

Problems of Traditional Knowledge Misappropriation In The Globalization Era

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Abstract

Traditional knowledge refers to knowledge such as knowledge in natural materials which roots from traditional community and followed by society from generation to generation. Generally, countries rich with traditional knowledge are developing countries. The use of natural materials empirically good for health, give high economic values of traditional knowledge. These facts attract companies to get profit from exploiting traditional knowledge particularly through patent regime eventhough they are not novel, the absolute condition for patent protection. These acts give financial loss to the communities and countries who preserved the knowlege for centuries. Preventive measures from misappropriation of traditional knowledge is carried out by looking for the international agreement, however the agreement has not been reached since there are contradictory interests between developing countries and the developed countries. On the other side, potential conlicts could happen among developing countries concerning the owner of certain traditional. While the international legal instrument has not been reached, it is important to do domestic actions at least for a temporary measure. The actions could be: making regulations for protection of traditional knowledge, digging and documenting the traditional knowledge and increasing society awareness in preserving traditional knowledge as national assets. Beside that the goverment has to do diplomatic actions actively and do cooperation with other developing countries and international organizations in order to reach the international protections of the traditional knowledge.

Keywords: *local wisdom, traditional knowledge, globalization, corporation, patent, documentation.*

A. Introduction

This paper discusses about the characters of traditional knowledge, the problems of misappropriation faced by developing countries, dominantly the holders of traditional knowledge, and some efforts to handle the traditional knowledge problems. Until know, the most desired solution to solve the problems have not been reached. There are several suggestions given as a temporary way-outs can be applied, especially for Indonesia.

B. Definitions, Characters and Usages of Traditional Knowledge

Traditional knowledge and local wisdom have overlapping concept. Sometimes traditional knowledge is defined as a part of local wisdom, some other times the other way round. The following definitions of traditional knowledge and local wisdom show the overlap characters of both concepts.

Local wisdom is a type of community belief followed by societies from generation to generation. This concept refers to broad matters from values, paradigms of thinking and traditional knowledge. Knowledge to be applied in natural materials like chillies, aloe vera and turmeric for medicine or cosmetics are examples of traditional knowledge. From this definition, it can be seen that traditional knowledge is the expression of local wisdom.

On the other hand, some definitions of traditional knowledge from some other sources are as follows:

- Traditional knowledge embraces all kinds of scientific, agricultural, technical, architectural, herbal, medicinal and ecological wisdom.¹
- (Traditional Knowledge) refers to tradition-based literary, artistic or scientific works, performances, inventions, scientific discoveries, designs, marks and symbols, undisclosed information, and all other tradition-based innovations and creations resulting from intellectual activity in the industrial, scientific, literary or artistic fields²
- Traditional knowledge refers to the matured long-standing traditions and practices of certain regional, indigenous, or local communities. Traditional knowledge also encompasses the wisdom, knowledge, and teachings of these communities.³

The characters of traditional knowledge is collectively shared and owned, and even more often knowledge passed down orally, with no documentation of an original inventor.⁴

From all above definitions, it can be concluded that the substance of local wisdom and traditional knowledge concepts are wide and almost the same. Both refer to cultural expressions. They are existed in community from generations to generations, and transferred from one generations to others orally. The possessors or the holders are in the hands of indigenous society.

The concept of possessors or holders in traditional knowledge and local wisdom are different from the concept of ownership of property in western concept. The ownership of property in western concept refers to the full power of the owners to use and transfer his rights. In local wisdom and traditional knowledge, the ownership dominantly lay on the community, not in hands of individuals. Individuals do not have

¹ Tanit Changthavorn and Tasnee Anaman, Protection of Traditional Knowledge for Food and Agriculture: Thailand's perspective, work paper in Workshop on Traditional Knowledge, Intellectual Property and Agriculture, 1-2 March 2004, hosted by Queen Mary Intellectual Property Research Institute, University of London, Intellectual Property Association of Japan, Japan Bio industry Association.

² Florian Leverne, Queen Mary Intellectual Property Research Institute-London, work paper in Workshop on Traditional Knowledge, Intellectual Property and Agriculture, 1-2 March 2004, London

³ Wikipedia, the free encyclopedia, access June 10 2009.

⁴ Fei Fei Jiang, The Problem with Patents Traditional Knowledge and International IP Law, Global Education, Vol 30 (3), article in Fall 2008 Issue, Harvard International Review (electronic version)

authority as strong as individual owners in western concepts. The community as a whole is the authority of the traditional knowledge and local wisdom. It preserves the traditional knowledge and local wisdom of the community as the guards of the knowledge.

The concept of traditional knowledge is very wide. It covers various elements such as literary, artistic or scientific works, performances, inventions, scientific discoveries, designs, marks and symbols, undisclosed information, and all other tradition-based innovations and creations resulting from intellectual activity in the industrial, scientific, literary or artistic fields. In WIPO (World Intellectual Property Organization) discussions regarding Intellectual Property issues related to traditional knowledge, topic of the traditional knowledge divided by two fields, those are: traditional knowledge related to genetic resources and traditional knowledge related to cultural expressions (folklore)

This paper refers to traditional knowledge related to genetic resources, since it discusses about community knowledge which applied in materials based on genetic resources/bio diversities. Products resulted from traditional knowledge which derived from genetic resources or bio diversity generally used for medicines, cosmetics and foods based on processing natural resources. The society ability to produce traditional knowledge can not be separated from community closeness with the nature.

Generally traditional knowledge (which based on genetic resources or bio diversities), are originated from countries rich with biodiversities, since usually genetic resources are the base materials of traditional knowledge. Dominantly, countries rich with biodiversities are developing countries. Indonesia is one of the richest biodiversities countries.⁵ Traditionally, Indonesian people has close relationship with nature. This is an evidence that Indonesia is rich with traditional knowledge.

Some examples of traditional knowledge widely known in Indonesia, are: the use of tea leaf to cure acne, and the use of mix lime and soy sauce to cure cough.⁶ The example of traditional knowledge widely known in India is the use of neem tree (*Azadirachta indica*) as contraceptive, tooth paste, fertilizer pesticide and fungicide.⁷ The example of traditional knowledge widely known in some Asia countries like China and Sri-Lanka is bitter melon (*Mormordica charantia*) to treat tumours and HIV.⁸

C. Misappropriation of Traditional Knowledge

Medicines which derived or developed from traditional knowledge which uses genetic resources as its material bases frequently has high economic values and almost no side effect. These facts attract corporations attention to grab huge profit from the exploitation of such medicine derived from traditional knowledge. Parallel with the

⁵ In quite a lot discussions, Indonesia is mentioned in the second rank of mega diversity countries after Brazil, and followed by India.

⁶ W. Surya Endra – Obat-obatan Ramuan Asli P.P.P.K (anak-anak), Penerbit Usaha Nasional-Surabaya, no date of publication.

⁷ Florian Leverne, ibid

⁸ Devinder Sharma in South Bulletin, A South Centre Publication, July 15, 2002 (electronic version)

aggressive characters of the companies to get profit, they even use patent regime to monopolize the use and sell products originated from traditional knowledge⁹.

Patent is a law institution which gives exclusive protection to the patent holders to do economic exploitations in technical works like producing, selling or importing patent and prohibit others to do their rights without permissions in some period time. The period of time is 20 years. After the time period is lapse, patent holders do not have their exclusive rights any more. Any person can freely exploit the technical works. Patent is given to new technical works applied in certain products or processes or development of products or processes that has been existed before. The development of technical works fulfill the patent criteria when it has technical features that is different from existing technical features.

From the facts that traditional knowledge has been existed for a long time, this knowledge does not meet the patent requirements, but any products or processes developed from traditional knowledge that has different technical feature from the existed traditional knowledge, could be patented.

Patented of traditional knowledge (without or only little development of traditional knowledge) is a kind of traditional knowledge misappropriation. As above mentioned, the patent holders although get their rights from illicit conduct, have exclusive rights to control the economic exploitations of their patents. Some examples of Indonesia traditional knowledge which were patented by Japan corporations, are: sambiloto (*andrographis panicurata*), and kemukus (*Piper cubeba*) as anti aging agent, Brotowali (*tinospora tuberculata beumee*) and gambir lumpang (*Uncaria gambir*) as beautifying and whitening dermal preparation for external use and cabe jawa (*belonging to piperaceae*) as hair tonic.¹⁰ Fortunately, not all patent applications were successes. Because of active protests of some NGOs, shiseido, a Japan cosmetic corporations revoked their patent applications using Indonesia natural materials.¹¹

Misappropriation of traditional knowledge is also happened in some developing countries. India was widely known through its battle against some corporations and USA patent office upon the patented of its taditonal knowledge, ie: the use of neemtree, basmati rice and turmeric. Bitter melon which widely used in China and Asian countries was patented in the USA, Erope and Japan.¹² Beside that, an example of patented herbal medicines by only added a minor development from traditional knowledge was the use of aloevera to cure the ailment of "dry eyes". Using the solution from the leaves of the

⁹See also Grain and Kalpavriksh, Traditional Knowledge of Biodiversity in Asia-Pacific: Problems of Piracy and Protection, in www.grain.org/publications/tk-asia-2002-en.cfm, access June 7 2009. They wrote: "TK of plant genetic resources is under threat. The global push for privatisation of biodiversity continues to encourage ownership over these generic resources. Many countries, and the large business they support, increasingly want to control these resources and the knowledge associated with them for commercial purposes. The means for such control is the use of IPR – particularly patents."

¹⁰ More information about Japanese patent suspected related to Indonesian plants and traditional knowledge, could be seen in Tanton Subagyo and Edi Sedyawati, The Protection Of Traditional Knowledge in Food and Agriculture in Indonesia, article in Workshop on Traditional Knowledge, Intellectual Property and Agriculture. They cited from European Paten website (<http://ep.espacenet.com>)

¹¹ C. Ria Budiningsih, Makna Keberhasilan Pembatalan Paten Shiseido, in Kompas July 17 2002.

¹² Jagath Gunawardena, in South Bulletin, A South Centre Publication, *ibid*, wrote that patent of bitter melon issued in the USA, European Union and Japan. The paten covers a purified protein known as MAP-30, extracted from the fruit and seed of bitter melon (*Mamordica charantia*).

aloevera to cure "dry eyes" was widely known in India. A patented of aloevera to cure "dry eyes" was just to replace the method of cleaning the leaves from cleaned water to chlorinated water¹³

Developing countries loosed a huge amount of money due to the misappropriation of tradional knowledge. United Nations estimates, poor countries lose US\$ 5 billion in royalties each year due to unauthorized outside use of TK.¹⁴ While Grain and Kalpavriksh wrote that:¹⁵

"Annual global sales of products derived from the manipulation of genetic resources lie between US\$ 500 and US\$ 800 billion annually. Sales of herbal medicine alone are estimated to have exceeded US\$ 12,5 billion in 1994 and US\$ 30 billion in 2000, with annual growth rates averanging between 5% and 15%, depending on the region."

Eventough the country of origin of the traditional knowledge has suffered of financial losses, it is not easy for them to provide evidence of such misappropriation due to the nature of traditional knowledge that is communal owned and inherited orally from one generations to others. To oppose the the patent protection given by one country, the opposant/ the claimant should provide a specific evidence, usually written evidence, to show that the claims in patent application are the same or almost the same with traditional knowledge. Moreover, according to the USA patent law, only written evidence or technology that practice in the USA is recognised as "prior art"¹⁶.

The *United States Code Title 35 Chapter 10 Section 102* said that:¹⁷

"A person shall be entitled to a patent unless: (a) the invention was known or used by others in this country, or **patented or described in a printed publication in this or a foreign country.** (b)... "
(bold by the writer - CRB)

Based on that regulations a kind of technology that has been existed out side USA without printed publications could be patented in the USA. It happened when India fought against the patented of a kind of its traditional knowledge, it took a long time before India found evidence in ancient manuscript to be used in court.

In globalization era when information spreads easily and trade usually passed states boundaries, the exploitation of traditional knowledge become wide spread. Beside the problems of misappropriation of traditional knowledge through patent regime, there are other problems called bio trade.

Bio trade is the commercialization of bio diversity materials usually by unnative traders. The consequences of bio trade is decreasing the numbers of genetic resources and increasing the price of recources. The amount of several genetic resources which before was over flowing due to limited used, becomes limited due to the change

¹³ Devinder Sharma in South Bulletin, A South Centre Publication, ibid

¹⁴ Fei Fei Jiang, ibid and Grain dan Kalpavriksh, ibid

¹⁵ Grain dan Kalpavriksh, ibid

¹⁶ The general meaning of "prior art" is technology which existed before the patent application filed to the patent office. The existence of such technology could be known from oral knowledge, written evidence include the existed patent specification

¹⁷ Text of this article see in Grain dan Kalpavriksh, ibid, and some other sources.

function of the resources to be commodities spreadly sold. Eventhough the price of the genetic resources increase highly, usually only the trader from out side community and not the native who get the profit from the commercialization of that kind of genetic resources. It happens to the price of red fruit (Buah Merah/ *Pandanus Conoideus Lam*). The price of that kind of fruits highly increased after the functions of this fruit to cure cancer, tumour and an indication to cure HIV were widely known. Before the research about the function of red fruit published, this fruits were limited used traditionally by people in Papua. After the functions of this fruit is widely known, many people/traders from outside Papua looking for this fruits and process them to be valuable products. Now the price of that kind of fruit is very high, but people who get benefit from the increasing price of red fruit generally are the traders from out side Papua, not the native people.¹⁸ The side effects of bio trade also happens to the neem tree. Since the widely used of neemtree was widely known , the price of neem tree became expensive.¹⁹

The ease information access in the globalization era and the aggressive characters of corporations to grab profits caused many misappropriation of the traditional knowledge. This situation brings a suffer to traditional communities who has preserved the knowledge for a long time. To prevent the traditional knowledge misappropriation, developing countries which rich of traditional knowledge urged a promulgation of international law for international protection of traditional knowledge. They hope for an international legislation as a tool for protections of traditional knowledge since the main characters of law are binding to all parties and the implementations could be enforced. They also expect the benefit sharing from the use of their traditional knowledge.

Acess of the genetic resources and its benefit sharing are mentioned in the Convention on Biological Diversity (1992). Article 15 of that Convention recognized the state sovereignty over the genetic resources. While article 8 stated about benefit sharing from the use of genetic resources. From both articles it can be concluded that the states have authority to determine access of genetic resources and determine the benefit sharing to the users. However, until now it is still difficult to apply the mechanism of benefit sharing.

D. Efforts In Preventing Misappropriation Of Traditional Knowledge

Problems of the traditional knowledge misappropriation bring these problems to be discussed in the internasional fora. One of international bodies which active to look for the solutions is WIPO. WIPO which created in 1967 is a specialized agency in the United Nations. This body has purpose to encourage creativity, to promote the protection of intellectual property throughout the world²⁰.

To find solutions of traditional knowledge misappropriation, WIPO formed an Intergovernmental Committee. In 2001 this committe started discussions concerning legal mechanisms and practical tools concerning the protection of traditional knowledge however until know there is no agreement and political will concerning such issues. It

¹⁸ From advertising in online stores, the price of Red Fruit extracts are around Rp 130.000 / USD 130 per 100 ml. The price of each fruits around Rp 500.000 – Rp 2.000.000. Compare with the value of that fruit before the function of that fruit is widely known, it was consumed also by animals. From the advertising in online stores, it can be inferred that the traders are not the native of Papua.

¹⁹ See Florian Leverne, *ibid*

²⁰ Wikipedia, access June 30, 2009.

was difficult to reach the agreement, since there were considerably differences between developing countries which generally the holders of traditional knowledge and developed countries which were supporters of pharmacy corporations. Developing countries, like South Africa, India, China, Indonesia suggested the international legal binding of traditional knowledge. On the contrary, developed countries like Japan, USA and Swiss argued that before discussing about legal protection, some issues like working definitions and the objective of protections must be clear.²¹

On the other side, potential conflicts concerning the authority/the holders of certain traditional knowledge among developing countries could happen since it is difficult to determine the source of origin of the traditional knowledge which was developed and handed down orally in long period of time. It could happen, some countries claim that a kind of traditional knowledge were originated from their ancestors or their regions, so only the claimed country has the authority to the traditional knowledge and have the benefit sharing emerged from commercialization of the traditional knowledge. The use of bitter melon which were known widely in Asia to cure tumours and infections for example, has potential conflicts about the original holders of traditional knowledge which has authority to explore the knowledge and to get benefit sharing from other parties (pharmacy corporations) which commercially use this genetic resources.

Another example is the use of Pasak Bumi / Tongkat Ali (*Eurycoma longifolia*) in Indonesia and Malaysia as aphrodisiac agent. Malaysia had applied a patent for the use of Tongkat Ali.²² There were also rumors that Indonesia had applied a patent for the use of Pasak Bumi. It should be mentioned that the usage of Pasak Bumi has been traded around Indonesia as traditional medicine (*jamu*) a long time ago.

On the contrary, the same traditional knowledge used widely in more than one country, but only one country took responsibilities upon the misappropriation of the traditional knowledge. Example, the efforts of India without Pakistan supported to fight the misappropriation of basmati rice which widely grow in India and Pakistan.²³ Furthermore, documentation of the traditional knowledge which was in the beginning considered as a strong tool to protect traditional knowledge from patented actions (to be used as evidence of prior art), nowadays has shown its weakness because it can be used as a source to do misappropriation by added minor modifications.²⁴ As it happened in the case of aloe vera above-mentioned.

²¹ The entire opinions of each delegations can be seen at the Document prepared by Secretariat of WIPO on Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore, Thirteenth Session, Geneva, October 13-17, 2008, at WIPO official website, www.wipo.org. Last discussions was in December 2009 without the significant result.

²² Grain dan Kalpavriksh, *ibid*.

²³ Devinder Sharma in South Bulletin, A South Centre Publication, *ibid* , wrote that: “ In the case of basmati rice, the challenge came only from India while the scented rice is also grown in neighboring Pakistan. Despite first making claims that it too will join the battle against basmati rice, Pakistan chickened out when the cost of the cost of the legal battle was worked out to something around US \$ 3,000,000”.

²⁴ See the discussions concerning the side effects of Traditional Knowledge documentation in India, below.

From all discussions, it must be accepted that solving misappropriation of traditional knowledge is very complex so that the international solution is difficult to achieved or at least taking a longer time.

E. Closing Remark: Domestic Measures for Strengthening Traditional Knowledge

While international legal instruments in preventing the misappropriation of traditional knowledge have not been reached, it is important that developing countries take some efforts in their own countries for strengthening their traditional knowledge. The purpose to solve the problems through domestic tools, could be used at least for temporary way-out. Although domestic policies only have effects in self countries and can not cope the whole international problems of traditional knowledge misappropriation, doing action in self countries is easier than in international fora since each countries has its own authority to regulate its country. Besides, the communities can work together to preserved their traditional knowledge from foreign misappropriation.

Domestic policy could be done by enacting laws concerning the protections of traditional knowledge. There are some alternatives usually mentioned for enacting traditional knowledge legislation, those are: the legislation which refers to intellectual property laws. In this case intellectual property laws should be amended in order to give protections for traditional knowledge. Another alternatives is to enact laws concerning traditional knowledge which has a separated system from intellectual property laws.

A popular domestic policy is making documentatiton of traditional knowledge as practiced in India, China and Thailand.²⁵ India was leading in making documentations of its traditional knowledge. It set up a Traditional Knowledge Digital Library to be used as a tool of prior art to prevent patenting on something that was traditionally known.²⁶ Not longer after the big works was begun, some anxiousness rose up that the documentations became a tool for private companies as information for making new patents. From India experiences, it is better that the main purpose of making documentation is for domestic purposes, that is to preserve that the information of traditional knowledge is not lost.²⁷

There are some other efforts from some countries for protecting and preserving their traditional knowledge. Thailand has policy of marketing traditional knowledge as a kind of economic sources through promoting one village one product²⁸ Malaysia has policy to move the elders in the communities have also been encourages to periodically impart such knowledge to their younger generation to ensure that this younger generation will inherit the biotic heritage together with their associated traditional knowledge²⁹.

²⁵ See more deeply in Grain and Kalpavriksh, *ibid*

²⁶ From discussions before, it has been mentioned that patent protection could be granted if the claim described in patent specifications is novel. Third party can oppose the patent application by giving evidence that there is no prior art like mentioned in patent application. See also Devinder Sharma in *South Bulletin*, A South Centre Publication, *ibid*

²⁷ Deep explanation about the anxiousness of traditional knowledge documentation in India, could be read in Devinder Sharma in *South Bulletin*, A South Centre Publication, *ibid*

²⁸ Tanit Changthavorn and Tasnee Anaman, *ibid*.

²⁹ Eileen Yen Ee Lee, *A Case Study Malaysia*, in the Workshop on Traditional Knowledge, Intellectual Property and Agriculture, 2004, London

WIPO recognizes the role of women on traditional knowledge. It states that³⁰:

”Women, with their central role in the household in village societies, have invariably been responsible for the food and nutritional needs of their families, and therefore possess a detailed awareness of the species and ecosystem which surround them.”

To prevent the misappropriation of Indonesia traditional knowledge, Indonesia government has policies to enact laws of traditional knowledge protections which still in the on going plan. There are two bills concerning traditional law related to genetic resources prepared by governments, those are: The Bill of Management and Utilization of Genetic Resources (Rancangan Undang Undang tentang Pengelolaan dan Pemanfaatan Sumber Daya Genetik) and The Bill of Traditional Knowledge and Expressions of National Culture (Rancangan Undang Undang tentang Pengetahuan Tradisional dan Ekspresi Budaya Tradisional). Although initially government quite optimistic to enact the bills in short time, it seems that government needs quite a long time to revise the bills before they send them to the Parliament, they are still a lot of criticism from scholars concerning many substantial parts and the implementations of these two bills.

Government also has policy to make documentations of traditional knowledge existing in Indonesia. Nowadays, there are three government institutions which have initiative to make such a documentation, those are the ministry of research and technology, the state ministry of environment, and the Directorate General of Intellectual Property Rights. However, there is no coordinations among the three institution in collecting and making such documentations, so that the achievements may not be maximum considering the enormous number of Indonesian traditional knowledge which spread until the remote areas of Indonesia.

In international communities, Indonesian government actives in a forum of countries, called Like Minded Countries, which concern to international protections of traditional knowledge (in fields of genetic resources and folklore). The purpose of this forum is producing the draft of international legal instrument to be negotiated in WIPO general assembly.

F. Closing Remarks

Problems of traditional knowledge misappropriation generally about the economic problems. Bio diversity countries feels that the use of their genetic resources by corporations without compensations is not fair. However, it is difficult to get international legal mechanisms to solve that problem. For Indonesia necessity, considering that the government policies are still in beginning base and have not been finished, I suggest the cooperations of societies in order to protect and preserve Indonesia traditional knowledge. The roles of universities as the intellectual institutions are really needed to give inputs in the form of seminars and research how to dig, preserve and document the traditional knowledge. Other actions for protections and preservations Indonesia traditional knowledge are increasing the society awareness concerning the importance of traditional knowledge, increasing the society sense

³⁰ www.int/women-and-ip/././tk.htm Women and Traditional Knowledge, access May 2010. The role of women is also mentioned in the Convention on Biological Diversity (1992)

belonging of traditional knowledge and increasing the society responsibilities in preserving traditional knowledge as national assets. Policies and activities which were done by Thailand and Malaysia as above mentioned could be considered to be applied for increasing social awareness, sense belonging and responsibilities of Indonesia traditional knowledge. Besides, it is also important for increasing and powering women participations considering that women intensively use traditional knowledge as medicine, cosmetics and foods in their daily life.

While in international fora, as a mega diversity country, Indonesia must remain active in conducting international diplomacies and discussions. Criticism from developed countries that the international binding instruments is difficult to be achieved because developing countries can not explain definitions, scope of traditional knowledge, the purpose and mechanism of traditional knowledge protection, should be noted. Since they are important elements in determining the substance of law.

References:

- Sardjono, Agus. *Hak Kekayaan Intelektual Dan Pengetahuan Tradisional*, Bandung: PT Alumni, 2006.
- Budiningsih, C. Ria, “Makna Keberhasilan Pembatalan Paten Shiseido” in *Kompas*, July 17 2002.
- Jiang, FeiFei, “The Problem with Patents, Traditional Knowledge and International IP Law”, *Global Education*, Vol 30 (3) – Fall 2008 Issue, Harvard International Review.
<<http://hir.harvard.edu/index.php?page=article&id=1795&p=>>
- Grain and Kalpavriksh, *Traditional Knowledge of Biodiversity in Asia-Pasifik: Problems of Piracy and Protection*. Oktober 2002
<<http://www.grain.org/publications/tk-asia-2002-en.cfm>>
- Endra, W. Surya, *Obat-obatan Ramuan Asli P.P.P.K (anak-anak)*, Surabaya: Penerbit Usaha Nasional, 1982
- South Bulletin, A South Centre Publication, July 15, 2002 (electronic version)
- Mary, Queen. “Intellectual Property and Agriculture” in *Workshop on Traditional Knowledge*. London: University of London, Intellectual Property Research Institute, Intellectual Property Association of Japan, Japan Bio Industry Association, 1-2 March 2004
- World Intellectual Property Organization Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore, fourteenth Session, Geneva, June 29 to July 3, 2009. WIPO/GRTKF/IC/14/INF/2
- World Intellectual Property Organization Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore, thirteenth Session, Geneva, October 13 to 17, 2009. Initial Draft Report WIPO/GRTKF/IC/13/11Prov
- Wikipedia, free encyclopedia, <www.wikipedia.com>