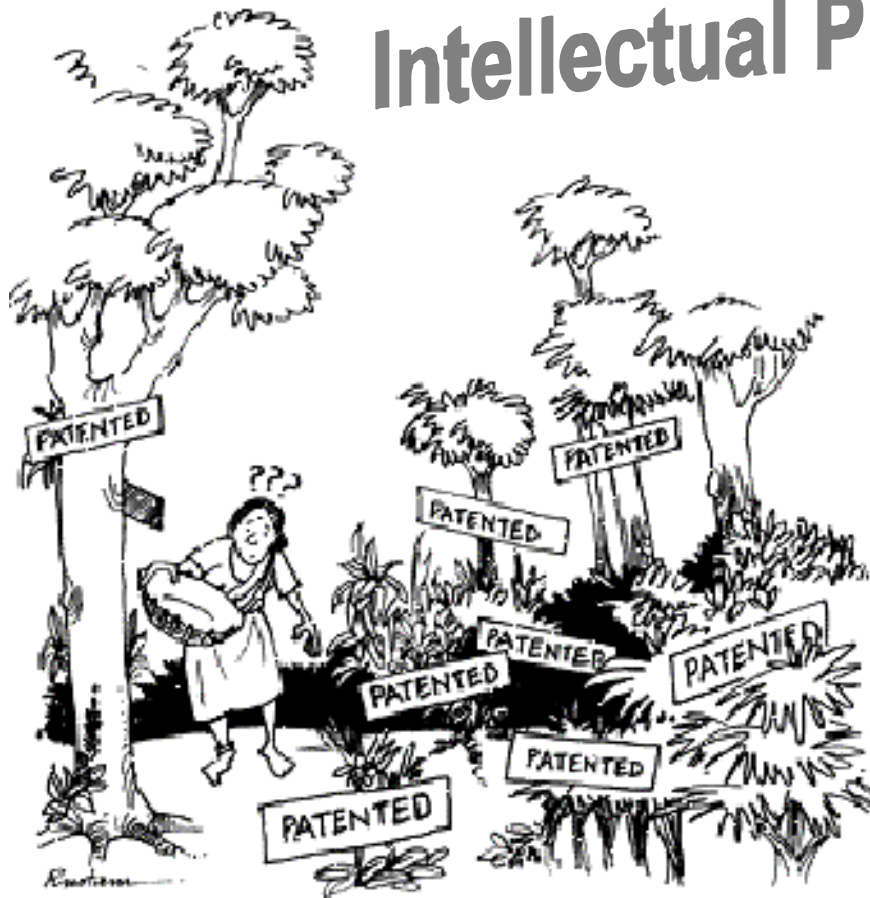


Traditional Knowledge and Intellectual Property



**A Handbook on Issues and Options for
Traditional Knowledge Holders in
Protecting their Intellectual Property and
Maintaining Biological Diversity**

Stephen A. Hansen and Justin W. VanFleet



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International Human Rights Instruments Addressing Intellectual Property

Universal Declaration of Human Rights (UDHR) (1948)

Article 27:

1. *Everyone has the right freely to participate in the cultural life of the community, to enjoy the arts and to share in scientific advancement and its benefits.*
2. *Everyone has the right to the protection of the moral and material interests resulting from any scientific, literary or artistic production of which he is the author.*

International Covenant on Economic, Social and Cultural Rights (ICESCR)

Article 15:

1. *The States Parties to the present Covenant recognize the right of everyone:*
 - (a) *To take part in cultural life;*
 - (b) *To enjoy the benefits of scientific progress and its applications;*
 - (c) *To benefit from the protection of the moral and material interests resulting from any scientific, literary or artistic production of which he is the author.*

Convention on Biological Diversity (CBD)

Article 8(j):

Subject to its national legislation, respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such knowledge, innovations and practices;

International Labor Organization Convention No. 169

Article 15 (1):

The rights of the peoples concerned to the natural resources pertaining to their lands shall be specially safeguarded. These rights include the right of these peoples to participate in the use, management and conservation of these resources.

Draft Declaration on Indigenous Rights

Article 29:

Indigenous peoples are entitled to the recognition of the full ownership, control and protection of their cultural and intellectual property. They have the right to special measures to control, develop and protect their sciences, technologies and cultural manifestations, including human and other genetic resources, seeds, medicines, knowledge of the properties of fauna and flora, oral traditions, literatures, designs and visual and performing arts.

Foreword

Since the adoption of the Universal Declaration of Human Rights (UDHR) in 1948, intellectual property (IP) has been considered a fundamental human right for all peoples. Article 27 of the Declaration states that everyone has the right “to the protection of the moral and material interests resulting from any scientific, literary or artistic production of which he is the author.” Since 1948, many international human rights instruments and documents have reinforced the importance of IP as a human right.

This handbook represents a step forward in the realization of Article 27 of the UDHR as it attempts to explain the implications and possible solutions to human rights issues surrounding IP for traditional knowledge holders. This handbook is designed to make intellectual property protection issues and options more understandable to traditional knowledge holders and human rights organizations and legal professionals working with local and indigenous communities. This resource will help traditional knowledge holders identify potentially applicable protection mechanisms in the current intellectual property rights (IPRs) regime.

In addition to introducing basic intellectual property concepts, this handbook contains a series of exercises to help the reader identify traditional knowledge, classify that knowledge, and think about that knowledge in terms of the goals and interests of the entire community. By working through the exercises in this handbook, the reader will be presented with the appropriate intellectual property option or options that may be employed to protect the traditional knowledge of his or her community. Complementing each option are text boxes listing the advantages and disadvantages of each option, as well as the necessary criteria to follow through with that option. Case illustrations are used to facilitate a better understanding of each option or issue.

The field of intellectual property rights is rapidly changing and laws vary from country to country. This handbook attempts to provide an accurate summary of general intellectual property concepts and options. All options are subject to national laws

and legislation. Therefore, before pursuing any option, it is important to check with local legislation. Additionally, any intellectual property option mentioned in this handbook should not be pursued without consulting appropriate legal advisors. This handbook should not be used to advise a community on a specific action to take regarding a specific case, but instead used as a tool for forming a general IP strategy to protect and sustain a community’s knowledge and



biological diversity.

Part I INTRODUCTION



Traditional Knowledge and Intellectual Property Rights

What is Traditional Knowledge?

Traditional knowledge (TK) is the information that people in a given community, based on experience and adaptation to a local culture and environment, have developed over time, and continue to develop. This knowledge is used to sustain the community and its culture and to maintain the genetic resources necessary for the continued survival of the community.

Traditional knowledge includes mental inventories of local biological resources, animal breeds, and local plant, crop and tree species. It may include such information as trees and plants that grow well together, and indicator plants, such as plants that show the soil salinity or that are known to flower at the beginning of the rains. It includes practices and technologies, such as seed treatment and storage methods and tools used for planting and harvesting. TK also encompasses belief systems that play a fundamental role in a people's livelihood, maintaining their health, and protecting and replenishing the environment. TK is dynamic in nature and may include experimentation in the integration of new plant or tree species into existing farming systems or a traditional healer's tests of new plant medicines.

The term "traditional" used in describing this knowledge does not imply that this knowledge is old or untechnical in nature, but "tradition-based." It is "traditional" because it is created in a manner that reflects the traditions of the communities, therefore not relating to the nature of the knowledge itself, but to the way in which that knowledge is created, preserved and disseminated.¹

Traditional knowledge is collective in nature and is often considered the property of the entire community, and not belonging to any single individual within the community. It is transmitted through specific cultural and traditional information exchange mechanisms, for example, maintained and transmitted orally through elders or specialists (breeders, healers, etc.), and often to only a select few people within a community.

Genetic resources –

genetic or biological matter of actual or potential value

Examples of Traditional Knowledge

- The use of *plao-noi* in Thailand for the treatment of ulcers
- The use of the *hoodia* cactus by Kung Bushmen in Africa to stave off hunger
- The use of turmeric in India for wound-healing
- The use of *ayahuasca* in the Amazon basin for sacred religious and healing purposes
- The use of *j'oublie* in Cameroon and Gabon as a sweetener

What are Intellectual Property Rights?

Intellectual property rights (IPRs) are the legal protections given to persons over their creative endeavors and usually give the creator an exclusive right over the use of his/her creation or discovery for a certain period of time.² Intellectual property protections may include patents, copyrights, trademarks, and trade secrets. Intellectual property is codified at an international level through a series of legally binding treaties.

treaties –

International treaties are important for traditional knowledge as they set standards and guidelines for business, trade, intellectual property, human rights, access and benefit-sharing, conservation, and management of biological resources. All of these topics impact traditional knowledge.

Why Traditional Knowledge Holders Should be Concerned About Intellectual Property Rights

The knowledge of and uses of specific plants for medicinal purposes (often referred to as “traditional medicine”) is an important component of TK. Once, traditional medicines were a major source of materials and information for the development of new drugs. In the 20th century, however, new sources for pharmaceuticals led to a decline in the importance of ethnobotany in drug discovery programs. However, new discoveries of potentially potent anti-cancer agents in plants (such as turmeric and taxol), as well as a rapidly growing herbal remedies market, has revived industry interest in traditional medicinal knowledge and practices. As interest in traditional medicine is rekindled, indigenous knowledge of the cultivation and application of genetic resources is becoming exploited at an alarming rate. World sales of herbal medicine alone were estimated at US\$30 billion in the year 2000.³



Intellectual property rights should guarantee both an individual’s and a group’s right to protect and benefit from its own cultural discoveries, creations, and products. But Western intellectual property regimes have focused on protecting and promoting the economic exploitation of inventions with the rationale that this promotes innovation and research. Western intellectual property law, which is rapidly assuming global acceptance, often unintentionally facilitates and reinforces a process of economic exploitation and cultural erosion. It is based on notions of individual property ownership, a concept that is often alien and can be detrimental to many local and indigenous communities. An important purpose of recognizing private proprietary rights is to enable individuals to benefit from the products of their intellect by rewarding creativity and encouraging further innovation and invention.

But in many indigenous world-views, any such property rights, if they are recognized at all, should be extended to the entire community. They are a means of maintaining and developing group identity as well as group survival, rather than promoting or encouraging individual economic gain.

Problems experienced by indigenous peoples in trying to protect their traditional knowledge under intellectual property laws stem mainly from the failure of traditional

moral rights –

have historically been associated with written works and copyright. In the context of TK, moral rights may be defined as the rights of the knowledge holders to be given proper acknowledgement of their TK, not to have it modified without permission, and not to have it used in a manner that discredits TK holders.

these industries to monopolize the benefits derived from their use of indigenous knowledge with disregard for the moral rights and material (financial) interests of indigenous peoples themselves.

Many incompatibilities between TK and IPRs have begun to surface with the rapid global acceptance of Western concepts and standards for intellectual property. These incompatibilities appear when ownership of TK is inappropriately claimed or TK is used by individuals or corporations that belongs to local communities, primarily in developing countries. The term “biopiracy” is often used to describe the misappropriation of knowledge and/or biological materials from traditional communities.

With today’s rapidly globalizing IPR regime, situations of biopiracy are becoming increasingly evident. Until very recently, an American citizen owned a patent on the well known and commonly used Amazonian plant *ayahuasca*. Traditional Andean uses of *maca* (*Lepidium meyenii*) for increased fertility and the Indian use of *neem* as a pesticide have been patented in name of profit for Western companies. The specifics of these examples are complicated and technical, but it is not an understatement to suggest that many more discrepancies will develop between traditional knowledge and the IPR regime negatively affecting indigenous communities across all continents. A major concern is that Western corporations will continue to adapt, incorporate, build upon, or directly claim indigenous knowledge without acknowledgement or compensation for the communities that developed the knowledge.

biopiracy–

the misappropriation of knowledge and/or biological material from traditional communities

However, there *is* good news. Intellectual property rights do not have to work against the needs and interests of traditional knowledge holders. In fact, intellectual property rights can actually benefit traditional knowledge holders by promoting both their material and moral interests. The key to realizing these benefits is in understanding how the intellectual property rights system works and the place that traditional knowledge can have in the system.

Part II
POSSIBLE INTELLECTUAL PROPERTY
PROTECTION OPTIONS FOR TRADITIONAL
KNOWLEDGE HOLDERS



Possible Intellectual Property Protection Options for Traditional Knowledge

This section offers a brief description of potential IP protection options as well as descriptions of other options to protect genetic resources, biodiversity and traditional knowledge.

Patents

Patents provide a legal monopoly over the use, production, and sale of an invention, discovery, or innovation for a specific period of time (usually about 20 years). A monopoly is the right to the exclusive control over the use, development, and financial benefits derived from a patented item. Inventions and innovations are new designs or methods for performing a task or the introduction of new uses for an already existing object. Inventions and innovations are typically discovered through some form of experimentation. In order for an invention or innovation to be patentable, it generally must meet three criteria: novelty, non-obviousness, and industrial application. It must meet all of these three criteria, and if one

novelty –

the “newness” of an invention

can be disproved, the patent cannot be approved.

Novelty refers to the “newness” of an established invention. Novelty is when there is no prior art. Prior art is the existing knowledge base before the invention was discovered or before the invention was disclosed by filing a patent application. [See section “Prior Art and Defensive Disclosure”]

non-obviousness –

the presence of an inventive step in a claimed invention or discovery

Non-obviousness refers to the presence of an inventive step. In order for an inventive step to be present, the invention or innovation must not have been obvious at the time of its creation to anyone having “ordinary skill in the art.”⁴ European patent law is more specific and requires that the invention or innovation also solves a problem in a technical way.⁵

Industrial application, or utility, refers to the existence of a potential market for patented knowledge. To meet this requirement, a public desire for the patented material must exist or have the potential to exist.

biodiversity–

the variation among living organisms from all sources (land, water, air) including diversity within species, between species and between ecosystems.

Patents

Advantages

- Monopoly over sale, use, and production
- Potential profit

Disadvantages

- Full disclosure is required
- Temporary monopoly
- Will be placed in the public domain
- Application process can be timely and expensive

Criteria

- Novelty
- Non obviousness
- Industrial application

As mentioned earlier, a major benefit of a patent is that it grants a temporary monopoly. This monopoly entitles the patent owner to total control over the use, production, and sale of the patented item. This entitlement can be very profitable, depending on the market demand for the new invention or innovation. The Patent Cooperation Treaty (PCT)⁶ makes it possible to apply for a patent simultaneously in other PCT member countries through a single application (see Annex 1 for a list of PCT member countries).

There are several potentially negative aspects of patents. First, applying for a patent requires full disclosure (making public) of the invention or innovation. Shortly after the patent is approved, the information is placed in the public domain by making the patent application publication publicly available. In the United States, a patent is made public 18 months after it is approved. If the knowledge is considered a *trade secret*, a patent may not be the most appropriate IP solution for TK. Protection mechanisms for trade secrets are mentioned in the World Trade Organization's Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPs)⁷ [See section "*Trade Secrets*"]. Secondly, the invention or innovation must be novel according to patent office standards. The patent applicant must prove that the invention or innovation is not part of the current prior art base as defined by each country's novelty definition in patent law. In many countries, TK may be considered *de facto* part of the prior art base. This task can either be simple or somewhat difficult, but nonetheless, it must be demonstrated. Thirdly, it is important to note that the application process for obtaining a patent can be timely and expensive. To obtain a United States patent, average costs are estimated to total US\$5,000 – US\$10,000 or higher.⁸ Additionally, once a patent is granted, it is the responsibility of the patent holder to enforce the patent against infringement.

infringement –

the unauthorized use of
patented information or
material

Case Illustration One Lessons from *Maca* in the United States

Meeting the patent requirements for novelty may not be as difficult as one would think. The only way a patent can be denied on the basis of novelty is if someone has previously documented the knowledge – even if it has been around for centuries.

For example, despite the fact that *maca* (*Lepidium meyenii*) was used by the Inca for fertility purposes centuries before *maca* based patent applications were filed in the United States, patent examiners determined the claims to be novel and non obvious.⁹ Suppose, hypothetically that no printed documentation existed for the use of *maca* by the Inca. If so, the patent could have been granted despite the fact that the knowledge was known hundred of years earlier. This means that if the traditional knowledge has not left the community and is not documented in a printed format, one can apply for a patent on the knowledge despite prior use. The key element in disproving novelty is existing documentation, and when documentation does not exist, then that knowledge maybe considered novel in the United States.

Since documentation did exist, why was the patent determined to be novel in the United States? The patent applicants carefully satisfied the definition of novelty. Claiming the use of *maca* alone to enhance fertility would not suffice for the criteria set forth in the novelty definition. The patent applicants patented the combination of *maca and velvet deer antler* and were subsequently granted the patent. Velvet deer antler also has known and documented usefulness in enhancing fertility, but no prior art was previously established documenting the two plants used in combination.

What is the lesson to be learned from this example? If the knowledge has been publicly documented, therefore making it ineligible for a patent, search for a combination. By combining known knowledge in a unique manner, it may be possible to meet the novelty criteria for a patent. If the knowledge has not yet been documented, it is novel. Remember, a patent on a combination does not cover either component individually. Therefore, use of a single component will not infringe the patent.

Petty Patent Models

Petty patents allow for protections similar to those of patents, but for knowledge consisting of a less-detailed inventive step.¹⁰ The knowledge must still meet the novelty and industrial application criteria. The term of protection for a petty patent is typically between four and six years, which is shorter than the term for the standard patent.

The petty patent exists only in a few countries and is not mentioned in the TRIPs Agreement as a minimum standard for intellectual property protection. However some countries are pushing for the inclusion of petty patents in the TRIPs Agreement. Petty patents may be more suitable for TK, as TK is not typically documented in the same manner as Western science. Despite the fact that petty patents are not globally recognized as a minimal standard for intellectual property protection, some countries have enforced the mechanism as a way of protecting TK. For example, a type of petty patent is mentioned in Kenyan legislation in order to protect indigenous claims to traditional herbal medicine.¹¹ Although the current application of petty patents is relatively small, their implementation at a broader level could serve TK as a viable intellectual property protection option.

Plant Patents

The TRIPs Agreement requires all countries to adopt measures to protect new plant varieties. One form of protection for new plant varieties is the plant patent. Unlike European patent law, U.S. law provides for the granting of a patent to anyone who has invented or discovered and then asexually reproduced any distinct and new variety of plant. This includes cultivated sports, mutants, hybrids, and newly found seedlings, other than a tuber-propagated plant or a plant found in an uncultivated state.

There are several inconsistencies in the plant patenting system, which may either be of benefit or present a threat to indigenous communities. First, there is a lack of a clear understanding or consistent approach to what is considered a *new* plant variety. Many indigenous communities have cultivated and maintained plant varieties over many generations. Therefore, are these plant varieties new or *invented* in the terms of the U.S. Patent Office? Probably not. But many new plant varieties are simply a slight modification to ex-

Petty Patents

Advantages

- Monopoly over sale, use, and production
- Potential profit
- Inventive step is more simple than the normal patent

Disadvantages

- Full disclosure is required
- Temporary monopoly
- Will be placed in the public domain
- Application process can be timely and expensive

Criteria

- Novelty
- Non obviousness
- Industrial application

Plant Patents

Advantages

- Monopoly over sale, use, and production of a plant
- Potential profit

Disadvantages

- Full disclosure is required
- Temporary monopoly
- Will be placed in the public domain after expiration
- Application process can be timely and expensive

Criteria

- Novelty
- Non obviousness
- Industrial application
- Asexually reproduced

isting types of plants that were developed (cultivated) by indigenous communities, for example, the Mexican yellow bean mentioned earlier. So technically speaking, they were “invented.”

But unlike inventing a new plant variety, new varieties could be “discovered” by a local community in the same manner that other plants, such as *ayahuasca*, were discovered [See Case Illustration Two “*Lessons from Ayahuasca*”]. The requirements for a plant discovery are:

- its existence is not already known outside the community,
- it can be reproduced by means other than from being grown from a seed (asexually propagated), such as by the rooting of a cutting from the plant, and
- it must not be discovered growing in an uncultivated state, implying simply that if it was found growing freely in a field, the woods, mountain side, etc. This would suggest that it could have developed into its current state without any human involvement. But, if the plant is discovered, for example, in someone’s garden, or within the boundaries of the community, this increases the odds that this plant variety probably developed with some form of human intervention.

Case Illustration Two Lessons from *Ayahuasca*

In 1984, Loren Miller, founder of the company International Plant Medicine, filed an application for a "new and distinct variety... of the species *banisteriopsis caapi*," which he discovered growing in someone's garden in the Amazon rain-forest and labeled "Da Vine."¹² According to the patent application, Miller intended to explore the plant "for its medicinal value in cancer treatment and psychotherapy."¹³ The patent application was approved in 1986.

Banisteriopsis caapi plays a very important religious and medicinal role in the history and tradition of peoples in the Amazonian region. The bark of the plant has been used for centuries by local communities throughout the region to make a ceremonial drink called *ayahuasca* used in sacred religious and healing ceremonies. In Quechua, an indigenous Latin American language, *ayahuasca* means "vine of the soul."

This plant was not invented in the common understanding of the term, but instead "discovered." Because no one had previously documented the plant, the plant met the novelty criteria to be patented in the United States. The existence of prior art was heavily disputed during a controversial patent reexamination request filed by local Amazon communities, but the patent ultimately survived reexamination, and expired June 17, 2003.

So what does this mean? If the community has a plant variety that is not documented according to Western IP standards, then the plant may prove to be novel within those same standards. If the community is aware of a plant that meets this criterion, then a plant patent may be a viable option for IP protection.

Plant Variety Certificates

Some countries additionally protect plant varieties in the form of a plant variety certificates. Only fifty countries currently belong to the International Convention for the Protection of New Plant Varieties (UPOV)¹⁴ [See Annex 4 "*Member States to the Convention for the Protection of New Plant Varieties (UPOV)*"]. This mechanism is used to protect the rights of breeders of sexually reproducing varieties of plants (reproducing by seed). Breeder's rights protect the commercial interests of the breeder so that economic incentives exist for continued breeding of new plant varieties. Unlike patents, plant variety certificates do not require the authorization of the breeder for use of the variety by others for research purposes.

The criteria for a plant variety certificate are slightly different from those for a plant patent. To meet UPOV requirements, varieties must be:

- distinct from existing, commonly known varieties,

- sufficiently uniform,
- stable, and
- novel.¹⁵

According to UPOV, distinctness is determined by the existence of distinguishing features of the plant variety when compared to any other variety existing as common knowledge at the time.¹⁶ The uniformity requirement is met when the plant variety, upon propagation, exhibits its distinguishing characteristics in a consistent manner.¹⁷ The stability requirement is met when the characteristics of the plant remain unchanged after repeated propagation.¹⁸ The novelty requirement is met if the plant variety has not been sold prior to certain dates established in the UPOV Convention in relation to the filing date of the plant variety application.¹⁹ It is important to note this particular definition of novelty in relation to plant variety certificates. Here, novelty pertains to the prior sale of the plant variety.

UPOV is not the only legal mechanism for protecting new plant varieties. In fact, relatively few (only fifty) countries in the world currently support UPOV. Several other options for plant variety protection have been proposed by developing countries that are not party to UPOV, but are still legally bound to provide plant variety protection under the TRIPs Agreement.

For example, proposals for legislation in Nicaragua have included provisions that require ten unique characteristics in order to distinguish a variety as “distinct;” to exclude protection for “discovered” plants, and; not to extend plant breeder’s rights to plants used for food or sown directly by farmers. Zambia has cited the Convention on Biological Diversity (CBD)²⁰ in developing its plant variety protection mechanism and states that any final legislation must recognize and reward indigenous innovation. India’s Plant Variety Protection Act (2001) declares that the rights of the farmer are superior to those of the breeder. The Plant Varieties Protection Act of Bangladesh (1998) states that a variety must have “immediate, direct and substantial benefit to the people of Bangladesh,”²¹ and protects both community and farmers rights.²² These examples demonstrate that options other than UPOV can be established that effectively address the needs of traditional knowledge holders.

Traditional Knowledge Registries

Traditional knowledge registries are official collections of documentation that describe traditional knowledge. Registries can be established and maintained either locally (within a community) or outside the community itself (external). With a locally maintained registry, the community may collectively decide what is to be included in the registry and what knowledge is to be shared and/or disclosed to people

Plant Variety Certificates

Advantages

- Limited monopoly over sale, use, and production
- Potential profit

Disadvantages

- Full disclosure is required
- Temporary monopoly
- Will be placed in the public domain after expiration
- Application process can be timely and expensive
- Authorization not necessary for others to use the variety for research

Criteria

- Distinct from existing, commonly known varieties
- Sufficiently uniform
- Stable variety
- New in the sense that the variety must not have been commercialized prior to certain dates established by reference to the date of

outside the community.

External registries are maintained outside the community, often on the national or international level, by governments, non governmental organizations, museums, or libraries. These registries can be collections of TK specific to one particular community or to several communities. Local communities may have control over what is entered into the registry, but may not be responsible for the registry's maintenance. Distinguishing between local or external registries is at the discretion of the TK stakeholders.

Registries can also be public or private. Public registries place information in the public domain and serve as a form of prior art or *defensive disclosure*. A *Defensive disclosure*, by describing information in a printed publication or other publicly accessible medium, helps to establish prior art capable of preventing patents based on that information. [See section "*Prior Art and Defensive Disclosure*"]

Private registries, however, do not place knowledge in the public domain. Private registries can be effective as:

- protection mechanisms for TK in instances where a *sui generis* system is in place,
- preservation mechanisms when cultural and historic preservation is a goal, and;
- tools for access and benefit sharing agreements.

Since the information in a private registry is documented but is not in the public domain, it may not constitute prior art capable of preventing a patent based on the knowledge by an outsider. The knowledge in a private registry cannot prevent the approval of a patent under most IP systems unless it is considered prior art through a *sui generis* mechanism [See section "*Sui Generis Protection Systems*"] and disclosed to patent authorities. However, it may be possible to challenge and revoke a patent with knowledge documented in a private registry if patent law recognizes prior art not disclosed to public as is being admissible under a *sui generis* system. Reexamination requests of patents can be both costly and time consuming. Also, the knowledge may need to be disclosed to the public if no *sui generis* protection mechanism exists that would prohibit its public disclosure during reexamination.

Public Registry

Advantages

- Defensive disclosure against inappropriate patents
- Cultural Preservation Mechanism
- Knowledge can be used by anyone without permission and payment therefore benefiting general public welfare

Disadvantages

- Not profitable
- IPRs do not apply to public domain

Criterion

- There is no specific criteria for placing TK in the public domain

Important!

Information in a private registry that is not accessible to the public may not constitute prior art capable of preventing an outsider's patent on traditional knowledge

Because the recognition and effectiveness of private registries varies from country to country, private registries are most effective as a mechanism for preservation of knowledge and as a tool for access and benefit-sharing agreements. A private registry can serve as a catalogue for knowledge that can be licensed to outside parties for research and product development [See section "*Access/Benefit Sharing*". As a mechanism for cultural preservation, the private registry serves as a cultural library that documents and maintains TK belonging to a community and helps prevent its loss.

A typical form of registry is a computer database. The Internet is an ideal location for public databases containing TK, where they can serve as a vehicle for *defensive disclosure* [See section "*Prior Art and Defensive Disclosure*"] and are accessible to patent offices worldwide as a source of prior art. WIPO is in the process of compiling a list of TK-related databases for international patent offices and several large public databases collect TK as a means of defensive disclosure against the misappropriation of IPRs.

The benefit of both public and private registries lies in their ability to prevent or revoke inappropriate claims of intellectual property rights. In order to be effective in this manner, it is essential that national patent offices are made aware of the public registry for use in prior art searches. The public registry has the additional benefits of negating the application of intellectual property rights on TK prior to patent approval and promoting free use of the knowledge in the public domain for everyone's benefit.

A disadvantage of the public registry is the disclosure of knowledge to others outside the community. When placing knowledge in the public domain, the knowledge may lose its commercial value, limit options for IP protection for the community, and may be used by the public without permission.

Private Registries

Advantages

- Defensive disclosure against inappropriate patents (only if a sui generis system is in place)
- Cultural Preservation Mechanism
- Tool for Access/Benefit Sharing
- Knowledge is kept within the local community unless needed to disprove novelty
- Could be used as a trade secret in the future

Disadvantages

- Not profitable while in a registry
- Does not benefit general public welfare
- Sui generis systems must be in place if used as defensive disclosure

Criterion

- There is no specific criteria for placing TK in private registries

Case Illustration Three Registries in India

One example of a public registry is the People's Biodiversity Registers (PBRs) in India. Recognized in the Indian Biological Diversity Bill of 2000, these PBRs consist of documents of people's knowledge of biodiversity, its usage, trade, and efforts for its conservation and sustainable utilization. The PBRs are developed on the village level by the local school and college teachers, students, and NGO researchers along with the villagers themselves. Biodiversity registers are then compiled in the form of computerized databases on the level of *talukas*, districts, states and the entire country in order to provide information to the public, government, and industry. These PBRs have also been recognized by the Indian Biological Diversity Bill as a form of prior art in the evaluation of patent applications, as well as serving to ensure equitable access and benefit sharing.²³

Trade Secrets

Trade secrets protect undisclosed knowledge through secrecy and access agreements, which may also involve paying royalties to knowledge holders for access to and the use of their knowledge. Three elements are required for knowledge to be classified as a trade secret. The knowledge:

- must have commercial value,
- must not be in the public domain, and
- is subject to reasonable efforts to maintain secrecy.

Traditional knowledge that is maintained within a community could be considered a trade secret. But once the knowledge is diffused to the public, this option no longer exists. A trade secret is only enforceable as long as it remains a secret. Trade secrets have no legal protection except in cases of "breach of confidence and other acts contrary to honest commercial practices."²⁴ This means that one must be able to prove some form of malicious intent on the part of a contracting party as the cause for a trade secret's diffusion to the public in order to be compensated for the loss of secrecy.

Trade secrets are commonly combined with contractual agreements [See section "*Contracts – The Basics*"]. This is a way to profit from royalty payments for the use of knowledge. If a trade secret happens to enter the public domain, contractual royalty payment agreements may still remain in effect throughout the life of the agreement. [See Case Illustration "*An American Secret that Kept Paying Royalties*"]

Trade Secrets Advantages

- Profitable
- Contractual royalties can still be in effect if the knowledge enters the public domain

Disadvantages

- No legal protection to maintain secrecy
- If discovered or leaked to the public domain, it can be used by others
- Difficult to protect against misappropriation

Criteria

- Commercial value
- Not in the public domain
- Subject to reasonable attempts to maintain secrecy

trade secrets

are protected under article 39 of the Agreement on Trade Related Aspects of Intellectual Property (TRIPs)

legal entitlement to the bearer of the secret. When applied to knowledge belonging to a community, the community must make a reasonable effort to maintain the secrecy of the knowledge. If there is not a reasonable effort to maintain the traditional knowledge's secrecy, then trade secret protection is not applicable to the traditional knowledge.

It is important to remember that knowledge that is considered a trade secret can be used by anyone if the knowledge leaks into the public domain, is independently discovered by another individual, or reverse engineered. It is difficult to protect trade secrets against misappropriation due to lack of legal

reverse engineering –

taking an object apart or analyzing a formula, etc. in order to see how it works or determine its ingredients. Reverse engineering makes it possible to duplicate or improve upon an invention

**Case Illustration Four
An American Secret that Kept Paying Royalties**

In the 1880s, a United States citizen, J.J. Lawrence, developed an oral antiseptic he called "Listerine." The formula was a trade secret he subsequently licensed to Warner-Lambert Pharmaceutical Corp. The agreement was that Warner-Lambert would pay royalties to J.J. Lawrence and his heirs for the Listerine sold by the company. Decades later, the secret formula was published in an American journal releasing the trade secret to the general public. In the 1950s, a U.S. court ruled that even though the trade secret was now in the public domain, Warner-Lambert had to continue to pay royalties to the J.J. Lawrence heirs as called for under the licensing agreement.

This case illustrates the benefits of trade secret licensing. Trade secrets can lose their benefits if and when they enter the public domain; however, unlike with patents, in some regions of the world, the benefits of a trade secret can continue for an indefinite period of time if licensed properly. ²⁵

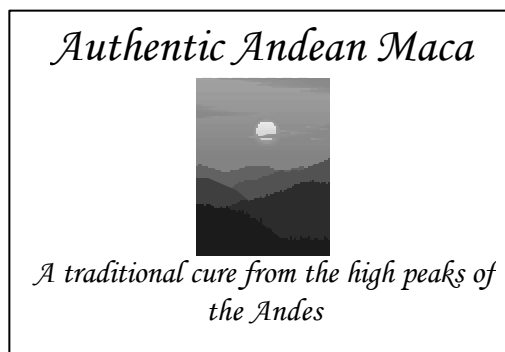
Trademarks

The United States Patent and Trademark Office (USPTO) defines a trademark as “a word, phrase, symbol or design, or a combination of words, phrases, symbols or designs, that identifies and distinguishes the source of the goods of one party from those of others.”²⁶ In other words, trademarks are a way of protecting the use of words, phrases, symbols, designs, or any combination of these associated with a product. Once a trademark is established, it can be used to identify and differentiate similar products. Think how often names, images, and photos are always used in marketing products.

Trademarks are based on two principles: distinctiveness and avoiding confusion. Being distinct means that the trademark does not resemble any other existing word, phrase, symbol, design, etc. associated with a similar product. Avoiding confusion

as to the source of product is important for consumers purchasing these products. Trademarks distinguish products in order not to mislead consumers into thinking that a product is something that it is not or comes from another source.

How can trademarks be applied to traditional knowledge? Suppose a company sells a product comprised of *maca*, a plant native to the Andean region. An indigenous community in the Andes, the original knowledge holders of *maca*'s uses, may also want to sell *maca* or profit from their own natural resources and knowledge. They could register a trademark like the example below:



Now the indigenous group has two new options:

1. If there are no patents preventing the sale of *maca* for specific purposes, the indigenous group can register the above trademark and sell *maca* using this symbol to distinguish their brand.

Trademarks

Advantages

- Can distinguish products based on TK
- Can serve as “value-added” and certify TK authenticity
- Establishes a competitive advantage over similar products not TK-based

Disadvantages

- Does not prohibit use of TK

Criteria

- Must be a word, symbol, phrase, etc.
- Must identify and distinguish a good without creating confusion

2. If a patent prohibits the indigenous group from selling the product, they could register the above trademark and subsequently license out the use of the trademark in order to allow companies to ensure authenticity. It is a value-added to the original product with the addition of this seal of approval. By placing this symbol on packages of *maca*, the consumer knows that the original knowledge holders approve of the brand. It may also be possible for the community to sell *maca* without making claims for its use as prohibited under the patent.

This is just one example. Think how names, images, and photos could be applied to the marketing of products based on traditional knowledge. How about traditional procedures used when producing certain products? Existing procedures could be performed on products and approved by a community as a method of adding value to a product with the potential to collect royalties on the products sold.

It might also be advantageous to consider certifying the community of origin or the geographical locations of products as a method of adding value. A certification mark is a type of trademark that is explained in the next section, "*Geographical Indicators*."

Geographical Indicators

A geographical indicator identifies a good as originating in a territory or region, or locality in that territory, where a given quality, reputation, or other characteristic of the good is attributable to its geographical origin.²⁷ Like trademarks, geographical indicators are typically words or terms, but when associated with a product, positively attribute a known quality to the product that is associated with a specific geographical location. Geographical indicators cannot be used to describe a product unless it originates in the region associated with the name. For example, Swiss watches are associated with a tradition of high quality, so the term Swiss watch is a geographical indicator that assumes a watch came from Switzerland. Roquefort cheese (from France) is another product associated with high quality and it is also a geographical indicator. Roquefort cheese can only be used to describe cheese produced in Roquefort-sur-Soulzon, France, and aged in the traditional caves (a practice also associated with the geographical indicator).

Other examples of geographical indicators include:

- Bordeaux Wine (France),
- Parma Ham (Italy),
- Stilton Cheese (United Kingdom),
- Darjeeling Tea (India),
- Cognac Brandy (France), and
- Queso Murcia (Spain).

Why are geographical indicators protected as intellectual property? Geographical indicators serve four main purposes. They:

- identify where the product is from (its source),
- indicate the unique qualities of a product,
- promote the product with a distinguishing name (for business purposes), and
- prevent infringement and unfair competition by establishing a legal basis for using a location name to avoid confusion with similar products.²⁸

A specific form of geographical indicator is called an *appellation of origin*. Appellations of origin specify the quality of a product based on its geographical environment and are protected under the Lisbon Agreement of 1958. Despite its criticisms for being incompatible with the TRIPs Agreement, twenty countries are party to the Lisbon Agreement. In 1998, of the 766 protected appellations of origin, 95% belonged to European countries.²⁹

How can one protect against the inappropriate use of geographical indicators? The answer is simple: preemptively protect the geographical indicator by ensuring it is commonly known and documented. This can be done by placing the geographical indicator in the public domain via a database or other publicly accessible medium. The second option is to apply for a certification mark that is an official registration (as opposed to an unofficial disclosure of the indicator in the public domain). The certification mark is a type of trademark (as discussed in the previous section, "*Trademarks*"). Currently, international registry protection is available only for wines and all other products are subject to national registry laws.³⁰

Are all countries obliged to establish and protect geographical indicators? If a country is party to the TRIPs Agreement, it is their international legal obligation to formulate legislation protecting geographical indicators. Article 22 of the TRIPs agreement states that members must provide legal means to prevent:

the use of any means in the designation or presentation of a good that indicates or suggests that the good in question originates in a geographical area other than the true place of origin in a manner which misleads the public as to the geographical origin of the good.³¹

Additionally, the TRIPs Agreement requires the protection of what is defined as unfair competition in the Paris Convention.³² "All acts of such a nature as to create confusion by any means whatever with the establishment, the goods, or the industrial or commercial activities, of a competitor" shall be prohibited under this article.³³

What does all this mean in the everyday life of a traditional knowledge holder? Let's examine an example that adequately explains the importance of a geographical indicator. The *maca* plant is native to the high peaks of the Andes Mountains where it thrives in the high altitudes. Suppose a Western company were to modify the plant so that it could grow in lower elevations. Then, that company was to grow large quantities of the plant in the United States and market the plant product as "Andean *maca*." This is a clear violation of the provisions that protect against the improper use of geographical indicator. Andean *maca* is associated with a distinguished quality, and by using the name, the product, which is not produced in the Andes, misleads consumers into believing that:

Geographical Indicators

Advantages

- Distinguishes TK-based product by location
- Proves authenticity when claiming superiority based on traditional location

Disadvantages

- Does not protect against use of TK not claiming geographical name

Criterion

- Must be distinct due to geographical location

- the product was actually cultivated in the Andes, and
- the product is of the same quality as that produced in the Andes.

Maca grown only in the Andes is then capable of being marketed as “Andean *Maca*” if:

- Andean-grown *maca* is commonly known to be of superior quality to other *maca* and this fact is documented in the public domain, or
- a certification mark has been officially registered with a federal government for “Andean *maca*.” [See section “Geographical Indicators”]

Case Illustration Six Basmati Rice as a Geographical Indicator?

United States patent (5,663,484) was granted in 1997 to RiceTec, Inc. for “novel” basmati rice lines and associated grains and plants as well as a method for breeding the lines. These rice lines were obtained by breeding crosses of 22 farmer-bred basmati varieties from Pakistan and India. Many would assume that the problem with this patent is novelty, which may or may not be the case. Most claims in the patent were withdrawn after being challenged. However, this example demonstrates the importance of *geographical indicators* as they relate to traditional knowledge.

RiceTec, Inc.’s patent in the United States angered many Indian and Pakistani farmers. Indian basmati rice exports alone total approximately \$425 million, and farmers were concerned that the patented basmati rice by RiceTec created an unfair advantage in U.S. markets. They believed that by using the term basmati, consumers were led to believe that the rice was a product of India or Pakistan (the only region in the world traditionally producing basmati rice) and of the same quality.

The United Kingdom Ministry of Agriculture Fisheries and Food (MAFF) concluded that the RiceTec varieties, after DNA analysis, resemble more the US long grain varieties as opposed to the Indian or Pakistani basmati varieties. RiceTec sells their rice under the trademarks of Kasmati and Texmati, and claims that their Texmati brand is the “#1 brand of American basmati rice sold in U.S. supermarkets.”³⁴ Although the statement may bear some truth, as it does say “American” basmati, this statement could be misleading by using the term basmati to describe rice that is not even genetically similar to that of Indian or Pakistani basmati rice.

India may mount a legal case against RiceTec for continuing to use the word basmati to describe any type of rice, regardless if they also say it is produced in the United States. Until then, basmati rice will serve as an example of why preemptive registration or public disclosure of the use of geographical indicators is important to help prevent misappropriation.³⁵

Prior Art and Defensive Disclosure

When determining whether a claim is novel, either by someone filing a patent application, or during the patent application review process, the *prior art* base (the public domain) is examined. If the invention or claim is found described in the prior art base, or offered for use or sale for more than one year, it is not entitled to a patent. In US patent law, prior art is defined as a printed publication, either in the US or a foreign country, describing the invention or discovery and is dated more than one year before a patent's filing date, or simply dated before the act of invention or conception. A publication may include any document accessible to persons working in a certain profession or field and therefore skilled in the relevant art. These could include magazines, trade or scientific journals, newsletters, newspapers, and web sites, to name but a few.

The European patent system does not limit evidence of prior art solely to printed publications, but also includes everything made available to the public by the means of a written or oral description, by use or by any other way, anytime before the date of filing of the patent application.³⁶ The difference between the U.S. and European definition of prior art has serious implications for the recognition of traditional knowledge as prior art, as much traditional knowledge is not documented and subsequently not published, but is shared orally, or publicly known through demonstrated and public use.

Prior art is also taken into account for the non-obvious requirement in applying for a patent. In many cases, the prior art may prove to be very similar, but not exactly like the claim or invention itself, but the differences would be obvious to someone with ordinary skill in the area and who knows or has relatively easy access to the prior art base.

Defensive disclosure

Defensive disclosure refers to information or documentation intentionally made available to the public as prior art in order to render any subsequent claims of invention or discovery ineligible for a patent. A defensive disclosure provides evidence of the invention, knowledge or use of the invention by others before it was claimed by another inventor, or offers evidence of public use or sale more than one year before the filing date of the patent.³⁷

A defensive disclosure needs to be easily located by patent examiners during the application process. If it is found and it invalidates a patent application, there is generally relatively little up front costs involved to invalidate an application. But, if it is not found, the costs may be extremely high in order to mount a challenge to an existing patent for which there may have been prior art missed during the examination process. Therefore, the costs (both personal and financial) of making a defensive disclosure need to be weighed against the cost of not making that disclosure, specifically the costs of challenging a patent that would not have been granted had the disclosure been made.³⁸

defensive disclosure –

information or documentation intentionally made available to the public as prior art

Defensive disclosures can be made anonymously without attributing the knowledge to a particular person or community. Anonymous disclosures might have a benefit

for those who want to disclose information, but at the same time not want to attract unwelcome attention to a community.

Important!

Once any knowledge is released to the public, either with consent or any other way, the creators and holders of that knowledge are no longer able to pursue intellectual property protections

There are basically two types of mechanisms to defensively disclose information. One consists of the traditional methods of publication: scientific, academic, technical and business journals, etc. But there are many difficulties in attempting to use these means to disclose traditional knowledge. First, the information would need to fit the format and the nature of the publication. For example, for a scientific journal the content would need to be scientific in nature and of interest to and understandable to a scientific community. Secondly, there is usually a gap in time before something is submitted for publication and the time it makes it into print. This could be important if information were submitted for publication one year prior to the filing a patent application, but did not get published until within one year of the application. In this case, it would not be considered prior art. Finally, there are some newsletters that focus on traditional knowledge, but they rarely offer the opportunity to adequately describe a specific claim, let alone the multiple claims any given community may hold.

The other mechanism for defensive disclosure is electronically via the Internet. In recent years, many Internet sites have developed solely for the purpose of defensive disclosure. There are many Internet-based web sites and databases that contain information on traditional knowledge. While their intended purpose is not to serve as vehicles for defensive disclosure *per se*, they often offer limited documentation of traditional knowledge and uses of genetic resources that can serve as prior art. In addition, this information is most often provided to the public without the prior informed consent of the originators of this knowledge.

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A community registry could serve as a viable means of defensive disclosure (See section "Registries"). This would involve placing the registry on the Internet for all to access (this would also include patent examiners during prior art searches), or if a country has a *sui generis* system in place, limiting outside access to only the patent office (See section "Traditional Knowledge Registries").

Prior Informed Consent

The 1992 Convention on Biological Diversity (CBD) is an international treaty resulting from the Earth Summit in Rio de Janeiro where world leaders agreed on a comprehensive strategy for sustainable development. The CBD establishes three main goals in order to maintain the world's ecological resources: the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of the benefits from the use of genetic resources. To date, 179 countries have ratified this agreement. (See Annex 2 for a list of countries having signed the Convention on Biological Diversity.)

prior informed consent-

knowledge of and approval in advance for the use of one's resources

The Convention on Biological Diversity declares the obligation to obtain prior informed consent for access to genetic resources. The Bonn Guidelines (2002)³⁹ further link genetic resources with traditional knowledge in the obligation to acquire in-

formed consent. Prior informed consent is the approval in advance for the use of one's genetic resources and any associated TK. "Prior" indicates that the approval must come before access is allowed or others use the knowledge. "Informed" means that information is provided on how the resource and/or knowledge will be used. "Consent" means permission to use the resource or knowledge. Sufficient information should be provided to a community, either by the intellectual property office, or other party, regarding the aims, risks or implications of using the knowledge, including its potential commercial value. Consent must be manifested in an explicit way, for example in writing, by a clear verbal agreement, or some other means.

Does a community possessing TK legally have the right to prior informed consent if someone accesses its genetic resources and related TK and wishes to use them? The answer: maybe. If the country where the community is located has ratified and implemented the CBD, access to traditional knowledge should be subject to prior informed consent of the knowledge holders under Article 8 (j).

Perhaps an example is the best way to understand how prior informed consent works. Suppose a scientist is traveling in South America and begins to work with a community in the Amazon region. The scientist is particularly amazed when he observes the methods used by a local community to process and apply a local plant to heal wounds. The scientist, now aware of the genetic resource and local knowledge of its use, can do one of two things: he can do nothing with the knowledge or he can use the knowledge.

If the scientist does nothing, there is obviously no need to obtain prior informed consent. If the scientist wishes to use the resource or knowledge (publish the knowledge in a journal article, apply for a patent, etc.), he or she must obtain prior informed consent of the appropriate national authorities if that Amazonian country has implemented the CBD. Under the Bonn Guidelines, the local community itself should also have the right to deny access to the resources or use of the knowledge. If the country has not implemented the CBD, the scientist is not legally bound to obtain prior informed consent (unless some form of prior informed consent is required under *sui generis* protection mechanisms (See section "*Sui Generis Protection Systems*" below)). However, most scientists today agree that it is a best practice to obtain prior informed consent for professional and ethical reasons, as well as to avoid challenge or criticism later on.

***Sui Generis* Protection Systems**

Through the World Trade Organization (WTO), minimal intellectual property standards are now being quickly implemented on an international level. The WTO's 1994 Agreement on Trade Related Aspects of Intellectual Property (TRIPs), adopted two years after the CBD, creates some specific challenges for protecting genetic resources and traditional knowledge. TRIPs requires member countries (see Annex 3 for the list of member countries to TRIPs) to provide patent protection for inventions in all fields of technology, but also allows some exceptions from the patenting requirement, specifically plants, animals, and processes for their production. However, TRIPs does require member countries to grant protection for plant varieties (See

Note

Contractual clauses for prior informed consent contracts are being collected in a central database by WIPO and are also available through other sources. [See section "*Contracts - the Basics*"].

section "Plant Variety Certificates") either through patents or by an effective *sui generis* system or by any combination thereof.

What exactly is a *sui generis* system? *Sui generis* literally means "of its own kind" and consists of a set of nationally recognized laws and ways of extending plant variety protection (PVP) other than through patents. TRIPs itself does not define what a *sui generis* system is or should be. And although TRIPs does not mention UPOV (International Union for the Protection of New Varieties of Plants), several countries believe that the UPOV convention meets the requirements for a *sui generis* system (See section "Plant Variety Certificates"). However, countries do not have to join UPOV to implement a *sui generis* system to comply with TRIPs.⁴⁰

A *sui generis* system might consist of some standard forms of intellectual property protections combined with other forms of protections, or none at all, for genetic resources. For example, a country could provide patent protections for inventions, plant variety certificates (PCV) for plant varieties or just certain varieties, and/or exclude plants from any form of intellectual property protection at all (although this could conflict with the compliance of TRIPs).

Potentially, a *sui generis* system could be defined and implemented differently from one country to another.

In addition, a *sui generis* system might be defined to create legal rights that recognize any associated traditional knowledge relating to genetic resources and promote access and benefit sharing. The government may choose to extend protections to genetic resources and/or knowledge to a community in the form of patents, trade secrets, copyrights, farmers' and breeders' rights, or another creative form not currently established in the intellectual property regime.

In addition, a *sui generis* system may adopt measures of protection specific to traditional knowledge in order to nullify inappropriate patents. For example, the Andean Community's Decision 486 states:

A Sui Generis System in Costa Rica

The Costa Rican Biodiversity Law recognizes the unique nature of traditional knowledge:

The State expressly recognizes and protects, under the common denomination of *sui generis* community intellectual rights, the knowledge, practices and innovations of indigenous peoples and communities related to the use of components of biodiversity and associated knowledge. This right exists and is legally recognized by the mere existence of the cultural practice or knowledge related to genetic resources and biochemicals; it does not require prior declaration, explicit recognition nor official registration; therefore it can include practices which in the future acquire such status.

National Legislation of Costa Rica, Biodiversity Law, Article 82 Ley No. 7788: 1998

patents granted on inventions obtained or developed from genetic resources or traditional knowledge, of which any member state is the country of origin, without presentation of a copy of the proper access contract or license from the community shall be nullified.⁴¹

A *sui generis* system may legally acknowledge and protect knowledge related to the use of genetic resources even when it is not officially documented, but instead exists in the form of oral information, traditional and historic use (see Boxed Aside, "A *Sui Generis* System in Costa Rica" below). Even though protections might be extended here, the government's intellectual property office needs to know about the knowledge or practice in order to enforce protection. Therefore, if a country has some form of a *sui generis* system in place, it is important for local communities to establish a working relationship with the intellectual property office. In addition, these offices may privately maintain inventories or registries of locally held knowledge, and can assist in its protection [See section "Registries"]. For example, this office can deny a patent application if the knowledge that it is based on is already held in the registry [See section "Registries" and "Documenting Knowledge"].

Under a *sui generis* system and as called for by the *Convention on Biological Diversity*, any person interested in gaining access to a community's biological resources or knowledge for scientific, commercial or industrial purposes would need to obtain the prior informed consent of the indigenous peoples who possess the knowledge in question, unless the knowledge is already in the public domain (See section, "Prior Informed Consent" above). This would allow the community to decide on access to and use of its genetic resources and knowledge, with the option to share or not to share them. [See section "Contracts – The Basics"]. If consent is granted, the person or persons wishing access to lands held by indigenous communities or a conservation area, its biological resources, and knowledge associated with either would need to present evidence of this consent to the intellectual property office or proper authority.

Access and Benefit Sharing

Access refers to granting permission to enter an area for the purpose of sampling, collecting, and removing genetic or other resources. Benefit sharing refers to all forms of compensation for the use of genetic resources, whether monetary or non-monetary. This might also include participation in scientific research and development of genetic resources, and sharing the findings of any potential benefits resulting from this work.

Articles 1 and 8(j) of the CBD encourage the equitable sharing of benefits arising from TK for conservation and sustainable use of biological diversity. In benefit sharing arrangements, all parties share the benefits rising out of the use of genetic materials and traditional knowledge of their uses. For the local community, this involves the sharing of traditional knowledge and resources with contracting parties and others those who wish to use it for research and/or developing new products based on this knowledge. The contracting parties in turn would

Access and Benefit Sharing

Advantages

- Potentially profitable
- TK stakeholders typically do not need to perform the research, development, and marketing

Disadvantages

- Financial or other benefits must be shared
- Must convince companies or other individual of the knowledge's market potential and the benefits of "benefit-sharing"

Criterion

- Resources or knowledge must be of value to those outside the community

share any advancements, benefits (including financial), or products that made use of the resources developed from local resources with the local community.

Article 15 of the CBD states that access to genetic resources and any transfer of technology be provided and/or facilitated under fair and mutually agreed upon terms. This may include types of financial arrangements described later in the CBD (Articles 20 and 21).

Case Illustration Seven **Trade secret for Benefit Sharing in Ecuador**

In Ecuador, the Inter-American Development Bank and several NGOs have launched a project entitled "The Transformation of Traditional Knowledge into Trade Secrets." The goal of the project is to catalogue traditional knowledge and then maintain the database at regional centers, access to which will be safeguarded. Each participating community will have its own file in the database and will not be able to access files of any other community. The collected knowledge will be reviewed, and that knowledge which is not common to multiple communities may be negotiated as trade secrets through Material Transfer Agreements (MTA) [See section "*Contracts – The Basics*"]. The benefits from any MTAs are to be split between the Government of Ecuador and the communities that deposited the knowledge in the database. Payments to communities will then used to finance public projects previously identified by each community.⁴²

Benefits include a wide range of options, and often beneficiaries receive more than one type of benefit. They may include:

- **Start-up/upfront benefits** or payments are paid as a lump sum (if a financial arrangement) or delivered (if a cooperative or capacity building project). These benefits would include equipment such as computer hardware, software or extraction and screening facilities.
- **Process benefits** are derived during the process of research and development. In addition to financial payments, process benefits may include capacity, expertise or know-how building, and training through joint research.

Product benefits are paid after the commercialization of the final product. These may include royalty payments that may be negotiated according to the contribution of the genetic resource or the amount of or role of local knowledge that was used in creating the final product. Royalty rates may be based on a sliding scale, depending on the end-use of the research results and the magnitude of sales. Financial payments for benefit sharing may go to a trust fund for a community itself and not to specific individuals in the community. These trust funds normally support community development projects and training.

- **Moral and relation benefits** – Unlike the financial benefits described above, moral and relation benefits are not transferred according to a formalized arrangement, but are based on the interaction of the participants. Moral

benefits include recognition of the originators and holders of knowledge in publications or proper attribution of the origins or role that traditional knowledge played in new product research and development. Relation benefits may include establishing or entering networks, access to publishers or the establishment of a union of sustainable harvesters to defend common interests.⁴³

Contracts – The Basics

Contractual agreements are legally binding documents between parties. In relation to traditional knowledge, they are generally used to outline and enforce access and benefit sharing agreements as well as trade secrets.

Contracts relative to traditional knowledge may explain or clarify the following points:

- parties to the agreement,
- duration of the agreement,
- knowledge included in the agreement,
- uses of the knowledge,
- restrictions placed on the knowledge's use,
- restrictions placed on confidentiality, and
- specifics for benefit-sharing.

Sources for Sample Contractual Clauses

- World Intellectual Organization (WIPO) Contracts Database <http://www.wipo.org/globalissues/databases/contracts/>
- Michael A. Gollin, *Elements of Commercial Biodiversity Prospecting Agreements*, in *Biodiversity and Traditional Knowledge: Equitable Partnerships in Practice*. Sarah A Laird, ed. London, Earthscan, 2002.

The following are descriptions some of some types of contracts and how they might be employed for access and benefit sharing in compliance with the CBD.

- **Confidentiality/non-disclosure agreements** keep transferred information private and confidential. Confidentiality and non-disclosure agreements are specific to trade secrets. These agreements are used to specify the confidentiality relating to the access and use of the knowledge and genetic resources involved.
- **Exclusive licenses** grant rights only to a licensee regarding the use of any specified knowledge, and the original owner loses the right to that knowledge. Exclusive licensing transfers the rights over the knowledge to an outside party and the traditional knowledge holders lose all of their rights to control the knowledge. Sole licensing differs in that although rights to the knowledge are granted to an outside party, the original traditional knowledge holders maintain their rights.
- **Non-exclusive licensing agreements** set no limits on the licensing of the knowledge by the traditional knowledge holders. The holders may grant an unlimited amount of licenses to outside parties.

- **Material Transfer Agreements** specify conditions, uses, and access to tangible biological items. Material transfer agreements are specifically designed to address access issues to tangible items, in this situation, genetic resources. This type of contractual agreement specifies the conditions, use, and access to the biological resources [See section "Access and Benefit Sharing"].⁴⁴

The type of contractual arrangement will vary according to the knowledge and/or genetic resources in question, as well as the interests and cultural components related to the knowledge (explained further in "Part III, Identifying Traditional Knowledge"). If considering a contractual agreement, make sure that the selected type of contract corresponds to both the short-term and long-term interests of the community.

Case Illustration Eight The Kraho Indians of Brazil: Misrepresentation in Contractual Agreements

A bioprospecting project was supposed to be a model relationship between academia, traditional knowledge, and technology by bringing together indigenous communities in Brazil and the Federal University in Sao Paulo. The agreement was finalized in 1999 and a contract defined the access and benefit sharing components of the relationship between the two groups. What went wrong?

The agreement, originally understood to be approved by the Kraho Indian leadership in 1999, was actually "signed by a small association representing only 250 of the 2,000 ethnic group members." After the project started, many of the Kraho Indians, unaware of the bioprospecting agreement, began to witness the extraction of their biological resources and knowledge without prior permission. Once the community realized that a contractual arrangement granted access to their resources, over 400 samples had already been collected. The Kraho are now requesting \$8 million in damages from the Federal University of Sao Paulo for "compensation for the extraction of medicinal plants and the collection of knowledge on the plants uses from Indian shamans and elders."⁴⁵

What can be learned from this contractual agreement? The primary lesson is that a contractual agreement is at risk if all parties are not informed of the agreement, have not given consent, and are not represented. Therefore, identifying all the traditional knowledge holders and stakeholders in *Chart 2* (in Part III) of this handbook is a vital step prior to selecting an IPR option. If this is not done, a selected option may be challenged.

Protected/Conservation Areas⁴⁶

The World Conservation Union (IUCN) defines a protected or conservation area as "an area of land and/or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means."⁴⁷ Conservation areas have many benefits mainly for the preservation of cultural and biological diversity. Forming a conservation area can protect traditional communities, environments, and potentially traditional knowledge from prospectors and/or commercial exploitation.

The IUCN identifies nine different management objectives for employing a protected area.⁴⁸ The main objectives are:

- scientific research,
- wilderness protection,
- preservation of species and genetic diversity,
- maintenance of environmental services,
- protection of specific natural/cultural features,
- tourism and recreation,
- education regarding the sustainable use of resources from natural ecosystems, and
- maintenance of cultural/ traditional attributes.

In relation to TK, these objectives range from using traditional knowledge and genetic resources in scientific research or tourism to the protection and preservation of TK and culture.

There are several types of protected areas with different standards and purposes that can be used to meet the objectives mentioned above. The IUCN identifies seven different types of protected areas: strict nature reserve, wilderness area, national park, natural monument, habitat/species management area, protected landscape/seascape, and managed resource protected area. The following chart contains the standard IUCN definitions for these seven types.⁴⁹

Conservation Areas

Advantages

- Preservation of cultural and biological diversity
- Protects from commercial exploitation and prospecting

Disadvantages

- Must be combined with other options to prevent inappropriate IPR claims

Criterion

- Must meet conservation area criteria as designated by individual countries

Type of Protected Area	Definition
Strict Nature Reserve	Area of land and/or sea possessing some outstanding or representative ecosystems, geological or physiological features and/or species, available primarily for scientific research and/or environmental monitoring.
Wilderness Protection	Large area of unmodified or slightly modified land, and/or sea, retaining its natural character and influence, without permanent or significant habitation, which is protected and managed so as to preserve its natural condition.
National Park	Natural area of land and/or sea, designated to (a) protect the ecological integrity of one or more ecosystems for present and future generations, (b) exclude exploitation or occupation inimical to the purposes of designation of the area and (c) provide a foundation for spiritual, scientific, educational, recreational and visitor opportunities, all of which must be environmentally and culturally compatible.
Natural Monument	Area containing one, or more, specific natural or natural/cultural feature which is of outstanding or unique value because of its inherent rarity, representative or aesthetic qualities or cultural significance.
Habitat/Species Management Area	Area of land and/or sea subject to active intervention for management purposes so as to ensure the maintenance of habitats and/or to meet the requirements of specific species.
Protected Landscape/Seascape	Area of land, with coast and sea as appropriate, where the interaction of people and nature over time has produced an area of distinct character with significant aesthetic, ecological and/or cultural value, and often with high biological diversity. Safeguarding the integrity of this traditional interaction is vital to the protection, maintenance and evolution of such an area.
Managed Resource Protected Area	Area containing predominantly unmodified natural systems, managed to ensure long term protection and maintenance of biological diversity, while providing at the same time a sustainable flow of natural products and services to meet community needs.

The following chart⁵⁰ shows the management objectives and the types of protected areas. The numerical indicators show the relevance of each objective to the different types of protected areas. A one (1) indicates that the objective is of primary importance for the corresponding protected area type whereas a two (2) denotes the objective as being secondary. If the objective is only potentially applicable to the area, it is marked with a three (3). A dash (-) indicates that the objective is not applicable.

Figure 3: Matrix of Management Objectives and IUCN Protected Area Management Categories

Management Objective	Strict Nature Reserve	Wilderness Area	National Park	Natural Monument	Habitat/species Management Area	Protected Landscape/Seascape	Managed Resource Protected Area
Scientific Research	1	3	2	2	2	2	3
Wilderness Protection	2	1	2	3	3	-	2
Preservation of Species and Genetic Resources	1	2	1	1	1	2	1
Maintenance of Environmental Services	2	1	1	-	1	2	1
Protection of Specific Natural/Cultural Features	-	-	2	1	3	1	3
Tourism and Recreation	-	2	1	1	3	1	3
Education	-	-	2	2	2	2	3
Sustainable Use of Resources from Natural Ecosystems	-	3	3	-	2	2	1
Maintenance of Cultural/Traditional Attributes	-	-	-	-	-	1	2

Key
 1 Primary Objective
 2 Secondary Objective
 3 Potentially Applicable Objective
 - Not Applicable

Requirements for conservation areas are typically determined by the state and requests for conservation areas should be made to state officials with the proper decision-making authority.

It is important to remember that conservation areas are only as effective as the guidelines used to create them. Traditional knowledge holders can make specific requests regarding the use and accessibility to resources in the area. Conservation

Important!

areas can be more effective against inappropriate IPR claims when combined with other protection mechanisms mentioned in this publication that also address the desires and interests of the local community.

Conservation areas can be combined with other intellectual property options if a community desires additional protection for their

TK

Documenting Traditional Knowledge

Whether the goals for a community include preserving, protecting, or sharing traditional knowledge, it is becoming increasingly important to record and document this knowledge. Documentation is fundamental to both preserving this knowledge for current and future generations, as well as protecting intellectual property rights. But documenting TK is a difficult task. While TK may consist of many scientific and potentially innovative claims, its context (cultural, spiritual, historical, etc.) should also be maintained and recorded along with any claim in order to preserve the cultural context and depth of the knowledge.

In documenting TK, communities should attempt to use local place names, community concepts and terms in describing knowledge. It is strongly advised that local communities create dictionaries or glossaries of special terms or local words and phrases used to describe TK. A dictionary or glossary will help others outside the community in matching local terms to those in a dominant language should the community decide to share its knowledge.⁵¹

Suggestions for Documenting TK

If one of the priorities of a community in documenting TK includes capturing and maintaining the cultural, spiritual, and historical contexts of the knowledge [See exercise 3, “*Determining Cultural Aspects*”], it is important to use a variety of methods and all possible means to capture this knowledge, as a single method alone cannot capture all aspects of TK, and different methods work better for some types of TK than others.⁵² Therefore, in addition to describing TK in a written form, the local community may want to include maps, photographs of preparations or plants involved in a process, drawings, audio and video tape for interviews. Group discussions, individual interviews, and first hand experience are essential in capturing TK as accurately as possible. In addition, it may be necessary to collect and preserve physical artifacts and specimens as part of the TK documentation process.⁵³

If the community’s goals and interests include sharing knowledge scientifically (trade secrets, benefit sharing), avoiding exploitation or inappropriate intellectual property claims by placing the information in the public domain, or applying for intellectual property protections, a TK claim should be documented in a manner that:

- someone else, by reading the documentation could follow the described process and recreate the same result,
- if read by a patent examiner, they could determine how closely, if not exactly, a claim being made by someone else resembles the traditional process or product described, and
- if the process being described may be appropriate for intellectual property protection, it is described technically enough to meet the requirements for a patent application.

In order to meet the above conditions, the TK should be documented to include the following information [see also Exercise 1, “*Identifying Traditional Knowledge*”]:

1. Name or descriptive title of the process or product

A name should be as short and specific as possible. As most TK processes will not have a name, a very brief descriptive title could be used. Examples of descriptive titles could be:

“Mixed fine powder for beverage containing...” or a “Cure for skin rashes and using...”

2. Who is claiming the process or product

While the nature of traditional knowledge often precludes associating specific individuals with a practice, and for the purposes of stating and protecting an entire community’s claim on the practice, at a minimum the name and location of the community who holds this practice should be identified.

3. Summary of the process

Include the general use of the product, how it is made or prepared, including all materials used in the preparation. The following is an example of a summary taken from a USPTO patent application that was actually granted:

Mixed fine powder for beverage containing young barley leaves, alfalfa and/or kale of the present invention includes a first ingredient in a powdered form of young barley leaves, alfalfa and/or kale and a second ingredient in a powdered form of non- and/or semi-fermented tea.

In addition to the first and second essential ingredients, at least one material selected from the group consisting of the following in a fine powdered form may be added; striped bamboo, adlay, ginkgo leaves, persimmon leaves, turmeric, ashitaba, licorice, oriental senna, matrimony vine, tochu leaves, rooibos leaves, rafuma leaves, gincha leaves, molokhiya, carrot, broccoli, celery, mandarin orange, wheat, soybean, embryo bud, brown rice, eggshell and chlorophyll.⁵⁴

4. Resulting Product or Results of Process

Describe the product created or the results of the process described in the summary. Combined with the summary of the process, this would be equivalent to actual types of claims made on patent applications. The following is one of the claims made on the same patent application quoted above:

A mixed fine powder for [a] beverage consisting essentially of a first essential ingredient in a fine powdered form of at least one selected from the group consisting of young barley leaves, alfalfa and kale and a second essential ingredient in a fine powdered form of at least one selected from the group consisting of non- and semi fermented tea.

5. Variations on the product

Describe any variations in the process and any differences in the product that result from those variations. This might include simply changing or substituting or adding an additional ingredient, even though the resulting product works the same way or

has the same affect. These are equivalent to additional claims that are often made on a patent application. To illustrate, the following is an additional claim made on the same patent application.

Mixed fine powder according to claim 2 wherein an amount of the third ingredient is 10% by weight or less of total weight including the first and second ingredients.

6. Results

Record any known or demonstrated results from the process or product. For example, the success rate of applying a balm for a certain types of rashes (e.g. 9 out of 10 showed marked improvement in condition within 2 days). In the case of the patent quoted above, because the inventors were trying to develop a pleasant tasting drink, they submitted results that showed how many people tested could easily drink the mixture, could drink it without a problem yet found it unpleasant, bitter and strong smelling, and those who could not drink it at all.

An Example of TK Documentation

To illustrate how a claim may be documented, let's look at an entry from the Honey-bee Network's Innovation Database,⁵⁵ a large online database of grassroots innovations detailing contemporary and traditional innovative practices.

<i>Claim:</i> *	Curing joint pains
<i>Inventor:</i> *	Hirabhai Kodarbhai Rawal
Address of Innovator	Sabarkantha Gujarat
Details of Innovation	Hirabhai Kodarbhai Raval has a special way of treating his animals for stiffness of the body. He prepares a mixture of 250 g variyali (<i>Foeniculum vulgare</i>), 50 g turmeric powder, and 500 g Dalda ghee. This, when given to the animal to drink, loosens the stiffness in the body of the animal and relieves joint pains. Half this dosage is prescribed for very young animals.
Reference from	Honey Bee, 9(4): 15, 1998

* *Terms in Italics added by the authors.*

Note that this database entry contains the following information:

Claim being made: Curing joint pains. In this format for documentation, the claim also serves as the name or descriptive title for the claim.

Name of the inventor or claimant: In this example, the inventor is an individual, but this could also be the name and/or location of a community as well.

Details of the invention: It is a mixture consisting of the following ingredients and amounts: 250 grams of *variyaali (Foeniculum vulgare)*, 50 grams of turmeric powder, and 500 grams of *Dalda ghee*.

How applied: It is given to the animal to drink.

Dosage: As mixed and half dosage for very young animals.

Results: Loosens the stiffness in the body of the animal and relieves joint pains.

Part III
EXERCISES:
IDENTIFYING TRADITIONAL
KNOWLEDGE



Identifying Knowledge and Applying Intellectual Property Protections

This section will help to identify knowledge that may be subject to protection under intellectual property rights regimes.

Exercise 1– Locating and Identifying Traditional Knowledge

In order to protect or preserve traditional knowledge, it is important to be able to locate and identify this knowledge.

TK is found in:

- Daily activities including, among other things:
 - Farming
 - Gardening
 - Animal breeding and care
 - Food and nutrition
 - Health Care and reproductive health
 - Water resource use

- Spiritual and religious activities
- Folklore, songs, poetry, and theater
- Community records. Although TK is mostly transmitted by word of mouth, some other forms of record keeping may exist. For example, maps, boundary markers (trees, poles, stones, etc.), drawings, paintings, or carvings, and many other forms.
- People working with the community, such as NGO researchers, academics, scientists, and development specialists who may have been collecting TK
- Secondary sources such as journal articles and books, unpublished documents, databases, videos, photos, museums, and exhibits.⁵⁶

Identifying Traditional Knowledge

An element of traditional knowledge for which intellectual property protections could potentially apply is called a *knowledge claim*. A traditional knowledge claim contains three essential components: a genetic resource, a preparation or process, and an end result or product derived from a preparation or process. The genetic resource is typically a plant. The process encompasses the various ways of using the plant for an end result. Processes may include methods of growing, harvesting, extracting, preparing, or applying the plant. The end result is the benefit from using the biological resource and the process. Let's look at an example:

Genetic Resource	Processes	End Results
Plant (Ex: <i>Maca</i>)	Growing Preparing Administering	Increased livestock reproduction Improved human fertility

In the chart, “plant” is the genetic resource (in this example, *maca*). The processes are growing, preparing, and administering. The two end results are increased livestock reproduction and improved human fertility. These three categories (Plant, Process, Product) can be combined in a variety of ways producing several claims. For example, from the simple chart above, it is possible to deduce six claims:

- A method of growing *maca* to cause an increase livestock reproduction,
- A method of preparing *maca* to cause an increase livestock reproduction,
- A method of administering *maca* to cause an increase livestock reproduction,
- A method of growing *maca* to improve human fertility,
- A method of preparing *maca* to improve human fertility, and
- A method of administering *maca* to improve human fertility.

By following the example given for *maca* in the chart above, specific knowledge claims can now be identified in *Worksheet 1* on the following page. First, identify an aspect of the traditional lifestyle from the list located at the beginning of this exercise or from another aspect that is not mentioned there. Next, begin to identify specific generic resources, processes, and end results. Then list all of the possible knowledge claims for the genetic resource. Identify those knowledge claims that are most valuable to the community and highlight any new ideas that might arise in doing the exercise. When complete, please continue on to Exercise #2.

Worksheet 1 – Identifying Traditional Knowledge

Genetic Resource	Processes	End Results

Knowledge claims:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____

Exercise 2 - Identifying Who Holds the Knowledge

After identifying a traditional knowledge claim, the next step is to determine who the knowledge holders and stakeholders are for that claim. The knowledge holders are the people who hold and/or use the knowledge, and stakeholders are the people in the community with a direct interest in the knowledge. When making a decision in relation to a specific knowledge claim, one must consult all of the stakeholders of that claim (which is often the entire community and/or other communities as well) before making a final decision about how any intellectual property rights should be applied.

TK can either originate within a community or enter a community from the outside. If the knowledge is not originally from within the community in question, then it may not be subject to any intellectual property rights, and may already be part of the public domain. If the knowledge is from within the community, then the next step is to determine who holds the knowledge. The holder(s) of the knowledge can be an individual, multiple individuals, or the community as a whole.

The next step is to determine who uses or has access to the knowledge. Knowledge claims can either be held or practiced by no one, an individual, multiple individuals, a community, or people outside the community.

Any potential IPR options will depend on how many people are aware of the knowledge and who these people are. Based on these variables, a knowledge claim can be categorized into three groups:

1. known and used by an individual,
2. known and used by several individuals or a community, or
3. diffused broadly and in the public domain.

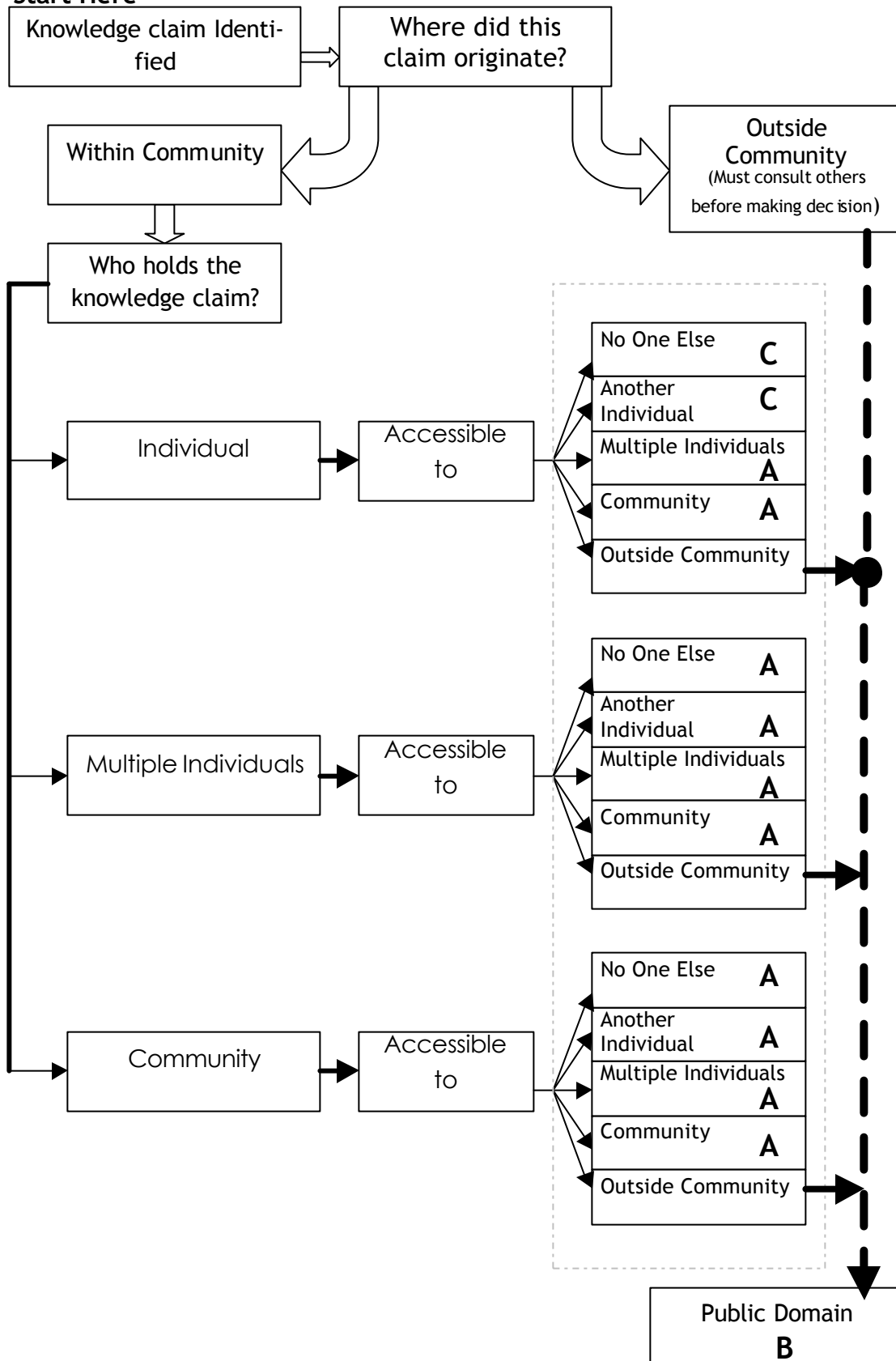
Chart 2 will assist in determining who holds the knowledge and who the stakeholders are in order to determine options to pursue for an identified knowledge claim.⁵⁷ The dashed box surrounding a region of the chart represents knowledge that may fall within IPR protections and is not part of the public domain. If the knowledge crosses outside of the box, the knowledge may already be in the public domain (with or without prior informed consent [See section "*Prior Informed Consent*"] and with no options for IPR protection. The triangles, diamonds, and squares located in the final boxes specify which worksheet to use relevant to the set of options that could be used for a particular knowledge claim.

How to Use Chart 2

- Start at the top where the knowledge claim is identified (from Worksheet 1).
- The next question considers where the claim originated. If the claim originated within the community, go to the "Community" box. If the claim came originally from outside the community, continue to the "Only Outside Community" box on the right. If the latter is selected, the local community may not be the sole holder of that claim and the only stakeholder, and/or the knowledge may be in the public domain.
- If the claim is from within the community, the next question is "who holds this knowledge?" The knowledge can be held (known) by an individual, multiple individuals, or the community as a whole. Move to the appropriate box.
- The next question determines to whom this knowledge is accessible. The answer can either be no one, an individual, multiple individuals, the community, or people outside the community. Go to the appropriate box. When determining accessibility, think about anyone who is told about this knowledge, anyone who uses or practices this knowledge, and who has access to written documentation about the knowledge (if it exists).
- Use the letter (A, B, or C) in the final box to identify the appropriate set of three worksheets for exercise 3.

Chart 2 – Identifying Who Holds the Knowledge

Start Here



Remember the code letter located in the final box of *Chart 2*. This code letter will be used to identify the appropriate section of *Worksheet 3* for the specific traditional knowledge claim.

Exercise 3 - Identifying Intellectual Property Options

This exercise will help to identify possible options for the knowledge claim. The worksheets in this section help the reader to identify key cultural characteristics and community goals for a specific claim. This exercise will also help accent potential options, eliminate poor options, and identify potential conflicts between cultural aspects associated with the claim. Please read the next two sections on cultural aspects and community goals before continuing to the worksheets in Tool 3.

Determining Cultural Aspects

The scientific aspect of traditional knowledge is only one aspect of a larger culture of knowledge. For this reason, culture cannot be ignored when applying intellectual property rights to TK. Cultural aspects important to TK are described below in six general categories. Each category should be considered independently, and in any combination, when evaluating the place of a specific claim in its cultural context and in the intellectual property rights regime.

1. **Spiritual** – This category consists of knowledge that not only has a useful or functional purpose, but also some form of spiritual, religious or sacred importance as well. Knowledge included in this category may include knowledge used during religious ceremonies, considered sacred within a community, known only by sacred and religious persons within the community, or not to be taken out of its religious context.
2. **Subsistence** – This category consists of knowledge necessary for the basic survival of the community. Included within this category is knowledge used for food production or any knowledge vital for life and survival. To determine whether certain knowledge falls within the subsistence category, one should ask the following question: Without this knowledge, will it be considerably more difficult, or perhaps impossible, for the community to meet its needs for basic survival?
3. **Economic** - This category consists of knowledge with strong ties to the economic survival or benefit of the TK stakeholders. This category includes knowledge used to produce products for trade, to perform services of monetary value, or to provide any other substantial economic support to the community.
4. **Traditional secret** - This category consists of knowledge that is held as a secret among the community. Disclosing knowledge within this category to the general public would be culturally inappropriate. The knowledge can fall within other categories as well, for example, the religious and sacred category or the subsistence category, but the most important feature of this knowledge is its secrecy.
5. **Medicinal**– This category consists of knowledge used to cure or prevent

medical ailments within a community. Regardless of whether or not the knowledge is individual, communal, or public, the knowledge is important for the overall health and welfare of a community.

6. **Historic** – This category consists of knowledge that is of historic importance to the community. It may be related to the history of the community (for example, an origin myth), or a specific practice known or used by ancestors that is no longer practiced but still remembered.

Determining Community Goals

When evaluating a knowledge claim and determining potential options for protection, the goals and interests of the community are important to consider. Five categories are used in this methodology for determining community goals for a claim. They are:

1. **Profit** - Commercializing and receiving financial gains or other economic benefits from TK.
2. **Dissemination for public good** - Sharing TK in order to benefit others. This goal is particularly applicable to TK with medicinal or agricultural uses.
3. **Avoiding exploitation** - In avoiding exploitation, it is the hope of the TK stakeholders that their culture and environment will not be usurped or harmed by outsiders. Control over knowledge, the way it is used, and its concurrent effects on the culture and environment important to the TK stakeholders.
4. **Avoiding inappropriate intellectual property claims** - Avoiding intellectual property claims on community knowledge or resources by outsiders. The protection of moral and material interests is of primary importance.
5. **Preservation** - Preservation of the traditional knowledge above other interests or desires.

How to Use Worksheet 3

The first series of worksheets serve as an example set. After reading through the instructions at the bottom of the page, continue to the appropriate worksheet (A, B, or C) for the knowledge claim to determine the potential options.

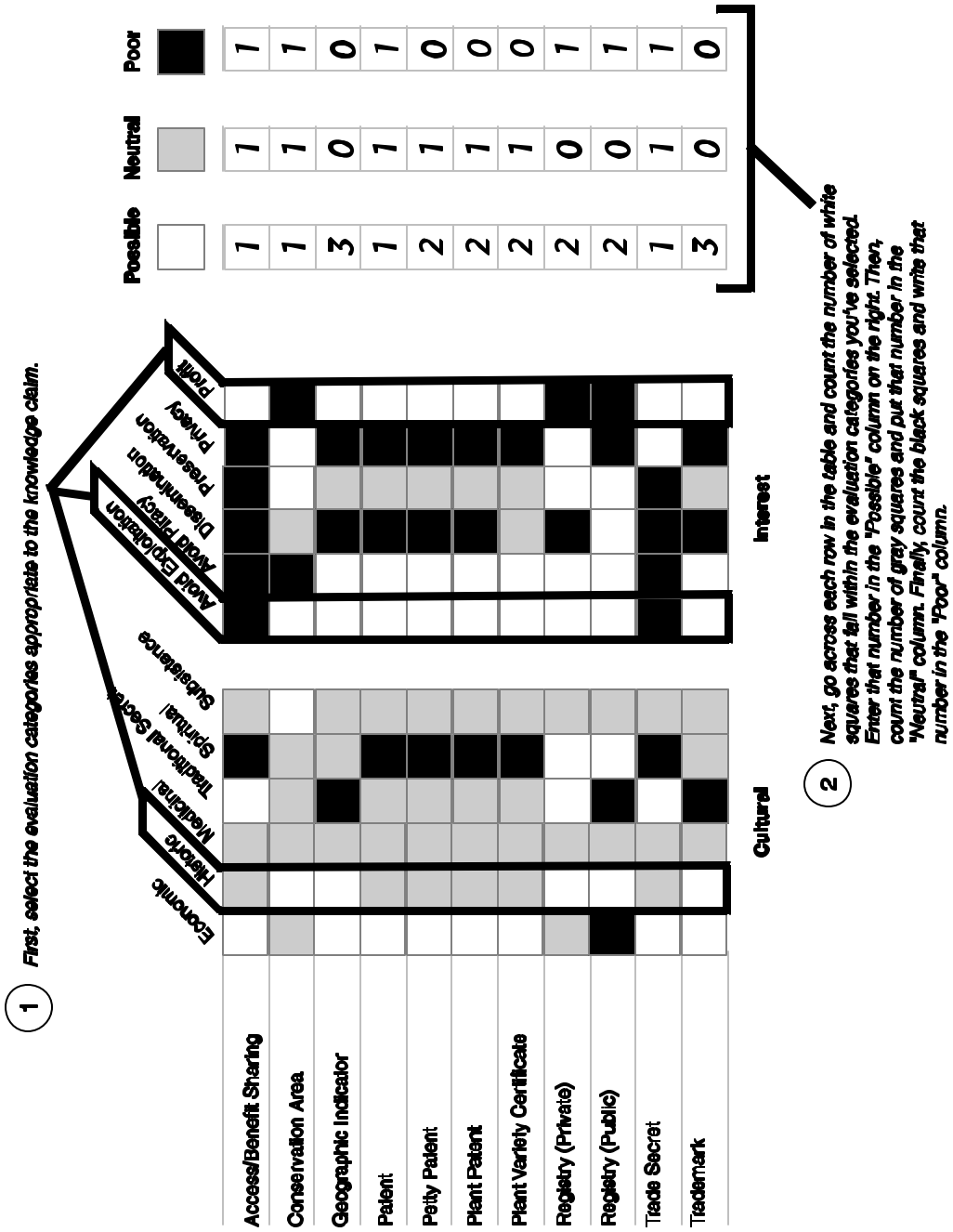
Instructions

1. Identify the proper worksheet coded by the letter A, B, or C, as determined in the previous exercise (See Worksheet Key Below).
2. Select the appropriate cultural evaluation categories.
3. Select the appropriate interest evaluation categories.
4. Next, add the number of squares in the selected categories for each option according to the colors. Place the numerical tally in the boxes to the right of the categories labeled "Possible," "Neutral," and "Poor."
 - a. If there the total is zero in the **poor** column, this option may be suitable for the knowledge claim. If there is a number greater than zero in the poor column, there is an aspect of the option that may not be compatible with the knowledge claim.
 - b. If there is a number greater than zero in the **neutral** category, the option may not address all of the cultural and interest related aspects of the knowledge claim. At the same time, the option will most likely not work counter to the cultural and interest related dimensions of the knowledge claim.
 - c. If there is a number greater than zero in the **possible** category, the option most likely will satisfy the needs of the knowledge based on the cultural and interest related aspects identified by the knowledge holder.
5. Compare the totals and select the option(s) that appears to be most appropriate given the numbers in the three columns.
6. Now, reexamine the options in the previous section of this handbook that appear to be suitable for your knowledge. After familiarizing yourself with the option(s), continue to the next section ("*Following Through with an IP Option*") to learn more about the implementation of the option(s).

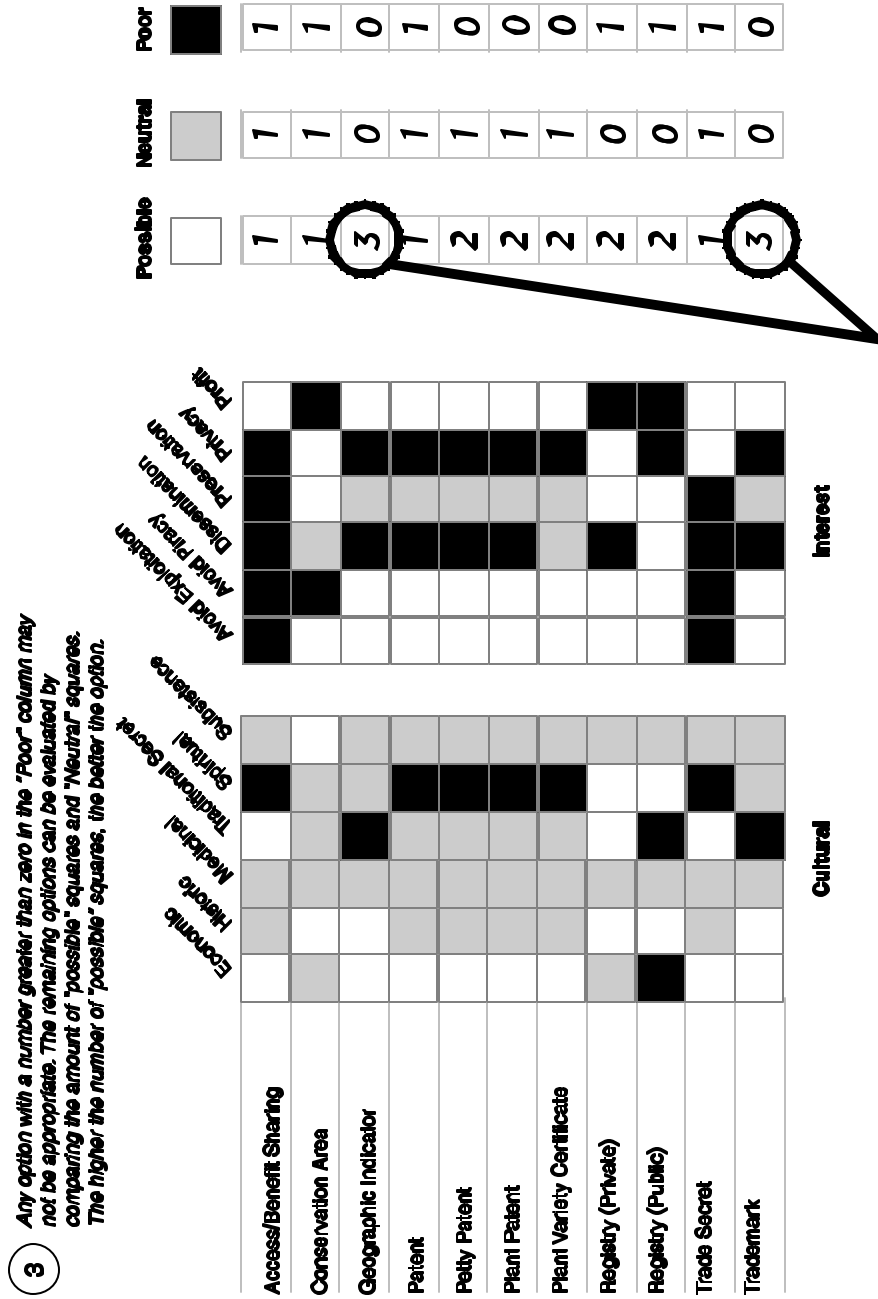
Worksheet Key

- | | |
|----------|--|
| A | Community/Multiple Stakeholder Knowledge, Use Worksheet A |
| B | Publicly Known Knowledge, Use Worksheet B |
| C | Individual Knowledge, Use Worksheet C |

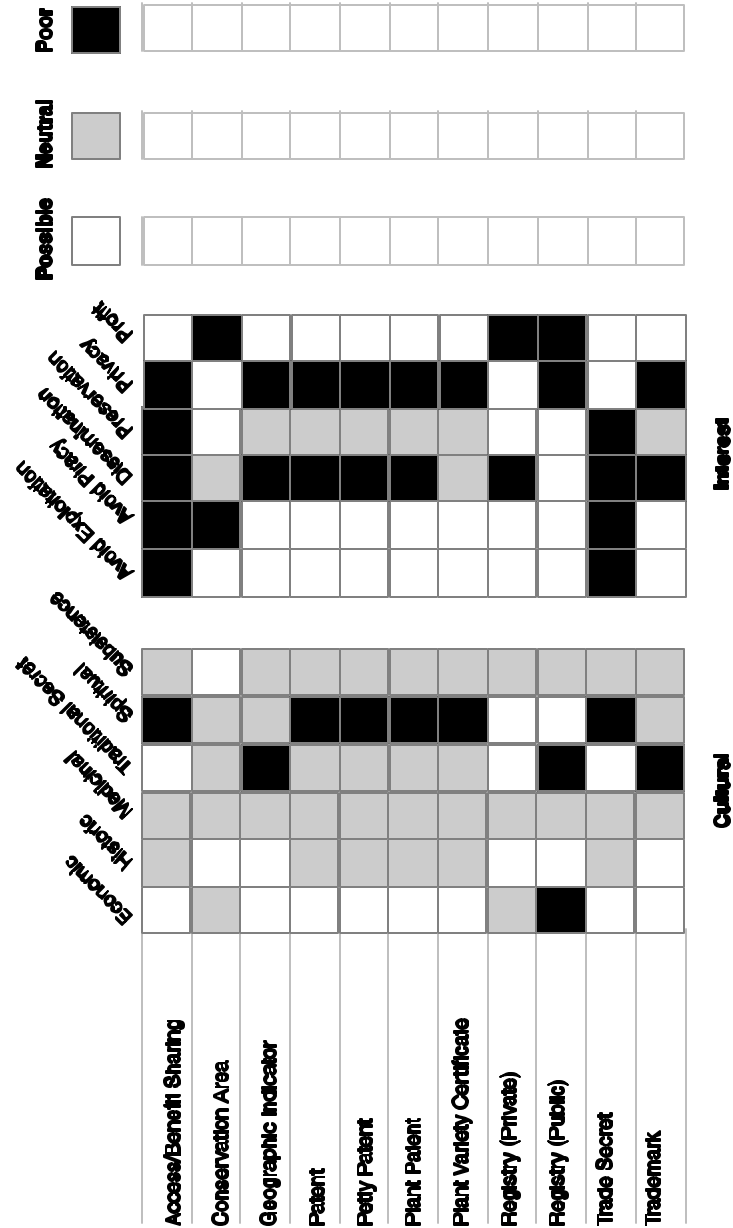
Example



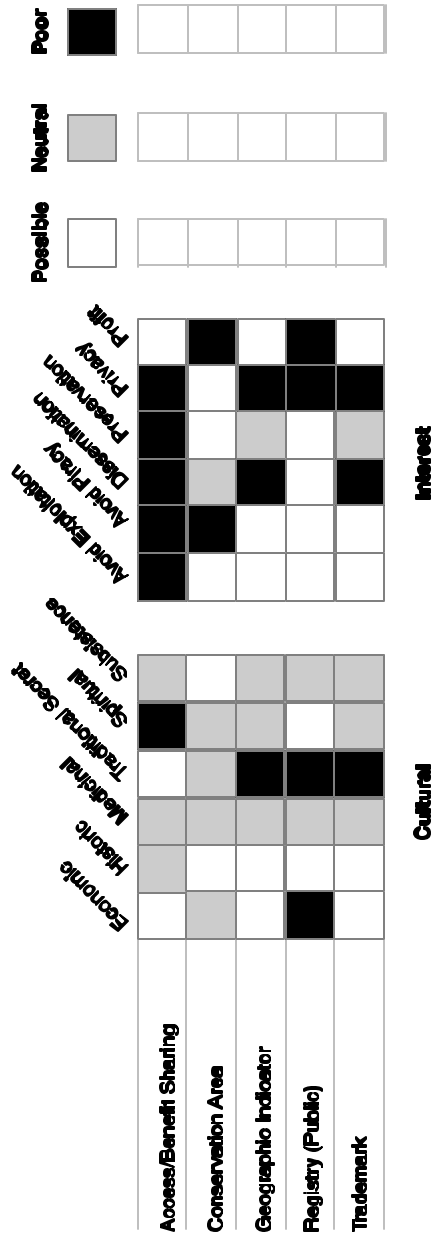
Example



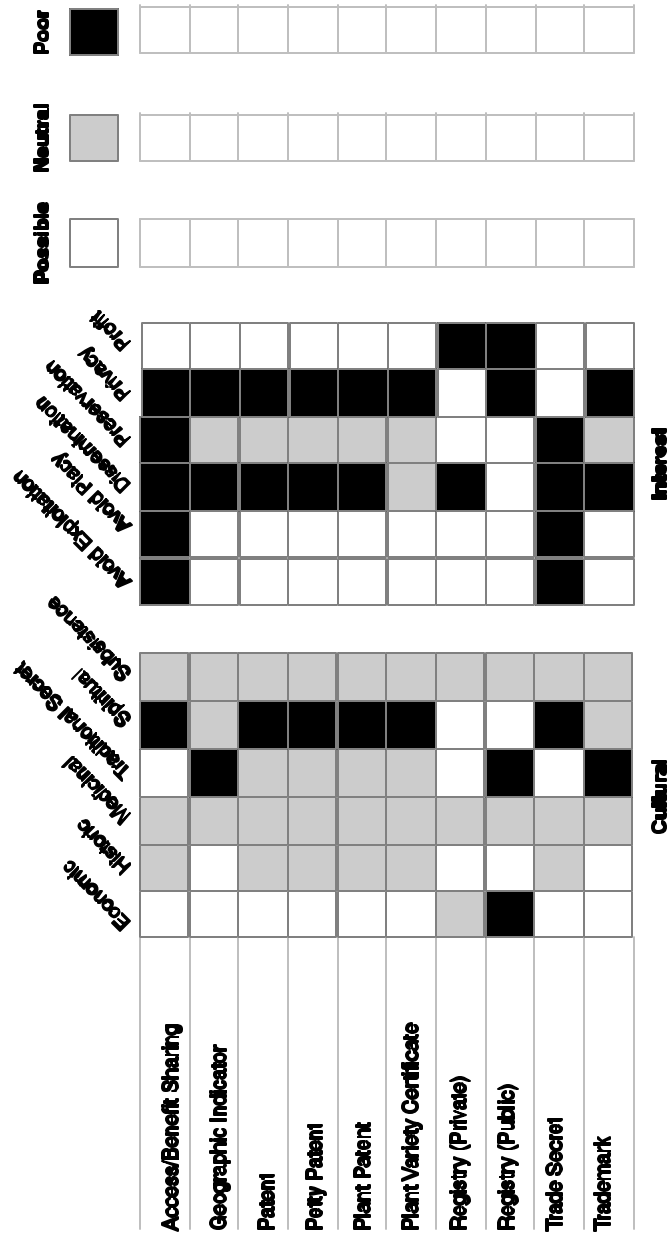
A – Community Traditional Knowledge



B – Publicly Known Traditional Knowledge



C – Individual Traditional Knowledge



Part IV
IMPLEMENTING AN INTELLECTUAL
PROPERTY STRATEGY



Following Through with an IP Option

If potential IPR options were identified while working through the exercises in this handbook, it is now time to discuss ways to implement these options. Before continuing, make sure the community has reviewed and understands the advantages, disadvantages, and criteria relating to any selected IPR option(s).

The next step is work with other members of the community in order to evaluate the possible benefits or consequences of an IPR option. First, identify how the IPR will be used. Do not lose sight of the cultural aspects and community goals identified when selecting the option. Look at the long-term implications of the selection. How will this decision impact the local community in both the short-term and long-term? Is it a sustainable option or only short-term? What will the community do after the IPR protection expires? Make sure that all of the knowledge stakeholders are aware of the decision. Communicating the impact of the decision to the local community and stakeholders is very important.

For some options, it may be necessary to form an official organization that is legally recognized in the country of origin to which all members of the community will be members. This can be especially useful when filing a patent application. This organization will be deemed the "assignee" to the invention. Everyone designated as part of the origin of the knowledge in the community is then an owner of the patent (not an individual).

Designate an IPR Committee Group for the Community

Addressing IPRs for TK can be a very large task for a community. It may be helpful to designate a committee that deals specifically with TK and IPR decisions for the community. This committee may help to organize community meetings, conduct voting among community members, collect TK, and follow-up on community IPR decisions. When creating this committee, it is important to remember that TK belongs to everyone in the community and everyone has the right to voice their opinion and benefit from their TK.

It may also be helpful to engage in community networking outside the local community (without disclosing the knowledge). Look at methods and results of other groups that have used the same IPR option for their local community. How did they approach the option? Were they successful? If not, what did not work? How can the implementation of the IPR option be improved?

Important!

Obtaining Professional Intellectual Property Counsel

It is important to always seek the guidance of intellectual property professionals that are familiar with your state's legislation and can provide specific advice for your community and traditional knowledge. Many lawyers can assist you in your intellectual property endeavors. Public Interest Intellectual Property Advisors (PIIPA) is a new non-profit referral service helping developing country clients find intellectual property professionals who are willing and able to represent them in intellectual property matters as a public service.

For more information, visit their web site at:
<http://www.piipa.org/>

After considering all aspects of the decision, follow it through! Contact the necessary organizations or offices to implement the solution. Also, be aware that local, national, or international organizations (either governmental or non-governmental) may be able to provide technical or legal support and you may wish to consult with any applicable organizations as you begin to pursue the IPR option.

Suggestions when forming an Indigenous IP Committee

1. Choose team members according to skills, but respect local social and authority structures.
2. Become legally recognized.
3. The community itself selects its own representatives.
4. Help outsiders communicate with the community.

Suggestions from: Integrating Indigenous Knowledge in Project Planning and Implementation, Alan R. Emery (CIDA PUBLICATION) pages 58-59

Exercise 4 – Follow Through with an IP Option

The next section of the handbook will assist communities in organizing an action plan for the IPR option(s) selected. A simple series of worksheets featuring the three-step “Brainstorm, Designate & Do” method will help the community to think through the full implementation of the IPR option. On the first worksheet, the reader will recall the previously identified cultural aspects and community goal categories, as well as the overall goal of developing an IPR management strategy. On the second worksheet, the reader should think through the long-term timeline of the selected IPR option. The third worksheet will assist in the designation of responsibility and the formulation of a plan of action for implementing the IPR option. The subsequent pages then provide a “Do” worksheet for each of the options, as well as a checklist of possible actions to pursue in relation to the selected IPR option.

Worksheet Series 4

Following Through with an IP Option

Three Steps:

- Brainstorm
- Designate
- Do

Brainstorm

IPR Option Selected: _____

Cultural and Interest Evaluation Categories Cited:

Overall Community Goal/Purpose in Selecting this IPR Option:

What will the impact be for our community...

In **ONE** year?

In **FIVE** years?

In **FIFTEEN** years?

In **TWENTY-FIVE** years?

In terms of **SUSTAINABILITY**?

Designate

Should a Traditional Knowledge Community Committee Group be established?

- How many people does the traditional knowledge claim impact?
- Are they all represented?
- Is there a need for organization within the community relating to the decision?

How should the Traditional Knowledge Community Committee Group be established?

- How should members be selected?
- Who is skilled in the knowledge area?
- What is the current socio-political structure within the community?

What tasks should the Traditional Knowledge Community Committee Group be in charge of performing?

- Planning Community Meetings?
- Organizing knowledge?
- Communicating with outside organizations?
- Conducting voting?
- Collecting TK?
- Following through with community IPR decisions?
- Gaining legal representative status?

Plan of Action:

Do

Each IPR Option has a “Do” worksheet that serves as a checklist of suggested follow-through steps in order to carry out the selected IPR option. The sheets are in the following order:

1. Patent [Utility, Petty, Plant, Plant Variety Protection]
2. Trade Secret
3. Public Registry
4. Private Registry
5. Conservation Area
6. Access & Benefit Sharing
7. Geographical Indicators
8. Trademarks

Do – Patent [Utility - Petty Patent – Plant Variety Protection – Plant Patent]

- Contact a patent lawyer or agent for advice and assistance in the filing process.
- Decide what types of patent applications are available (e.g. domestic, international) and if the community wants to file a PCT application making the patent valid in several countries. This is only available for invention/innovation patents.
- File patent application.
- Begin planning stages for the implementation of the patent (if approved).
- How will the community develop the patent? Does the community have the resources to protect against infringement?

Do – Trade Secret

- Remind the community that the knowledge must be kept a secret.
- Consider establishing a fund for the indigenous community (in order to receive royalty payments).
- Designate guidelines for the use of the funds derived from the trade secret.
- Find a company interested in the knowledge.
- Develop a contract with a lawyer; make use of WIPO clauses and clauses/ideas for contracts found in this publication.

Do – Public Registry

- Designate community members to collect and document the knowledge.
- Select a database or design a new database.
- Inform the various national patent office(s) about the database.
- Make use of the documentation guidelines set forth in the handbook.

Do – Private Registry

- Designate community members to collect, document, and maintain the TK.
- Inform the patent offices about the private registry if the local community wishes to grant them confidential access (assuming the documentation is capable of serving as prior art through a *sui generis* mechanism).
- Document relevant TK.

Do – Conservation Area

- Have a community meeting to decide the type of area and location that would best serve the community. Consult *Figure 3, Matrix of Management Objectives and IUCN Protected Area Management Categories* in this handbook.
- Contact outside advisors if necessary.
- Contact government officials with a proposal.

Do – Access & Benefit Sharing

- Decide upon the guidelines for access to the knowledge and identify the people and/or organization that will be granted access.
- Decide upon the extent to which the knowledge may be used.
- Decide on acceptable benefit sharing guidelines.
- Contact a lawyer (and other advisory organizations if necessary) to decide upon and draft a contractual agreement. Make use of WIPO contractual clauses and ideas presented in this publication.
- Develop contractual agreement.

Do – Geographical Indicators

- Decide what knowledge should be protected due to its geographical origin. Establish the qualities associated with the knowledge based on its geographical origin.
- Contact a lawyer for advice and assistance registering the geographical indicator (if possible).
- Document the geographical indicator in the public domain as known if there is no official registration process.
- Enforce the geographical indicator if it is violated.

Do – Trademarks

- Decide what knowledge should be protected due to through the trademark. Establish the qualities specific to the product bearing the trademark.
- Design a distinguishing and new trademark using any combination of words, pictures, symbols, phrases, etc.
- Contact a lawyer for advice and assistance registering the trademark.
- Use the trademark to distinguish products based on traditional knowledge as a “value-added.”
- Consider licensing the trademark.
- Enforce the trademark if it is violated.

Annex 1 – Patent Cooperation Treaty Members (As of April 2002)

Albania	Iceland	Tajikistan
Algeria	India	The former Yugoslav
Antigua and Barbuda	Indonesia	Republic of Macedonia
Armenia	Ireland	Togo
Australia	Israel	Trinidad and Tobago
Austria	Italy	Tunisia
Azerbaijan	Japan	Turkey
Barbados	Kazakhstan	Turkmenistan
Belarus	Kenya	Uganda
Belgium	Kyrgyzstan	Ukraine
Belize	Latvia	United Arab Emirates
Benin	Lesotho	United Kingdom
Bosnia and Herzegovina	Liberia	United Republic of Tanzania
Brazil	Liechtenstein	United States of America
Bulgaria	Lithuania	Uzbekistan
Burkina Faso	Luxembourg	Viet Nam
Cameroon	Madagascar	Yugoslavia
Canada	Malawi	Zambia
Central African Republic	Mali	Zimbabwe
Chad	Mauritania	
China	Mexico	
Colombia	Monaco	
Congo	Mongolia	
Costa Rica	Morocco	
Côte d'Ivoire	Mozambique	
Croatia	Netherlands	
Cuba	New Zealand	
Cyprus	Niger	
Czech Republic	Norway	
Democratic People's Republic of Korea	Oman	
Denmark	Philippines	
Dominica	Poland	
Ecuador	Portugal	
Equatorial Guinea	Republic of Korea	
Estonia	Republic of Moldova	
Finland	Romania	
France	Russian Federation	
Gabon	Saint Lucia	
Gambia	Senegal	
Georgia	Sierra Leone	
Germany	Singapore	
Ghana	Slovakia	
Greece	Slovenia	
Grenada	South Africa	
Guinea	Spain	
Guinea-Bissau	Sri Lanka	
Hungary	Sudan	
	Swaziland	
	Sweden	
	Switzerland	

Annex 2 – Member States to the Convention on Biological Diversity

Afghanistan	Djibouti
Albania	Dominica
Algeria	Dominican Republic
Angola	Ecuador
Antigua and Barbuda	Egypt
Argentina	El Salvador
Armenia	Equatorial Guinea
Australia	Eritrea
Austria	Estonia
Azerbaijan	Ethiopia
Bahamas	European
Bahrain	Community
Bangladesh	Fiji
Barbados	Finland
Belarus	France
Belgium	Gabon
Belize	Gambia
Benin	Georgia
Bhutan	Germany
Bolivia	Ghana
Bosnia and Herzegovina	Greece
Botswana	Grenada
Brazil	Guatemala
Brunei Darussalam	Guinea
Bulgaria	Guinea-Bissau
Burkina Faso	Guyana
Burundi	Haiti
Cambodia	Holy See
Cameroon	Honduras
Canada	Hungary
Cape Verde	Iceland
Central African Republic	India
Chad	Indonesia
Chile	Iran
China	(Islamic Republic of)
Colombia	Iraq
Comoros	Ireland
Congo	Israel
Cook Islands	Italy
Costa Rica	Jamaica
Côte d'Ivoire	Japan
Croatia	Jordan
Cuba	Kazakhstan
Cyprus	Kenya
Democratic People's Republic of Korea	Kiribati
Democratic Republic of the Congo	Kuwait
Denmark	Kyrgyzstan
	Lao People's Democratic Republic
	Latvia
	Lebanon

Lesotho
Liberia
Libyan Arab Jama-
hiriya
Liechtenstein
Lithuania
Luxembourg
Madagascar
Malawi
Malaysia
Maldives
Mali
Malta
Marshall Islands
Mauritania
Mauritius
Mexico
Micronesia
(Federated
States of)
Monaco
Mongolia
Morocco
Mozambique
Myanmar
Namibia
Nauru
Nepal
Netherlands
New Zealand
Nicaragua
Niger
Nigeria
Niue
Norway
Oman
Pakistan
Palau
Panama
Papua New Guinea
Paraguay
Peru
Philippines
Poland
Portugal
Qatar
Republic of Korea
Republic of Moldova
Romania
Russian Federation
Rwanda
Saint Kitts and Nevis
Saint Lucia
Saint Vincent and the

Grenadines
Samoa
San Marino
Sao Tome and
Principe
Saudi Arabia
Senegal
Seychelles
Sierra Leone
Singapore
Slovak Republic
Slovenia
Solomon Islands
Somalia
South Africa
Spain
Sri Lanka
Sudan
Suriname
Swaziland
Sweden
Switzerland
Syrian Arab Republic
Tajikistan
Thailand
The Former
Yugoslav Republic
of Macedonia
Togo
Tonga
Trinidad and Tobago
Tunisia
Turkey
Turkmenistan
Tuvalu
Uganda
Ukraine
United Arab Emirates
United Kingdom
of Great Britain and
Northern Ireland
United Republic of
Tanzania
United States of
America
Uruguay
Uzbekistan
Vanuatu
Venezuela
Viet Nam
Yemen
Yugoslavia
Zambia
Zimbabwe

Annex 3 – Member States to the Agreement on Trade Related Aspects of Intellectual Property (TRIPs)

Albania	Ghana	Oman
Angola	Greece	Pakistan
Antigua and Barbuda	Grenada	Panama
Argentina	Guatemala	Papua New Guinea
Australia	Guinea Bissau	Paraguay
Austria	Guinea	Peru
Bahrain, Kingdom of	Guyana	Philippines
Bangladesh	Haiti	Poland
Barbados	Honduras	Portugal
Belgium	Hong Kong, China	Qatar
Belize	Hungary	Romania
Benin	Iceland	Rwanda
Bolivia	India	Saint Kitts and Nevis
Botswana	Indonesia	Saint Lucia
Brazil	Ireland	Saint Vincent & the Grenadines
Brunei Darussalam	Israel	Senegal
Bulgaria	Italy	Separate Customs Ter- ritory of Taiwan, Pen- ghu, Kinmen and Ma- tsu
Burkina Faso	Jamaica	Sierra Leone
Burundi	Japan	Singapore
Cameroon	Jordan	Slovak Republic
Canada	Kenya	Slovenia
Central African Republic	Korea, Republic of	Solomon Islands
Chad	Kuwait	South Africa
Chile	Kyrgyz Republic	Spain
China	Latvia	Sri Lanka
Colombia	Lesotho	Suriname
Congo	Liechtenstein	Swaziland
Costa Rica	Lithuania	Sweden
Côte d'Ivoire	Luxembourg	Switzerland
Croatia	Macao, China	Tanzania
Cuba	Madagascar	Thailand
Cyprus	Malawi	Togo
Czech Republic	Malaysia	Trinidad and Tobago
Democratic Republic of the Congo	Maldives	Tunisia
Denmark	Mali	Turkey
Djibouti	Malta	Uganda
Dominica	Mauritania	United Arab Emirates
Dominican Republic	Mauritius	United Kingdom
Ecuador	Mexico	United States of Amer- ica
Egypt	Moldova	Uruguay
El Salvador	Mongolia	Venezuela
Estonia	Morocco	Zambia
European Community	Mozambique	Zimbabwe
Fiji	Myanmar	
Finland	Namibia	
France	Netherlands	
Gabon	New Zealand	
The Gambia	Nicaragua	
Georgia	Niger	
Germany	Nigeria	
	Norway	

**Annex 4 – Member States to the Convention for the
Protection of New Plant Varieties (UPOV)**

Argentina	Kyrgyzstan
Australia	Mexico
Austria	Netherlands
Belgium	New Zealand
Bolivia	Nicaragua
Brazil	Norway
Bulgaria	Panama
Canada	Paraguay
Chile	Poland
China	Portugal
Colombia	Republic of Korea
Croatia	Republic of Moldova
Czech Republic	Romania
Denmark	Russian Federation
Ecuador	Slovakia
Estonia	Slovenia
Finland	South Africa
France	Spain
Germany	Sweden
Hungary	Switzerland
Ireland	Trinidad and Tobago
Israel	Ukraine
Italy	United Kingdom
Japan	United States of America
Kenya	Uruguay

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