* IP rights for protecting TK:

- The *sui generis* regime of Peru was established by Law No. 27, 811 of 2002, whose objectives are to protect TK, to promote fair and equitable distribution of benefits, to ensure that the use of the knowledge takes place with the prior informed consent of the indigenous peoples, and to prevent misappropriation. Protection is afforded to collective knowledge of indigenous peoples associated to biological resources. The law grants indigenous peoples the right to consent to the use



of TK. The law also foresees the payment of equitable compensation for the use of certain types of TK into a national Fund for Indigenous Development or directly to the TK holders.

- The Biodiversity Law No. 7788 of Costa Rica aims at regulating access to TK. It provides for the equitable distribution to TK holders of the benefits arising from the use of TK. Two scopes of subject matter are defined in the Law: first, TK to which the Law regulates access, and, second, TK for which the Law provides exclusive rights. What will be the term and scope of *sui generis* community intellectual rights and who will be the title holder is determined by a participatory process with indigenous and small farmer communities to be defined by the National Commission for the Management of Biodiversity.
- The objective of Portugal's *sui generis* Decree-Law No. 118, of April 20, 2002 is the registration, conservation and legal custody of genetic resources and TK. The Law provides protection against the "commercial or industrial reproduction and/or use" of TK developed by local communities, collectively or individually.

- The Act on Protection and Promotion of Traditional Thai Medicinal Intelligence, B. E. 2542 protects “formulas” of traditional Thai drugs and “texts on traditional Thai medicine”. In general, “traditional Thai medicinal intelligence” means “the basic knowledge and capability concerned with traditional Thai medicine”. The Act confers the right holder – “those who have registered their intellectual property rights on traditional Thai medical intelligence under the Act” – “the sole ownership on the production of the drug and research and development”.
- how are the rights lost or how do they expire?

For more detailed information on these key issues, please refer to WIPO publication “*Consolidated analysis of the legal protection of traditional knowledge*”. The IGC has worked extensively on both the protection of TK through existing IP systems, and the development and application of *sui generis* systems. See IGC working documents such as WIPO/GRTKF/IC/5/8, WIPO/GRTKF/IC/5/INF/2 and INF/4, WIPO/GRTKF/IC/6/4, WIPO/GRTKF/IC/7/5 and WIPO/GRTKF/IC/7/6.

When policymakers seek to develop a *sui generis* system for the protection of TK, they generally need to consider the following key issues:

- what is the (policy) objective of the protection?
- what subject matter should be protected?
- what criteria should this subject matter meet to be protected?
- who are the beneficiaries of protection?
- what are the rights?
- how are the rights acquired?
- how are the rights administered and enforced?





Other legal concepts for the protection of TK

When policymakers explore suitable legal mechanisms to protect TK against misappropriation, they consider a broader range of legal concepts apart from the kind of exclusive rights used in most forms of IP law. Several of these alternative concepts are briefly described here:

Prior Informed Consent (PIC)

According to the principle of prior informed consent (PIC), TK holders should be fully consulted before their knowledge is accessed or used by third parties and an agreement should be reached on appropriate terms; they should also be fully informed about the consequences of the intended use. The agreed scope of use may be set out in contracts, licenses or agreements, which would also specify how benefits arising from the use of the TK should be shared. The principle of PIC concerning access to genetic resources is one of the cornerstones of the CBD (see text box p.12). Given the close relationship between genetic resources and some forms of TK, this same principle is also used in a number of national laws concerning access to and use of TK.

Equitable benefit-sharing

The idea of an equitable balancing of interests is common to many legal systems. In IP law, this is often phrased in terms of a balancing of the interests of right holders and the general public. The fair and equitable sharing of benefits from the use of genetic resources is one of the objectives of the CBD, and the CBD also encourages equitable sharing of benefits from the use of certain forms of TK. Thus the principle of equitable benefit-sharing is found in a number of national laws governing access and use of TK, especially when TK is associated with genetic resources. According to this principle, the TK holders would receive an equitable share of the benefits that arise from the use of the TK, which may be expressed in terms of a compensatory payment, or other non-monetary benefits. An entitlement to equitable benefit-sharing may be particularly appropriate in situations where exclusive property rights are considered inappropriate.

Benefit-sharing and TK in Samoa

Traditional healers of **Samoa** were recently acknowledged in a benefit-sharing agreement concerning the development of prostratin, an anti-AIDS compound derived from the Samoan native **mamala tree** (*homalanthus nutans*). Prostratin forces the HIV out of reservoirs in the body, thus allowing anti-retroviral drugs to attack it. The bark of the **mamala** has been used by traditional healers to treat hepatitis, among other medicinal uses of the tree. This traditional knowledge guided researchers in their search for valuable therapeutic compounds. Reportedly, revenues from the development of prostratin will be shared with the village where the compound was found and with the families of the healers who helped discover it. Revenues will also be applied to further HIV/AIDS research. It is also proposed to license the prostratin research to drug makers so that the resultant drugs are made available to developing countries for free, at cost, or at a nominal profit.

Oryza longistaminata
growing near a Bela
Community village



Benefit-sharing and TK in Mali

The traditional agricultural knowledge that led to the identification of the valuable qualities of **Oryza longistaminata** also facilitated the identification of the gene that conferred disease resistance (see text box on p. 9). When this gene was isolated and patented by the University of California at Davis, an agreement was struck to provide for benefit-sharing with the source country. A Genetic Resource Recognition Fund (GRRF) was established to share with the stakeholders in **Mali** and other developing countries the benefits arising from the commercial utilization of the patented gene. The user of technology is required to pay a certain percentage of sales of products into the GRRF for a specified number of years. The Fund is intended to provide fellowships to agriculture students and researchers from Mali and other countries where the wild rice is found, so as to build capacity in the country providing the resource. WIPO consulted with the Bela and the farming communities for a case study on this use of TK: see *“WIPO-UNEP Study on the role of intellectual property rights in the sharing of benefits arising from the use of biological resources and associated traditional knowledge” (WIPO Publication No. 769E)*.

Unfair competition

International IP standards have long required the suppression of unfair competition: this is defined as “any act of competition contrary to honest practices in industrial or commercial matters”, and includes various acts that mislead the public or cause confusion. Unfair competition law has been used as a potential basis for protection of integrated circuit layout designs, geographical indications, undisclosed information and test data, and phonograms. It has also been discussed and used as a potential legal basis for protecting TK against various forms of unfair commercial use.

Respect for customary laws and practices

Customary laws, protocols and practices often define how traditional communities develop, hold and transmit TK. For example, certain sacred or secret TK may only be permitted to be disclosed to certain initiated individuals within an Indigenous community. Customary laws and practices may define custodial rights and obligations over TK, including obligations to guard it against misuse or improper disclosure; they may determine how TK is to be used, how benefits should be shared, and how disputes are to be settled, as well as many other aspects of the preservation, use and exercise of knowledge.



Preparation of Oryza longistaminata for food consumption, Mali

For example, in North America, the inheritance and transfer of “medicine bundles” within or between families is accompanied by the transmission of traditional medical knowledge and certain rights to practice, transmit and apply that knowledge. The ownership of the physical bundle is often attached to exclusive rights to exploit the products and processes associated with the TK that the bundle signifies.

As their TK is increasingly of interest to those beyond the traditional context, TK holders have called for their customary laws, practices and beliefs to be recognized and respected by those seeking to use their TK. For many representatives of traditional communities, this is a cornerstone of appropriate forms of protection. This has led to consideration of a range of ways of respecting customary laws and practices within other legal mechanisms, including within conventional IP systems.



Defensive Protection – Safeguarding against Illegitimate IP Rights over TK

Defensive Protection – Safeguarding against Illegitimate IP Rights over TK

TK is protected “defensively” by steps that prevent third parties from obtaining or exercising invalid IP rights over the TK. Defensive protection can be valuable and effective in blocking illegitimate IP rights, but it does not stop others from actively using or exploiting TK. Some form of positive protection is needed to prevent unauthorized use. This is why a comprehensive approach to protection needs to consider positive and defensive protection as two sides of the same coin. For instance, publishing TK as a defensive measure may block others from patenting that TK, but it can also make the knowledge more accessible and put it in the public domain – this can, ironically, make it easier for third parties to use the knowledge against the wishes of the TK holders.

The main focus of defensive protection measures has been in the patent system. Defensive protection aims at ensuring that existing TK is not patented by third parties – ideally, by ensuring that relevant TK is taken fully into account when a patent is examined for its novelty and inventiveness.

Normally, a claimed invention in a patent application is assessed against the so-called “prior art” – the defined body of knowledge that is considered relevant to the validity of a patent. For example, if TK has been published in a journal before the applicable date of a patent application, it is part of the relevant prior art, and the application cannot validly claim that TK as an invention – the invention would not be considered novel. In recent years, concern has been expressed that TK should be given greater attention as relevant prior art, so that patents are less likely to cover existing publicly disclosed TK.



TK and environmental planning

The Nunavut Planning Commission (NPC) has been mapping wildlife populations, human use and areas of archaeological significance while examining land use issues. This mapping work combines the TK of the Inuit with the latest computer mapping technology. The database resulting from this work includes the Nunavut Environmental Database (NED), which is a subset of the Arctic Institute of North America's ASTIS database (Arctic Science and Technology Information System). NED has been prepared for the Nunavut Planning Commission by selecting ASTIS records about Nunavut. NPC has made the Nunavut Environmental Database available on the Internet for search and retrieval. Practical information on intellectual property implications and technical modalities of such public disclosure was required in light of the NPC's plans to develop a comprehensive documentation strategy for all TK in Nunavut and possible incorporation into databases.



Defensive protection of TK has two aspects:

- a legal aspect: how to ensure that the criteria defining relevant prior art apply to the TK – for example, this could mean ensuring that orally disclosed information must be taken into account (since many important bodies of TK are normally transmitted and disseminated by oral means)
- a practical aspect: how to ensure that the TK is actually available to search authorities and patent examiners, and is readily accessible – for example, this

can ensure that it is indexed or classified, so that it is likely to be found in a search for relevant prior art.

The broad development underlying this issue is that, as the reach of the global intellectual property system in the global information society extends to new stakeholders, such as indigenous and local communities, their knowledge base, including in particular their TK, constitutes an increasingly relevant body of prior art the effective identification of which is of increasing importance for the functioning of the IP system.



TK and defensive protection: the turmeric patent

United States Patent 5,401,504 was initially granted with a main claim directed at ‘a method of promoting healing of a wound in a patient, which consists essentially of administering a wound-healing agent consisting of an effective amount of turmeric powder to said patient.’ The patent applicants acknowledged the known use of turmeric in traditional medicine for the treatment of various sprains and inflammatory conditions. The patent application was examined, and the claimed invention was considered novel at the time of application on the basis of the information then available to the examining authority. The patent was subsequently challenged and found invalid, as further documentation was made available (including ancient Sanskrit texts) that demonstrated that the claimed invention was actually already known TK.

Another widely-discussed approach to defensive protection is the idea that patent applicants should in some way have to disclose TK (and genetic resources) used in the claimed invention, or that are otherwise related to it. Existing patent law already requires some of this information to be disclosed by the applicant, but there are several proposals to extend and focus these requirements, and to create specific disclosure obligations for TK and genetic resources. This aspect of defensive protection is discussed in *“WIPO Technical Study on Patent Disclosure Requirements Related to Genetic Resources and Traditional Knowledge”*, WIPO Publication No. 786E.

Amendment of existing WIPO administered patent systems

A range of practical mechanisms for the defensive protection of TK have been developed and implemented within countries and international organizations. WIPO's work on defensive protection has included amendment of WIPO-administered systems, and the development of practical capacity-building tools.

For instance, the principal tool for locating technical information for patent purposes, the International Patent Classification (IPC), has been expanded to take better account of TK subject matter, in particular concerning medicinal products based on plants extracts. This increases the likelihood that patent examiners locate already

published TK that is relevant to claimed inventions in patent application, without adversely affecting the legal status of TK from the point of view of TK holders. Further avenues for development of the IGC in this direction are being explored.

The Patent Cooperation Treaty (PCT) is a WIPO-administered treaty for international cooperation in the field of patents. Among other things, it provides for an international search and examination. This helps clarify the possible validity of a patent application before specific national processes begin. This is significant for applicants and for defensive protection strategies alike. The minimum documentation that should be taken into account during an international search was recently expanded to include eleven TK-related information resources, thus increasing the likelihood that relevant TK will be located at an early stage in the life of a patent.



The *Traditional Knowledge Digital Library project* (TKDL), an initiative of several Indian Government agencies, proposes to document the disclosed traditional medicinal knowledge available in public domain by sifting and collating information on TK from the existing disclosed literature covering Ayurveda. The TKDL compiles the information in digitized format in five international languages which are English, German, French, Japanese and Spanish. An inter-disciplinary team of Ayurveda experts, a patent examiner, information technology experts, scientists and technical officers have worked for one and a half years for creating the TKDL of Ayurveda. TKDL seeks to give recognition and legitimacy to the existing TK and enable protection of such information from getting patented.

Traditional Knowledge Resource Classification (TKRC) is an innovative structured classification system for the purpose of systematic arrangement, dissemination and retrieval. This has been developed for about 5000 subgroups against one group in international patent classification, i.e. AK61K35/78 related to medicinal plants. TKDL is a collaborative project between the Indian National Institute of Science Communication and Information Resources and the Department of Indian Systems of Medicine and Homeopathy, Ministry of Health and Family Welfare.

Practical capacity-building tools

WIPO is also developing a package of practical tools and products for the protection of TK and genetic resources. These include a Toolkit for IP Management, an Online Portal of Registries and Databases of TK and Genetic Resources, including a sample database of Ayurvedic traditional medicine from South Asia, and an agreed data standard for databases and registries of TK and associated biological resources.

A “Toolkit for IP Management When Documenting TK and Genetic Resources” is under collaborative development to provide practical assistance to TK holders and custodians of genetic resources in managing the IP-implications of their documentation work. The toolkit is intended to describe legal tools that are available, to discuss how they can be successfully used and thereby to enable informed choices by TK holders themselves. The aim is to allow

stakeholders to determine whether, and in what cases, IP rights are the appropriate legal and practical mechanisms to achieve their objectives concerning their TK and genetic resources.

TK holders are involved in a wide range of TK collections, databases, registries and other forms of documenting and recording their TK. Great care needs to be taken to avoid unintended disclosure of TK, for example by making it available to the general public in violation of customary laws and practices. The toolkit illustrates how any documentation or database initiative needs to be preceded by full consideration of possible IP implications, including inadvertently placing TK in the public domain, or publishing it inappropriately. WIPO does not advise TK holders on compiling databases of TK and does not compile such databases itself.

The work on defensive approaches is being undertaken within the context of a comprehensive approach to the protection of TK, which takes account of the need, widely expressed, for more effective positive protection and for any holders or custodians of TK to be fully informed of the consequences of making any disclosure of their TK, especially when disclosure leads to publication of the TK or its more ready access by members of the public.



Conclusion



The call for protection of TK against misuse or misappropriation raises deep policy questions and practical challenges alike. The changing social environment, and the sense of historical dislocation, that currently affect many communities may actually strengthen resolve to safeguard TK for the benefit of future generations. Just as the technological value of TK is increasingly recognized and its potential realized, the challenge is to ensure that the intellectual and cultural contribution of traditional communities is appropriately recognized. This means taking greater account of the needs and expectations of TK holding communities concerning the intellectual property system. Its traditional qualities and frequent close linkage with the natural environment mean that TK can form the basis of a sustainable and appropriate tool for locally-based development. It also provides a potential avenue for developing countries, particularly least-developed countries, to benefit from the knowledge economy.

This booklet has sketched out some of the current directions this process is taking. It is a demanding set of tasks that need to be addressed with care and consultation. It requires respect for the values and concerns of traditional communities, as

well as consideration of the full international policy and legal context, including a range of current international debates. Even new or expanded forms of IP protection would be inadequate to meet all the needs and expectations that have been voiced, but various forms of IP mechanism have been found to be practically useful. The current WIPO process aims at distilling the practical and policy lessons of a wide range of experience in many countries, with a view to building a shared policy perspective and effective practical tools.

The WIPO work is framing the core principles that should underpin the protection of TK. This offers a potential foundation for international legal development in the form of precise policy and legislative options for enhanced protection of TK through adapted or expanded conventional IP systems, or through stand-alone *sui generis* systems. This may in turn facilitate further development of an international consensus on the more detailed aspects of protection, as the lessons of practical experience in achieving these principles are better understood and shared. This should lead to strengthened linkages between the needs and interests of traditional communities, and the core public policy principles of the IP system. ■

Further reading

This booklet draws from many documents, studies and other materials prepared and consulted within the context of WIPO's work, and all of which are available from the Secretariat and at : <http://www.wipo.int/tk/en/tk/index.html>. Here are some further materials you may find useful :

WIPO Secretariat, ***"Intellectual Property Needs and Expectations of Traditional Knowledge Holders: WIPO Report on Fact-Finding Missions on Intellectual Property and Traditional Knowledge (1998-1999)"***

WIPO Secretariat, ***"Protection of Traditional Knowledge: Overview of Policy Objectives and Principles"*** (WIPO/GRTKF/IC/7/5)

The WHO Traditional Medicine Strategy 2002-2005 (WHO/EDM/TRM/2002.1)

The Role of Registers and Databases in the Protection of Traditional Knowledge –
A comparative analysis, United Nations University, Institute of Advanced Studies (UNU-IAS)

"Composite report on the status and trends regarding the knowledge, innovations and practices of indigenous and local communities relevant to the conservation and sustainable use of biodiversity", CBD (In progress)

"Protecting and Promoting TK: Systems, National Experiences and International Dimensions", UNCTAD, 2004

"WIPO-UNEP Study on the Role of Intellectual Property Rights in the Sharing of Benefits Arising from the Use of Biological Resources and Associated Traditional Knowledge", WIPO Publication No. 769E

"WIPO Technical Study on Patent Disclosure Requirements Related to Genetic Resources and Traditional Knowledge", WIPO Publication No. 786E

"Consolidated Analysis of the Legal Protection of Traditional Knowledge" (Forthcoming)

For more information contact the:
World Intellectual Property Organization

Address:
34, chemin des Colombettes
P.O. Box 18
CH-1211 Geneva 20
Switzerland

Telephone:
41 22 338 91 11

Fax:
41 22 740 18 12

e-mail:
wipo.mail@wipo.int

or its New York Coordination Office at:

Address:
2, United Nations Plaza
Suite 2525
New York, N.Y. 10017
United States of America

Telephone:
1 212 963 6813

Fax:
1 212 963 4801

e-mail:
wipo@un.org

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<http://www.wipo.int/ebookshop>