Traditional knowledge of biodiversity in Asia-Pacific:

Problems of Piracy and Protection

GRAIN and Kalpavriksh

November 2002

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This briefing was researched and written by Genetic Resources Action International (GRAIN) in collaboration with Kalpavriksh. The many groups and individuals who gave time and information to its preparation are gratefully acknowledged.

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GENETIC RESOURCES ACTION INTERNATIONAL

GRAIN is an international non-profit organisation which promotes the sustainable management and use of agricultural biodiversity based on people's control over genetic resources and local knowledge. To find out more about GRAIN, visit our website at www.grain.org

Kalpavriksh (KV) is a voluntary group based in India, which works on environmental education, research, campaigns and direct action. It began in 1979 with a students' campaign to save Delhi's Ridge Forest area from encroachments and destruction. Starting with these roots in local action, Kalpavriksh has moved on to work on a number of local, national, and global issues. Its activities are directed towards ensuring the conservation of biological diversity, challenging the current destructive path of 'development', helping in the search for alternative forms of livelihoods and development, assisting local communities in empowering themselves to manage their natural resources, and reviving a sense of oneness with nature.

Comments on the paper may be addressed to Shalini Bhutani at:

GRAIN
J20, 11 Floor, Jungpura Extension
New Delhi 14, India
Tel: +91 11 431 5168
Email: shalini@grain.org

About this Briefing

Most people across Asia, a region rich in biodiversity, are directly dependent on plant genetic resources for their livelihoods. But both these resources and the knowledge related to them are under threat. The quest for "green gold" by transnational companies and global institutions is penetrating all countries of the region, bringing with it a rise in the problem of biopiracy. The misappropriation of traditional knowledge has been helped by changes in regulations - mainly the introduction of intellectual property rights. Governments are increasingly trying to manage rights to biodiversity and traditional knowledge through exclusive monopoly systems, while mechanisms to protect and strengthen the collective rights of local communities remain weak.

Using numerous examples, this briefing provides details of the changes that are occurring in Asia-Pacific; from international agreements and regional initiatives to action taken by farming communities. Many people at the grassroots level are working to fight back and protect their resources and knowledge from blatant exploitation. Emerging strategies on what communities and organisations can do to further ensure the strengthening of community rights are outlined.

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Introduction

The Asia-Pacific region has a rich diversity of plants, which have been used by people for generations. The majority of people in Asia-Pacific still rely directly on this diversity of plants, or plant genetic resources, for food and medicine. There is an abundance of local expertise in plant genetic resources that has been in use over a considerable period of time and is also constantly evolving. In agriculture, for instance, this knowledge is shown in the development and adaptation of plants and crops to different ecological conditions (soils, rainfall, temperature, altitude etc…). Traditional knowledge is people's awareness and understanding of this and other information, which is passed on from one generation to the next, usually by word of mouth or example within a specified group of people. Indigenous knowledge is often used interchangeably with traditional knowledge[1]. In this paper, traditional knowledge will focus specifically on plants and their use by people.

"Traditional knowledge provides useful leads for scientific research, being the key to identifying those elements in a plant with a pharmacological value that is ultimately destined for the international markets."

The need for a specific definition of traditional knowledge is impelled by the push from the formal sector[2] to control, manage and market the knowledge and to bring it under a regulatory framework. Traditional knowledge provides useful leads for scientific research, being the key to identifying those elements in a plant with a pharmacological value that is ultimately destined for the international markets. Indeed, such traditional knowledge is very valuable. Annual global sales of products derived from the manipulation of genetic resources lie between US$ 500 and US$ 800 billion annually.[3] 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 averaging between 5% and 15%, depending on the region.[4]

Ironically the very knowledge that forms much of the basis of "modern" scientific research and development is not regarded as a "science". Industry gets the rights and the profits; local communities are merely used as providers of "raw materials". The world "scientific" community, in response to the demands for recognition of indigenous peoples and other local community organisations, acknowledges that traditional knowledge has "contributed to the development of modern science", but do not agree to "traditional knowledge" being classed the same as "scientific knowledge".[5]

Most of the debate about traditional knowledge at the international level is taking place in the context of intellectual property rights (IPR). It is through IPR, and particularly patents, that control and ownership over traditional knowledge is being usurped by commercial interests.[6] And part of the problem is that the IPR system, which threatens traditional knowledge itself, is now being proposed as a system to protect traditional knowledge.

In the patent system, a patent can only be granted if an invention is novel or nonobvious. Novelty and nonobviousness are judged against everything publicly known before the invention, as shown in earlier patents and other published material. This body of public

Threats to indigenous knowledge

Indigenous knowledge is threatened from three sources:

(1) Loss of the indigenous peoples' territorial base through the destruction of the rainforests, and their displacement by government projects or through commercial utilisation of natural resources. This makes it impossible for many indigenous communities to sustain their knowledge as well.

(2) The introduction of the so-called "modern" practices of agriculture and medicine.

(3) Indigenous knowledge is increasingly endangered by misappropriation of this knowledge by outside researchers.

World Intellectual Property Organisation, October 1999[7]

Why patents cannot protect traditional knowledge

The reason why the patent system does not work for traditional knowledge holders, particularly in the Asia-Pacific region is because:

- **it is impossible to identify an individual inventor due to the collective nature of traditional knowledge**
- **traditional knowledge often can not be attributed to a particular geographical location**
- **ownership of varieties of plants is alien to many social and cultural beliefs**
- **the required criteria of "novelty" and "inventive step" are not always possible particularly in cases where the traditional knowledge has been in existence over a long period of time**
- **the costs of applying for a patent and pursuing patent infringement cases are prohibitive.**

knowledge is called "prior art".[8] Prior art means any disclosure of the contents of a claim, prior to the application for patent. Some national laws do not recognise oral knowledge as evidence of "prior art". The United States (US) regards oral disclosures as prior art only if they were made in the US.[9] Thus, a therapeutic technique orally handed down from one generation to another by a tribe in Asia or the Pacific can still be patented in the US, despite it being publicly known for many years. This is why western-styled patent systems are inherently incapable of recognising the existence of, or providing protection to, traditional knowledge of other countries.

"The whole notion of intellectual property protection for life forms runs contrary to the traditional ways in which the properties of life forms are bred and nurtured in many parts of the world."

South Asia Network on Food, Ecology and Culture, Nov. 2001

Another dimension of the problem is that access and benefit sharing (ABS) arrangements – the first step that many governments take to supposedly rectify imbalances – are being premised on IPRs, despite the unsuitability of the latter to biodiversity and related traditional knowledge.

This paper gives an update on what is happening in the region, both in terms of the pressure to commoditise and privatise biodiversity, and the ongoing responses from governments and local people. The message is that industry is making deeper and deeper inroads, with increasingly active support from governments, while the mechanisms to protect and strengthen the rights of communities are still experimental and weak.

A global issue

Traditional knowledge of plant genetic resources is under threat. The global push for privatisation of biodiversity continues to encourage ownership over these genetic resources. Many countries, and the large businesses 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 intellectual property rights – particularly patents. A number of international legal bodies are preoccupied with the issue of intellectual property rights:

WTO: Under the World Trade Organisation's TRIPs Agreement, countries are obliged to provide intellectual property protection for plant varieties at the national level either through patents or "*an effective* sui generis *system*"or both.[10] In asking for not only a review of Article 27.3(b)[11] but a complete review of the TRIPs Agreement, countries from Asia have adopted an important position at the WTO. India on behalf of other Asian countries in its submissions to the TRIPs Council asked that TRIPs be harmonised with the Convention on Biological Diversity (CBD).[12] At the Fourth WTO Ministerial Conference at Doha, China & the G77 issued a statement, which said "*the TRIPs agreement should be supportive of, and not run counter to, the objectives and principles of the CBD*".[13] The statement also provided practical advice by saying that "*during the course of this review…members should agree not to invoke dispute settlement procedures against developing countries*".[14] China, India, Pakistan and Thailand with a few other African and Latin American countries have together also made a submission to the TRIPS Council asking that the TRIPS Agreement be amended so as to require an applicant for a patent relating to biological materials or traditional knowledge to provide information on the country of origin of the biological resources, evidence of prior informed consent and that of a fair and equitable benefit-sharing arrangement as a condition to acquiring patent rights.[15] Nonetheless, this position does not challenge the patentability of traditional knowledge or biological resources.

"Many countries, and the large businesses they support, increasingly want to control these resources and the knowledge associated with them for commercial purposes."

UPOV: The UPOV Convention is an international agreement that sets rules, similar to patents, for monopoly rights over crop varieties. Several Asian countries already have, or are in the process of making, UPOV-styled laws for plant protection. Members of ASSINSEL, the international association of the seed industry, have continued to pressurise governments to adopt UPOV. [16] In a position paper ASSINSEL wrote that "*any national legislation authorising farm saved seed…without safeguarding the legitimate interest of the breeders is not in conformity with the 1991 Act of the UPOV convention*." ASSINSEL also adds that such national legislation would also "*not be an effective* sui generis *system in the meaning of the article 27.3(b) of the TRIPs agreement*".[17]

WIPO: Traditional knowledge and IPRs are being brought together at the World Intellectual Property Organisation (WIPO) under the Intergovernmental Committee on Genetic Resources, Traditional Knowledge and Folklore.[18] Another WIPO-sponsored activity is the creation of a Task Force under the Committee of Experts of the International Patent Classification (IPC) Union, to study the relation and possible integration into the IPC of a Traditional Knowledge Resource Classification. In Asia, a joint statement adopted by the WIPO Asian Regional Forum on Intellectual Property Policy Development emphasised the urgent need for "developing countries to modernise their intellectual property systems and to bring their national legislative and administrative structures into conformity with international treaties and agreements, including the TRIPS Agreement".[19]

CBD: It is under the Convention of Biological Diversity (CBD) and its Article 8(j) that the need to protect traditional knowledge has gained an international foothold. [20] With indigenous groups and peoples' organisations stressing the need for more focussed attention on traditional knowledge, at the Madrid Workshop organised under the auspices of CBD, the requirement for a working group on Article 8(j) was endorsed.[21, 22] The Working Group is *"studying existing systems for handling and managing innovations at the local level and their relation to existing national and international systems of intellectual property rights, with a view to ensure their complementarity*". Article 8(j) of the Convention recognises the need to respect the skills, practices etc. of indigenous and local communities, to take their consent for the wider use of these skills, practices etc., and to ensure equitable benefit-sharing if such use takes place. As stated in the Preambular paragraph of the Convention text, the member countries recognise the desirability of sharing equitably the benefits arising from the use of traditional knowledge.[23] Under the CBD, a working group on Access to Genetic Resources and Benefit Sharing has developed the Bonn Guidelines on Access and Benefit Sharing[24] that were adopted at COP6.[25] The Guidelines are designed to facilitate access to genetic resources amongst member states. Though the Guidelines seek to balance the interests of the country of origin of genetic resources with those of the recipient in benefit-sharing arrangements, they are premised on the commercialisation of these resources. The relationship between IPR and benefit sharing is also being examined in the process. At COP6, NGO representatives from the region made a demand for a special protocol for indigenous and farmers' rights in the Convention.

"There is virtually no endeavour at the international level to explore alternatives to the IPR system as a means to protect traditional knowledge."

FAO[26]: Under the auspices of the Food and Agriculture Organisation, the International Treaty on Plant Genetic Resources provides a space for national recognition of farmers' rights. Several Asian country negotiators, including India, fought hard at the table for the inclusion of farmers' rights in the text. However, the Treaty fails to make international provisions for farmers' rights, putting the onus instead on national governments to do so. The Treaty also has controversial provisions on intellectual property rights.[27, 28]

APEC: Within the Asia-Pacific Economic Cooperation,[29] there is an Intellectual Property Rights Experts Group (IPEG).[30] The IPEG is developing Collective Action Plans (CAPs) in the area of IPRs for promoting the establishment of an internationally harmonised intellectual property system. The IPEG's CAP-based activities include work on issues associated with genetic resources, traditional knowledge, and folklore.[31]

As the above shows there is virtually no endeavour at the international level to explore alternatives to the IPR system as a means of protecting traditional knowledge. The rush for "green gold" from the private sector continues to accelerate the trend towards IPRs.[32] For the private sector, exploiting biodiversity requires IPR. And any protection of traditional knowledge must fit into the IPR system. The International Chamber of Commerce believes it is *"essential that any new system for protecting traditional knowledge be compatible with existing intellectual property rights, in particular patents*".[33] The European Chemical

Simple seed saving practices do not have a place in the globalised seed system: in fact, they are becoming illegal. Traditional healers are increasingly going to find themselves in the same position with respect to their medicines and therapeutic knowledge.

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Industry Council is of the opinion that "*protection [of traditional knowledge] through existing IP systems is possible and preferable*".[34]

The use of bilateral agreements, or political pressure, between individual countries is one of the most effective means being used to coerce Asia-Pacific governments to adopt intellectual property rights for traditional knowledge, as shown by these examples:

- In January 1992, the United States and China signed the Memorandum of Understanding on the Protection of Intellectual Property. This agreement required China to make certain changes to its laws governing intellectual property protection and to accede to several international IPR Conventions before 1994.
- In April 1997, the US State Department sent a letter to the Thai government regarding draft legislation that allowed Thai healers to register traditional medicines, thus keeping them within the public domain. The letter advised the Thai government, "*Washington believes that such a registration system could constitute a possible violation of TRIPs and hamper medical research into these compounds*". The US letter provoked public outrage; the letter implied that the US government wished to protect the right of foreign researchers to patent Thai knowledge.[35]
- In 2000, Vietnam has been pressurised to hasten the protection of intellectual property rights under a bilateral trade agreement with the US.[36] The Agreement requires that Vietnam must implement and "make best effort" to join UPOV and that it must provide patent protection on all forms of plants and animals.

The impact of privatising traditional knowledge

Biopiracy

Biopiracy can be defined as the stealing of knowledge from traditional and indigenous communities or individuals. The term can also be used to suggest a breach of a contractual agreement on the access and use of traditional knowledge to the detriment of the provider and bioprospecting[37] without the consent of the local communities.

The number of cases of biopiracy affecting Asia is growing steadily, as shown by the examples in Table 1 (over page) and the box below.

Biopiracy takes everything and returns nothing or very little. The only "value" added to native knowledge is a mere confirmation by Western scientists of the properties of the resource, often known to the community for years. Unlike the social system in which this knowledge evolves, in the commercial system from the origin to the end product, each "value-adder" seeks a profit-oriented monopoly. And more often than not it is the pharmaceutical or agri-chemical companies marketing the finished product that secure patents, irrespective of the fact that the product may have had its origin in traditional knowledge. So the "first-to-file" gets legally protected rights rather than the "first-to-invent"; rights which ironically the former can use to prevent the original "inventor" from exercising any control over the resource in question. So the issue of protection of traditional knowledge is also that of preventing unauthorised persons from obtaining protection to the detriment of the real innovators.

In addition, as governments realise the commercial value of genetic resources, they too wish to have more control over them and access to local communities in government-owned lands is often restricted. For example, up till now the Kani Tribe in India has trouble accessing the forest plant *Trichopus zeylanicus* from forest lands, which is used in the preparation of the herbal med icine "Jeevani". The tribal people cannot legally access the plant and sell it to the institute that developed the drug, since collection for commercial purposes is not

Control over resources in Asia

- German agrochemical and pharmaceutical giant, Hoechst Co. has several US patents on preparations from the medical plant of the mint family *Coleus forskohlii*, which grows in India, Nepal and Thailand[38]
- Multinational pharmaceutical companies often practice transfer pricing in the trade of raw materials used in the drugs, and this raises the cost of medicines in developing countries. A study by Dr. Zafar Mirza (The Network Association for Rational Use of Medication in Pakistan) compared prices of pharmaceutical raw materials imported into Pakistan for local manufacture by drug companies.[39]
- Glaxo Wellcome has been involved in ethnobotanical research in South East Asia since 1998. The Singapore Center for Natural Products Research (CNPR), a Glaxo Wellcome-funded bioprospecting institution is alleged to have an agreement with India's Tropical Botanical and Garden Research Institute (TBGRI), which allows it to makes the "work carried out by CNPR and Wellcome with the samples and any information relating thereto...the confidential property of CPNR or Glaxo Wellcome" and offer any commercial product developed from the Kerala plants to a "third party".[40] Subsequently, the State Government decided to give a greater role to local administrative bodies and so as to facilitate people in "policing" their flora and fauna. The executive order to that effect is yet to be issued.[41]

Table1: Bioprospecting in Asia-Pacific - the tip of the iceberg

Country	Biological Resource	Biopirate country	Notes
China	Bitter Melon (*Momordica charantia*)	US	US Patent No. 5484889[42]
China	Xi Shu/Happytrees *(Camptotheca lowreyana)*	US	US Patent No. PP11,959
Malaysia	*Bintangor tree* (Calophyllum lanigerum)	Singapore[43] US[44]	US Patents including No.s 6420571, 6369241, 6160131 and 6277879
Pacific	*Kava* (Piper mythesticum)	US[45]	US Patents including No.s 6405948, 6277396, 6080410, 6025363, 5977120, 5976550 and 5770207
Pacific	*Nonu [Indian Mulberry* (Morinda citrifolia)*]*	Europe[46], US[47]	In 1995 Nonu Samoa Enterprises began export of nonu, a tree with medicinal properties, to the US with US collaboration.
Pakistan	*Basmati Rice*	US	US Patent No.s 6274183 and 5663484
PNG	*Coral reef sponges*	US[48]	US Patent No.s 6281196, 6153590, 5646138 and 5494893
Philippines	*Soil microbes*	US[49]	The multinational company Eli Lily has earned billions of dollars from the erythromycin antibiotic, which was developed from a bacterium isolated from a soil sample that Filipino scientist Abelardo Aguilar collected in his home province of Iloilo. Neither Aguilar nor the Philippines received any royalties.
Philippines	*Llang-llang* (Cananga odorata)	France[50]	The use of the extracts from llang llang in the cosmetic industry is perhaps as old as perfume in France. There are several perfumeries in France that have used and continue to use it in their products.
Philippines	*Banaba (*Lagerstroemia sp)	Japan[51], US	US Patent No. 5980904
Philippines	Nata de coco	Japan, US	US Patent No.s 6280767, 6140105, 5962277 and 5,795,979
Philippines	*Snails* (Conus)	US	US Patent No.s 6369193, 6344551, 6197535, 6153738, 6077934, 5633347, 5595972, 5589340 and 5514774
India	*Basmati Rice*	US	US Patent No.s 5663484 and 4522838
India	*Turmeric* (Curcuma longa)	US	US Patent No. 5401504, 5135796 and 5047100
India	*Neem (*Azadirachta Indica*)*	US	Several US Patents including No.s 5420318, 5391779 and 5371254; the US multinational company W.R.Grace's EPO Patent No. 0426257
India	*Guggul (*Commiphora mukul)	US	US Patent No. 6,113,949 and US Patent Application 20020018757.
Thailand	*Jasmine Rice*	US[52]	A US plant geneticist has developed a strain of Jasmine Rice to be able to grow it in the US; he received the original seeds of the Thai Khao Dok Mali 105 (KDM 105) jasmine rice variety from the International Rice Research Institute (IRRI) in 1995.
Thailand	*Plao-noi* (Croton sublyratus)	Japan[53]	In 1975 Sankyo of Japan extracted the active ingredient of the Thai local plant to produce the patented product Kelnac.
Samoa	*Mamala tree (*Homalanthus nutans)	US[54]	US Patent No. 5,599,839
Sri Lanka	*Kothala himbutu (*Salacia reticulata*)*	Japan, US	Takama System, Ltd. (Yamaguchi, JP)'s US Patent No. 6,376,682

allowed. The Forest Department justifies these restrictions on the grounds of conserving an endemic species, which it argues may run the risk of over-exploitation as result of commercial demand.

Concerns have also been raised that the biological resources on which traditional knowledge flourishes on now also face the threat of depletion. Plants are vanishing so quickly that the Earth is losing one major drug to extinction every two years.[56] Disrupting the interrelation between the traditional knowledge-generators and their resource, may well lead to the disintegration of the very processes by which the knowledge evolved and is kept alive.

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Biotrade

Governments and companies alike are key players in the business of biotrade. "Biotrade" refers to the movement of biological resources between countries, companies, academic institutions and individuals for actual or potential profit. More and more governments in the region, willingly or unwillingly, are allowing overseas and domestic private enterprise to operate in the sector. Cash-stricken governments often strike biotrade deals that might not further the interests of their traditional knowledge-holders. These governments often have little economic power when negotiating with large multinational companies. Often one company may strengthen its position in a region by signing contracts with several countries in that region.

For example, Oxford Natural Products (ONP), from the United Kingdom, has signed an agreement with PT Indofarma, one of the largest pharmaceutical companies in Indonesia, which will bring 'Jamu' medicines onto the international market. 'Jamu' are the traditional local botanical medicines widely prescribed for those who live in Indonesia, the largest country in South East Asia.[57] This thriving business of traditional medicine is one of the few that does well even in Indonesia's recession-ridden economy. [58] ONP has also signed an agreement with one of the leading natural medicine development institutes in Vietnam. The two-part agreement embraces both development and future commercial rights giving the company exclusive access to an important portfolio of Vietnam's plant medicines.[59] ONP is also involved in Bhutan in which the company used the knowledge of the Dungtshos (Bhutanese traditional medicine doctors) and their assistants, the Menpas, to identify and document several medicinal plants prescribed in local remedies.[60] GRAIN asked ONP about the benefit sharing policy of the company, but we did not receive a response.

South-south conflicts

With countries in the region facing and succumbing to such threats of biopiracy and biotrade, a collective stand may provide an effective resistance to biopiracy. However, there is an equal threat of increasing conflicts between countries in Asia. Conflicts may occur between countries that share the same or similar resources or compete for foreign markets.

For example, with respect to the uproar over RiceTec's Basmati rice patent, Nepal is concerned about not being acknowledged as a Basmati rice producer.[61] Any settlement of

legal rights or compensation related to the name, the knowledge or the plant in favour of one country – such as India or Pakistan -- could leave Nepal out altogether.

In another controversial development, Malaysia has sought a patent on *Eurycoma longifolia*, popularly known in the country as "Tongkat Ali". The Forest Research Institute of Malaysia (FRIM) has been given a mandate by the Malaysian government to be the lead agency in developing the plant. There is also an ongoing research programme between FRIM and the US Massachusetts Institute of Technology on Tongkat Ali. Under this research a patent has also been applied for. FRIM has also signed a Memorandum of Understanding with Japanese-owned Nimura Genetic Solutions to collaborate in bio-prospecting of new drugs.[62] In Indonesia the same plant, locally known as "Pasak Bumi", is a part of Jamu traditional practice, raising cross-border concerns about how Malaysia proceeds.

Also relevant in South-South relations are how one country's laws can impact another in the region. For example, the price of drugs in Sri Lanka is much higher than those in India, because of India's patent policy.[63] Indian patent law had until recently consistently refused to recognise product patents and permitted the manufacture and sale of patented products produced by a distinctly different process. Many such drugs are available in India and most of them are offered much lower than world market prices.

The tightening of regulation in one country can also have an adverse impact on plant genetic resources in another. For example, the smuggling of *Taxus baccata* from Nepal has increased since Indian law on its collection has become stricter. The lack of a coordinated regional front against "biopirates" from the West may be either because of political differences that may not allow for constructive dialogue, or simply because of a sense of competition against one another whilst vying for profitable bilateral bio-deals in the global marketplace.

Other kinds of biopiracy

The physical removal of plant genetic resources is another phenomenon that has surfaced in areas of eco-tourism and nature trails. There have been several instances in Cambodia where unscrupulous individuals and corporate collectors have plundered biological resources.[64] Along with the ecotourism boom, the illicit collection, smuggling and trade in marketable biological resources has become a multi-billion dollar business. Island nations such as the Maldives and the Pacific Island States, where tourism is one of the largest economic activities, can be particularly vulnerable to such theft. Protected areas can ironically be more vulnerable than other areas, as growing tourism makes supervision impossible. The Philippine yew tree (*Taxus matrana*), reported to have great potential in treating cancer, was uprooted from a national park in Mount Pulag, Benguet. Subsequently researchers from the University of Massachusetts patented it.[65]

The stealing of plants and knowledge also sadly happens with the collusion of local people. For example, in the Andaman Islands off India's eastern coast, the Onge tribe supposedly had a cure for malaria.[66] There was huge controversy when it was discovered that senior officials from a government-run research centre had planned to file a patent application in their own name for the malaria cure.[67] Meanwhile NGOs working in the islands have sought plant quarantine and a ban on the introduction of exotic species that might endanger endemic plant life. In the absence of specific legislation for the protection of the biological resources and the knowledge emanating from it, such measures for safeguard are being sought under the Coastal Zone regulations, which designate greater protection to the Islands than other coastal areas.

Table 2: What the different parties want

In terms of….	MANY COMPANIES AND INDUSTRIAL COUNTRIES	MANY GOVERNMENTS IN ASIA-PACIFIC	MANY NGOS, LOCAL COMMUNITIES AND SMALL FARMERS
Plant Varieties	Plant Breeders Rights and patents	Willing to provide plant breeders' rights, with some provision for a farmers' "privilege"	Farmers' rights and community rights
Sui Generis	UPOV standards	Not clear what they want, but most go for UPOV	Real alternatives to IPR
Patents	No exclusions for any subject matter	Certain exclusions	No patents on life
Ownership	Market control	State sovereignty	Community sovereignty and collective control
TRIPs Review	No amendments that lower standards of IPR protection	Amendments to conform with CBD, but not challenging patents on life or TK	Exclude biodiversity and do not introduce traditional knowledge, or introduce protection for traditional knowledge
Access	Free and unregulated	State control	Community control
Benefit sharing	Through IPR	Through IPR	Through community intellectual property regimes or comprehensive resource rights

Government approaches to traditional knowledge

Law-making

Creating, modifying and implementing national laws on traditional knowledge and genetic resources is the most visible action taken by governments. This "law-making" is spurred on by pressure to meet international agreements. The general trend in Asia is towards the commercialisation of genetic resources and the expansion of IPRs over traditional knowledge. This trend is most visible in the adoption of UPOV-style legislation that do little to recognise and reward farmers' innovation in plant breeding. Attempts have been made to slow down this trend until impact assessments of the changes are fully explored, but with little evidence of success. Nevertheless, many developing countries are also attempting to promote legal changes to protect biodiversity and related traditional knowledge (see table over page).

"The general trend in Asia is towards the commercialisation of genetic resources and the expansion of IPRs over traditional knowledge."

In some countries, governments have made sincere efforts to empower local communities, such as in the Philippines with the Indigenous Peoples Rights Act.[68] Other examples include, the Thai Traditional Medicine Law of 1999 that seeks to protect traditional knowledge related to medicinal plants, the Bangladesh draft Biodiversity and Community Knowledge Act of 1998 and in Samoa, a law that protects the traditional form of governance of local resources through the Village Fono-Council, allowing for the continuance of a *sui generis* system. In India, an amendment to the Indian Constitution allows for village bodies (*panchayats*) to take decisions on local biological resources. [69]

But new laws can also bring in more administrative structures and accompanying bureaucracy. KAMP, an alliance of indigenous peoples' organisations in the Philippines, explains how the Local Government Units do not recognise and respect the traditional systems of self-governance.[70] Multiple bodies and groups at the local level, with often overlapping jurisdictions, may increase the problem of local resource management and create unnecessary conflicts with informal systems of control and management.

Databases

Electronic databases and digital libraries are gaining popularity in several government-initiated projects for documenting traditional knowledge. There is strongly divided opinion on the efficacy of such databases to prevent against biopiracy. Some say that centralisation makes information inaccessible to rural communities and alienates them.[71] Others defend documentation in the light of dying oral knowledge and the erosion of the social processes that transmit the knowledge of a community or tribe to its next generation. There is consensus, however, that any collection of traditional knowledge data must have the prior informed consent of the communities. In situations where such knowledge is not already in the public domain, governments would need to ensure that the disclosure of traditional knowledge is voluntary. Also, much traditional knowledge that is currently in the public domain may not be there with the consent of the concerned communities. Readily putting such knowledge into databases supposedly to prevent patents would only be building on an earlier wrong. Likewise, there are other practical issues that need to be resolved such as the basis of user fees, valuation of the information collected, possible claims of intellectual property over the databases themselves and the recovery of operational costs of these databases.

Despite lack of clarity on the way forward, several developed countries that have the technological edge encourage the digitalisation of traditional knowledge. They then offer equally hi-tech solutions. The American Association for the Advancement of Science has since 2001 launched a project – TEKPAD[72] Traditional Ecological Knowledge Prior Art Database – for the preparation of electronic public databases to establish "prior art". It has a prescribed Prior Art Registration Form[73], which it says allows individuals or community groups the opportunity for "defensive disclosure" - a way of publicly displaying indigenous knowledge. Once knowledge is published on the Internet, it becomes proof of prior art.

In India, a Traditional Knowledge Digital Library (TKDL) has been set up to record details of medicinal plants, currently 4,500, in an easily searchable database. This allows "inventors" to make searches of the database to check if they can patent their product. WIPO has adopted this digital library as a model for future work on traditional knowledge databases.[74] The Asian Pacific Information Network on Medicinal and Aromatic Plants (APINMAP)[75] launched by UNESCO is a network of organisations from over a dozen Asia-Pacific countries also working to create databases. TradiMed[76], one such database, focuses on traditional oriental medicine and is developed at the Natural Products Research Institute, in Korea, a government supported project since 1992. Its aim is to integrate the ancient knowledge of oriental tradition with modern science and technology.[77] In China, a herbal medicine gene database project was launched in April 2002 that is expected to combine traditional Chinese medical science with gene pharmaceutical technology.[78] China is modernising its traditional medicine industry in the hope of cornering the fast growing world market for natural medicines.

Malaysia established a National Biodiversity Policy in 1997. As part of this new policy, the government had built the "Sarawak Biodiversity Centre," whose purpose was to help develop national policy and guidelines, and to document indigenous medicinal practices. Thereafter a new Sarawak law was passed stating that user fees will be imposed on any resources with "*pharmaceutical, medicinal, biotechnological, scientific, commercial or economic value, properties or potential. Violations will result in a fine of approximately US$5000, and/or up to three years in prison*." People were expected to come to the Centre and share their traditional knowledge, while receiving nothing in return. The government or private companies would procure intellectual property rights on the knowledge for their own gain. This type of example only increases concerns about whether databases would actually safeguard against biopiracy, or instead further exploit traditional knowledge.

Formal Research

The number of research centres and research projects has increased in the region, from domestic ventures to foreign collaborations and corporate sponsorship. Research in traditional knowledge also raises questions about the relationship between academic institutions and industry.

In some cases research is apparently carried out for the benefit of local and traditional communities. For example, in India, the All India Coordinated Research Project on Ethnobotany has identified tribal and other community uses for several thousand species of plants, including medicinal plants. It is to be seen whether the communities actually do benefit from it. In Laos, a unique system of governmental promotion and protection of the population's traditional medicinal practices has evolved under the auspices of the Ministry of Health. A Traditional Medicine Research Centre has been set up, which is a potential tool for protecting traditional medicinal knowledge of the tribes in the country.

Table 3: Some domestic laws and policies that impact genetic resources and related traditional knowledge

COUNTRY	LAW
Bangladesh	*Draft* Biodiversity and Community Knowledge Protection Act, 1998
	Draft Plant Varieties Act, 1998
	Draft Cooperation Agreement between the European Community and the People's Republic of Bangladesh on partnership and development
China	Regulation Concerning the Management and Protection of Wild Herbal Resources, 1987
	Regulation Concerning Protection of Wild Plants, 1997
	Regulation of the People's Republic of China on the Protection of New Varieties of Plants, 1999
	Patent Law
Fiji	*Draft* Sustainable Development Bill
Hong Kong	Plant Varieties Protection Regulation, 1997
India	Patent (Second Amendment) Act, 2002
	The Protection of Plant Varieties and Farmers' Rights Act, 2001
	Draft Biological Diversity Bill, 2000
	Draft Kerala Tribal Intellectual Property Rights Bill, 1996
	Draft Karnataka Community Intellectual Rights Bill, 1994
Indonesia	Health Act
	Plant Variety Protection Bill
	Act on Spatial Use Management, 1992
	Plant Cultivation Act, 1992
Korea	Wild Flora and Fauna Protection Act
	Under revision Natural Environment Conservation Act
	Seed Industry Law, 1999
Malaysia	*Draft* Plant Variety Legislation, 1999
	Biodiversity Policy
	Draft Access and Benefit Sharing Law
Myanmar	Protection of Wild Life and Wild Plants and Conservation of Natural Areas Act, 1994
Nepal	*Draft* Policy on Access to Genetic Resources and Benefit Sharing, 2002
	Draft Access to Genetic Resources and Benefit Sharing Act, 2002
	Local Self Governance Act, 1998
	Plant Protection Act, 1973
Pakistan	*Draft* Plant Breeders Rights Law, 2000

Table 3 (continued)

COUNTRY	LAW
Philippines	Wildlife Resources Conservation and Protection Act, 2001
	Plant Variety Protection Act, 2000
	Indigenous Peoples Rights Act, 1997
	Traditional and Alternative Medicine Act, 1997
	Executive Order No. 247 on bioprospecting, 1995
	Draft Community Intellectual Rights Protection Act, 1994
Samoa	Intellectual Property Rights Law, 1998
	Village *Fono* Act, 1990
	Draft Environment Bill
	Proposed Access to Genetic Resources Regulations
Singapore	*Proposed* Policy Guidelines on access to genetic resources
Sri Lanka	*Draft* Protection of New Plant Varieties Act, 2001
	Draft Access to Traditional Knowledge relating to the Use of Medicinal Plants Act, 2000
	Agreement on the protection and enforcement of Intellectual property rights between the US and Sri Lanka, 1991
Taiwan	Plant Seed Law, 1988
Thailand	Thai Traditional Medicine Act, 1999
	Plant Variety Protection Act, 1999
	Draft Community Forest Act, 1996
Vanuatu	*Under revision* Environment Act
Vietnam	Agreement between the US and Vietnam on Trade Relations, 2000
	Law on Environmental Protection, 1993
	Land Law, 1993

However, research in other places does not benefit those with the knowledge. In Malaysia a plant in the Sarawak rainforest is now undergoing tests to determine if it presents a cure for prostate cancer. The Malaysian government has not released the plant's name for security reasons, but they are working with an Australian company to bring it to the market. [79, 80] Also in China, in what was billed as a milestone for traditional Chinese medicine, two foreign firms recently joined with one of mainland China's oldest houses of medicine to research and develop Chinese pharmaceuticals for overseas markets. *Pharmagenesis* from the US and *Orchid* from France signed a contract with *Lerentang* from Tienjin to invest US$9 million for joint research of the active ingredients in traditional Chinese medicines.[81]

Research projects funded by international organisations like the World Bank are also seen to encourage biopiracy, as they seek to further corporate interests. "*Our objection is against the collection of traditional knowledge without proper benefits to locals,*" argues Hemantha Withanage talking about a 'Conservation and Sustainable Use of Medicinal Plants' project jointly funded by the World Bank and Global Environmental Facility, and who works for the Environmental Foundation Ltd., a well-known local environmental agency in Sri Lanka.[82] Another case from Sri Lanka is that of the US Cornell's University contract with the University of Sri Jayawardenapura for the export 905 plant varieties until 2005.[83]

In one research project, a custody battle arose between Thailand and a UK university over local fungi strains with potential medicinal uses. At issue was a collection of more than 200 strains of marine fungi, taken years ago from mangrove and coastal areas in southern Thailand, that were stored in laboratories in the UK's Portsmouth University. But when Bangkok wanted them back, there was apparent reluctance. A Portsmouth University professor took the marine fungi specimens in 1993, as part of a research project sponsored by a pharmaceutical company.[84] They were finally returned much later.

Kaki, a traditional healer from Raigadh District, Maharashtra, India, uses only herbs and medicinal plants collected from the forest to treat her patients. She is not aware of either patents on plants or bioprospecting, but does notice that there are fewer plants to collect now than when she started her healing practice. She is hoping for government support to healers in these hard times.

Nepal has its share of problems of bioprospecting alongside research projects. A University professor from Illinois, US, collected the Dhobini plant (*Mussadena sp.*) from the Gurung community of Chhamdila, Nepal without any arrangement for benefit sharing in case of commercialisation.[85]

In response, some governments are tightening procedures and guidelines for research projects. For example, in India, biomedical research guidelines require that "*a Folklore medicine / Ethnomedicine is ready for commercialisation after it has been scientifically found to be effective, then the legitimate rights/share of the Tribe or Community from whom the knowledge was gathered should be taken care of appropriately while applying for the Intellectual Property Rights and Patents for the product*".[86] Likewise the Indian Ministry of Environment and Forests with the mandate to oversee biodiversity, issued a circular in 1998 to all universities and research institutes which stopped the transfer of genetic material outside the country without prior informed consent and a proper material transfer agreement.

Recognition of traditional healers

In many countries of the region, during the colonial period, allopathic[87] medicines were introduced, which led to a gradual neglect of traditional medicines and knowledge.[88] Today, Asian governments are trying to provide formal recognition to traditional healers. For example, the Philippines Institute of Traditional and Alternative Health, a statutory body established under the Traditional and Alternative Medicine Act of 1997, was set up in Manila in January 2000. In the same year, in Samoa, an association of traditional medical practitioners was set up with Government support, and in Singapore the Traditional Chinese Practitioners Act became law. There are also National Institutes of Traditional Medicine in Vietnam and in Thailand.

However, these government initiatives should not be seen as the inclusion of indigenous and local communities in the decision-making processes on benefit sharing and other similar issues. Indeed, rather than guaranteeing rights to communities, these government initiatives are often just token gestures in an attempt to accommodate traditional knowledge in an already biased IPR system.

In Asia, China has been the most inclined towards the commercialisation of its traditional medicine and optimally exploiting the market opportunity. The Chinese government has maintained that it will provide equal importance to traditional Chinese medicine and Western medicine. China has also not been a vocal protestor against biopiracy. The history of state ownership of biological resources and current reforms affirming individual property rights, leave little space for community autonomy.

Court Challenges

Governments have also had to initiate legal action to invalidate false claims of invention and revoke patents based on "prior art". The country with the most experience in this matter is India, where the government and the people have sought to cancel the European and American patents on the country's resources such as Neem,[89] Turmeric[90] and Basmati Rice.[91] The Thai government too has contemplated taking legal action against the US for the alleged piracy of its Jasmine Rice.[92]

Gender

Some countries in the region are now beginning to acknowledge the importance of women's roles in biodiversity management. Women, with their central role in the household in village societies, have been responsible for the food and nutritional needs of their families. The proverbial "grandmother's cures" often hold the key to many curative plant uses. Even in the practice of medicine men in India there are women who collect the plants and assist in the preparation of the medicine. Also, even today Traditional Birth Attendants perform midwifery and other basic healthcare functions in a majority of rural societies where there is no access to "modern" medical facilities. In traditional agriculture, women in Asia are involved in almost all the activities from seed selection and planting to harvesting, weeding, winnowing, pounding grain and storing it.

"Some countries in the region are now beginning to acknowledge the importance of women's roles in biodiversity management."

States are therefore compelled to revisit their strategies to conserve traditional knowledge by facilitating a greater participation of women. This is partly also due to the efforts made at the international level to create an awareness of the gender dimension of issues. For

instance, in the United Nations Fourth World Conference on Women (WCW) in Beijing, China in September 1995 the intellectual contribution of indigenous women was explicitly recognised.[93] At the same WCW, a World Rural Women's Day was launched by several international NGOs and a worldwide empowerment and educational campaign is annually organised since1997 by the Women's World Summit Foundation (WWSF).[94] The year 2001 theme was "protect your traditional knowledge".

The Convention on Biological Diversity *"recognises the vital role of women in the conservation and sustainable use of biological diversity and affirming the need for the full participation of women at all levels of policy-making and implementation for biological diversity conservation"*[95]

There are several instances of government-nongovernment organisational partnerships in this area. For example, in Fiji, an association of female traditional healers – *Wainimate* – works in collaboration with the Government to record knowledge of traditional medicine. In India, the National Biodiversity Strategy and Action Plan (NBSAP) process, which is being coordinated through a government – NGO - private sector partnership, has made gender issues a central concern.[96]

"Women suffer routine expropriation of their knowledge into the "larger" community where powerful individual men or groups of men profit immensely from resources and information that becomes de-genderised."

Dr. D. Roy Laifungbum, Centre for Organisation Research & Education[97]

However, there are certain women groups that are critical of the "cosmetic" shift in focus by governments. They warn that women in some tribal and villages areas are merely being burdened with more labour-intensive roles in government-sponsored cultural art and craft revival programmes. There is also little representation of women in local bodies that actually take decisions over local resources.

Particularly in the Asian region, with its history of patriarchal societies, there are several laws and policies, such as land laws and inheritance rules, which would need to be revised for real gender equity. With limited rights to resources and equally limited say in the political processes that set the boundaries of these rights, merely attempting to protect the intellectual heritage of women would be rendered meaningless.

Regional initiatives

Asia-Pacific governments are also forming strategic alliances, as shown in Table IV.

The South Asia Association for Regional Cooperation (SAARC) considers it necessary "*to clarify the relationship between traditional knowledge and the existing protection of intellectual property rights, because traditional knowledge has special characteristics which made its protection by existing intellectual property rights difficult*".[98] SAARC does believe that "*there is a need to prevent piracy of traditional knowledge built around biodiversity and there should be harmonisation of the TRIPs Agreements with the UN CBD so as to ensure appropriate returns to traditional communities*".[99] However, little collective action has actually resulted amongst the SAARC member countries.

The Association of South East Asian Nations (ASEAN) has a draft "Framework Agreement on Access to Biological and Genetic Resources".[100] Prof. Raymundo Rovillos of the Tebtebba Foundation observes that the Framework Agreement *"pre-supposes that we will allow bioprospecting"*.

The Pacific group is developing a framework comprising guidelines and a model law[101] with the aim of protecting communities and their knowledge on genetic resources from biopiracy. The guidelines[102] for the purpose are based on the principles of:

- right of custodianship
- free exchange amongst communities
- commercialisation subject to written consent and payment of fees and
- registration of communities and their traditional knowledge

Mr.Clark Peteru, a lawyer from Samoa, is optimistic that regionalism can work to protect the islands from further biopiracy.

Table 4: Intergovernmental initiatives

Grouping	Countries	Initiative
SAARC	Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, Sri Lanka	Joint Statements at WTO & WIPO
ASEAN	Brunei Darussalam, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand, Vietnam	ASEAN Framework Agreement on Access to Biological and Genetic Resources and Traditional Knowledge
PACIFIC	Cook Islands, Fiji Islands, Federated States of Micronesia, Kiribati, Marshall Islands, Nauru, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, Vanuatu	Guidelines and Model Law on access to genetic resources in Pacific Island Countries
GROUP OF ALLIED MEGA-BIODIVERSE NATIONS	Brazil, *China*, Colombia, Costa Rica, Ecuador, *India*, *Indonesia*, Kenya, Mexico, Peru, South Africa, Venezuela	Cancun Declaration

Names of countries from the Asia region italicised

Local perspectives

Local communities and indigenous people – the traditional knowledge holders – often find themselves disagreeing with their governments because of a fundamental difference in their perception of traditional knowledge and the need for its protection. By and large local communities and indigenous peoples from Asia-Pacific are averse to the commercialisation of traditional knowledge. Thus they often find their governments more part of the problem than allies in the search for solutions. There is however an increasing number of non-governmental organisations and civil society groups that are working with the knowledge holders in the region. Together they have challenged the current patent system by a range of actions ranging from creative campaigns against multinational companies, non-cooperation with insensitive governmental policies, programmes and agencies, and intervention in the lawmaking process both at the national and the international level.

Documenting traditional knowledge

Documentation is the conversion of traditional knowledge information provided by communities into written documents, drawings or audio recordings. The main aim of such documentation is to ensure that information is not lost and to protect communities by showing that such information is prior art.

In India, where the debate on documentation is most animated, the written form has seen various versions and models ranging from the Community Biodiversity Registers initiated by Foundation for Revitalisation of Local Health Traditions and Centre for Ecological Sciences at the Indian Institute of Science, to the People's Biodiversity Registers of NGOs. What they have sought to document include resources, traditional practices, populations of flora and fauna, management options and occupational segments of the community. The India-based Honey Bee Network operated by the Society for Research and Initiatives for Sustainable Technologies and Institutions (SRISTI) has documented over 9,000 "green" innovations based on indigenous biodiversity knowledge, creativity, and innovation.[103] As a follow-up to documentation, SRISTI has set up the Grassroots Innovation Augmentation Network in Gujarat in collaboration with the State Government to develop innovations into products and then into enterprises. SRISTI's work has further culminated in the launch of the National Innovation Foundation, a grassroot eco-innovation multimedia database.

Though there is agreement amongst NGOs and CSOs that documentation should be done in a participatory manner and that the documented form should be kept at the local level within community control, there are divergent views on whether the documented material should be publicised or maintained in a state of secrecy. On the *People's Biodiversity Registers* in several villages in India, Utkarsh Ghate of the NGO RANWA[104] states that their preparation

Indigenous knowledge and traditions

We desire:

- recognition and respect for indigenous knowledge and innovations,
- to maintain healthy soils, diverse crops, trees and livestock, and to build on our indigenous knowledge, practical skills and local institutions,
- indigenous agriculture – including an appropriate combination of silt, farmyard manure, traditional seeds, mixed cropping, farm-saved seed and control over seed selection,
- local management, access and control over prices, markets and marketing,
- agricultural systems compatible with our own culture,
- community crop planning,
- re-training in indigenous resources management.

The Verdict of Prajateerpu - the Citizens' Jury on Food and Farming Futures, Andhra Pradesh, 2001[105]

is undertaken *not merely from an IPR point of view, but as a social process in itself and as a record for knowledge and knowledge holders.*

In Sri Lanka too efforts on documentation are ongoing under the auspices of the network of Ecological and Sustainable Farming Systems. In 2000/2001 the network established a National Farmers' Federation for the conservation of traditional seeds and agricultural resources. The farmers in this network have documented crop varieties, traditional agricultural rituals and traditional food preparations.[106] In Malaysia, the Bidayuh community plans to be the first ethnic group in Sarawak to document and protect their ethnobiology-related knowledge and practices under a pilot project being undertaken by the Sarawak Biodiversity Centre.[107]

Documentation is regarded as the best insurance in times of emergency. In situations of famine or drought in the future, knowledge of traditionally resistant crops kept alive through documentation could be life saving. Documentation is also felt necessary in resource management and community seed banking as it provides materials for sharing of experiences and promotion of conservation efforts.[108] Cynical about governmental support in such situations, the people know that they have to have their own safeguards in place.

Policing traditional knowledge

The need for monitoring of bioresources is increasingly being felt by communities, to the extent that they are evolving their own vigilance systems to safeguard against biopiracy. For example in Pakistan, the Shimshals are one of the country's few mountain communities that retain a strong commitment to environmental beliefs, knowledge and practices that have been lost elsewhere. The Shimshal Nature Stewardship Program is an effort to formalise all those environmental beliefs, knowledge and practices of the Shimshal culture and tradition into a language and structure that is accessible to the international ecological community.[109] The community has taken it upon itself to supervise its area.

"The need for monitoring of bioresources is increasingly being felt by communities, to the extent that they are evolving their own vigilance systems to safeguard against biopiracy."

In the Philippines, the same type of assertiveness exists amongst the indigenous Talaandig community of the Bukidon province. The community charged a team of bioprospectors with illegally acquiring samples and trespassing on their land without prior consent. Because of this incident, an office known as the Council of Elders Prior Informed Consent Office was established in Malaybalay City in March 2000. The community continues to guard its territory and heritage.[110]

In response to local initiatives, the government of Nepal will declare Milke Jaljale, a rhododendron conservation area, the first floral conservation area in the country. Local communities in the eastern hill districts of Terhathum, Sankhuwasabha and Taplejung will all participate to preserve the rich biodiversity of the area without the help of the state authorities. This is the first time in Nepal that a local community has initiated the conservation of a large area, which is particularly rich in plants.[111]

But policing on its own is inadequate until communities realise the full value of the knowledge they hold. In Malaysia, the Indigenous Peoples Network of Malaysia (Jaringan Orang Asal SeMalaysia) is working on a project to show indigenous peoples the value of their contributions.[112]

(Re)Claiming traditional knowledge

In instances where the people have realised what they have lost, they have come forward to assert their right to it. Increasingly local groups have organised in protest to regain their title of original innovators in instances of false claims of "invention" by foreign patentees (see box). In New Zealand, a claim has been filed by six Maori tribes for the recognition and protection of their traditional knowledge (known as *Matauranga*) related to indigenous flora and fauna.[113] The Indigenous Flora and Fauna and Maori Intellectual and Cultural Property Claim seeks to re-establish *te tino rangatiratanga* to the knowledge of native plants and animals and cultural taonga. This knowledge, claimants say, was traditionally owned by Maori. The claim is attempting to establish a structure - perhaps a Maori-run intellectual property commission - to preside over applications.

Celebrating traditional knowledge

Village fairs, community exchanges and biodiversity festivals are some of the innovative ways used to keep alive and celebrate biodiversity and its link with the local culture. In Nepal, it is at one such biodiversity fair that the villagers realised that almost 100 traditional rice varieties were still in use, though they had long disappeared from the market. In India the Academy of Development Science periodically organises a 'Vedu Sammelan' – gathering of traditional healers. Under India's NBSAP process, biodiversity festivals have been held in various parts of the country, and have become platforms for seed and information exchange, celebration of cultural aspects of biodiversity, and revival of traditional knowledge systems.

Rejuvenating traditional knowledge

In the light of the erosion of some traditional practices and the very resources that they rely on, some people are attempting to revive their former knowledge systems. Recognising the importance of traditional knowledge, leaders at Sahabat Alam Malaysia are helping the villages of Long Sayan and Uma Bawang Keluan create botanical conservation sites. These

Protests stop patents

The Shiseido Corporation of Japan, a multinational cosmetic and skincare company, had patented eleven traditional Jamu healing herbs. Under pressure from public protests Shiseido cancelled the patents it had of the Indonesian spices. In the last two and half years the Japanese cosmetics company has been bombarded with campaign messages from Pesticide Action Network (PAN) Indonesia and other concerned civil society organisations.[114] The UK-based Foundation for Ethnobiology proposed to exhaustively document the ethnobiological knowledge of the Saka Karen tribal people of Thailand. Riche Monde, Ltd., the project's financier, was a Thai subsidiary of Moet Hennessey Louis Vuitton, a Paris-based luxury goods manufacturer with strong financial interests in cosmetics.[115] In 1995, a group of Thai NGOs led by the Project for Ecological Recovery and NorthNet made a public appeal for the project to be stopped. The weight of the NGOs arguments, and subsequent media coverage, was so strong that the project, which was to be executed through the Chiang Mai University was quickly halted when Riche Monde withdrew, citing the glare of unfriendly publicity.[116]

NGO and people's pressure prevented the wrongful patenting of the Onge tribal knowledge by scientists in India.

A global people's campaign since 1995 against the patenting of Neem giving evidence of "prior art" led to the European Patent Office rejecting at a public oral proceeding in May 2000 a US company's claim to having "invented" a Neem fungicide.

sites will be a repository for many different species of rattan, bamboo, fruit trees and medicinal plants. With funding from The Borneo Project these pilot programs are helping villagers manage, preserve and restore rare plants stocks for future generations.

In Jardhargaon, a typical Himalayan foothills village in Uttar Pradesh, northern India, the villagers took charge of the heavily degraded slopes above their village. They started the *Beej Bachao Andolan* (Save the Seeds Movement), and through many journeys to the remoter villages, they have been able to collect many varieties lost elsewhere in the region (up to 250 of rice, 170 of common beans, and others). Several farmers are now at various stages of switching over tobiologically diverse, sustainable agricultural practices.[118]

In Bangladesh, facilitated by UBINIG (the Bangla acronym for "Policy Research for Development Alternative") is the *Nayakrishi Andolan* – the New Agricultural Movement, a peasant initiative for biodiversity-based farming. It is new in its way to "*incorporate traditional and indigenous knowledge of farming based on the principles of preservation, conservation and enhancement of biodiversity and genetic resources*".[119] The traditional uses of medicinal plants are kept alive by women and village seed banks are seen throughout the region.

Where tradition itself cannot be resurrected there is clearly a need for alternative ways to keep alive traditional knowledge.

The Johannesburg Declaration

"We oppose biopiracy and the patenting of our biological resources and knowledge because it goes against our human and cultural rights and identity. We firmly believe that benefit sharing is possible without patents.

We declare our opposition to the patenting of life and to the patenting of crops and seed, because we are concerned about the removal of control of food production from local communities and farmers to multinational corporations.

We believe that community rights over biodiversity and indigenous knowledge are collective in nature, and therefore cannot be privatised or individualised. Intellectual property rights as applied to biodiversity and traditional knowledge are private and monopolistic in nature and therefore incompatible with community rights. IPRs cannot exist within a traditional knowledge system and attempts to bring these two worlds together are misguided and unacceptable."

From The Johannesburg Declaration on Biopiracy, Biodiversity and Community Rights, South Africa, August 2002[117]

Constructing alternatives

In the quest for alternatives to the use of conventional intellectual property rights in the protection of traditional knowledge, there are attempts being made by NGOs, indigenous groups and local communities towards strengthening community rights, campaigning for farmers' rights, restoring the "culture of the commons"[120] and demanding recognition and respect for customary and indigenous law.

A core issue raised by indigenous peoples groups and local communities alike, is that of rights over resources. The rights to land are central to this struggle and often surface in the demand for land reforms. Linking land rights and traditional knowledge is a strategic step. For instance in the Philippines the issue of control over "ancestral domain" [121] and plants are intrinsically linked.

"Judges can only go so far as to verify that a relation with a bioresource is a normal practice by the customary law and that the elements of customary law are present. They cannot go beyond that in laying down what is and what is not customary law."

Legal Resource Centre, Manila, March 2002[122]

Indigenous and tribal people from tropical forests around the world have united to create a new alliance to confront the destruction and desecration of their territories and forests. Representatives from forest- communities in the Americas, Asia and Africa formed the "International Alliance of the Indigenous-Tribal Peoples of the Tropical Forests" at a conference in 1992 held in Penang, Malaysia. The conference adopted a "Charter of the Indigenous-Tribal Peoples of the Tropical Forests". The Charter demands the recognition of the ownership of traditional territories

GRAIN/Kalpavriksh

Farmers have the right to:

Control and use their own traditional knowledge free from the threat of biopiracy;

Freely express their local culture and knowledge, and to pass it on to future generations;

Respect for their way of life, their farming practices and their knowledge;

Live in a world free of privatised intellectual property rights.

***MASIPAG Statement on Farmers' Rights*[126]**

of all the Alliance members. The people insist that only once they have secure ownership and control of their territories they can be sure of a future and life in balance with their environment. The development they seek would be based on their traditional knowledge, which would first meet their basic needs to ensure self-reliance andthereafter would be oriented towards generating a surplus for the market, using suitable technologies.[123]

Realising that the fight cannot be won alone, it is becoming increasingly common for indigenous groups and local communities to form alliances to articulate together their vision of the world. Examples of such regional formations are those in Pacific, which got together to write in 1995 a *Treaty for a Lifeforms Patent-Free Pacific* and its *Protocol Concerning Biological Prospecting in the Pacific.* Likewise, the Bangkok-based Asia Indigenous Peoples Pact – a forum for indigenous peoples' movements in Asia collectively lobbies for the rights of indigenous people in Asia.[124]

There are also groups and individuals that see an alternative in totally ignoring or wilfully violating the patent system. Thus they do not feel the need to engage in the IPR debate. As articulated by Krishna Ram Adhikari of Nepal: *we will go on with our everyday lives as always, whether there are patents or no patents.*[125]

Angela Bautista, a faith healer and herbal doctor in Pila, Laguna, Philippines. She does not charge for her services and is surprised to hear of the huge profits pharmaceutical companies make from their sales. Putting a price tag on what is freely available in nature is incomprehesible to Angela. Firmly believing that there is a spirit in every living being, she warns that if you clear the forest you invite trouble from its uprooted spririt.

Conclusion

It is clear that industry, with increased support from governments, are quickly establishing control over plant genetic resources and associated knowledge through the use of IPRs. Yet resistance to this incursion on community rights has been disparate and experimental. Overall, communities are increasingly losing control over their own plants and are being increasingly exploited for their knowledge. As awareness amongst groups, communities and even governments increases, and as those affected become more organised, the tide has begun to turn. There is however a lot of strategic work to be done among NGOs and people's movements in order to build a stronger social force against the growing influence of trade and IPR over genetic resources and traditional knowledge.

This conclusion looks forward at how to stem the exploitation of people's knowledge and their resources with little or no compensation. To this end we have provided possible action points; points that would help protect traditional knowledge in Asia-Pacific from privatisation:

NETWORKING: increased networking amongst NGOs and communities to present a united body of opinion.

COMMUNITY RIGHTS: the development and establishment of strong community rights' systems that recognise the collective nature of local innovation, promote its development and application, encourage individual innovation within this community framework, and shield biodiversity and indigenous knowledge from privatisation.

LEGAL: conferring clear and unambiguous legal rights to genetic resources, which is closely linked with the recognition of the rights of indigenous peoples and local communities to such resources. This means that basic issues of self-determination, sovereignty and communities' own definitions of their rights need to be dealt with and built into statutory law and policy at national level.

DOCUMENTATION: the recognition and protection, through legal means, of the various initiatives at documenting traditional knowledge. The uncertainty about whether and how to document the materials and knowledge, for fear that the information is used against the people's interests, needs to be resolved.

ALTERNATIVES: examining and highlighting alternatives to IPRs which protect traditional knowledge.

TRIPS: strengthening a unified demand to review and amend the WTO TRIPs Agreement.

COMPANIES: checking the expansion of company control in the region. This expansion comes at a time of general unawareness amongst farmers and communities; as Muhd Yakub of the Takhleeq Foundation in Pakistan points out: "*the common farmer is not aware of the complexities of the patent system*". There is, therefore, a need for raised awareness and empowerment within communities through the effective dissemination of information on these issues.

ENDNOTES

[1] Indigenous knowledge is seen as the traditional knowledge of indigenous peoples, or local knowledge particular to an area, region or country, etc. Thus not all traditional knowledge-holders may be indigenous, but all indigenous peoples are traditional knowledge holders.

[2] Formal sector – in this case this relates to the conventional bodies who research and develop plant genetic resources including both public and private bodies.

[3] Kate, K. and.Laird S A, 1999, *The Commercial Use of Biodiversity, Access to Genetic Resources and Benefit-Sharing,* Earthscan, London

[4] Medicinal Plants, *International Trade Forum,* Published October 17, 2001 www.tradeforum.org/news/fullstory.php/aid/301/Medicinal_Plants.html

[5] *Declaration on Science and the Use of Scientific Knowledge* and *Science Agenda - Framework for Action* www.nature.com/wcs/1news/01-1a.html

[6] Although there are many faces to IPRs this paper will focus on patents and plant breeders rights, rather than trademarks, copyrights, trade secrets and geographical indicators.

[7] WIPO/IPTK/RT/99/6A dated October 27, 1999 It is not just rainforests, but the destruction of various kinds of ecosystems on which indigenous peoples depend on that threatens their knowledge.

[8] www.lectlaw.com/def2/p081.htm

[9] 35 US Code 102 (a) A person shall be entitled to a patent unless 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, before the invention thereof by the applicant for patent

[10] TRIPS Article 27.3(b)

[11] 27.3 Members may also exclude from patentability (b) plants and animals other than micro-organisms, and essentially biological processes for the production of plants or animals other than non-biological and microbiological processes. However, Members shall provide for the protection of plant varieties either by patents or by an effective *sui generis* system or by any combination thereof. The provisions of this subparagraph shall be reviewed four years after the date of entry into force of the WTO Agreement.

[12] IP/C/W/195 & 196 12 July 2000; WT/GC/W/255 16 July 1999

[13] The largest Third World grouping of countries in the United Nations system, now comprising 133 members. The name G77 was the original membership when the group commenced in 1964.

[14] Declaration by the Group of 77 and China on the Fourth WTO Ministerial Conference at Doha, Qatar, Geneva, 22 October 2001 www.g77.org/Docs/Doha.htm

[15] IP/C/W/356 dated 24 June 2002 on The Relationship Between the TRIPS Agreement and the Convention on Biological Diversity and the Protection of Traditional Knowledge

[16] www.worldseed.org

[17] FIS/ASSINSEL *Position Paper on Farm Saved Seed* adopted May 31, 2001

[18] www.wipo.int/globalissues/igc/index.html

[19] The World Intellectual Property Organization (WIPO) organised the WIPO Asian Regional Forum on Intellectual Property Policy Development in Tokyo, October 7, 1998

[20] Article 8(j) *Each Contracting Party shall, as far as possible and as appropriate, subject to its national legislation, respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such knowledge, innovations and practices.*

[21] Report on the Workshop on Traditional Knowledge and Biodiversity, Madrid, 24-28 November 1997, UNEP/CBD/TKBD/1/3 dated 15 December 1997

[22] The Ad Hoc Open-ended Inter-sessional Working Group on Article 8(j) has so far held two meetings: 27-31 March, 2000 in Seville, Spain (See Report UNEP/CBD/COP/5/5) and 4-8 February 2002 in Montreal, Canada (See Report UNEP/CBD/COP/6/7)

[23] *Recognizing the close and traditional dependence of many indigenous and local communities embodying traditional lifestyles on biological resources, and the desirability of sharing equitably benefits arising from the use of traditional knowledge, innovations and practices relevant to the conservation of biological diversity and the sustainable use of its components*

[24] Adopted at COP6 CBD at The Hague in April 2002 www.biodiv.org/doc/meetings//abs/abswg-01/official/abswg-01-03-en.pdf

[25] The Sixth Conference of Parties 7-19 April 2002 The Hague; The Conference of Parties (COP) is the Governing Body of the Convention www.biodiv.org/convention/cops.asp

[26] United Nations Food and Agriculture Organisation www.fao.org

[27] For details read: GRAIN & Kalpavriksh, 2002, *A challenge for Asia - the International Treaty*, February 2002, New Delhi, India, www.grain.org/publications/it-asia-feb2002-en.cfm

[28] Article 12.3(d)

[29] Established in 1989, APEC is an economic forum for 21 Asia-Pacific countries.

[30] IPEG since its inception in 1996 has a specific mandate of dealing with IPR-related work of APEC. www.apecipeg.org

[31] www.apecsec.org.sg/committee/intellectual_upd.html

[32] GRAIN, 2000, *Biodiversity for Sale: Dismantling the hype about benefit sharing,* Global Trade and Biodiversity in Conflict, GAIA-GRAIN, Issue No.4, www.grain.org/publications/issue4-en.cfm

[33] ICC Discussion Paper – Protecting Traditional Knowledge, Document No.450/937 Rev.

[34] The Chemical Industry, 2002, Comments on the legal protection of Traditional Knowledge and Access to Genetic Resources- Patenting, November 2000 and updated in July 2002, www.cefic.be/Files/Publications/NM2002IP41bis.pdf

[35] Dawkins, K, 1999, Intellectual Property Rights and the privatisation of life, *Foreign Policy In Focus,* Vol.4 No.4 January 1999, www.foreignpolicy-infocus.org/briefs/vol4/v4n04tra_body.html

[36] *Agreement between the United States of America and the Socialist Republic of Vietnam on Trade Relations* http://usembassy.state.gov/vietnam/wwwhbta.html [Chpt II: Art 1.3 and Art 7.2(c)]

[37] Exploring wild plants and animals for commercially valuable genetic and biochemical resources

[38] http://blueprint.bluecrossmn.com/topic/topic100587762

[39] Health Action International, 1994, HAI News, No. 78, August 1994

[40] Hameed *F S, 1999,* Lush Kerala loses out to bioprospectors, *Asia Times*, November 20, 1999

[41] *Indian State takes measures against biopiracy* www.twnside.org.sg/title/2125.htm

[42] Read more at: http://twm.co.nz/CptHook.htm www

[43] http://brimas.www1.50megs.com/BioPR-20Jul2001.htm

[44] As above

[45] Also read www.unesco.or.id/apgest/events/chennai_meeting/traditional-knowledge.pdf

[46] www.traffic.org/dispatches/archives/march2001/dispatches.pdf

[47] Read more in the International Trade Centre Discussion Document *Product Profile: Medicinal Plants* for the Business Sector Round Table, Brussels, 16 May 2001

[48] Also read www.fao.org/sd/EPdirect/EPre0045.htm, www.rafi.org/text/txt_article.asp?newsid=210

[49] http://simbahayan.tripod.com/B5-biopiracy02.html

[50] Apart from Yves Saint Laurent products, one can also find ilang ilang in many of the floral fragrances that are on the market including "Poison" by Christian Dior, "Champs-Elysées" by Guerlain and "Acqua di Gio" by Giorgio Armani.

[51] www.grain.org/publications/rice-en.cfm

[52] Read more on the Jasmine Rice issue in GRAIN's article GRAIN, 2001, Protecting Asia's most valuable resource, Seedling, Volume 18, Issue 4, December 2001, www.grain.org/publications/seed-01-12-3-en.cfm

[53] Read more: Various, 1998, *Biopiracy, TRIPs and the patenting of Asia's rice bowl - A collective NGO situationer on IPRs on rice*, May 1998, www.grain.org/publications/rice-en.cfm

[54] Also read Griffith V, 2001, *Financial Times,* Samoa to get percentage of AIDS drug profits, 13 December 2001

[55] www.herbshop.com/np_herbs.htm

[56] According to a new atlas of biodiversity released by the UNEP World Conservation Monitoring Centre:http://ens-news.com/ens/aug2002/2002-08-01-01.asp

[57] *Oxford Natural Products sign partnership agreement with PT Indofarma to fast track new 'Jamu' medicines to market*, ONP Release 28 November 2001 www.oxfordnaturalproducts.com/site/onp/00019

[58] www.stopgettingsick.com/templates/news_template.cfm/4846

[59] *Oxford Natural Products Gain Exclusive Access To Important Portfolio Of Vietnamese Plant Medicines,* ONP Release 24 January 2002

[60] www.oxfordnaturalproducts.com/news_print.php?articleid=00006

[61] Nepalese Government officials in personal communication, May 2002

[62] Singh P, 2002, Malaysia/Japan In Deal For Drug Bio-Prospecting, *New Straits Times (Kuala Lumpur),* 4 March 2002, www.nst.com.my

[63] Health Action International, 1998, HAI News, No. 100, April 1998

[64] www.twnside.org.sg/title/iye3.htm

[65] Bengwayan MA, 2000, *Attack of the Bio-Pirates,* Philippine Post, 16 February 2000, p. A4, *www.geocities.com/ferdibee/biopiracy.htm*

[66] Read more: www.grain.org/publications/dec953-en.cfm

[67] www.time.com/time/asia/asia/magazine/1998/981109/cover1.html

[68] Republic Act 8371 of Philippines

[69] Constitution 73rd Amendment Act, 1992 http://alfa.nic.in/const/tamnd73.htm

[70] Personal communication, March 2001

[71] Sharma D, 2002, Digital library: Another tool for biopiracy, *Economic & Political Weekly*, 2416-2417; Vol XXXVII no: 25, June 22, 2002

[72] http://ip.aaas.org/tekindex.nsf

[73] http://ip.aaas.org/tekindex.nsf/PA%20Registration%20Form?OpenForm

[74] IPC/CE/31/6 dated February 18, 2002 www.wipo.org/classifications/en/ipc/ipc_ce/31/doc/6.doc

[75] APINMAP Secretariat, Secretary-General APINMAP, c/o Ministry of University Affairs, 328 Sri Ayutthya Road, Bangkok 10400, Thailand. The APINMAP member countries include: Australia, People's Republic of China, India, Indonesia, The Republic of Korea, Malaysia, Nepal, Pakistan, Papua New Guinea, Philippines, Sri Lanka, Thailand and Vietnam

[76] www.tradimed.com/

[77] Natural Products Research Institute, Seoul National University 28, Yeongun-Dong, Jongro-Ku Seoul 110-460 Republic of Korea

[78] *Gene Technology set to decode Traditional Chinese Medicine* Xinhuanet April 16, 2002 www.checkbiotech.org

[79] www.earthisland.org/borneo/news/articles/010514article.html

[80] *Rainforest Cures in Danger* By Shuzhen Sim and Noriko Toyoda www.earthisland.org/borneo/news/wires/01win07.html

[81] www.taiwanheadlines.gov.tw/20000302/20000302s1.html

[82] *Will protection reveal hidden secrets?* By Feizal Samath, 4 April 1999 www.lacnet.org/suntimes/990404/plus13.html

[83] www.lacnet.org/suntimes/980920/plusm.html

[84] Noikorn U, 1998, Govt urged to help reclaim marine fungi strains on loan to British university, *The Bangkok Post,* August 22, 1998

[85] In the keynote speech by Dr.Surendar Shrestha, Secretary, Ministry of Agriculture and Co-operatives, Royal Government of Nepal at the Consultative Meeting on IPRs and Farmers' Rights, 7-8 May 2002, Nepal

[86] Indian Council of Medical Research, 2000, *Ethical Guidelines for Biomedical Research on Human Subjects*, New Delhi, www.icmr.nic.in/ethical.pdf

[87] Treatment of disease by conventional means – often with drugs having the opposite effect to the symptom

[88] *Legal Status of Traditional Medicine and Complementary/Alternative Medicine: A Worldwide Review,* WHO 2001

[89] www.ifoam.org/press/neem_back.html

[90] www.netlink.de/gen/Zeitung/970905.htm

[91] www.rediff.com/money/2000/jul/24patent.htm

[92] Read more on www.grain.org/publications/seed-01-12-3-en.cfm

[93] Beijing Declaration and Platform for Action, Fourth World Conference on Women, 15 September 1995, A/CONF.177/20 (1995) and A/CONF.177/20/Add.1 (1995)

Chapter IV STRATEGIC OBJECTIVES AND ACTIONS

Strategic objective K.1. Involve women actively in environmental decision-making at all levels

Actions to be taken: 253. By Governments, at all levels, including municipal authorities, as appropriate:

(c) Encourage, subject to national legislation and consistent with the Convention on Biological Diversity, the effective protection and use of the knowledge, innovations and practices of women of indigenous and local communities, including practices relating to tradition medicines, biodiversity and indigenous technologies, and endeavour to ensure that these are respected, maintained, promoted and preserved in an ecologically sustainable manner and promote their wider application with the approval and involvement of the holders of such knowledge. In addition, safeguard the existing intellectual property rights of these women as protected under national and international law. Work actively, where necessary, to find additional ways and means for the effective protection and use of such knowledge, innovations and practices, subject to national legislation and consistent with the Convention on Biological Diversity and relevant international law, encourage fair and equitable sharing of benefits arising from the utilization of such knowledge, innovation and practices;

[94] www.woman.ch/woman

[95] Paragraph 13 of the Preamble of the Convention

[96] http://sdnp.delhi.nic.in/nbsap

[97] NGO with offices in Manipur and Assam, India

[98] SAARC Statement at WIPO IC 1, www.wipo.int/eng/meetings/2001/igc/doc/grtkfic1_13.doc

[99] Joint Statement by the SAARC Commerce Ministers on the Forthcoming Fourth WTO Ministerial Conference at Doha, New Delhi, India, 23rd August 2001, WT/L/412 3 September 2001

[100] www.grain.org/brl/asean-access-2000.cfm

[101] www.grain.org/brl/brl-model-law-pacific-en.cfm

[102] At the sixth meeting of the Forum Economic Ministers in Port Vila, Vanuatu, 3-4 July 2002, "Ministers

recognised the importance of protecting intellectual property rights, particularly traditional ecological knowledge, innovations and practices, and traditional knowledge and expressions of culture, as key resources for the region and noted: (a) limited progress in the finalisation of the draft regional framework, in particular the draft model law for the protection of traditional ecological knowledge, innovations and practice relating to biological resources, but to further note that this initiative has been promoted globally through the WIPO IGC process; (b) progress made in incorporating international developments in the draft regional framework (regional guidelines and model law) for the protection of traditional knowledge and expressions of culture; and (c) the progress in the implementation of three elements of the Regionally Focused Action Plan for improving IPR systems in the Forum island countries".

[103] www.sristi.org

[104] A scientist from Bangalore, India who has written extensively on the subject of Biodiversity Registers

[105] Pimbert, M.P. & Wakeford, T. (2002) *Prajateerpu*: A Citizens' Jury/Scenario Workshop on Food and Farming Futures for Andhra Pradesh, India. IIED, London & IDS, Sussex

[106] *Sustainable Farming Systems through traditional plant genetic resources and indigenous knowledge based practices* Helvetas, Sri Lanka, November 2001

[107] Managing Intellectual Property Dec 01 / Jan 02 Issue 115 p. 13, www.legalmediagroup.com/mip/default.asp?Page=1&SID=1249

[108] *Community Seedbanking: A strategy to promote food security and agrobiodiversity* GD Paper presented at the Asian Regional Conference on "Local Management of Agricultural Biodiversity", 28 October–1 November 2001.

[109] www.monitor.net/~jmko/karakoram/shimsnt.htm

[110] "Executive Order 247: Regulating Bioprospecting in the Philippines", Jack G.L.Medrana, *Indigenous Perspectives* Volume 4, No.1, June 2001

[111] *Communities Guard Nepal's National Flower, the Rhododendron* Environment News Service, www.ens.lycos.com/

October 13, 1999

[112] *Patent laws that steal bioresources* by Faezah Ismail The New Straits Times 28 May 2000 www.grain.org/publications/trade-example-patentlaws.cfm

[113] Popularly known as the WAI 262 claim before the Waitangi Tribunal

[114] Information from Mr.Riza V.Tjahjadi of PAN Indonesia

[115] www.rafi.org/text/txt_article.asp?newsid=206

[116] www.info.tdri.or.th/library/quarterly/text/forest.htm

[117] www.biowatch.org.za/jhbdecl.htm

[118] *Communities And Biodiversity: Lessons For Governance From South Asia,* Neema Pathak and Ashish Kothari, Kalpavriksh, 1998

[119] *Nayakrishi Andolan: Recreating Community Biodiversity-based Farming* Jahangir Alam Jony, UBINIG Bangladesh, Paper presented at the Regional Conference on "Local Management of Agricultural Biodiversity" Nakornnayak Resort, Thailand 28 Oct - 1 Nov 2001

[120] Where resources are shared in use and publicly owned by the common people

[121] Philippines' Indigenous Peoples' Rights Act, popularly called "IPRA", is also referred to as the Ancestral Domain Law, since it seeks to recognise and protect the rights of the indigenous peoples in the Philippines. In its Section 3 it defines "ancestral domain" as "all areas generally belonging to Indigenous Cultural Communities/Indigenous Peoples (ICCs/IPs) comprising lands, inland waters, coastal areas, and natural resources therein, held under a claim of ownership, occupied or possessed by ICCs/IPs, by themselves or through their ancestors, communally or individually since time immemorial, continuously to the present except when interrupted by war, *force majeure* or displacement by force, deceit, stealth or as a consequence of government projects or any other voluntary dealings entered into by government and private individuals/corporations, and which are necessary to ensure their economic, social and cultural welfare. It shall include ancestral lands, forests, pasture, residential, agricultural, and other lands individually owned whether alienable and disposable or otherwise, hunting grounds, burial grounds, worship areas, bodies of water, mineral and other natural resources, and lands which may no longer be exclusively occupied by ICCs/IPs but from which they traditionally had access to for their subsistence and traditional activities, particularly the home ranges of ICCs/IPs who are still nomadic and/or shifting cultivators".

[122] Legal Rights and Natural Resources Centre – *Kasama sa Kalikasan*, 7, Marunong Street, Central East Ditsrict, Diliman, Quezon City, Philippines www.lrcksk.org

[123] www.multinationalmonitor.org/hyper/issues/1992/04/mm0492_05.html

[124] Asia Indigenous Peoples Pact, P.O. Box 48, KlongChan Post Office, Bangkok 10240, Thailand

[125] Coordinator of a community-based organisation – Development and Environment Protection Club, Nepal, Personal communication, May 2002

[126] MASIPAG is the acronym for the Philippines-based farmer-scientist organisation "Magsasaka at Siyentipiko para sa Pag-unlad ng Agrikultura." Adopted at the workshop "Defend Farmers' Rights From Threats of the Philippine Plant Variety Protection Act 2002", Los Baños Philippines, 2-4 August 2002

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