

CHAPTER 7

TRADITIONAL KNOWLEDGE

In previous chapters, the contribution made by intellectual property to the economy has been discussed, including the function of conventional types of intellectual property such as industrial property and copyright. The primary focus is the protection of inventions and creations which are the product of human intellectual activity in the industrial, scientific, literary, or artistic fields. The focus of this chapter is on the relationship between intellectual property and the sustainable economic development of countries which are rich in traditional knowledge. The term "traditional knowledge" is one of several terms to describe broadly the same subject matter. Other terms include "indigenous culture and intellectual property", "indigenous heritage" and "customary heritage rights". WIPO currently uses the term "traditional knowledge" (referred to as TK in this chapter) to refer to tradition-based (i.e. generally transmitted from generation to generation, generally pertaining to a particular people or its territory, and constantly evolving in response to a changing environment) innovations and creations resulting from intellectual activity in the industrial, scientific, literary or artistic fields.¹ Until quite recently, TK assets have been largely overlooked in the IP community and in this sense, they are traditional but new intellectual assets, and their economic value will be shown by presenting relevant statistics. Using a number of case studies and facts, this chapter will also discuss how intellectual property could further enhance the value of TK and bring more economic benefits to the relevant stakeholders.

POTENTIAL VALUE

Traditional knowledge assets are important sources of income, food, and healthcare for large parts of populations, particularly, but not only, in developing countries (see Box - 7.1). According to the World Health Organization (WHO), up to 80 percent of the world's population depends upon traditional medicine for its primary health needs.² In India, for example, there are 600,000 licensed medical practitioners of classical traditional health systems and over one million community-based traditional health workers.³

Studies of local communities also provide evidence that the conservation and use of traditional knowledge can provide significant environmental benefits. Age-old farming and land-use practices have promoted diet

diversity, income generation, production stability, minimization of risk, reduced insect and disease incidence, efficient use of labor, intensification of production with limited resources, and maximization of returns with low levels of technology.⁴

Though this book is intended to focus on the economic dimension of intellectual property, it is worth pointing out that traditional knowledge is also important for social and cultural reasons, particularly in developing and least developed countries. It can play a role in the economic and social organization of those countries, and recognizing the value of such knowledge may be a viable means of promoting a sense of national cohesion and identity. Indigenous and local communities often stress the importance of the conservation, validation, and protection of traditional knowledge for individual and community dignity and respect.

BOX-7.1 TRADITIONAL KNOWLEDGE AS A SOURCE OF FOOD

Traditional knowledge remains the basis of local food production in many developing countries. According to Lazare Sehoueto, Kilimanjaro Institute, Benin: "Local knowledge is the principle knowledge resource for small-scale farmers who represent 70 percent to 90 percent of agricultural producers and more than 60 percent of the population of sub-Saharan Africa."

Source: Douglas Nakashima, Lyndel Prott, and Peter Bridgewater, "Tapping Into the World's Wisdom," UNESCO Sources 125 (July-August 2000): 11.

Traditional knowledge can be associated with certain genetic resources. With the emergence of modern biotechnologies, genetic resources have assumed increasing economic, scientific, and commercial value to a wide range of stakeholders (for further information, see Chapter 4 on patent protection of biological inventions). Other tradition-based creations, such as expressions of folklore, have also taken on new economic and cultural significance within a globalized information society, particularly as a result of the Internet (see Chapter 3). Thus, access to those resources with which traditional knowledge is associated can provide substantial benefits to society through their contribution to advances in the pharmaceutical, biotechnological, agricultural,

chemical, and other fields. Tradition-based innovations and creations, including expressions of folklore, which are important parts of a community's heritage and cultural patrimony, can act as inputs into other markets, such as entertainment, art, tourism, architecture, and fashion.

For developing countries especially, commercialization of tradition-based innovations and creations, if so desired by the relevant communities, can bring economic benefits, play a part in creating new trading opportunities, and contribute to sustainable economic development. For countries rich in traditional knowledge, the protection, promotion, and development of such knowledge can add to their competitive advantage. The long-term sustainable development of indigenous and local communities depends, at least to some degree, on the communities' abilities to harness their traditional and local technologies⁵ (see Box - 7.2).

**BOX-7.2 BRAZILIAN INDIGENOUS COMMUNITY:
"WE MUST LEARN HOW TO TRADE"**

The Yawanawa, an Amazonian indigenous community in Brazil, have for generations cultivated a plant called uruku, which produces a natural red pigment. Estée Lauder now uses the plant to produce lipsticks. In 1998, the community earned US\$12,000, which they used to build a new village and, with the help of Estée Lauder, a new hospital. In the words of the community's head: "We must learn how to trade. Today, with the globalization booming, if we are not competitive and, at the same time, we do not succeed in preserving our language and traditions, we'll be swept away."

Source: Sette, *Supplement to Corriere della Sera*, November 2000.

Intellectual property issues have arisen in numerous forums dealing with diverse policy areas, such as food and agriculture, biological diversity, culture, biotechnology and human rights (see Box - 7.3).

**BOX-7.3 INTELLECTUAL PROPERTY
AND HUMAN RIGHTS**

The relationship between intellectual property and human rights is complex and significant. IPRs are recognized as a human right in the Universal Declaration of Human Rights, 1948, and other international and regional human rights treaties and instruments. At the same time, it is suggested by some that conflicts may exist between respect for intellectual property and respect for other human rights, such as the right to adequate health care, to education, to a share in the benefits of scientific progress, and to participation in cultural life.

The relevance of intellectual property to these questions should, of course, not be overstated. The task at hand is to identify, very precisely, the points of contact between intellectual property and economic development based upon TK. The relationship between these two elements and the preservation, protection, development, and utilization of TK is deeply complex. What role does present intellectual property law and policy play in the preservation, sustainable use and protection of TK? Do intellectual property rights help or hinder the furtherance of policy objectives in biodiversity conservation, cultural heritage preservation and indigenous peoples' rights? In what ways might intellectual property rights not be suitable for protecting TK (for example, cultural expressions)? The interface between intellectual property and TK requires a technical engagement, embodying a full understanding of the IP system and of the needs and expectations of TK holders.

To this end, WIPO has in recent years embarked on an extensive study of the IP aspects of access to and benefit-sharing in genetic resources and the protection of TK and folklore. The activities of WIPO since 1998 have included wide-ranging fact-finding, research, awareness-raising, and consultations among and with indigenous peoples and local communities, governments, the private sector, civil society, and other key stakeholders. Much of the information in this chapter is derived from the results of the work of WIPO to date.

THE NATURE OF TRADITIONAL KNOWLEDGE

The context in which traditional knowledge is generated and preserved is important to its nature and content. Therefore, only certain general observations can be made.

Traditional knowledge is not limited to any specific field of technology or the arts. Systems of TK in the fields of medicine and healing, biodiversity conservation, the environment, and food and agriculture are well known. Other key components of TK are the music, dance, and folk arts (that is, designs, textiles, plastic arts, crafts, and so on) of a people. Therefore, TK encompasses a broad range of subject matter which includes: agricultural, scientific, technical, ecological, medicinal (including related medicines and remedies), and biodiversity-related knowledge; expressions of folklore in the form of music, dance, song, handicrafts, designs, stories, and artwork; elements of languages, such as names, geographical indications, and symbols; and moveable cultural properties.

Although there are works which may be created purely to satisfy the aesthetic will of the artisan, many are symbolic of a deeper order or belief system. When a traditional singer performs a song, the cadence, melody, and form all follow rules maintained for generations. Thus, a song's performance entertains and educates the current audience, and also unites the current population with the past.

Understanding the interplay between practical knowledge, social history, art, and spiritual or religious beliefs provides a valuable foundation for developing an understanding of the people who hold this knowledge. While modern arts and sciences often place individual accomplishment over community development, TK systems celebrate the community's cooperative effort.

Intertwined within practical solutions, TK often transmits the history, beliefs, aesthetics, ethics, and traditions of a particular people. For example, plants used for medicinal purposes also often have symbolic value for the community. Many sculptures, paintings, and crafts are created according to strict rituals and traditions because of their profound symbolic or religious meaning.

Traditional knowledge is a multifaceted concept. Products which result from it may not be produced systematically but in accordance with the individual or collective creators' responses to and interaction with their cultural environment. In addition, TK, as representative of cultural values, is generally held collectively. Thus, what can sometimes be perceived as an isolated piece of literature (a poem, for example) or an isolated invention (the use of a plant resource to heal wounds, for instance) is actually an element that integrates a vast and mostly coherent complex of beliefs and knowledge, control of which is not in the hands of individuals who use isolated pieces of knowledge, but is vested in the community or collective. Furthermore, most TK is transmitted orally from generation to generation, and remains largely undocumented.

A fundamentally important aspect of traditional knowledge is that it is traditional only to the extent that its creation and use are part of the cultural traditions of communities. Traditional, therefore, does not necessarily mean that the knowledge is ancient or static, but that it evolves as a response of individuals and communities to the challenges posed by their social environment: "Traditional knowledge is not merely learned by rote and handed down from one generation to the next. Inherently dynamic, it is subject to a continuous process of verification, adaptation and creation, altering its form and content in response to changing environmental and social circumstances."⁶

Thus, traditional knowledge is also contemporary knowledge. It is, therefore, not only desirable to develop a system that documents and preserves TK created in the past and which may be on the brink of disappearance, it is also important to envisage a system that contributes to the promotion and dissemination of innovations which are based on continuing use of tradition. One is not talking about freezing and preserving knowledge as it exists now, but about preserving what exists as an indispensable and powerful tool for fostering continued traditional innovation and creativity.

Intellectual property issues related to TK cut across the conventional branches of IP law, such as copyright and industrial property. In many cases, TK holders do not separate the artistic from the useful aspects of their intellectual creations and innovations; rather, both emanate from a single belief system which is expressed in daily life and ritual.

THE ECONOMIC BENEFIT

The long-term sustainable development of indigenous and local communities depends, at least to some degree, on their ability to harness their traditional knowledge for their economic benefit. On another level, biodiversity and the TK associated with using their genetic resources in a sustainable manner, are a comparative advantage for those countries that are biodiversity-rich, enabling them to participate more effectively in global markets and perhaps rise above current levels of poverty and deprivation. Hence, protection of TK at national and international levels may be seen as a potentially powerful tool for advancing the integration of developing and least developed countries into the global economy.

THE COMMERCIAL VALUE OF GENETIC RESOURCES AND TK IN THE NATURAL RESOURCE-BASED INDUSTRIES⁷

There is considerable commercial interest in TK of plant and animal species for food, medicine, and other purposes. Certain genetic resources with which TK is associated can provide significant input into other markets, such as pharmaceuticals, cosmetics and personal care, agriculture, food additives, industrial enzymes and biopesticides.

PHARMACEUTICALS

The value of traditional knowledge, for example in identifying plants from which medicinally useful compounds can be extracted or synthesized, has long been known. In the United States of America, it is estimated that nine out of ten prescription drugs used are based on natural compounds from plants, fungi, animals, and microorganisms, that is, they are based on the products of biodiversity.⁸ It has also been estimated that the total market value of plant-derived medicines sold in OECD countries in 1985 was US\$43 billion.⁹

NATURAL THERAPY/HERBAL REMEDY INDUSTRIES

The world-wide market for natural therapies, which draw upon sources as varied as Chinese, Western, and Ayurvedic herbs and plant-based remedies, rivals that of the pharmaceutical industry. Brand names like Nu-life™, Efamol™, Nutripur™, Vita™, Nature Harmony™, Greens+™, Sisu™, and Nutisana™, to name a few, attest to the popularity of such remedies. Natural therapies are promoted for weight loss or gain, body-building, insomnia, cellulite control, menopause, skin care, digestive aids, relaxants, laxatives, and so on. Extracts, oils, and essences from ginkgo biloba, grape seed, kelp, kava, ginseng, turmeric, evening primrose, horse chestnut seed, hawthorn, St. John's wort, juniper, rosemary (a mere fraction of possible ingredients) are mixed in all manner of combinations to create pills, creams, drinks, teas, and lotions to provide relief for various ailments (see Box - 7.4).

BOX-7.4 CRAB OIL: A PROMISING NON-TIMBER FOREST PRODUCT FOR GUYANA

Crabwood is one of the most common species of hardwood found in the Iwokrama Forest, Guyana. The tree's seeds are used to make crab oil. Mixed with honey, or taken in concentrated form, crab oil is said to be useful for easing coughs due to colds and soothing asthmatic episodes. Brittle hair can also be cured with regular treatment using this oil. When rubbed on the skin, crab oil is thought to soothe bruises, swollen and sore muscles, arthritic joints and minor skin irritations and also acts as an insect repellent. The Iwokrama International Centre for Rain Forest Conservation and Development is working with other partners to assess the ecological, social, and economic aspects of production and commercialization of crab oil.

Source: *Iwokrama Bulletin* 4, No. 1 (August 2000), 8.

Part of the huge world market for herbal medicines is based on TK. According to the WHO, traditional medicine has maintained its popularity in a number of Asian countries, such as China, India, Japan, and Pakistan. In China, for example, traditional medicines (herbal preparations) account for 30 percent to 50 percent of total medicinal consumption. In 1993, the total sales of herbal medicines amounted to more than US\$2.5 billion. Globally, about 80 percent of the human population relies on traditional medical systems, and about 85 percent of traditional medicine involves the use of plant extracts.

COSMETICS AND PERSONAL CARE INDUSTRY

Another industry with a huge international market to which traditional communities make substantial contributions is cosmetics and personal care products. Extracts from traditionally used plant species such as aloe-vera, jojoba, and tea-tree now provide the bases for a wide range of products, such as essential oils, aromas, soaps, skin-care products, and shampoos (see Box - 7.5).

BOX-7.5 BOTTLING ANCIENT SECRETS

As India has opened its economy over the past decades, companies like L'Oréal and Revlon have successfully imported Western-developed antiwrinkle creams and shampoos previously available only on the black market. Now, predictably perhaps, traditional Indian beauty treatments based on the ancient principles of Ayurveda are winning converts in the West. Though these practices have been around for 5,000 years, they are new in the United States of America, and that is enough to inspire women once content to describe their skin as dry or oily to discover whether their dosha – or spiritual energy – can best be classified as kapha (earth), vata (air), or pitta (fire).

Ayurveda (Sanskrit for wisdom of life) is purported to be the oldest holistic approach to health and well-being. The basic principle states that each person is governed by the three doshas of kapha, vata, or pitta. Though everyone has a dominant dosha, which influences everything from skin type to personality, keeping all three in balance is the

key to inner health and outer beauty. Yoga is one element of Ayurveda, and its popularity in the United States of America has led to greater interest in Eastern spiritualism and increased opportunities for Western marketing.

In March 1999, the Body Shop introduced a line of Ayurvedic-inspired products (such as a pillow spray for kaphas), and in October 1999 a three-woman team, including model Christine Turlington, launched the upscale skin-care regimen Sundari™. Both lines use essential oils and herbs cultivated predominantly in India. Says Sundari co-founder Ayla Hussain, who grew up in Pakistan and attended Harvard Business School: "We take ideas that are thousands of years old and use modern technology to maximize their efficacy." Lindsay Oliver, manager of an Ayurvedic spa called Raj in Fairfield, Iowa, says that when the resort opened seven years ago, she couldn't get magazines interested. Now, she reports, "Vogue calls us."

Source: M. Orecklin, 2000, quoted in Graham Dutfield and Henrietta Marrie, *op. cit.*

FOOD AND BEVERAGES

Many of the largest food and beverage manufacturers are embellishing their products with traditional herbal medicines. The market for functional beverages – drinks that promise health benefits beyond their inherent nutritional value – has nearly doubled in the last four years, from US\$ 2.6 billion in 1997 to US\$ 4.7 billion in 2000. Sales of functional foods have followed suit, and both categories are expected to continue to grow.¹⁰

VETERINARY CARE PRODUCTS

Traditional communities have over the millennia depended for their survival on a range of animals, birds, and fish. In some cases they domesticated certain species. Caring for and maintaining the health of the fauna on which they depended was therefore very important. As they developed remedies for their sick animals, they also developed knowledge

about various remedies to help their livestock produce more, about what pastures or fodder gave their meat the best flavour, and how to protect their animals against various parasites.

Today, there is a huge market for veterinary-care products targeting both a range of commercial species which supply meat, eggs, and milk products, as well as domestic pets. As with the pharmaceutical and natural product industries, traditional knowledge is a useful source for the development of a wide range of such products (see Box - 7.6)

BOX-7.6 TRADITIONAL VETERINARY MEDICINE

In Vembur village, Tamil Nadu, India, there is a man by the name of Thiru Palchamy Gounder who has been curing animals since he was sixteen. Developing his trade under the guidance of his guru, Kandavilswamy, this traditional veterinarian has gained fame within his region for being able to cure a variety of bovine ailments. Using medications developed from local plants, he is able to treat such common maladies as fractures, abscesses, broken horns, swollen tongues, and swollen faces. The treatments can last from two hours to a month, but the continued demand for these services provides little doubt as to their efficacy.

Associations of grassroots innovators are compiling such traditional knowledge to save it from disappearance, to promote respect and protection for it, to disseminate it, and to add value to it through research. They see this as a possible avenue for a bottom-up approach to development. Some associations hope to market TK-based products, after obtaining patent protection, for the benefit of the communities and innovators who have developed this knowledge.

Sources: "Keeping Knowledge Alive: Gounder's Cattle Cures," Honey Bee 9 No. 4 (October-December, 1998) and WIPO South Asia Fact-Finding Mission, 1998.

THE COMMERCIAL VALUE OF TK IN THE CULTURAL INDUSTRIES

The commercial value of TK in relation to cultural industries¹¹ tends to be concentrated in arts and crafts, cultural tourism, music, multi-media and publishing, architecture, and fashion. Unfortunately, very little economic data exist on the value of the contribution of traditional knowledge to these industries. Information and examples are found mainly in Australia, Canada, New Zealand, and the United States of America.

The arts and crafts industry comprises three broad sectors that have implications for both the survival of TK as well as its protection. These sectors are:

- Souvenir arts and crafts (memorabilia) primarily intended for the tourism industry;
- Traditional art produced as fine art for public and private collections;
- Cultural property, consisting largely of traditional ceremonial items, which are traded through auction houses for connoisseur collectors and investors.

Traditional souvenir arts generally consist of robust, portable, and cheap memorabilia and are typically found in the airports and shopping malls of major tourist venues. While some of these objects – small paintings, woven baskets, carved figures – are made by traditional artisans, many are not. Many of the tourist objects are mass-produced, employing generic traditional art styles on such non-traditional items as t-shirts, tea-towels, place mats, playing cards, sarongs, post-cards, drink coasters and coolers, calendars, computer mouse pads, and so on. Sometimes traditional designs are used under licence, but most are not.

In terms of IP issues, of the three market sectors identified above, it is the traditional souvenir market that is most open to abuse. Because the designs applied to such items as tea-towels are most often generic, they do not constitute an abuse of a particular traditional artist's work. In cases where rock or cave paintings are used, these images may be thousands

of years old yet still remain the sacred heritage of a particular people. Because of their age and the impossibility of attribution, they are not protectable, for example, by copyright law. In addition, competition from this market in counterfeit art deprives traditional artisans of economic benefits they might otherwise have had by selling their own genuine creations (see Box - 7.7).

In so far as fine art is concerned, during the 1960s and 1970s, traditional arts in many countries made the transition from artifact to art in the largely European-dominated world of fine art. Today, traditional art is a million-dollar business. Traditional artworks came to be considered worthy of the permanent collections of the principal fine art museums of countries around the world, attracting prices to match their new-found status.

BOX-7.7 AUSTRALIAN ABORIGINAL ART IN THE SOUVENIR MARKET

The National Aboriginal and Torres Strait Islander Cultural Industry Strategy estimated the indigenous arts and crafts market to be worth almost US\$200 million per year.

The percentage of returns to indigenous people is marginal. In 1989, the *Review of the Arts and Crafts Industry* estimated that indigenous people receive just over US\$7 million per year from the sale of art and crafts. The Strategy notes that the economic benefits to indigenous artists have improved and could now be about US\$50 million per year, but the major portion of sales benefits goes to the art traders rather than to the artists themselves.

Furthermore, no accurate statistics have been prepared on the financial implications of activities such as pirating indigenous arts and crafts and the unauthorized reproduction of indigenous arts and crafts outside national boundaries.

Source: Graham Dutfield and Henrietta Marrie, *op. cit.*

Music is a vibrant and important part of traditional life (see Chapter 6). Traditional music has in recent years captured the public's imagination. Technological breakthroughs in recording techniques, the rise of the music industry and the thirst for world music are combining to create an immense market for new, diverse sounds. Paul Simon's *Graceland*, in 1986, and *Rhythm of the Saints*, in 1990, using African and Latin American music, respectively, revealed the excellent results possible when Western musicians incorporate non-Western music into their songs. *Graceland* spent 31 weeks on the *Billboard* top album list and has sold over 3.5 million copies world-wide.¹² *Rhythm of the Saints* sold 1.3 million copies in the first four weeks of its release alone¹³ (see Box - 7.8). However, traditional music, often without any IP protection, is vulnerable in today's commercial music world.

BOX-7.8 MUSIC FROM TUVA

Tuva, a region within Russia, had until recently little if no contact with the outside world. That changed when Tuvan folk music was recorded and exported in 1990. Since then 23 compact discs of Tuvan music have been released. None of these recordings was recorded in Tuva itself, and none is commercially available there. Rather, they serve the growing world music market.

Source: T. Levin, "A Tale of Tuva," (paper read at meeting of the Society for Ethnomusicology, Los Angeles, California, October 20, 1995).

THE COMMERCIAL VALUE OF TK: CONCLUSION

Estimating the full value of TK in monetary terms is difficult if not impossible. First, it is often an essential component in the development of other products. Second, as many TK-derived products never enter modern markets, they are excluded from sectoral or GNP indices. However, if those who depend on TK-derived products were deprived of them (for example, herbal medicines), the cost of replacing them through purchases of substitutes in the market would probably be quite high, particularly as a portion of their incomes. Third, a great deal of traditional knowledge is likely to have cultural or spiritual value that cannot be quantified.¹⁴

While global trade is measured in trillions of US dollars, the contribution of TK can perhaps at least be measured in billions. The largest contributions are made in natural resource-based sectors involving agriculture, pharmaceuticals, botanical medicines, natural products, and food and beverages. A general estimate of global trade based on selected categories of products derived from genetic resources is provided by authors Kate and Laird in *The Commercial Use of Biodiversity* (see Table - 7.9). Estimates of the economic value of contributions from TK to these categories vary as statistical data are not uniformly kept by all countries.

TABLE-7.9 ESTIMATES FOR ANNUAL MARKETS OF PRODUCTS DEVELOPED FROM GENETIC RESOURCES¹⁵

| Sector | Market (US\$ bn) Low | Market (US\$ bn) High | Extent to which products are derived from genetic resources |
|---|----------------------|-----------------------|--|
| Pharmaceuticals | 75 | 150 | Some products derived from genetic resources. Low estimate: natural products form 25% of global market. High estimate: 50%. |
| Botanical medicines | 20 | 40 | All products derived from genetic resources. Low estimate: includes global botanical medicine markets. High estimate: includes botanical medicines, minerals, and vitamins. |
| Agricultural produce (commercial sales of agricultural seed) | 300+(30) | 450+(30) | All products derived from genetic resources. Low estimate: final value of produce reaching consumer 10x commercial sales of seed to farmers. High estimate: 15x commercial sales of seed to farmers. |
| Ornamental horticultural products | 16 | 19 | All products derived from genetic resources. Low estimate: based on available data. High estimate: allows for unreported sales and products. |
| Crop protection products | 0.6 | 3 | Some products derived from genetic resources. High estimate includes wholly synthesized analogues as well as semi-synthetic products. |
| Biotechnology in fields other than healthcare and agriculture | 60 | 120 | Some products derived from genetic resources. Low and high estimates: based on assessments of environmental biotechnologies. |
| Personal care and cosmetic products | 2.8 | 2.8 | Some products derived from genetic resources. Low and high estimates: reflect natural component of the market. |
| Rounded total | 500 | 800 | |

THREATS TO THE MAINTENANCE AND SURVIVAL OF TK

Holders of TK are faced with a variety of difficulties. However, not all of them can be addressed by intellectual property. A serious problem is the reluctance of the younger generation to learn the old ways. The rejection of traditions by the young and the encroachment of modern ways of life often result in the decline of traditional knowledge and practices. Either through acculturation or diffusion, many traditional practices are lost. Thus, a primary need expressed by many TK holders is to document and preserve the knowledge that is held by elders and communities throughout the world. The absence of willing heirs to this knowledge has led to the precarious situation where the death of a TK holder can result in the demise of an entire tradition and knowledge system.

Another difficulty facing holders of TK is lack of respect and appreciation. The true understanding of the value of TK is often overlooked within the modern reductionist approach to science. Unless information is developed under aseptic clinical conditions by scientific methods, it is sometimes viewed as "inferior". This is a corollary to the "nih" syndrome in evidence in some corporate research and development departments to reject ideas or inventions that are "not invented here." For example, when a traditional healer provides a mixture of herbs to cure an illness, the healer may not describe the effects on the body as molecular interactions in terms of modern biochemistry, but the healer bases his "prescription" upon generations of "clinical" trials undertaken by healers before him.

At times, modern society has displayed a prejudice against TK, since it does not conform to accepted methods of learning. Some vernacular references to it carry negative connotations, denigrating traditional medicine and its practitioners.

Yet another problem confronting holders of TK is the commercial exploitation of their knowledge by others, which raises the question of legal protection. Cases involving artistic designs, such as the Morning Star Pole in Australia, and natural products, such as oil from the neem tree in large parts of Asia, Africa, and Latin America, all bear witness to the value of TK

in the modern global economy. Unfortunately, many commercial interactions between traditional communities and private corporations can result in agreements from which legal uncertainty and consequent imperfection or loss of rights arise for both parties. A lack of experience with existing formal systems, economic dependency, lack of a unified voice, and in many cases, a lack of clear national policy concerning the utilization of TK, result in traditional communities being placed at a decided disadvantage. On the other hand, the lack of clear rules protecting TK creates risks for business interests, which prefer closing deals under well-established, reliable, and enforceable rules.

THE RIGHT TO OWN AND CONTROL

Traditional knowledge may be communally owned or held by a small number of individuals or a single person. Whichever the case, holders and their communities may continue to have a strong interest in how such knowledge is used by others even after it has been disclosed publicly and has fallen into the public domain.

When the knowledge of a traditional community is passed on to an outsider who subsequently publishes it, it becomes difficult for the community to control how the knowledge is used and who else can acquire it. Not only can it be used freely by anyone, but it may be exploited for commercial purposes. In particular, the unauthorized disclosure of secret or sacred knowledge can cause enormous distress.

THE RIGHT TO PREVENT OR CONTROL COMMERCIAL USE

Collections of plants and other biological material for academic purposes may be open to commercial exploitation. Neither source communities nor academic researchers may be aware that a commercial product has been developed based on material or information in such a collection. Academic literature is commonly consulted by industry researchers, and valuable knowledge (such as ethnobotanical information) can quietly become part of the R&D efforts of commercial enterprises. Such activities by researchers are entirely legitimate, unless TK in the collection or literature is legally protected.

THE RIGHT TO BENEFIT COMMERCIALLY

For many, if not most, communities, the application of TK to their livelihood enables them to generate income. In even the remotest areas, communities and community members are part of the money economy and need cash to purchase goods necessary for survival. Given the commercial possibilities of at least some traditional knowledge, only a tiny share of the full benefits may reach the communities providing knowledge utilized in the development of new products.

Sometimes, traditional communities find their ability to benefit commercially from their knowledge is restricted by regulations imposed upon them from outside. For example, they may find, as the Kani people of South India did, that they were for a while unable to harvest medicinal plants to sell because they inhabit a protected area (see Box - 7.10).

BOX-7.10 JEEVANI AND THE KANI TRIBES

The Kani belong to a traditionally nomadic community, who now lead a primarily settled life in the forests of the Western Ghats (a mountain range along south-western India) in the Thiruvananthapuram district of Kerala. The Kanis, numbering around 16,000, live in several tribal hamlets, each consisting of 10 to 20 families dispersed in and around the forest areas of that district. The Kanis do not constitute a cohesive unit, although they do share certain common characteristics and practices. Kanis are the traditional collectors of non-timber forest products. Living close to nature, the Kanis have acquired unique knowledge about the use of the resources, particularly the biological resources, around them.

In December 1987, a team of scientists working on the All India Coordinated Research Project on Ethnobiology (AICRPE) led by Dr. P. Pushpangadan was trekking through the tropical forests of the Agasthyar hills, surveying the Kani tribal settlements. After a while the team became very tired but the Kani acting as their guides remained surprisingly energetic and agile. They would occasionally munch some small blackish fruits. One of them offered a few of these fruits to the

team pointing out that if they ate those, they could go on trekking without fatigue; and the AICRPE team found this was true. It was later that the Kani tribesmen introduced the scientists to the “magical” plant, which was subsequently identified as *Trichopus zeylanicus* ssp. *travancoricus*.

Detailed chemical and pharmacological investigations showed that the leaf of the plant contained various glycolipids and some other non-steroidal compounds with profound adaptogenic and immunoenhancing properties. The fruits showed mainly anti-fatigue properties. The Tropical Botanical Garden Research Institute (TBGRI) was successful in developing a scientifically validated and standardized herbal drug, based on the tribal lead. The drug was called Jeevani and was released for commercial production in 1995 by Arya Vaidya Pharmacy. While transferring the technology for production of the drug to the pharmaceutical firm, the TBGRI agreed to share the license fee and royalty with the tribal community on a fifty-fifty basis.

The prime concern of the Kani in the beginning was to evolve a viable mechanism for receiving such funds. With the help of the TBGRI, some government officials and NGOs, the Kani formed a registered trust. About 60 percent of the Kani families of Kerala are members of this trust. From February 1999, the amount due to them has been transferred to the Trust with an understanding that the interest accrued from this amount should be used for the welfare activities of the Kani tribe.

The TBGRI has trained 25 tribal families to cultivate the plant around their dwellings in the forest. In the first year, each family earned about Rs.8,000 on the sale of leaves from the cultivation of *Trichopus zeylanicus* in a half-hectare area. Unfortunately, the Forest Department objected to the cultivation because the families may remove plants from the natural population of this species in the forests, thereby endangering it. It is understood that this problem has now been resolved and the Forest Department has recently approved the cultivation of this plant.

Source: Dr. R. A. Mashelkar, Director General, Council for Scientific Research, India.

THE RIGHT TO BE ACKNOWLEDGED AND ATTRIBUTED

Failure to acknowledge sources of information is an issue about which some traditional communities have become concerned. Sometimes such problems can be solved easily by making local people principal or co-authors of papers and books, or co-producers of films and videos. Another common outcome of publication is that, even though the book or research report resulted from information provided freely by TK holders, the researcher, writer, publishing company, or sponsor of the research claims copyright. Government or university sponsors often justify holding copyright because public funds were used to support the research project.

THE RIGHT TO PREVENT DEROGATORY, OFFENSIVE, AND FALLACIOUS USE

Traditional cultural expressions such as dances and musical performances are sometimes performed outside their proper context in ways which may be offensive to the original performers and their communities and which may open them up to the ridicule of members of the wider society. Sometimes it is community members themselves that through poverty or coercion carry out performances in ways that they themselves find degrading. However, in many cases, such offensive and derogatory performances are unauthorized productions carried out by people from outside the community.

Another problem is that sacred symbols may be copied and used on products that are completely inappropriate. A good example of this is presented by an Australian case in which a carpet-manufacturing firm reproduced the sacred designs of a number of aboriginal artists.¹⁶

Related to this is the unauthorized commercial use of the names of indigenous or tribal groups. For example, an automobile manufacturer has named one of its vehicles Cherokee. Also, the words Hopi and Zuni have been incorporated into trademarks without permission from the tribes concerned. Sometimes certain words applied to indigenous peoples,

which may be considered offensive, are used in the titles of professional sports clubs or as nicknames, for example, Chiefs, Braves, Indians, and Redskins. In some cases, use of these names in such contexts has been actively challenged by indigenous groups.

THE ROLE OF IP

It has become increasingly clear that IP issues are relevant to conservation, management, and benefit-sharing in respect of genetic resources, traditional knowledge, and folklore.

Genetic resources relate to intellectual property in several ways. First, IP issues arise when genetic resources have been modified by means of human intervention, thus acquiring characteristics that are not found in nature. When those modifications are new, involve an inventive step, and are capable of industrial application, they may be protected by patents. Similarly, genetic resources that exist in plant varieties that are new, distinct, sufficiently uniform, and stable may qualify for plant variety protection.

Second, as many types of biotechnological inventions draw from and build upon information about and characteristics of naturally-occurring plants, animals, and other living organisms, proposals have been made for the recording of interests in inventions that arise from access to or use of genetic resources and traditional knowledge. Such a requirement raises several issues for consideration by the IP community.

As for tradition-based innovations and creations generally, some fail to clear the hurdle set by current IP law, and are left stranded in the public domain where they may be freely copied and used by non-traditional persons and entities. Such groups may even, acting legally under current IP laws, acquire IPRs over works derived from traditional creations and innovations, without the obligation to acknowledge the source community or community members or share any commercial benefits with them. Thus, it is said by some that intellectual property may both positively and negatively exclude TK holders from enjoying the benefits of IP protection. These questions also raise several issues for consideration by the IP community.

In 1998, in order to explore these and related issues further, WIPO initiated a new set of activities “to identify and explore the IP needs and expectations of new beneficiaries, including the holders of indigenous knowledge and innovations, in order to promote the contribution of the IP system to their social, cultural, and economic development.”¹⁷ WIPO took an exploratory approach to these new activities by undertaking a number of fact-finding missions and organizing roundtable meetings.¹⁸

These activities enabled the Member States of WIPO to identify IP needs and expectations concerning access to and benefit-sharing in genetic resources and the protection of traditional knowledge and folklore. During these activities:

- Many persons consulted expressed interest in exploring further the actual and potential role of the IP system in TK protection. There are many examples of TK or TK-derivatives that are or could be protected by the existing IP system. Several informants also suggested certain changes to IP law to improve its functionality in this respect.
- Some participants also expressed the view that, in the short term at least, attention be focused on the extent to which existing IP tools can be used to protect TK. Testing the present categories of intellectual property would involve working directly with TK holders, including indigenous peoples and local communities, to raise awareness of the basics of the IP system, to undertake a practical and technical examination of the application of the IP system to various forms of traditional knowledge, and to provide relevant training. The idea would be to develop and experiment with existing IP tools to protect traditional knowledge in what was described as a “bottom-up” approach.

Holders of TK are interested in exploring greater use of almost all existing branches of the IP system, particularly trademarks, geographical indi-

cations, patents, industrial designs, copyright, and unfair competition, including trade secrets.

BOX-7.11 TRADITIONAL KNOWLEDGE DIGITAL LIBRARY

Recent efforts have been made to develop a TK classification and to create a Traditional Knowledge Digital Library (TKDL) with the goal of enhancing the quality of patent examination and allowing patent examiners access to pertinent information concerning prior art in the form of TK in an appropriately classified form. These issues were taken up at WIPO during 1998 and 1999.

An initiative was spearheaded by the Department of Indian Systems of Medicine & Homeopathy (ISMH). It set up an inter-disciplinary task force, known as the TKDL Task Force, drawing on experts from the Central Council of Research of Ayurveda and Siddha, Benares Hindu University, the National Informatics Centre, the Council of Scientific & Industrial Research and the Controller General of Patents and Trade Marks.

The Task Force evolved a Traditional Knowledge Resource Classification (TKRC), which would enable retrieval of certain information on traditional knowledge in a systematic manner.

The WIPO Member States have set up a Traditional Knowledge Task Force consisting of China, the European Union, Japan, India and the United States of America. The Indian proposal on creating a TKRC was presented to it.

Source: Dr. R. A. Mashelkar, Director General, Council for Scientific Research, India.

Certain countries are testing, using or studying specific IP tools, concepts, or options including:

- Protection under patent laws if inventions are derived from or based upon TK;
- The registration of collective and certification marks to establish a sign under which goods emanating from a particular group or collective, or manufactured in accordance with particular methods or standards, can be sold (see Box - 7.12);
- The prevention of unauthorized registration of traditional names, symbols, and insignia which are considered culturally offensive and therefore deemed to be contrary to public order or morality under trademark legislation;
- The inclusion in patent applications, which claim TK and biological resources-based inventions, of evidence that the TK or biological materials have been obtained with the prior informed consent of the country of origin, and the acknowledgment of all relevant public domain and community-based knowledge;
- The copyright protection of oral works;
- The protection of TK documentation by means of protection afforded to original and non-original databases.

In addition, there has been a broad call for the development, in the long term, of new IP tools to protect forms of traditional knowledge which are not covered by existing ones.¹⁹

BOX-7.12 REGISTRATION OF CERTIFICATION MARKS IN AUSTRALIA

The registration of collective and certification trademarks to protect tradition-based innovations and creations is under active exploration in Australia and New Zealand. An Indigenous Label of Authenticity was launched in Australia in late 1999. The label has been developed by the National Indigenous Arts Advocacy Association with the backing of the Aboriginal and Torres Strait Islander Commission (ATSIC) and the Australia Council for the Arts. The use of such marks as authentication marks is seen as effective to:

- Maintain the cultural integrity of Aboriginal and Torres Strait Islander art;
- Ensure a fair and equitable return to Aboriginal and Torres Strait Islander communities;
- Maximize consumers' certainty as to the authenticity of Aboriginal and Torres Strait Islander-derived products and services;
- Maximize the multiplicity and diversity of indigenous art;
- Promote an understanding both nationally and internationally of Aboriginal and Torres Strait Islander cultural heritage and art.

Source: Proposal made by the National Indigenous Arts Advocacy Association, quoted in Terri Janke, "Our Culture, Our Future" (Report prepared for the Australian Institute of Aboriginal and Torres Strait Islander Studies and the Aboriginal and Torres Strait Islander Commission, 1999): 78.

Holders of TK have also widely expressed their concerns as to their ability to use the IP system effectively owing to their unfamiliarity with such systems and the costs of acquiring, maintaining, and enforcing IP rights. Such operational questions are perhaps as important as the legal questions discussed above. This is also a strand of larger concerns with power – the financial and political power to use and take advantage of intellectual property, to influence the progressive development of IP law and policy, and to challenge IP claims made by others. The specific need to facilitate access to the IP system to enable TK holders to use it more effectively to enforce their rights is of great practical importance. These needs could be met, for example, by wider dissemination of IP information to indigenous and local communities to demystify intellectual property and resources to facilitate access to the national IP offices and the IP system.

CONCLUSIONS

Towards the end of 2000, the Member States of WIPO established an Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore.²⁰ This new forum, which met for the first time from April 30 to May 3, 2001, will enable further discussions between States on the three themes referred to in the title of the Committee.

At the first session of the Intergovernmental Committee, WIPO Member States expressed support for several tasks intended to advance discussion on the three themes.²¹ These were: the preparation of model intellectual property contractual clauses that can deal with access to genetic resources and benefit-sharing; in respect of traditional knowledge, the identification of those components of traditional knowledge that might be protected by intellectual property, and the compilation of empirical information on the extent to which the existing IP system is sufficient in addressing this form of knowledge; the preparation of information on the status of TK as prior art, and, the conducting of a survey among Member States on national experiences with the protection of expressions of folklore, particularly with the implementation of the 1982 WIPO/UNESCO Model Provisions for National Laws on the Protection of Expressions of Folklore Against Illicit Exploitation and Other Prejudicial Actions. The second and third sessions of the Intergovernmental Committee took place from December 10 to 14, 2001 and from June 13 to 21, 2002, respectively.²²

It is hoped that these discussions will continue to be open and informed and will lead eventually to a fuller understanding of the mutual relationships between intellectual property and access to and benefit-sharing in genetic resources and the protection of traditional knowledge and folklore. Greater appreciation of the role of intellectual property in these areas will serve to ensure that IP law and policy continue to play a developmental role to support communities from all countries to protect, conserve, sustain and, above all, benefit economically from genetic resources, traditional knowledge, and folklore.

- 1 WIPO "Intellectual Property Needs and Expectations of Traditional Knowledge Holders, WIPO Report on Fact-finding Missions on Intellectual Property and Traditional Knowledge" (WIPO: Geneva, 2001): 25.
- 2 WHO/IUCN/WWF, *Guidelines for the Conservation of Medicinal Plants* (Gland, 1993).
- 3 V. A. Hafeel and Darshan Shankar, "Revitalising Indigenous Health Practices," *Compas Newsletter for Endogenous Development*, No.1 (February 1999) (quoted in UNCTAD, "Systems and National Experiences for Protecting Traditional, Innovations and Practices," UNCTAD Expert Meeting on Systems and National Experiences for Protecting Traditional Knowledge, Innovations and Practices; Geneva, October 30-November 1, 2000).
- 4 Graham Dutfield, "The Public and Private Domains: Intellectual Property Rights in Traditional Knowledge," *Science Communication* 1, No. 3 (2000) 276-277.
- 5 UNCTAD, "Systems and National Experiences for Protecting Traditional, Innovations and Practices."
- 6 Douglas Nakashima, "Conceptualizing Nature: The Cultural Context of Resource Management," *Nature & Resources* 34, No. 2 (1998): 18.
- 7 This section draws upon materials written for WIPO by Graham Dutfield and Henrietta Marrie on *Intellectual Property and Traditional Knowledge* (as yet unpublished).
- 8 President's Committee of Advisers on Science and Technology (PCAST), Panel on Biodiversity and Ecosystems, *Teaming with Life: Investing in Science to Understand and Use America's Living Capital* (Washington, D.C.: PCAST, 1998): 5.
- 9 Principe, 1989. This estimate assumes that 25 percent of the total sales value of drugs sold in OECD countries as a whole was constituted by products containing at least one plant-derived ingredient.
- 10 International Herald Tribune, May 28, 2001.
- 11 This section draws upon Graham Dutfield and Henrietta Marrie, *op. cit.*

- 12 Sherylle Mills, "Indigenous Music and the Law: An Analysis of National and International Legislation," *Yearbook for Traditional Knowledge Music*, 1996: 57.
- 13 *Idem.*
- 14 UNCTAD, *op. cit.*
- 15 Source: *ten Kate and Laird, The Commercial Use of Biodiversity*, (Earthscan Publications, 1999) 2.
- 16 *Milpurruru v. Indofurn (Pty) Ltd.* (1995) 30 IPR 209.
- 17 WIPO, *Program and Budget 1998-1999*: 11.1.
- 18 See WIPO, "Intellectual Property Needs and Expectations of Traditional Knowledge Holders – WIPO Report on Fact-finding Missions on Intellectual Property and Traditional Knowledge". For further details, see www.wipo.int/globalissues/index-en.html
- 19 Numerous stakeholders have stressed the need for an international framework for traditional knowledge protection. A multilateral framework, under which traditional knowledge can be protected in all signatory countries in the same way as any other intellectual property, deserves consideration. However, possible legal and operational solutions first need to be developed and tested nationally and regionally. The WIPO/UNESCO Model Provisions for National Laws on the Protection of Expressions of Folklore Against Illicit Exploitation and Other Prejudicial Actions of 1982 may provide a possible foundation for future work in this respect.
- 20 WIPO General Assembly (September 25-October 3, 2000).
- 21 See WIPO/GRTKF/IC/1/13.
- 22 See <http://www.wipo.int/globalissues/igc/documents/index.html>