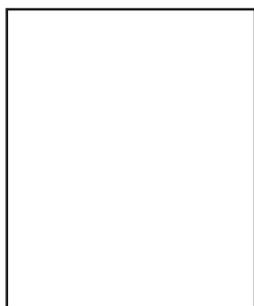


Traditional knowledge in the Philippines

Progress of IPR protection

Andrea B. Agillon

The traditional knowledge (TK) of the indigenous peoples of the Philippines has implications for biodiversity and intellectual property rights (IPRs). A realization of its importance for future generations is leading to the enactment of several laws and guidelines pertaining to biodiversity, bioprospecting, prior informed consent, traditional medicine, and wildlife resources conservation. This article discusses these laws, along with their limitations. It also presents cases involving Access and Benefit Sharing, as well as the current position of IPR for TK in the Philippines.



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Introduction

Indigenous or traditional knowledge (TK) has been defined in various ways, but can be summarized as "all kinds of information and functions developed in ancestral times but subject to contemporary improvement and adaptation, as expressed in various documented and non-documented forms, and may possess commercial value, depending on its potential or actual use".¹

TK is part of a community's belief systems and collective values, and preserves national identity as well as cultural diversity. Information may range from the use of biological resources for medical treatments and agriculture, production processes and rituals, to literary and artistic materials like designs, performances, literatures, folklore,

paintings, arts, undisclosed information and all other tradition-based innovations and creations. The common notion of TK is that it has been used for generations, which can develop and generate new information through time, depending on the environment and prevailing circumstances. A good example is plant genetic resources for food and agriculture, a man-made form of biodiversity developed by farmers over thousands of years.

The present generation, with the advent of IPR systems, has discovered the enormous use and commercial value of TK. It is now considered an important IP asset. Conferences and meetings to draft laws and mechanisms about TK have been conducted for almost a decade. WIPO and most countries have been active in drafting

mechanisms for the protection of TK and related genetic resources. The WIPO Intergovernmental Committee on IP and Genetic Resources, TK and Folklore started its work in 2000 and held its Tenth Session about the protection of TK objectives and principles in December 2006.²

Strategies in the Philippines

The Filipino indigenous cultural communities or "tribal Filipinos" constitute about ten per cent of the Philippine population³ or 126 ethnolinguistic groups.⁴ Most of them live in the upland forests, retaining many of their attitudes, beliefs, practices and way of life despite the influences of modern living. They consider the land and resources in their immediate community as their source of living and their way of life; yet the sense of ownership ingrained with modern civilization is not a part of their culture. Consequently, many have been displaced by colonization or modernization and have been pushed further into harsher marginal areas or further up the forests. Nevertheless, modern society sees the resource richness of their indigenous or traditional knowledge, whether in the aspects of biological resources and their uses or in their arts. During the 1999 roundtable discussion on IP and TK, Filipino TK was identified as being mostly on health care, agriculture, forestry systems, mining, arts, crafts, music, dances and literature.⁴

In the Philippines, the fundamental legal basis for the protection of traditional knowledge (TK) is embodied in its 1987 Constitution (Article XIV Section 17), which states that "the state shall recognize, respect and protect the rights of the indigenous cultural communities to preserve and develop their cultures, traditions and institutions. It shall consider these rights in the formulation of national plans and policies".

In a 2001 review of several countries' progress in the development and implementation of their national systems of TK protection, Dutfield⁵ reported that the Philippines is the only country to have implemented this system. It was singled out as the first country to introduce substantial protection of TK with bioprospecting regulations and to set a trend in developing instruments

through a series of consultations involving inter-agency government networks, civil society organizations and indigenous or local communities. That review mainly considered Executive Order 247 (EO 247)⁶ and the Indigenous Peoples Rights Act (IPRA, 1997). Based on the lessons and experiences of the two laws, other succeeding laws were enacted.

The list of Philippine laws that feature or have references to TK are as follows:

- Executive Order No. 247, 1995,⁶ which prescribes a regulatory framework for the prospecting of biological and genetic resources, their by-products and derivatives, for scientific and commercial purposes, and for other purposes;
- EO 247 Implementing Rules and Regulations (IRR), 1996;
- The Indigenous Peoples' Rights Act (IPRA), 1997 or Republic Act 8317 with its regulations;
- Traditional and Alternative Medicine Act, 1997⁷ which created the Philippine Institute of Traditional and Alternative Health Care (PI-TAHC) in 2000, providing for a Traditional and Alternative Health Care Development Fund and for other purposes;
- Plant Variety Protection Act, 2000;
- Wildlife Resources Conservation and Protection Act of 2001 or Republic Act 9147;
- IRR for Wildlife Act or Guidelines for Bioprospecting Activities in the Philippines - Joint DENR-DA-PCSD-NCIP AO No. 1, 2004; and
- Community Intellectual Rights Protection Act (CIRPA), 2000 (pending Senate approval).⁸

Executive Order 247

EO 247⁶ with its IRR (DAO No. 20) regulates the prospecting of all biological resources in the public and private domains. It requires everyone to obtain prior informed consent (PIC) of the appropriate local community and to enter into a formal research agreement with the government. It is the result of a series of democratic consultation processes involving government agencies, academicians, scientists, NGOs, people's organizations from indigenous communities and the private sec-

tor. The research agreement, whether Commercial Research Agreement (CRA) or Academic Research Agreement (ARA) must inform the government and affected communities of the research results with provision of payment for royalties in case of commercialization of the products derived from them. However, many reviewers have found loopholes in the EO. One criticism has been that access is possible by just notifying the concerned community or local government unit, and that it does not elaborate on a benefit-sharing scheme. Another is that the EO is too broad in scope, and getting PIC is tedious or time-consuming. Moreover, prospectors say that rules are too complex and bureaucratic.

Another problem for EO 247 has been the lack of concrete and specific monitoring schemes based on the agreements. Progress reports submitted by resource users have been the only bases for monitoring. There is also a lack of a clear and effective mechanism for monitoring and law enforcement on the extraction and exit of biological resources out of the country. Finally there is a weakness in the monitoring of consequential negotiated benefits or commercialization done outside the Philippines. EO 247 was eventually repealed by the Wildlife Act of 2001.

Indigenous Peoples Rights Act

The IPRA law is related to the previously approved EO 247 of 1995 and is more explicit. IPRA protects indigenous communities' rights in general, including their rights to traditional knowledge. It limits the access of researches into their ancestral domains, lands or territories and designates the communities as the sources of information in any writings and publications resulting from research. It also makes it mandatory that the communities must receive royalties from the income derived from any of the researches conducted and resulting publications.

Under this law, Section 34 provides that: "Indigenous Cultural Communities/Indigenous Peoples (ICC/IPs) are entitled to the recognition of the full ownership and control and protection

of their cultural and intellectual rights. They shall have the right to special measures to control, develop and protect their sciences, technologies and cultural manifestations, including human and other genetic resources, seeds, including derivatives of these resources, traditional medicines and health practices, vital medicinal plants, animals and minerals, indigenous knowledge systems and practices, knowledge of properties of fauna and flora, oral traditions, literature, designs and visual and performing arts."

Section 35 provides that: "Access to biological and genetic resources and to indigenous knowledge related to the conservation, utilization and enhancement of these resources, shall be allowed within ancestral lands and domains of the ICCs/IPs only with the free and prior informed consent of such communities, obtained in accordance with customary laws of the concerned community."

IPRA provides the indigenous peoples rights over their ancestral lands as well as rights to use and develop the natural resources found in these lands through the creation of the National Council for Indigenous Peoples, which, in turn, is responsible for overseeing the issuance of permits for access to indigenous peoples' lands on the basis of PIC. Through the "community intellectual property rights" the IPRA intends to extend the controlled system of protection not only for biological and genetic resources but also to their "sciences, technologies, and cultural manifestations".

Traditional and Alternative Medicine Act

The Traditional and Alternative Medicine Act of 1997 created the Philippine Institute of Traditional and Alternative Health Care (PITAHC) in 2000. It is the objective of this Act to improve the quality and delivery of health care services to the Filipino people through the development of traditional and alternative health care and its integration into the national health care delivery system. Further, it will seek a legally workable basis by which indigenous societies would own their knowledge of traditional medicine. When such knowl-

edge is used by outsiders, the indigenous societies can require the permitted users to acknowledge its source and can demand a share of any financial return that may come from its authorized commercial use. It also provides for a Traditional and Alternative Health Care Development Fund.

The THCA encourages scientific researches, promotes the use of traditional, alternative, preventive and curative health care modalities, and formulates standards and policies for the protection of indigenous and natural health resources and technology from unwarranted exploitation, making such endeavours subject to approval by appropriate government agencies.

Wildlife Resources Conservation and Protection Act

The Wildlife Resources Conservation and Protection Act - popularly known as the Wildlife Act (WA) - was enacted to rectify some problems encountered in the previously enacted EO 247 and its Implementing Rules and Regulations. Even if only two sections of WA address bioprospecting, it has significantly changed bioprospecting procedures. (A thorough review of these instruments was done by Garforth et al. 2005⁹). Administrative Order No. 1 (AO No. 1) of 2004 contains the IRR for the Wildlife Act called Guidelines for Bioprospecting Activities in the Philippines. It was jointly formulated by the Department of Environment and Natural Resources, the Department of Agriculture, the Philippine Council for Sustainable Development (PCSD) and the National Commission on Indigenous Peoples (NCIP). EO 247 and DAO No. 20 are now repealed with the enactment of WA. Limitations of previous laws in terms of benefit-sharing are rectified in Chapter VI of the Guidelines, which includes bioprospecting fees, royalty payments, and up-front payments as well as other non-monetary benefits that may be agreed upon by the users and providers.

There are also exemptions in the scope of the guidelines:

- *Ex-situ* collections of biological resources sourced from traditional use, subsistence consumption or

conventional commercial consumption for direct use as in logging or fishing;

- Scientific researches on wildlife except for commercial purposes;
- Scientific researches on biodiversity;
- Existing procedures of collection and transport of wildlife species exclusively for commercial or conservation breeding or propagation; and
- *Ex-situ* collections currently accessed under international agreements where the Philippines is a party.

In the case of foreign applicants, they must collaborate with Filipino scientists in Philippine research institutions before agreements can be entered into. A chapter on compliance monitoring stipulates the requirements in reporting. The researcher must submit certification as proof of compliance, particularly on the proper procurement of the PIC, delivery of benefit-sharing agreement and collection quota. Outputs of research or the IPs accruing from the activities must not be applied for IPR without prior approval of concerned agencies. Moreover, at research termination the proponent must submit results and future plans to the concerned Philippine agency. Fines and sanctions for deeds not in accordance with the contract (Bioprospecting Undertaking) are clearly stipulated, for example, against any researcher who enters into commercialization agreements without informing the local party.

The Guidelines further enumerate the details of monitoring the progress of bioprospecting activities and results, and also provide a checklist of indicators for equitable benefit sharing. It was further specified that the concerned Philippine agency can seek assistance from the Departments of Science and Technology and Foreign Affairs, as well as civil society, to assist in monitoring inventions and commercialization activities in foreign countries.

Although EO 247 has been repealed, all agreements entered into during its effectivity remain in effect until their expiry. Subsequent renewals, however, must conform now with the Wildlife Act and the Guidelines. In case of an ongoing study on marine sponges, its renewal was done under the Wildlife Act.

Community Intellectual Rights Protection Act

CIRPA is based on:

- Recognition of TK. Indigenous peoples and local communities have original rights over plant and animal genetic resources, traditional medicines, agricultural methods and local technologies they have discovered and developed, and as such will be the general owners;
- Registration as a form of IP protection. A systematic inventory of plant and genetic resources and knowledge from these communities, especially those without a written tradition or culture, shall be done and eventually serve as the basis for proprietary ownership; and
- Community ownership of TK. All benefits derived from the knowledge and innovations shall be shared equitably.

Community intellectual properties are defined and enumerated in detail in Section 4. These include genetic resources, whether for agricultural or medicinal purposes, and their products, processes and uses; cultural products including pottery, weaving patterns, poetry, music, folklore and the like; and all other products and processes developed communally.

Section 5 defines the "community" that has the right to own community intellectual property, provided CIP is registered with the appropriate government agency (Section 6), and the right to collect profits from the commercial use of their TK within ten years from the date of registration. For plant varieties, there shall be a National Commission on Plant Genetic Resources (PGR), which shall update the inventory of plant varieties for the protection of PGR from unfair and inequitable exploitation. It also stipulates that the IRR which follow shall create regional registers of plant varieties in every region of the country and GR centres for storage and maintenance of germplasm material, as well as recognition of Community Gene Banks. Moreover, a community gene fund shall be created from contributions from national and international sources.

This Act was submitted for reading during the Thirteenth Congress of

the Philippines,¹⁰ but has not yet been approved.⁸

Present realities

In spite of such stringent new laws, guidelines, implementing rules and regulations, and the enactment of subsequent laws and rules to rectify the limitations and shortcomings of previous laws, there are still implementation problems regarding genetic resources, access and benefit sharing, and traditional knowledge especially when it comes to IPRs. Since the enactment of EO 247, until 2004 there were only eight applications for CRA and seventeen for ARA. There were two CRA-approved and already renewed twice. One was on marine cone shells and the other was about collecting tunicates, sponges, and other invertebrate samples to screen for potential bioactive compounds. Both contracts are between the DA, University of Utah and University of the Philippines Dili-man. The ARA was also with UP Dili-man involving studies along the same line of research.

The Philippines, being one of the world's repositories of diverse biological resources in terms of plant and animal species, has an immense potential in the production of medicines and food through TK. If only this can be developed and utilized using proper contracts and monitoring systems, substantial benefits will accrue to benefit national food and medical security, while preserving biodiversity, and lead to improvements in the lives of local and indigenous peoples.

The value of drugs to the US pharmaceutical industry coming from plant species is estimated at over US\$ 30 billion per year.¹¹ Some of these include aspirin, digitalis, cortisone, taxol, ephedrine, curare and novacaine. Moreover, nutraceuticals and herbal supplements are very common today and these are mostly based from TK. The internet and television commercials are full of these products which equate enormous commercialization going on. With the immense potential of TK for biological resources and their practices, biopiracy in countries with diverse bioresources has become rampant. This suggests that either there are no legitimate contracts with the country of origin or there

is a breach of contract on the access and benefit sharing schemes on the use of TK, resulting in the loss of benefits supposedly given to the resource providers. In a list of biopiracy cases in Asia reported by GRAIN (2002)¹², the Philippines has the largest number of biological resources patented by other countries (Table 1).

In the case of *Conus sp.*, the patents derived from the conotoxins and derivatives were mostly from studies of the University of Utah (UU) scientists, whose leader is a Filipino, who also previously worked at the University of the Philippines. The story behind the scientist's success was actually expressed in the website of University of Utah and Howard Hughes Medical Institute, where Dr. Baldomero Olivera¹³ is now connected. Dr. Lourdes Cruz was the collaborator in the Philippines but she also has appointments with the University of Utah. It was also reported that the breakthrough discovery for conotoxins were from *Conus magnus*¹⁴, or *Conus sp.*, marine snails collected from the tropical waters of the Philippines.¹⁵

Conotoxins from the venom of the *Conus sp.* shells can produce drugs to treat pain, epilepsy and even schizophrenia - diseases which have few treatments yet. A spin-off company, Cognetix, was founded after the isolation of conotoxins. Both Dr. B. Olivera and Dr. J. M. McIntosh are founders of Cognetix, Inc., a drug discovery and development company commercializing conopeptide-based pharmaceuticals with focus on pain and other CNS disorders. It also boasts of the largest patent portfolio in the world of conopeptide sequences, uses, and methods, covering over 1,000 conopeptides within 24 families¹⁶, which includes more than 78 US and international patents and over 52 pending applications in the US and PCT. Cognetix's CEO Anderson, said that there may be 50,000 different kinds of conopeptides which can be produced from the 500 species of cone snails¹⁷.

Another company, Elan Pharmaceuticals of Ireland, has just filed a new application with FDA for conotoxin synthetic, ziconotide, a pain and anti-seizure drug. It is a synthetic of toxins originally isolated by UU researchers pioneered by Olivera (healthsrfring.com,

Table 1: Biological resources of The Philippines patented by other countries

Biological resource	Nationality of bioprospector	Particulars
Soil microbes	USA	The multinational company Eli Lilly has earned billions of dollars from the drug, erythromycin, sold under the brand name "Ilosone", developed from an antibiotic isolated from a soil sample that a Filipino scientist Abelardo Aguilar collected in his home province of Iloilo. Neither Aguilar nor the Philippines received any royalties.
Ilang-ilang (<i>Canaga odorata</i>)	France	The use of the extracts from ilang-ilang in the cosmetic industry is perhaps as old as perfume is in France. There are several perfumeries in France that have used and continue to use it in their products.
Banaba (<i>Lagerstroemia speciosa</i>)	Japan, USA	US Patent Nos. 20060198907, 6485760
Nata de Coco	Japan, USA	US Patent Nos. 5006360, 4774095
Snails (<i>Conus sp.</i>)	USA	US Patent Nos. 6369193, 6344551, 6197535, 6153738, 6077934, 5633347, 5595972, 5589340

2006). This drug is actually the Prialt mentioned by Garforth (2005) which she said sells for \$ 19,000 in the USA.¹⁸ The sad part of the story is the inability of UU and Filipino scientists, as well as the country, to get a share of the benefits from Prialt because nobody filed for a patent. On the contrary, ziconotide has a patent owned by Elan Pharmaceuticals. Dr. Cruz (in a personal communication) added that during those times when conotoxin was developed, not many filed for patents. Hence, the Philippines did not receive monetary benefits from the commercialization of conotoxins. Only training and expertise for Filipino junior scientists materialized as benefits from that CRA. Now, however, they are aware of the consequences and advantages of patent applications, and this is foremost in their minds for future discoveries, especially from the almost 200 species of cone snails available in the Philippines. With the available patents from succeeding conotoxins, we hope that there can be more benefits from possible commercialization.

Another example of a genetic resource reported lost or brought elsewhere outside the country is the Phil-

ippine yew tree, *Taxus matrana*. It was reported to have been uprooted from Mount Pulag National Park in Benguet province because it has a great potential in treating cancer (Bengwayan, 2000 as cited in GRAIN¹²).

On the other hand, there are instances when local communities have exerted authority over their communal possessions. They have learned to be concerned and protective of their sources of living, environment and culture. This vigilance has been instilled in the minds of indigenous peoples by concerned NGOs working for them. In the case of the indigenous Talaandig community of Bukidnon province in Mindanao, this assertiveness about their rights was expressed fully. They charged a team of bio-prospector with illegal entry, trespassing in their ancestral lands and getting samples without their prior consent. This led to the creation of an office known as the Council of Elders Prior Informed Consent Office, which was established in Malaybalay City in 2000.¹¹

Current developments

IP Philippines is now exploring the possibilities of using the protective in-

tellectual property rights for TK (www.ipophil.gov.ph, December 2006). Together with Filipino health representatives, they have met with joint delegations from the European Patent Office (EPO) and the State Intellectual Property Office (SIPO) of the People's Republic of China for possible data gathering and setting up of TK databases in IP offices in the Association of Southeast Asian Nations (ASEAN). This is expected to help facilitate patent examinations eventually and produce economic benefits. The joint delegation also intends to have exchanges on TK, especially on its use for medicine and agriculture.

Another development includes some initiatives by the private sector and NGOs to make proposals for listing TK and eventually create databases. They are already looking for possible funding for documentation in fabrics, dyes and fibre crops; however this is still in the proposal stage. As of now, a database on TK in the country is not yet available.

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Portal of online databases and registries of traditional knowledge and genetic resources

This portal was established by the Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore (IGC) at its third session and is linked to the Clearing House Mechanism of the Convention on Biological Diversity. The purpose of the Portal is to facilitate the study of intellectual property issues related to traditional knowledge (TK) and genetic resources databases and registries. The databases listed below have been compiled by WIPO Member States and other international organizations.

Databases and registries compiled by WIPO member states

- China Traditional Chinese Medicine Patents Database (China)
<http://211.152.13.119/englishversion/login/WipoLogin.asp>
- Health Heritage Test Database (India)
<http://www.wipo.int/ipdl/en/>
- Traditional Knowledge Digital Library (TKDL) of Ayurveda (India)
<http://www.wipo.int/ipdl/en/>

Databases and registries compiled by international initiatives

- System-wide Information Network for Genetic Resources (SINGER) (CGIAR - Consultative Group on International Agricultural Research)
<http://www.singer.cgiar.org/>
- Indigenous Knowledge Database (World Bank)
<http://www4.worldbank.org/afr/ikdb/search.cfm>

For more information, access: <http://www.wipo.int/tk/en/databases/tkportal>