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# FLANKING POLICIES IN NATIONAL AND INTERNATIONAL LAW

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# 6 Flanking Policies in National and International Law

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## 6.1 Introduction

Chapters 4 and 5 have examined ways in which intellectual property can address the protection of traditional knowledge for individually assignable knowledge. Beyond the protection of TK through TIPs or farmers' rights, states have a number of instruments within the intellectual property system and beyond that they can use to address specific issues related to the protection of traditional knowledge. This chapter examines some avenues in which the current international intellectual property regime could be used or adapted in the context of TK. The first section focuses in particular on possible adaptations to existing patent procedures, such as the introduction of a requirement of prior informed consent. It also addresses ways in which some other forms of intellectual property rights, such as geographical indications, could be used in the context of TK protection and the relevance of labelling as a tool to foster better recognition of traditional knowledge. The second section looks at the management and enforcement of existing intellectual property rights in the context of traditional knowledge protection. It focuses in particular on the contribution that the collecting society's model could make to traditional knowledge protection, the question of registration and the possibility of establishing a clearing-house mechanism.

## 6.2 Existing Intellectual Property Rights: Avenues for Further Development[1]

The intellectual property rights system has found it difficult to adapt itself to the new challenges brought about by the development of genetic engineering in industrialized countries, and issues related to the use of plant genetic resources and traditional knowledge as the basis for products which can be protected under the formal intellectual property rights system. The current system is not well adapted for dealing with issues related to plant genetic resources and traditional knowledge, but some adjustments can nevertheless be proposed. This section examines some of the ways in which intellectual property rights could be

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made more relevant in situations where protected knowledge is linked to or derives from traditional knowledge. This includes diverse elements from adaptation to patent procedures to the further development of the protection concerning geographical indications.

### 6.2.1 Novel uses of the patent model

Patents are only one of several types of intellectual property rights relevant in the context of traditional knowledge over plant genetic resources. However, patents are not only widely used but are also at the centre of most international debates and therefore deserve special attention. There are a number of levels at which the procedures for obtaining and enforcing patent rights can have significant impacts on the management of traditional knowledge linked to plant genetic resources. These include the introduction of novel ways to address the issue of prior art, the introduction of new conditions for patentability imposing an obligation to seek prior and informed consent from traditional knowledge holders, the increased use of the notion of joint inventorship to cover situations involving the use of traditional knowledge and the redefinition of existing conditions for patentability to make them more directly traditional knowledge relevant, for instance, by allowing the grant of petty patents.

#### *Prior art, disclosure and prior informed consent*

##### PRIOR ART

Prior art is information that is accessible to the public in written form or through an oral presentation, or, depending on the country, in any other form.[2] In the context of patent law, prior art is information that is accessible to the public before the filing date of the application or before the priority date of the application, depending on national rules. The level of ease with which access to information can be obtained is treated differently in different countries, but it is generally accepted that information can only be deemed to be accessible as long as there are no factors that severely restrict access.[3]

The question of prior art has been the object of significant debates between developed and developing countries. Questions that surround prior art are linked to the procedures that patent offices normally put in place to verify the accuracy of the claims embodied in the patent application with regard to the criterion of novelty.[4] Novelty is judged against existing knowledge in the public domain. Different types of problems can arise in the context of traditional knowledge. Problems surface where public domain knowledge is not easily accessible through the normal search procedures that patent offices use. This has been of particular concern in relation to traditional knowledge in the case of patent applications in the USA because oral publication in a foreign country does not count as proof of prior art within the USA. In other words, issues surrounding prior art are in part linked to the territoriality of patents. Different strategies can be used to address existing problems. First, where a patent claim is made on knowledge that is in fact in the public domain in another country and documented in written form, it is possible to oppose the grant of a patent. This implies that even if the patents office is not aware of the written source in a foreign country and grants the patent, this does not bar subsequent opposition. As noted in Chapter 3, this can be a cumbersome and expensive strategy because it forces the opposing party to challenge the patent in the jurisdiction where it was granted and show that

[2] Cf. Article 8 of the Draft Substantive Patent Law Treaty, WIPO Doc. SCP/9/2 (2003).

[3] See, for example, Standing Committee on the Law of Patents, Information Provided by Members of the Standing Committee on the Law of Patents (SCP) Concerning the Definition of Prior Art, WIPO Doc. SCP/6/INF/2 (2001).

[4] See, for example, Article 15 of the Patent Cooperation Treaty 1970 and Rule 33 of the related Regulations.

each and every claim made in the patent application is invalid because it is anticipated in prior art. It is, however, an option that some countries like Venezuela are seeking to pursue.[5] Secondly, patent offices in OECD countries are often likely to miss out on relevant information because they limit their search procedures to specific information sources.

One way in which patent offices can be assisted in avoiding the grant of patents on inventions anticipated in traditional prior art is through the development of specific traditional knowledge databases (see below and Chapter 3). The need for such databases stems in part from the fact that patent examiners cannot be expected to have access to all the relevant traditional knowledge if it has not been compiled and systematically arranged. In this context, efforts undertaken by WIPO to provide online access to traditional knowledge databases are significant.[6] Databases can fulfil different functions in the context of the granting of intellectual property rights on inventions derived from traditional knowledge. In the sense of defensive protection, databases improve the availability of traditional knowledge as prior art which can be much more easily searched by patent authorities. The uses they fulfil also include the provision of a common terminology, translation from local languages and in some cases bibliographic references. Databases can also help traditional knowledge holders by enhancing their access to information concerning holders of intellectual property rights derived from traditional knowledge. In situations where traditional knowledge holders themselves control databases, this also strengthens local control over the documentation and use of knowledge.[7] On the whole, traditional knowledge documentation through databases provides an important tool to ensure that public domain knowledge is not privately appropriated in any jurisdiction around the world. Some countries have, however, decided to supplement efforts at documenting knowledge with specific provisions in their domestic laws. Peru has, for instance, adopted a law that includes as one of its specific objectives the need to avoid granting patents on inventions based on traditional knowledge without taking traditional knowledge into account in the examination of novelty and the level of inventiveness disclosed in the invention.[8] This or similar steps constitute one way of ensuring that the issue of prior art is not reduced to the simple accessibility of information. This is important in a context where increasingly low inventive steps are deemed sufficient for patentability. From the point of view of the protection of traditional knowledge, it is necessary to ensure that better access to traditional knowledge through databases does not contribute to a further erosion of the criterion of inventiveness.

Apart from concerns in the context of national patent regimes, the question of prior art has also surfaced in the context of the use of germplasm held in CGIAR gene banks and in the context of benefit-sharing

[5] See Article 83, Venezuela: Ley de diversidad biológica, 27 October 1999, which makes it a duty of the National Biodiversity Authority to review intellectual property rights granted abroad to determine if national genetic resources have been used and in the affirmative to either seek the annulment of the patent or a share of the benefits derived from the invention.

[6] At present, the trial run by WIPO seeks to assess the needs of patent granting authorities. It focuses in particular on determining whether there is a need for specific classification systems for traditional knowledge and on the integration of the data into existing intellectual property information systems. WIPO also seeks to understand the needs of information providers and the conditions under which traditional knowledge documentation can be carried out. For further information, see http://www.wipo.int/globalissues/databases/tk/index.html

[7] Concerning the uses of databases, see, for example, Recommendations of the Workshop on Technical Aspects of Databases and Registries of Traditional Knowledge and Associated Biological/Genetic Resources, Cochin, India, 11–13 November 2002 (on file with author).

[8] Article 5, Peru: Régimen de Protección de los Conocimientos Colectivos de los Pueblos y Comunidades Indígenas Vinculados a los Recursos Biológicos (2002) (see Chapter 2).

schemes. The case of a wild rice variety from Mali with specific resistance to bacterial rice blight is of special interest in this context. The special trait of *Oryza longistaminata* was first identified by Indian researchers who then transferred it to the International Rice Research Institute (IRRI). Research at IRRI led to the development of cultivated varieties with blight resistance. Subsequent research at UC Davis led to the mapping of the Xa21 gene responsible for this trait. The University applied for a patent but recognized the need for benefit sharing.[9] This case throws open a number of difficult questions concerning prior art. First, farmers in Mali generally did not have specific knowledge of the specific trait identified by researchers and this variety was often considered a weed.[10] However, a landless community relying on wild varieties of rice, including *O. longistaminata*, had detailed knowledge of the special resistance of this variety. This indicates that the identification of prior art in specific cases can be even more of a challenge than commonly realized, as illustrated in a situation where a given variety is considered a weed by some farmers and is intimately used by other communities. In other words, the identification of prior art itself requires significant efforts to ascertain the exact extent of local knowledge or lack thereof. In this case, the outcome was the realization that, against normal expectations, ethnobotanical knowledge of local PGRFA is not necessarily and exclusively held by local landowning farmers. Secondly, this case is also noteworthy because it involved a CGIAR Centre. This led to a significant controversy because the patent was seen as compromising the efforts of the IRRI and actors in rice-producing regions affected by the bacterial blight problem insofar as the patent was granted in a country not suffering from bacterial blight while restricting the exports of bacterial blight-resistant rice to the USA. In this case, the difficulties linked to the grant of the patent were recognized by UC Davis, which decided to allow non-commercial researchers access to the gene and to allow the IRRI to develop new varieties incorporating the patented gene (Blakeney, 2001b).

### DISCLOSURE OF ORIGIN AND PRIOR INFORMED CONSENT

International patent treaties do not include requirements concerning the disclosure of the origin of the resources or knowledge from which the protected invention is derived. The origin of the biological or genetic resources that are used in developing a patented invention has, however, acquired greater importance in the context of the use of traditional knowledge as one basis for research in genetic engineering. First, as noted in the previous section, it has become increasingly important to establish the origin of knowledge used in a patent application to determine whether it is part of prior art or not. Secondly, the origin of knowledge used in an invention indicates whether the patented invention has benefited from the existence of previous knowledge in the public domain. A disclosure requirement in patent applications would have the following benefits:

- It would legally force patent applicants to double-check prior art in their field before applying for a patent.
- It would provide an avenue for claims of benefit sharing or for claims of joint ownership.
- It would provide a legally binding mechanism forcing patent applicants to show that the resources or knowledge they used as a basis for their invention were acquired with the consent of the individual or group concerned.

The issue of prior informed consent is likely to remain contentious at the international level for the foreseeable future. First, a disclosure requirement would shift the burden of proof from the party opposing

[9] US Patent No. 5859339, Nucleic Acids, from *Oryza sativa*, which Encode Leucine-Rich Repeat Polypeptides and Enhance Xanthomonas Resistance in Plants, issued 12 January 1999.
[10] For a detailed account of this case, see WIPO/UNEP (2002).

the grant of a patent to the patent applicant. Secondly, the requirement would possibly involve not only permission to use specific knowledge granted by traditional knowledge holders but also permission from the state concerned for accessing the desired biological or genetic resource as per the requirements of the Biodiversity Convention and the PGRFA Treaty. In this sense, the implementation of a disclosure requirement is of great interest because it constitutes one situation in which countries must take into account international obligations arising from different treaties at the same time.

The question of a disclosure and prior informed consent requirement must be looked at from the point of view of patent applications as well as from the point of view of access and benefit-sharing mechanisms under the relevant treaties. The requirement can be conceived either as an element extraneous to the patent application or as a procedural or substantive condition of patentability. In the first case, the disclosure requirement can simply act as a bridge between the different international obligations of member states without having any direct impact on patent applications and patent rights.[11] In the second case, the requirement can be conceived either as an indirect or direct condition of patentability. The former concerns situations where the validity of a patent that has been granted can be challenged in case the disclosure requirement condition has not been fulfilled.[12] The latter goes further and provides that the granting of the patent can be made conditional on the fulfilment of the disclosure requirement. This last option has been the object of significant debate as it has been argued that if the requirement was made a condition of patentability, this may require an amendment of the TRIPS Agreement (de Carvalho, 2000).

From the point of view of traditional knowledge protection, it is likely that a disclosure and prior informed consent requirement introduced as a condition of patentability would be the most effective instrument to ensure that traditional knowledge is fully taken into account and acknowledged by patent applicants. It would have the advantage of forcing patent offices to examine the question of disclosure and prior informed consent at the outset. The legality of such a requirement under TRIPS has been questioned because Article 27 provides a finite list of substantive conditions that can be imposed on patent applicants. However, there is no need to conceive the requirement as a substantive condition of patentability. Article 62 of the TRIPS Agreement expressly provides that member states can introduce 'reasonable procedures and formalities' as long as they are consistent with the provisions of the Agreement.[13] In any case, the requirement to disclose prior art is part of the grant of patent rights as recognized under Article 29 of the TRIPS Agreement. The inclusion of traditional knowledge prior art should not pose any problem and may in fact be required under existing rules. The only specific issue concerns the question of the disclosure of the geographical origin of knowledge. This, however, need not be seen as a substantive condition for patentability. It constitutes a procedural requirement that can fall into the scope of Article 62 of the TRIPS Agreement.

The consequences of a breach of a disclosure and prior informed consent requirement could range from a financial penalty imposed on the patent holder to the sharing of patent rights under a joint ownership scheme or simply to the revocation of the patent by putting the disclosure requirement on a par with other patentability requirements like novelty (Ragavan, 2001). This would be conceptually close to the proposal to use the notion of unjust enrichment to provide an alternative protection to traditional knowledge holders whose

[11] This is the option adopted by Directive 98/44/EC of the European Parliament and of the Council on the Legal Protection of Biotechnological Inventions, 6 July 1998, 1998 OJ L 213.

[12] For further details concerning the 'unclean hands doctrine', see de Carvalho (2005).

[13] Contra de Carvalho (2005).

knowledge is appropriated without their consent (Gervais, 2002).

The question of disclosure and prior informed consent can be looked at from an intellectual property perspective, but only a broader perspective taking into account the requirements of international environmental treaties can provide a comprehensive picture. The Biodiversity Convention is, for instance, noteworthy for its emphasis on the question of access to genetic resources and the necessity for prior informed consent. Access refers under the Convention to the rights of states to regulate the flow of genetic resources towards other countries. This adds an important dimension to the issues considered insofar as it indicates that the grant of intellectual property rights is dependent not only on the conditions laid down by the state in intellectual property laws, but also on conditions laid down in other laws which are not necessarily directly concerned with intellectual property such as a biodiversity legislation. This has been confirmed by the Bonn Guidelines on access and benefit-sharing (Bonn Guidelines, 2002). Overall, the impact of the Biodiversity Convention on the grant of intellectual property rights may be to require that inventions based on genetic resources or associated knowledge should be denied patent protection if they have not been acquired in a manner conforming to the principle of prior informed consent. This is significant because it covers both the resources and the associated knowledge (see Commission on Intellectual Property Rights, 2002).

The requirements of prior informed consent and disclosure have already been incorporated in some legislation of selected developing countries. The Costa Rican Biodiversity Act, for instance, clearly provides that intellectual property rights on inventions using biological resources can only be granted if a certificate of origin and a statement on prior informed consent are provided to the organs instituted under the Biodiversity Act.[14] The amended Indian Patents Act includes a new requirement concerning the disclosure of the geographical origin of biological materials used in the invention. This requirement is limited to the physical resources and does not specifically involve a prior informed consent requirement (India – Patents (Amendment) Act, 2002). The Philippines have adopted an even stricter framework in their Indigenous Peoples Rights Act. The Act provides that access to biological resources or associated knowledge is allowed only with prior and free consent from the communities. The Act specifically indicates that free and prior consent involves a consensus of the indigenous peoples concerned which must be 'free from any external manipulation, interference coercion, and obtained after fully disclosing the intent and scope of the activity, in a language and process understandable to the community'.[15] Further, the Act also recognizes the rights of indigenous peoples to the restitution of their intellectual property in case it has been acquired without prior informed consent or in violation of local laws or customs.[16] The Venezuelan Biodiversity Act adopts the same approach and takes it to its most stringent conclusion. In effect, the Act provides that no intellectual property rights will be recognized unless the rules for accessing biological resources have been followed. This shifts the burden entirely to the patent applicant who must follow the rules or face annulment of intellectual property rights.[17]

### *Joint inventorship*

Patent law has long acknowledged that several individuals or legal entities could apply jointly for a single patent. In the case of traditional knowledge, the question which is most likely to surface is not whether a biotechnology firm is entitled to apply jointly with traditional knowledge

[14] Costa Rica: Biodiversity Law (1998).
[15] Section 3.g, Philippines: The Indigenous Peoples Rights Act of 1997.
[16] Section 32, Philippines: The Indigenous Peoples Rights Act of 1997.
[17] Article 82, Venezuela: Ley de diversidad biológica, 27 October 1999.

holders for a patent right but rather whether the contribution of the traditional knowledge holders is sufficient to allow them to claim joint inventorship.

The notion of joint inventorship has been the subject of disputes even before the development of inventions based on traditional knowledge. As a result, it may be possible to derive interesting ideas from previous practice for use in the context of traditional knowledge. In the USA, for instance, the statute recognizes the notion of joint inventorship.[18] The main requirements imposed for joint inventorship are that each of the joint inventors must contribute to the inventive element of the protected invention and that they must collaborate with each other. More specifically, the joint inventors must produce an invention by their aggregate efforts and must work on the same subject matter.[19] Further, while it may be difficult to distinguish prior art from the distinct contributions to a single invention, the statute recognizes that joint inventors do not have to work together at the same time. It is sufficient that the contribution of the joint inventor that works first in time constitutes an integral part of the process of joint invention.[20] Finally, the joint inventors do not need to collaborate on each of the claims made in a patent application and do not need to have made the same type of contribution or contributed equally to the invention.[21]

The notion of joint inventorship has been developed in conditions that are completely different from the conditions that a patent office would face in the case of an invention to which a traditional knowledge holder and a genetic engineering firm both contribute. However, it appears that the principles developed could be applied in the case of traditional knowledge. In fact, the only case where joint inventorship seems clearly barred is in the case where the joint inventors do not know of each other's work. In the case of traditional knowledge obtained with prior informed consent (which itself includes a statement by people accessing the knowledge concerning the intended use), normal patent rules can be relatively easily used to provide joint inventorship to traditional knowledge holders if their contribution is clearly linked and relevant to the final product. Overall, the determining test may be that the contribution of the joint inventor must be essential in distinguishing the invention from prior art (Huft, 1995). While the merits of each case would have to be examined individually, there are a number of cases where the contribution of traditional knowledge holders to a given invention may constitute an integral part of the protected invention. However, while it may be relatively easy to determine the joint nature of an invention based on the traditional knowledge of a healer who does not share knowledge with other members of her/his community, this would be much more difficult in a case like the turmeric patent, where the contribution to the overall invention would have been the inventive effort of a whole nation and not that of easily identifiable individual(s).[22]

### *Traditional knowledge and existing conditions for patentability*

The criteria that applicants for patent rights must fulfil were defined with certain types of invention in mind. As highlighted in Chapter 3, the protection of traditional knowledge does not generally fit well within the normal patent model. However, there are ways in which existing criteria for patentability could be used for the benefit of traditional knowledge holders. First, the notion of inventive step poses significant

[18] 35 United States Code 116.

[19] *Monsanto Co. vs Kamp,* 269 F. Supp. 818 (District of Columbia, District Court, 15 June 1967).

[20] *Shields vs Halliburton Co.*, 667 F.2d 1232 (US Court of Appeals, 5th Circuit, 19 February 1982).

[21] See, for example, *Ethicon, Inc. vs United States Surgical Corporation,* 937 F. Supp. 1015 (United States District Court, D. Connecticut, 9 September 1996).

[22] On the turmeric patent, see above at Chapter 3.

difficulties in the case of traditional knowledge because patent law distinguishes inventions from discoveries and from public domain knowledge. Traditional knowledge is usually deemed to be part of the state-of-the-art when it is in the public domain. These traditional interpretations could be modified to reflect the specificities of traditional knowledge. Knowledge may be state-of-the-art and yet be novel because it comes from a different knowledge system unrelated and independent from developments in the formal knowledge system. In other words, different scientific systems should not be prejudiced because they do not follow the western model (Dutfield, 2001). Further, in recent years the notion of inventive step has been changing fast with the development of genetic engineering. In fact, the clear distinction that used to exist between invention and discovery is increasingly blurred. In this sense, if patent rights can be obtained on purified natural substances without being challenged according to the concept of discovery, traditional knowledge should also be patentable under the same criteria (Mgbeoji, 2001).

Apart from new interpretations of existing criteria for patentability, it may also be possible to bring traditional knowledge within the formal intellectual property rights system by defining new sub-species of rights. This has already been attempted for different reasons with the development of second-tier patents (petty patents) that could constitute one avenue for the protection of traditional knowledge within the patents system. Second-tier patents were first developed in the 19th century to address some of the perceived shortcomings of the concept of novelty. The UK Utility Design Act of 1843 was the first legislative development in this field. Even though this was enacted to remedy some problems of the patents system, it addressed designs and in practice sought to protect the form of a product, not its function (Janis, 1999). In effect, the developments of second-tier patents was linked to the need to find legal instruments that could provide protection to inventions that were not deemed significant enough to warrant the grant of a patent but were genuine innovations. As a result, the idea behind a petty patent is a protection which is short-term and which is granted on the basis of diminished standards of inventiveness compared to patent law. Another important factor accounting for its development is the need to find a form of intellectual property right that could be obtained faster and more cheaply than patents. In general, second-tier patent systems provided a way to reward functional improvements in three-dimensional shapes of tools or similar developments which neither patent nor trade secret law effectively protected. In other words, second-tier patents rewarded enhanced technical proficiency of tools but did not protect the underlying idea or the manufacturing process (Reichman, 1994).

Second-tier patenting has followed mixed fortunes over the past two centuries but has been revived periodically. It has, for instance, been criticized for not bringing about the intended cost reduction for the benefit of small and medium enterprises, although proposals for a sub-system linked but distinct from the patent system have periodically resurfaced.[23] In the context of traditional knowledge, proposals for the protection of smaller fragments of innovative contributions that do not necessarily fulfil the conditions for patentability are noteworthy.

The protection of relatively insignificant innovations can have interesting consequences. On the one hand, the relaxation of the rule concerning the inventive step could lead to the recognition that a locally developed plant variety is worthy of protection. This would allow a given farmer or farmers to acquire a measure of control over follow-up innovations derived from their variety. On the other hand, states could

[23] See, for example, Amended proposal for a European Parliament and Council Directive approximating the legal arrangements for the protection of inventions by utility model, Official Journal C 248E, 29/08/2000 p. 56.

decide to deny protection of the 'inventive step' for a local variety but simply provide that copying the product should be illegal. In this way, where innovation is deemed insufficient to qualify for a patent, protection through a right akin to copyright would provide the most limited form of protection possible (Reichman, 2000a).

Overall, second-tier patenting in the context of traditional knowledge is of interest because it highlights that debates over the relevance of patents in certain fields has long been disputed. The responses that have been given over time are noteworthy because they could to a certain extent be applied directly to traditional knowledge. These include attempts to redefine the novelty criterion, the search for intellectual property rights that are affordable for small enterprises and whose maintenance costs are low, and rights that can be granted more easily than patents with minimal examination by the competent authority (Stern, 1994). However, while second-tier patenting indicates some further ways in which the patent system could open itself up to traditional knowledge, the responses it provides remain limited by the framework within which they are conceived. Further, petty patents are subject to another type of criticism. In a situation where the scope of patentability is increasingly seen as being too broad, with the potential for harming further scientific development, it becomes even more difficult to strike an appropriate balance between the need for protection and the need to foster overall scientific and technological development (Suthersanen, 2001).

### 6.2.2 Adaptation of the conditions for granting of plant breeders' rights

Conditions for the granting of patents and plant breeders' rights are related. However, there are enough differences to warrant separate consideration of the conditions for the granting of plant breeders' rights. One of the conditions for protection under the UPOV Convention is that the variety must be uniform. This has two main impacts from the point of view of traditional knowledge. It stops traditional knowledge holders from applying for plant breeders' rights because their varieties are usually unable to fulfil this condition. Further, the condition of uniformity must be put in the broader context of agro-biodiversity conservation. In fact, while the plant breeders' rights model fosters the development of uniform varieties commercialized on a large scale, existing treaties in the field of agrobiodiversity management generally seek to avoid uniformity and monocultures, which constitute a significant cause of loss of biodiversity. Adapting the condition of uniformity would therefore be beneficial from the point of view of traditional knowledge holders and could be said to constitute a requirement from the point of view of environmental treaties. The UPOV Convention, unlike the TRIPS Agreement, does not specifically allow member states to take into account their other obligations in the field of plant variety management and conservation. However, UPOV member states that are also parties to the Biodiversity Convention must, even without formal acknowledgement in UPOV, implement all their obligations jointly. This implies that member states should have at least some limited scope in adapting the conditions of protection to take into account all their international obligations.

The condition of distinctness is another basic criterion for plant variety protection under UPOV. Distinctness is the closest that plant breeders' rights come to a concept of novelty as proposed in the patents regime.[24] The progressive acceptance of protection for essentially derived varieties, in other words varieties that do not differ significantly from the protected variety, has gradually rendered the criterion of distinctness quite ineffective as a

[24] While novelty is one of the basic criteria for protection under UPOV, it differs radically from its counterpart under patent law since it relates to the first commercialization of a variety and not to its inherent characteristics. See Article 6 of the UPOV Convention.

way to measure novelty. From an environmental point of view, the possibility of protecting essentially derived varieties constitutes an incentive for the commercialization of increasingly similar varieties, a factor contributing to crop uniformity and loss of agro-biodiversity.

Different changes to existing plant breeding criteria can be envisaged. The introduction of a prior informed consent requirement would, for instance, constitute an important change that could significantly strengthen the position of farmers' varieties within the UPOV system. This would provide a clear mechanism for ascertaining the origin of the genetic material, the extent of distinctness as judged within the UPOV system and would strengthen the claims of traditional knowledge holders for benefit-sharing. For member states of the UPOV Convention, the introduction of such a requirement may require an amendment to the Convention as it provides a finite list of conditions of protection and a finite list of reasons for cancellation and nullity of breeders' rights.[25] Some countries that have based their legislation on the UPOV system have adopted prior informed consent requirements, indicating that there is scope for further development in this field. The Indian Act, for instance, imposes on commercial breeders the obligation to certify that the genetic or parental material has been lawfully acquired.[26]

Other conditions could be imposed on the granting of plant breeders' rights. Environmental concerns (biosafety) can be built into the conditions for granting rights. The Thai Plant Variety Act provides, for instance, that a new plant variety cannot be registered if it has 'severely adverse impact, directly or indirectly, on environment, health or public welfare'.[27] In other words, plant breeders' rights could be made conditional upon a safety appraisal procedure. Further, food security and food safety concerns can provide the basis for the imposition of further conditions on the granting of the rights to ensure the maintenance of agricultural biodiversity, the promotion of health and the enhancement of national food security.

### 6.2.3 Geographical indications[28]

Geographical indications were for a long time seen as a supplementary means of intellectual property protection for specific products, with a significant emphasis on wines and spirits.[29] This perception has been changing in the aftermath of the adoption of the TRIPS Agreement. This is due to two main related factors. First, economic globalization and increased international trade makes the international protection of geographical indications much more important for countries and actors claiming such rights. Secondly, a number of developing and developed countries have progressively discovered the commercial potential of some of their geographical indications and are pushing for more extensive protection in this field. A number of geographical indications are closely derived from traditional knowledge. As a result, the possibility of strengthening their protection is significant from the point of view of the protection of traditional knowledge.

Geographical indications are an atypical form of intellectual property rights that do not protect novel elements but rather an accumulated goodwill built up over the years. This goodwill is the outcome of a recognized or perceived link between a product and a geographical area. The purpose of geographical indications is to identify products but not to provide protection to the product as such. Further, geographical indications are also atypical insofar as they are a collective right that only grant producers in a given area the right to use the

[25] For UPOV-1991, see Articles 5, 21, 22.
[26] Article 18, India: Protection of Plant Varieties and Farmers' Rights Act (2001).
[27] Section 13, Thailand: Plant Varieties Protection Act, B.E. 2542 (1999).
[28] Authors: Philippe Cullet and Andrea Nascimento Müller.
[29] See above, Chapter 2, Section 2.3.3.

indication for products of a specific geographical area and that is unlimited as long as the specific conditions for the granting of the geographical indication remain in place. Two main forms of geographical indications have been developed in international law: the first, indications of source, simply denotes the fact that a given product derives from a certain geographical area. The second, appellations of origin, refers to products whose quality or other characteristics are essentially attributable to their geographical origin, either because of natural or human factors. Under the TRIPS Agreement, both forms have been subsumed under the concept of geographical indications.

Geographical indications can take the form of words, phrases, symbols and iconic emblems. Under TRIPS, indications do not necessarily have to be the name of a geographical place on Earth and can therefore include names that relate to a specific geographical area, such as Basmati in the case of rice in certain areas of Pakistan and northern India. However, goods that are protected must originate in the region with which they are associated, which implies that licences for the production of a protected good outside its region of origin cannot be protected (Blakeney, 2001a). Different countries use different criteria to demarcate areas that can be covered by an indication. These can range from a geographical unit linked to a political classification to *ad hoc* definitions such as where a specific wine-growing area is granted a right (WTO, 2001).

Geographical indications can be protected by different means. One of the most common means of protection is through laws that prohibit business practices that may involve the misuse of indications. This includes the repression of unfair competition and consumer protection, for instance, with regard to product labels and food safety. This negative protection imposes on legitimate users the duty to prove that there have been illegitimate uses of an indication.[30] Stronger protection is available in the case of wine and spirits under Article 23 of the TRIPS Agreement. In this case, legitimate users are better protected insofar as competitors in other regions of the world are more restricted in the use they can make of the protected indications. Further, legitimate users are given the right to challenge other users simply on the basis that a product has not been produced in the area identified by the indication without having to prove that there has been unfair competition or that this misleads the public.

### *Geographical indications and trademarks*

Geographical indications have a number of links with trademarks,[31] some of which are of direct relevance in the context of traditional knowledge. In general, trademarks provide two types of protection for geographical indications. First, they can provide protection against the registration and use of an indication as a trademark. In this sense, trademarks provide a tool for preventing third parties from appropriating signs, symbols or names that belong to traditional communities with a view to exploiting them commercially (de Carvalho, 2005). This corresponds closely to the traditional distinction between trademarks and geographical indications. While the former seek to distinguish a specific product or service and cannot be descriptive, the latter are usually descriptive.

[30] See Articles 10, 10bis, 10ter of the Paris Convention for the Protection of Industrial Property, 20 March 1883 (as revised and amended).

[31] A trademark is any word, name, symbol, device, slogan, package design or combination of these that serves to identify and distinguishes a specific product from others in the market place or in trade (International Trademark Association Glossary). Normally a mark for goods appears on the product or its packaging, while a service mark appears in advertising for the services. Depending on the national laws, a trademark may be registered (®) or unregistered (™). There are different types of marks: e.g. trademarks, promoting products, service marks, promoting services, certification marks, which cover characteristics such as product quality, method of manufacturing, and collective marks, which are used by members of a group or organization.

Secondly, trademarks can in some circumstances provide protection for geographical indications against unauthorized use by third parties in cases where an indication has been recognized as a trademark.

The relationship between trademarks and geographical indications and the problems concerning the possible overlaps between the two kinds of rights have been addressed in different ways. The TRIPS Agreement provides as a general rule that registration of a trademark that contains or consists of an indication is not allowed if the goods do not originate from the area covered by the indication and if such registration is likely to mislead the public as to the true place of origin. This is supplemented by a stronger regime in the case of wines and spirits, in which case trademark registration is to be refused or invalidated on the simple basis that the wines and spirits do not originate from the area covered by the indication. Finally, the TRIPS Agreement makes an exception in situations where trademarks have been applied, registered or acquired in good faith.[32]

On the whole, while trademarks may be relevant in the context of the protection of traditional knowledge where specific products derived from traditional knowledge can be so protected, geographical indications are more relevant and interesting from a conceptual point of view. First, where trademarks seek to provide signs that distinguish products from a given entity from their competitors, geographical indications are freely enjoyed by all product manufacturers and traders in the specific area and protect all of them from inappropriate use of the indication. Secondly, unlike trademarks, geographical indications cannot be transferred, a significant advantage in all situations where transferability involves a risk for the weaker party, as is likely to be the case with traditional knowledge holders. Thirdly, the difficulty in registering a geographical indication as a trademark is likely to reduce the risk of conflicts where one trader or producer seeks to appropriate the indication for her/himself through a trademark. Fourthly, despite exceptions, trademarks are usually individual rights, while geographical indications are by definition collective rights and in this sense may be more amenable to adaptation to traditional knowledge protection.[33]

### *Further development of geographical indications*

The incomplete and differentiated protection for geographical indications provided in the TRIPS Agreement has led a number of WTO member states to seek changes in this field. Two main issues are currently being discussed in the TRIPS Council. As called for in the TRIPS Agreement itself and confirmed at the Doha ministerial conference,[34] states are negotiating a multilateral system of notification and registration for wines and spirits. The Doha Ministerial Declaration specifically addressed two distinct issues. First, it confirmed the willingness to negotiate the establishment of the multilateral system just mentioned. Secondly, it acknowledged the need for the TRIPS Council to consider issues related to the extension of the special protection for wines and spirits to other goods.[35]

Some members mentioned different interpretations of this mandate, in documents circulated at the Ministerial Conference (O'Connor and Company, 2003). Negotiations proposals have pitted states with significant interests in the protection of different types of geographical indications, including those relating to traditional knowledge, against states that have generally been reluctant to accept protection

[32] For further details, see Article 24.5 of the TRIPS Agreement.

[33] For an example of a legal regime recognizing collective trademarks, see, for example, Andean Community, Decision 486 – Common Intellectual Property Regime, 14 September 2000.

[34] Article 23.4 of the TRIPS Agreement and para. 18 of the Ministerial Declaration, Doha, 14 November 2001, Doc. WT/MIN(01)/DEC/1.

[35] WTO Doha Ministerial Declaration, para. 18, adopted on 14 November 2001, WT/MIN(01)/DEC/1.

through geographical indications. Thus, Argentina has, for instance, stated that it sees no mandate to negotiate the extension of the protection of GIs to other products.[36] On the opposite side, a number of developed and developing countries have affirmed that there is a clear mandate to launch negotiations on the extension of additional protection for GIs.[37]

The pros and cons of GI extension essentially can be divided into three topics. The first argument relates to the negotiating balance accomplished in the Uruguay Round. The second concerns the deficiency of the scope of protection available in Article 22. Thirdly, there is the potential impact of GI extension on trade, consumers and the TRIPS obligations, of which the biggest would be related to costs (Rangnekar, 2002). Members opposing GI extension, such as Australia, Paraguay, Canada, New Zealand, the USA and Argentina, contend that the obligations entail excessive costs, much of which would fall on developing countries.[38] Those in favour of the extension of GIs, such as Bulgaria, the Czech Republic, Iceland, India, Switzerland and Turkey, argue that there is potential for commercial use, and that such extension would benefit trade and development.[39] The proposal to extend the level of protection afforded to wine and spirits' GIs to other products would include agricultural products, processed foods and handicrafts.

With regard to the use of GIs as a tool for the protection of traditional knowledge, limited discussions have taken place in the context of the TRIPS Council. Some states, such as Switzerland, have indicated that GIs provide a possible tool for the protection of traditional knowledge and genetic resources, for example in the case of kava, neem, Mexican enola beans, Peruvian yacon and Andean nuna beans. The extension would guide the use of GIs on equitable conditions for all products and would promote traditional methods of production and processing, thereby contributing to economic development.[40] It has also been stated that the extension of GIs could constitute an incentive for producers to market their goods internationally, thus promoting international trade.[41] At the Council for TRIPS meeting held in November 2002, Australia argued that GIs could constitute one way of protecting traditional knowledge in a less severe or monopolistic way, although nowhere near as strongly as patents or copyrights.[42]

### *Geographical indications and traditional knowledge*

From the perspective of traditional knowledge, geographical indications are of specific interest for several reasons.

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[36] WTO Doc. WT/MIN(01)/W/8, 'Communication from Argentina regarding paras 18 and 12 of the Draft Ministerial Declaration' of 12 November 2001.

[37] WTO Doc. WT/MIN(01)/W/11, 'Communication from Bulgaria, Kenya, India and Sri Lanka regarding paras. 18 and 12 of the Draft Ministerial Declaration', 13 November 2001. See also WTO Doc. WT/MIN(01)/W/9, 'Communication from Bulgaria, The Czech Republic, The European Communities and its member states, Hungary, Liechtenstein, Kenya, Mauritius, Nigeria, Pakistan, the Slovak Republic, Slovenia, Sri Lanka, Switzerland, Thailand and Turkey regarding paras. 18 and 12 of the Draft Ministerial Declaration', of 14 November 2001.

[38] WTO, Doc. IP/C/M/38, supra note 16, para. 125.

[39] WTO, Doc. IP/C/W/204, 'Communication from Bulgaria, The Czech Republic, Iceland, India, Liechtenstein, Slovenia, Sri Lanka, Switzerland and Turkey', of 18 September 2000, para. 2.

[40] WTO, Doc. IP/C/M/35, 'Council for Trade-Related Aspects of Intellectual Property Rights – Minutes of Meeting – Held in the Centre William Rappard on 5–7 March 2002', para. 162.

[41] WTO, Doc. IP/C/M/38, 'Council for Trade-Related Aspects of Intellectual Property Rights – Minutes of Meeting – Held in the Centre William Rappard on 25–27 and 29 November, and 20 December 2002', para. 69.

[42] WTO, Doc. IP/C/M/38, 'Council for Trade-Related Aspects of Intellectual Property Rights – Minutes of Meeting – Held in the Centre William Rappard on 25–27 and 29 November, and 20 December 2002', para. 125.

**1.** They differ from other types of intellectual property rights insofar as they are clearly collective in scope. Geographical indications do not grant a single holder the right to benefit from the protection but rather limit the protection to a specific area. They provide a collective right to use the indication. In other words, they offer an exclusive protection against outsiders to an indeterminate number of people within the region of protection. Protection through geographical indications may therefore provide an interesting avenue to foster protection for products manufactured within a specific area while not restricting the number of rights holders within the area.
**2.** Geographical indications do not impose any tests of novelty like the patent system. In fact, they can be used specifically to protect traditional products as long as the particular characteristics of these products can be attributed to a specific geographical origin (Commission on Intellectual Property Rights, 2002).
**3.** Protection through geographical indications does not relate to one specific method of production of a given product. This allows not only different production methods to be covered under a given indication but also for production methods to change over time within the scope of the protection offered (Downes, 2000). In other words, geographical indications intrinsically recognize one of the essential characteristics associated with traditional knowledge, which is its evolution over time.
**4.** Geographical indications do not imply monopoly control over the knowledge that is embedded in the protected indication. In fact, this knowledge remains in the public domain. This presents advantages and disadvantages. On the positive side, from the point of view of the existing intellectual property rights system, the absence of protection of the knowledge is counterbalanced by recognition in perpetuity as long as the link between the geographical place and the good is maintained. On the negative side, the lack of protection implies that traditional knowledge can be misappropriated (Dutfield, 2000). This is similar to the broader concern over biopiracy in the context of patents.
**5.** The impossibility of transferring geographical indications outside their region of protection constitutes a major advantage in the context of traditional knowledge.
**6.** Geographical indications present an advantage over other forms of intellectual property rights for traditional knowledge holders insofar as protection may extend not only to indications that are currently in existence, but also to indications likely to be used in the future.[43] In other words, an indication may constitute a ground for denying appropriation, for instance, through a trademark, in cases where the indication is in use but also in cases where it may be used by traditional knowledge holders for commercial aims in the future.

Certain caveats should also be entered with regard to the use of geographical indications to foster the protection of traditional knowledge. First, they can only be used to protect an indication and cannot constitute a tool for protecting the underlying knowledge. Secondly, geographical indications that are deemed to have become generic lose all their usefulness from the point of view of traditional knowledge protection. Thus, if Basmati rice were to be recognized as a generic name, Indian and Pakistani rice growers would lose all claims on the indication. Thirdly, a number of technical issues may limit the relevance of geographical indications in the protection of traditional knowledge. A system of protection for the benefit of traditional knowledge holders would have to impose strict limitations on individuals or companies eligible to seek registration of an indication. This limitation notwithstanding, outsiders may relatively effortlessly claim the indication if they buy a company producing within the area or decide to manufacture a product within the protected area. This would probably be detrimental for

[43] Cf. *Windsurfing Chiemsee vs Huber*, Cases C-108/97, C-109/97, Judgment of the European Court of Justice, 4 May 1999, [1999] ECR I-2779.

traditional producers. Overall, geographical indications provide some scope for protection of traditional knowledge, but the protection remains limited insofar as indications are conceived as marketing tools and do not protected the knowledge related to the product.

*Case study: Potential benefits of geographical indications: the kava case in the South Pacific*[44]

Many developing countries that are commercial producers of agricultural goods are interested in increasing their commercialization. Geographical indications might support this goal. One example could be the production of kava kava (*Piper methysticum*) (see also Chapter 3).

Kava products, based on traditional knowledge, originally were produced and consumed in the South Pacific Islands. As noted in Chapter 3, different kava-derived products have been progressively commercialized, leading to a considerable export potential in regional and world markets (Lebot *et al.*, 1992).

However, kava is also produced in other regions (Hawaii, Central America), the production of the South Pacific Islands seemingly being the most traditional and ancient. GIs could generate a competitive advantage either in the form of the indication of the South Pacific Islands as the original geographical source of kava, or in the form of an appellation of origin, which in addition includes information on a specific quality that is essentially attributable to its origin. As this specific quality can be caused by natural or human factors, the traditional knowledge about how to best plant, grow and produce kava could thus be protected.

Therefore, in an attempt to find a solution for the protection of kava's traditional knowledge and products in the South Pacific, GIs could play an important role. There are two basic elements that link TK and GIs: (i) the lack of individual intellectual property rights, the rights therefore being acquired by a group; and (ii) the fact that the knowledge is transferred from one generation to the next. This is supported by collective traditions and rewarding traditions, while allowing for evolution.

When one considers the commercialization of kava, there is a stark contrast between the price of kava, sold to the USA at around US$5–10 per pound or US$11–22 per kilo, and the price of a kava product in the USA, which is between US$12 and US$60 for 60 grams (Downes and Laird, 1999). Kava producers could gain additional value through processing the commodity into end-use products.

On the whole, the kava case shows that GIs can create a competitive advantage for the marketing of a product and, if the marketing is successful, contribute to the economies of developing countries. Furthermore, trademarks and collective trademarks and/or certification marks could also protect kava. The establishment of such marks would enable producers to set up shared standards for sustainable development, as well as the monitoring and enforcement of standards. This would maximize the protection and sustainability of the resources by reducing the number of producers who wish to make short-term profits and. in many cases, do not have a long-term strategy.

## 6.3 Management and Enforcement of IPR and Traditional PGR: Institutional Design

Granting private rights in order to contribute to fulfilling public policies only makes sense in practice if the right holders can benefit from the economic and non-economic advantages that such rights are supposed to provide. This truism requires that the elaboration of substantive rules of law must be accompanied by the development of a corresponding institutional framework allowing the implementation, management and enforcement of the legal means at stake. In our context, the institutional design must

[44] Author: Andrea Nascimento Müller.

cover three main elements, i.e. the gathering, archiving and the dissemination of relevant information and knowledge, the management and the enforcement of rights referring to such information and knowledge. In various fields of protection by classic intellectual property rights (e.g. patents, trademarks, industrial design, geographical indications, copyright, etc.) registries play an essential role in gathering and archiving information and/or knowledge. For certain fields of protection such as patent and trademarks, the registration generates the exclusive rights, whereas in other fields such as copyright the optional registration has simply a declaratory or informational character that may facilitate the fact-finding procedures for dispute resolution purposes. Models of registration and documentation facilities that may serve law- and policy makers as a source of inspiration in setting up a system that would meet the specific characteristics of maintaining, developing and protecting traditional knowledge are addressed below. Some of these tasks, especially with respect to the dissemination and exchange of information and knowledge, may also be addressed by the clearing house mechanisms described later. Management of the rights by, or on behalf of their holders, as well as their enforcement, are complex undertakings. Reasons of efficiency may lead right holders to take care of these tasks in a collective rather than an individual way. In this case, the model of collecting societies, as addressed below, may provide stimulating inputs to law- and policy makers. This model is based on a 'bottom-up' approach as opposed to the one inspired by the clearing house mechanisms that may also fulfil management and enforcement activities, but relies rather on a 'top-down' approach. Both models may be envisaged to inspire the elaboration of a system that would be suitable for the management and enforcement of rights related to traditional knowledge. However, the collecting societies model, which is based on a spirit of advocacy rather than of arbitrage, may be more suitable to addressing various conflicting interests than the clearing house scheme. This is especially true with respect to enforcement of rights. In addition, the management of rights is likely to be more efficient if it is 'demand driven', i.e. driven by the right holders' demand of rights management services, as in the case of collecting societies, as opposed to the clearing houses feature of functioning in a 'supply-driven' way, i.e. driven by an international bureaucracy's supply. On the other hand, registries and clearing houses may also serve as 'matchmaker' facilities that bring together right holders and users. In this way, these institutions may provide a very valuable contribution to marketing traditional knowledge.

### 6.3.1 Documentation and registration[45]

*Introduction and questions*

As described previously (Chapter 1), one of the characteristics of TK is that it is largely handed down orally, from generation to generation. Local laws, customs and traditions define its use and tradition. This specific feature leads to the loss of knowledge at the community level once the cultural tradition chain is interrupted or destroyed. At the international level, this leads to problems of legal security in various respects. This occurs in particular in connection with the access to TK and PGRFA and their utilization outside their traditional area of uses, such as in industrial R&D processes. The problems may consist of the following:

- The difficulties faced by the design holders and guardians/custodians of the knowledge, because, for instance, these are considered not to exist any longer, as was the case with the Kung bushmen and their knowledge about the Hoodia cactus;[46] or because several communities are custodians of similar knowledge, or

[45] Author: Susette Biber-Klemm. I thank Shakeel Bhatti for inspiring comments and valuable input.
[46] GRAIN, BIO-IPR docserver, 17.06.01.

because within the community it is not clear if and by whom information can be traded.
- The fact that the examination of pre-existing information in the patent procedure is difficult or even impossible, as information on the TK in question is not easily accessible. In some systems such an examination is not included in the procedure. The same may be true for the proof of prior art in challenging a patent, in systems where a written proof is needed.
- The delimitation of the public and private domain. Beyond the reach of local laws and customs, from the IPR point of view, the information generally belongs to the public domain and can be used freely without authorization or compensation.

This occurrence has led to a variety of initiatives to document TK. On the national level, systems for documenting TK are created for the sake of preventing its loss, that is, to *preserve* the TK (for instance, Biozulua in Venezuela), and/or to create a basis for proving prior art, so as to *protect* TK against inappropriate or unauthorized use by others.[47] Frequently, such documentation and registration schemes are integrated in national legislation on access and benefit sharing.

But initiatives to document TK also exist as bottom-up initiatives at the local and regional level, to organize and preserve the local knowledge basis, and to serve as a basis for taking decisions on resource management for the benefit of the community.[48] There also exist initiatives to create documentation and registries on the international level, which aim for example at creating networks between different players[49] in order to mainstream indigenous/traditional knowledge into the activities of development partners, and to optimize the benefits of development assistance, especially to the poor,[50] or to serve as a documentation of prior art.[51]

In the preceding chapters some thoughts were given on documentation of TK and PGRFA in connection with its allocation to its creators and/or holders (Chapter 4) and its registration in connection with the creation of TIP rights (Chapter 5). Here the question is: what could be the function of TK documentation/registries at the interface with trade in general, and as a basis for the above-described flanking measures? Thus, according to the problems and goals described in Chapter 1, it has to be asked whether documentation and registration is or could become a viable means to achieve the following objectives:

- To empower the holders of TK and traditional PGRFA to facilitate their autonomous decision about the use of their information. The question in this context is first, whether documentation can be used as a means of allocating information to its holders/custodians or authors (see the above discussion in Chapter 4); secondly, what would be the necessary elements for documentation and the procedural needs for verifying the claims, or possibly to establish common property if the information is shared by several communities; and thirdly, how the decision of the holders of the information on the use made of it can be secured. This question has been discussed above in connection with the

[47] For the terminology, see WIPO/GRTKF/IC/5/12, No. 17.

[48] E.g. the Inuit of Nunavik database, which contains information on their knowledge and use of the land base and resources: see Downes and Laird (1999, p. 5); or the example of the Nicola Tribal Association in British Columbia, which has its traditional knowledge stored in a database, but only the tribal elders have the password to access the information (Dalton, 2002).

[49] See the World Banks IK database on http://www.worldbank.org/afr/ik/

[50] See the examples in Downes and Laird (1999) and the list of databases compiled by WIPO's Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore (IGC) at http://www.wipo.int/globalissues/databases/tkportal/index.html

[51] See the WIPO project to compile TK, which is in the public domain in order to provide an organized and searchable instrument to research prior art for patent examiners.

option to create traditional intellectual property rights (Chapter 5).

- To protect against the misappropriation (piracy) of TK and PGRFA. This would be the question as to the method and extent of documentation in order to prove prior art and ownership in the case of publicly inaccessible information, and prior art in the case of public domain information.
- To facilitate the marketing of, and trade in, TK and traditional PGRFA in order to create incentives for its maintenance. This would entail that in order to advertise which information is meant to be marketed, it must at least in part be made publicly accessible. The challenge in this context is to find a solution for the dichotomy between advertising the existence of the information, and to keep the basic information (if it cannot be otherwise protected) secret at the same time.

The subsequent reflections will focus on the market aspect, taking account of the fact that all the issues mentioned are interrelated. This perspective sheds light on the close connection between registration and access and benefit sharing. In particular the reflections on the streamlining of the procedures in order to promote access (discussed in Chapter 6) have to be taken into account.

In the following, the current discussions and positions of the various involved stakeholders will be described and evaluated. Then, on the basis of two examples, the elements necessary to fulfil stakeholder expectations and, in particular, to make use of registers to promote trade, will be analysed and evaluated.

*Definitions and terminology*

The terms 'documentation' or 'inventory' and 'registration' are often used interchangeably in the current debate on TK. However, it is necessary to differentiate between them.

According to the Oxford English Dictionary, *documentation* is 'the accumulation, classification, and dissemination of information on the material so collected'. Thus, documentation is stocktaking, an inventory of information, recording it in a systematic way. TRIPS defines databases as 'compilations of data or other material, whether in machine readable or other form, which by reason of the selection or arrangement of their contents constitute intellectual creations' (Article 10).[52]

In the context of the documentation of TK, as a rule electronic databases are used. The goal would be to record as much TK answering to the factual criteria specified for the given database.[53]

*Registration*, on the other hand, means to formally set down specific information in writing in a precise manner. A register is thus an ordered collection, repository or list of information that has an official status. The registration of information in a registry puts that information 'on the record'. It records the fact that the registrant asserts a claim to that information, creation, innovation or object. It confers some legal status on the record, which, however, needs to be established in pertinent legislation that specifies the requirements, procedures for application and dispute settlement.[54]

At this point it is necessary to clearly make the distinction between the registers designed for the 'formal' intellectual property rights – such as patents – and the reg-

[52] Having, for the sake of protection, its focus on the creative aspects implied in the design of databases. There are two different aspects of the IPR protection of databases: (i) the protection of the value of intellectual creation represented by the system of the database itself; and (ii) the protection of the content of the database, i.e. the information stored in it. Only the second is taken account of in this context.

[53] Consider the distinction between TK recorded in a database and codified TK. Codified TK, in particular in the field of traditional medicine, is TK which has been disclosed in writing in ancient scriptures and is fully in the public domain, in contrast to non-codified TK which has not been fixed in writing, often remains undisclosed by its holders and is passed on in oral traditions (WIPO/GRTKF/IC/3/6).

[54] See WIPO/GRTKF/IC/2/3 1 July 2001 para. 118; Downes and Laird (1999, p. 5).

isters designed to record traditional knowledge and/or related *sui generis* intellectual property rights.

In the case of patents, the disclosure of the invention and, accordingly, the general accessibility of the pertinent information, is part of the system (see Chapter 3). In the case of traditional knowledge this must not be the case, in particular if the registration has primarily a defensive character in the sense of proof of prior art, and *sui generis* intellectual property rights do not protect the information. But even in the latter case, given the problems of controlling the utilization of TK and PGRFA in industrial R&D, in order to avoid misappropriation, it might be advisable not to publish the details.[55]

It follows from this that in the case of TK it is also necessary to carefully balance the interests and benefits of the holders of the TK against the interests and benefits of society as a whole.

### *Current discussions*

#### THE POSITION OF DIFFERENT STAKEHOLDERS

**Donor countries.** The initiatives to document PGR and associated TK by the donor countries may have different purposes (see, for instance, WIPO, 2001; Ruiz, 2003).

One aspect which is at the forefront of many initiatives is the preservation of knowledge, which otherwise could get lost because of various pressures on traditional culture. This goal encompasses two different aspects: on the one hand, documentation is meant to safeguard the transmission of knowledge to subsequent generations (see, for instance, the Biozulua register of Venezuela[56]). On the other hand, documentation is meant to facilitate the transmission of TK, and to promote the sustainable use of biological resources within the communities.[57]

A second, frequently prevailing, goal is the prevention of the illicit acquisition of intellectual property rights over TK by third parties. Documentation facilitates the proof of prior art or obviousness, incorporating procedures to oppose patents already granted.[58] However, there are also initiatives to make documentation accessible for patent offices for the purpose of prior art searches.[59]

Besides this defensive approach, a more trade-related approach also exists, which places registration in the context of the access and benefit sharing regimes and identifies the goals for promoting the utilization of the stored information through bioprospecting and for ensuring the sharing of the resulting benefits with the local communities.

**The position of custodians of the knowledge.** The holders and custodians of traditional knowledge are displaying increasing concern about the documentation of their knowledge. The fear is that by documenting the information in databases, secret knowledge and traditions could be put into the public domain or more easily accessed by interested third parties, thus promoting biopiracy instead of preventing it.

For instance, in Venezuela indigenous people are claiming that before collection or storage of TK in the Venezuelan databank on indigenous knowledge on flora and fauna (Biozulua) is continued, a decision about its future use is to be taken with their (equal) participation. They protest against the patenting of the collected knowledge *by*

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[55] See below the discussion of the Indian National Innovation Foundation.

[56] See WIPO/GRTKF/IC/3/6, p. 16 and Eugui D.V. (without year).

[57] See, for instance, the Honey Bee Network as described by Gupta (undated a, b).

[58] See, for example, the case of the field bean cultivar, WIPO/GRTKF/IC/5/6, pp. 6–8.

[59] See, for example, the initiatives by the Intergovernmental Committee on Intellectual Property, and Genetic Resources, Traditional Knowledge and Folklore (IGC) to study the feasibility of electronic exchange of public domain TK documentation data through the establishment of international online TK databases; WIPO/GRTKF/IC/3/6 and http://www.wipo.int/globalissues/databases/index.html. As an example at the national level, see the Peruvian Law No. 27811, Articles 5(f) and 23.

*the state* (Dalton, 2002). In India similar attitudes and fears have emerged (Jayaraman, 2002).

In sum, the following arguments are brought forward: first, that it is up to the holders of TK to decide what information is integrated in the database; secondly, that prior to the integration of the knowledge into the database the PIC of the knowledge holders is necessary; and thirdly, that it is the holders of TK who are the ones to decide how the stored information is used.[60]

**The position of industry.** For industry, according to the results of a stakeholder dialogue process on the issue of Intellectual Property Rights in Biotechnology (WBCSD/WZB, 2002), for the purchasers of biological resources and TK, in particular for industrial R&D, accessibility to the information and legal security plays a pre-eminent role[61] (see also Section 7.3).

So, for instance, the chemical industry (European Chemical Industry Council, CEFIC, 2002) believes that it is necessary to create inventories of traditional knowledge for the following reasons:

- Stocktaking of TK, for its conservation and as 'a background on which further innovations may be documented'.
- The determination of public domain knowledge.
- The determination of the possible co-proprietorship between different groups.

CEFIC points to the necessity of identifying the inventor or creator of an information or its entitled owner, including possible collective ownership. It further proposes that rights to TK be created and formally registered, registration being the starting point for the duration of the protection.[62]

In sum, from the users' perspective, registration of TK is welcomed to secure transparency regarding the entitled holders or custodians of the information, to facilitate the ABS procedure and to further legal security.

## ANALYSIS: MULTIFUNCTIONALITY OF DOCUMENTATION OR REGISTRATION (MULTIPLE-PURPOSE DATABASES)

The examples mentioned above illustrate that a variety of (to some extent contrasting) functions and goals of databases exists. One basic distinction, as elaborated upon by WIPO, differentiates between defensive and positive protection.[63]

*Defensive* protection consists of measures aimed at preventing so-called

[60] Mgbeoji (2001), who advocates the creation of *sui generis* rights for the protection of TK, takes the critique a step further. He points out that: (i) the negative protection by publication in the sense of prior art does not go far enough; (ii) the registry perpetuates the unfair economic paradigm that conceptualizes indigenous peoples as mere producers of raw materials and importers of finished products; (iii) he perceives registration as 'reducing the claims of indigenous peoples and non-western local communities to begging for funds'; and (iv) cautions that contracts based on the registry of uses model only provide bilateral protection, neglect the inequality of bargaining power and produce 'paternalistic bureaucracy overseeing the resulting licensing agreements'.

[61] These statements mainly refer to TK in connection with PGR that are of interest for use in pharmaceutical (and related) R&D processes. They do not take account of the situation as to traditional varieties of PGRFA.

[62] CEFIC (2002). Compare also 'Pharmaceutical Executive', September 2002, which takes up the Venezuelan conflict and in principle welcomes the collection of TK in a database, acknowledging that an essential part of the scheme is that the ethnic groups retain the intellectual property rights associated with the plants' healing properties. The databases are considered to be advantageous to the pharmaceutical industry as it makes the 'task of pinpointing potentially useful plants much simpler. … And if the databases become a tool to ensure that the indigenous people who have used the plants receive suitable payments for their knowledge, that will minimise the industry's potential for charges of biopiracy'.

[63] WIPO/GRTKF/IC/3/6, 5–8. WPO/GRTKF/IC/5/6.

biopiracy, i.e. the acquisition of IPR over TK (or products of TK) or genetic resources by parties other than the customary custodians of the knowledge or resources. In order to fulfil this defensive function, the databases need to ensure that the information is available as prior art to search authorities in patent procedures and patent examiners. According to WIPO this would encompass measures to improve the availability of the information, the searchability of the database for instance, by indexing or classification systems, and the exchangeability of TK between databases, in order to facilitate proof of prior art. Likewise it is important to ensure that the information is stored in such a way as to meet the legal criteria to be counted as prior art in the jurisdiction concerned.[64]

Even if defensive protection prevents third parties from gaining IPR over the information, it does not prevent others from using it. So the problem is that by documenting TK, in particular by making possible public access to TK that is otherwise undisclosed, secret or inaccessible, the unauthorized use of it by others may actually be facilitated.

To prevent unauthorized use by third parties, it is necessary to assert *positive* rights to the stored information. According to WIPO, such positive legal protection could consist either in the use of existing IPR, in the development of new *sui generis* rights to TK, or in the use of contractual rights. Such a solution would encompass the rights of the holders to restrict the way TK is used by others or at least to claim compensation for its use.[65]

For these reasons it is proposed to create multiple-purpose databases that serve both the defensive and positive protection of TK and genetic resources.[66]

The third option, which consists of the utilization of databases and registries as marketing instruments to further trade in TK and genetic resources in an *offensive* way, i.e. by displaying or advertising the marketable information, seems not to be considered in this concept.

### *Different emphasis: examples*

#### PERU

The Peruvian law on the protection regime for the collective knowledge of indigenous peoples derived from biological resources, which was adopted in 2002,[67] establishes a *sui generis* protection regime for the collective knowledge of indigenous peoples connected with biological resources (Article 3). A registration system is part of this regime. It consists of three types of register: the Public National Register, the Confidential National Register and the Local Registers (Article 15).

The registers have a twofold purpose: on the one hand they are meant as instruments to preserve the collective knowledge of indigenous peoples; on the other they are intended to serve as a tool to defend the interests of indigenous peoples in their TK (Article 16).

The registration does not constitute rights over the traditional knowledge. All knowledge which is collective in nature, developed by indigenous peoples and which is not in the public domain, irrespective of whether it is registered or not, is protected against disclosure, acquisition or use without the consent of the indigenous peoples who possess it, and against unauthorized disclosure involving a breach of a duty of reserve (WIPO, 2003).

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[64] WIPO/GRTKF/IC/5/6, No 7.
[65] WIPO/GRTKF/IC/3/6 No 6.
[66] WIPO/GRTKF/IC/4/14, p. 2.
[67] Law No. 27811: Ley que establece el régimen de protecctión de los concoimientos colectivos de los puelbos indígenas vinculados a los recursos biológicos, adopted on 10 August 2002; reprinted in English in WIPO/GRTKF/IC/INF/2 Annex III. See also Chapter 2. See WIPO, Advance Copy (2003).

So, there is a certain degree of protection but no exclusive rights are conferred (Article 42).[68]

The Public National Register encompasses the knowledge that is in the public domain (Article 17). Therefore, this register is public. This knowledge is either compiled by the responsible national agency (INDECOPI[69]) that is in charge of it, or contributed to by indigenous peoples (Article 19). The Public National Register has clearly been created for defensive purposes: INDECOPI is obliged to send the information stored in the Public Register to the main patent offices of the world (Article 23).

The second register, the National Confidential Register, is also under the responsibility of INDECOPI. This register relates to collective knowledge that is not in the public domain. Indigenous peoples may apply for the integration of their knowledge in this register. Its main goal is to preserve and safeguard the collective knowledge of indigenous peoples and their rights therein. Accordingly, no third party has access to this register (Article 18).

Finally, the indigenous peoples may organize Local Registers of collective knowledge in accordance with their collective practices and customs (Article 24).

### INDIA: THE NATIONAL INNOVATION FOUNDATION

The Indian National Innovation Foundation (NIF) is an autonomous society, which was set up in 2000. Its goal is to foster and support grassroots inventorship and the maintenance of TK by its documentation and dissemination on a commercial as well as a non-commercial basis. Its structure and objectives are explicitly meant to replicate the philosophy of the Honey Bee Network, which was founded in 1989 as a private initiative (Gupta, undated (a), p. 4). Its main objective is to serve as a knowledge network that pools solutions developed by people on the grassroots level to solve their problems in different sectors.[70]

In the framework of NIF and the Honey Bee Network, documentation is part of a broader strategy that has the goal to serve as a clearing house mechanism to link innovation, enterprises and investments (the golden triangle of creativity (Gupta, undated (a), p. 4)). The Network is backed by the Society for Research and Initiatives for Sustainable Technologies and Institutions (SRISTI), a voluntary organization to provide institutional support, which was later supplemented by GIAN (Grassroots Innovation Augmentation Network, Gujarat). GIAN is a private organization that provides support for the innovators and holders of knowledge in development, marketing and legal protection. NIF is about to set up four more GIANs in different regions of the country.

The activities of NIF encompass: the scouting and documentation of innovations and outstanding examples of TK; verification of the claims; obtaining PIC from the providers of the knowledge; and sharing the innovations permitted in the public domain.

So NIF initiates value addition, helps to develop product development plans and to generate funding, and facilitates the development of the product by development teams on a contractual basis. It further assists in concluding licensing agreements and in matters concerning IPR, and helps the promotion and marketing of the product.[71]

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[68] Collective knowledge is considered to be in the public domain when it has been made accessible to persons other than the indigenous peoples by mass communication media, or when its properties, uses or characteristics have become known extensively outside the confines of the indigenous peoples and communities (Law No. 27811, Article 13). That means, for example, that the publication of the information in a scientific paper does not put it in the public domain.

[69] Instituto Nacional de Defensa de la Competencia y de la Protección de la Propriedad Intelectual.

[70] See NIF homepage http://www.nifindia.org/activity1.htm#sd

[71] See NIF homepage http://www.nifindia.org/activity1.htm#sd

Accordingly, the resulting database (the National Register of Grassroots Innovations and Traditional Knowledge), which is the centrepiece of this system, is meant to serve as a tool to: (i) acknowledge individual and collective creativity; (ii) grant entitlements to grassroots innovators [and holders of TK] to receive a share of returns that may arise from commercial application of their knowledge; (iii) link investments, enterprise and innovations, in particular to help small-scale investors at the local, regional or national level to explore opportunities for investment; and (iv) build linkages between excellence in formal scientific systems and informal knowledge systems.[72]

ANALYSIS

Considering the various functions of documentation and registration of TK, which might be: (i) its preservation for the sake of the custodians and their descendants; (ii) defensive protection against illicit appropriation by IPR; (iii) positive protection, which also protects against unauthorized utilization of the information; and (iv) the offensive function, fostering marketing, the following lessons can be drawn from the two given examples.

The *Peruvian system* takes account of the different degrees of protective needs in creating different types of register, the Public National Register being the only one that is generally accessible. Thus the emphasis lies rather on the defensive function, and on the aspect of the preservation of TK. This last function is highlighted by the option given to the communities to create their own local, community registers. The autonomy of the communities to decide whether they want to make use of the facilities made available by INDECOPI is of great importance. This is underlined by the fact that there is no need for registration in order to get the information protected legally, as the law grants *sui generis* protection for all collective TK that is not in the public domain (Article 42).

On the other hand, the option to foster the wider application of TK and the sharing of the resulting benefits is not implemented very prominently in the Peruvian law. Only the National Public Register, in which public domain knowledge is documented, is openly accessible. However, its use only sets off a benefit-sharing mechanism if the knowledge has been in the public domain[73] no longer than 20 years (Article 13). Whether the national register might be of use for the marketing of the stored information also depends on its accessibility in the sense of the searchability of the database, for instance, by way of indexing or classification systems.

An element in the Peruvian legislation facilitating ABS and trade might be the obligation that the application for registration has to be made through the representative organizations of the respective community (Article 20) and that the law provides for a dispute settlement mechanism against third parties, including between indigenous peoples (Articles 45 and 46).[74] Thus the holders of the registered information and their representatives are identified to a certain degree, and it is also probable that the decision-making procedures regarding collective TK within the community have been

[72] See also the recent initiative by Asia–Pacific nations to create a network for sharing expertise in communicating and marketing indigenous knowledge; SciDevNet, 29 September 2003 (http//www.scidev.net/News/index.cfm?useaction=readNews&itemid=1026&language=1).

[73] See note 69 above.

[74] Here it might be a problem that the information of other communities possessing the same knowledge is only necessary at the moment of engaging in negotiations. There is only a duty to inform and to take due account of their interests and concerns, but no regulation as to common negotiations, benefit sharing or approval of the other communities; Article 6 (see also Tobin and Swiderska (2001) p. 44).

established.[75] However, a legal obligation to inform communities holding identical knowledge is only set off at the moment negotiations are opened (Article 6). This might complicate and draw out the negotiations.

The system of documentation found in the Indian NIF has a different emphasis. The basis is acknowledgement of the creativity and skill of grassroots inventors and custodians of TK, and of the diffusion and sharing of knowledge for fostering communication and learning, to create synergies in the solution of problems, and thus to improve the livelihoods of 'knowledge rich economically poor' (Gupta ?) people. This strong communicative element is also inherent in the second element characterizing the network, which is the empowerment of holders of the information by fostering the development and commercial use of the information stored in the database. The goal is to apply information technologies to 'democratise knowledge, reduce transaction costs of innovators, potential investors, and entrepreneurs' and to build 'bridges between the excellence in formal and informal science' (Gupta, undated (a)).[76]

So, the system of the NIF has a strong communicative character. The main goal is to create networks between holders of TK and inventors at the grassroots level, but also to connect informal and formal science, technology and invention and to disseminate the information to potential buyers or investors as well. The conflict between the dissemination and protection of the documented information is obvious.

This system is specific in two ways. First, the pre-eminent paradigm is the idea of communication and networking, which also applies to the goal of fostering trade of the information stored in the documentation. Secondly, it perceives the mechanism of access and benefit sharing as a pre-eminently intra-national opportunity and responsibility (Gupta, undated (a), p. 2), creating business opportunities especially for small investors and entrepreneurs, thus deviating from the 'classic' picture which involves a North–South and a (multinational) industrial company–local community scenario.

The objective of preservation of TK for the sake of traditional uses within the communities, and the defensive function, seem to be less prominent. The example of the village of Pattuvam in Kerala (see Chapter 3), which took the initiative by itself to document all of its biological resources, but then did not make the information available to outsiders other than local communities, may be an indicator of the necessity and usefulness of this type of register.

According to these premises, the defensive protection against illicit appropriation by IPR and the positive protection against illicit use are more difficult to implement.

For this reason NIF has developed an elaborated procedure of PIC, which consists of a Prior Informed Consent form and an accompanying explanatory note. The goal is to 'balance the twin goals, partly in conflict, of dissemination and promotion of [the] … innovation/traditional knowledge so that other communities and individuals can benefit from it, vis-à-vis the protection and potential commercialisation of the same through contractual arrangements'. It is explained that this procedure is meant to fill the gap of the lack of intellectual property protection for grassroots innovation and traditional knowledge (National Innovation Foundation, undated (a and b)).

The PIC form serves to obtain written consent and authorization from the knowledge providers to disclose and add value to the information submitted for inclusion in

[75] As to the importance of this element for the ABS process, see Chapter 7 and the case study by Baruffol (2003).

[76] The work of Honey Bee and NIF is motivated by a strong background of development and social change. Gupta argues 'that we need a new paradigm of envisioning social change and development built around overcoming information asymmetries. Knowledge can indeed become a means of power if coalition/networks of relevant actors evolve … networks which connect information, institutions, incentives with innovations and enterprises' (Gupta, (a) p. 7).

the register. It contains questions as to the degree of publicity; the competence of NIF to negotiate or mediate for the development, marketing and legal protection of the innovation or knowledge; identification of the type of beneficiaries of benefit sharing; and negotiation on the interface between community and individually developed knowledge. The advantages and risks of partial or full disclosure are clearly described in the explanatory note. So, for example, it is clearly stated that even a partial disclosure or a disclosure only in summary form may bear the risk that the idea may be used by third parties, if this is possible on the basis of the disclosed information alone.

*Registration as a marketing tool?*

From both of the above examples, on the utilization of documentation and registration devices for fostering marketing and trade, certain lessons can be learnt.

The harnessing of documentation and registers for utilization as marketing tools has two different facets: one concerning the internal relationship to the providers of the information, and the other in view of the accessibility of the stored information for prospective interested investors, entrepreneurs or buyers.

If documentation and registration is evaluated according to this perspective, it becomes apparent that the central issues to be resolved are the following:

- It must be possible to clearly allocate the information to its holders: to this end, the legitimate holder(s), which can be an individual, a community or several communities, are identified and the question of their representation in the negotiation process resolved.
- It is necessary that the holders approve of the marketing of their knowledge and agree with the utilization of the registers as a marketing tool.
- It is necessary to find ways and means to resolve the conflict or dichotomy between the defensive and the offensive functions of the databases, i.e. between the prevention of the unauthorized utilization of the information by third parties and the dissemination of the existing information to foster its use by outsiders.

It is submitted that one of the basic prerequisites to transforming TK databases into positive marketing tools on the 'internal' side is to secure the trust of the holders or custodians of the information. This implies various facets.

The autonomy of the holders/custodians of the knowledge in deciding about its use must be secured. In particular the option to keep the knowledge secret and/or to document it only for the sake of preservation within the community must be granted. The measures envisaged must be transparent, the prior informed consent for the further steps in the value-adding chain be secured, and the holders be involved in or informed about further steps as they wish. Control over the stored information must be assured. The possibility of retiring information from the database must be given.

These criteria imply a bottom-up approach. In order to facilitate the active participation of the holders and custodians, capacity-building initiatives on the side of the holders/custodians of the information, as well as for the designers of the registers and databases, are necessary.

In any case, the dichotomy between the twin goals of dissemination and protection of the information must be balanced and the solution made transparent for the custodians/holders of the knowledge. A clear legal basis which defines the ownership of the registries, including the right to define access and the rights to the information stored in the registries, would provide transparency and legal security, and thus contribute to this end. The option of *sui generis* intellectual property rights is to be evaluated under this viewpoint too. The rather complicated PIC procedure in the Indian example amply demonstrates the advantage of such a system for information that is meant to be traded.

Considered under the viewpoint of prospective investors, the accessibility of the information and the ease of the negotiations may play an important role. Accord-

ingly the following elements are deemed to be of importance: (i) the clear identification of the representatives or entities competent to negotiate upon the utilization of the information. If there are several individuals, a community or several communities involved, it may be helpful if the procedures to reach decisions are clear from the outset. (ii) The database is easily accessible; the stored information is classified according to market-relevant criteria.

For the sake of equity, in order to create a level playing field and to become operational in a broader trade context, registries ought to be embedded in devices supporting the holders of the information in negotiating and enforcing the (licence) contracts, and facilitating the marketing of the information. The two model devices presented and discussed below are to be seen in this context.

### 6.3.2 Collecting societies[77]

#### *General considerations*

This section analyses the most efficient methods for implementing intellectual property rules to achieve the policy goals underlying the granting of exclusive rights to traditional knowledge holders relating to plant genetic resources. These goals include equity- and biodiversity-related considerations as well as the public interest objective of maintaining, promoting and disseminating traditional knowledge to the benefit of society at large. So far we have explored some of the complex issues related to the allocation of intellectual property titles to holders of traditional knowledge relating to plant genetic resources. From the perspective of local communities, the process of obtaining exclusive rights requires a corresponding knowledge of the functioning of the intellectual property system. Without such knowledge, concerned individuals and communities will not be able to take full advantage of the system for the purposes of obtaining the rights, managing, commercially exploiting and, as the case may be, enforcing them (Leestli and Pengelly, 2002).

##### COMMERCIALIZATION

There are two main approaches for the commercial exploitation of intellectual property titles: the right holders can perform this task by themselves, or can assign it to a third party, such as a publisher, who performs this activity on a professional basis. In both cases, commercial exploitation means that all the necessary tasks in bringing the protected work to the user in exchange for remuneration are fulfilled. In addition to entrepreneurial skills, this also requires legal knowledge with respect to contract negotiation and enforcement. The broader the scale of the commercial exploitation of the intellectual achievements, the more international their exploitation is likely to be. This cross-border feature, in turn, requires that the entrepreneurial and legal know-how of rights holders be accordingly sophisticated. One must become familiar with foreign business and legal environments, or work with local partners who have the necessary prerequisites in order to appropriately access new markets. Even if rights holders do not want to become active outside of their neighbouring environment, they may want to keep track of and control over the uses performed by third parties with respect to their intellectual property. They will probably at the very least want to avoid third parties registering their rights, which, in the worst-case scenario, could eventually even impede their own further use of them (in order to reduce such risks so-called 'defensive rights' should be provided for, see point (b) below).

##### ECONOMIC VALUE OF IPR

Obviously, intellectual property rights can be expensive to manage, especially on a large scale: the cost of negotiating licences,

[77] Author: Christophe Germann.

collecting royalties, litigating infringements and fighting against piracy on a worldwide level are high. Private players have an interest in assuming these costs if they are either able to recoup them, or if they need to protect their exclusive rights in order to bargain them for third parties' rights that are necessary for their own business purposes.

As a matter of fact, copyright and patent protection is not only a competitive advantage granted in exchange for a qualified creative or innovative effort, but also a kind of commodity in corporate practice, i.e. a value that is subject to trade. A product or a service typically requires a multitude of tangible and intellectual components. The producer or service supplier may not own all of such components and therefore must acquire them from third parties. Subject to competition laws, if these third parties are competitors they may refuse to enter into an agreement authorizing the use of their intellectual property. For example, if compulsory licensing is not an available option, production could be jeopardized, unless one can bargain with one's own exclusive rights, which are necessary to the competitors for their products or services. In the latter case, competitors proceed to an exchange of titles commonly called 'cross-licensing': where competitor A is authorized to use competitor B's patented invention for their product and vice versa.[78]

Coming back to the classic value of exclusive rights manifested as a competitive advantage limited in time, we face two main scenarios: either the intellectual property owners recoup their investments into creativity and innovation (research and development) by marketing the protected goods or services themselves, or they sell the rights to third parties. To summarize, in practice exclusive rights appear as tools, to allow their owners: (i) to negotiate a better price for their innovative or creative achievements; (ii) to bargain for third parties' intellectual property titles; (iii) to obtain competitive advantages *vis-à-vis* competitors; and (iv) to exclude free riders. These four benefits or opportunities designed for innovators and creators acting within the framework of an industrialized society arguably have only a limited relevance for holders of traditional knowledge related to plant genetic resources. If TK holders have no intention of commercializing their traditional knowledge on a scale that exceeds the immediate environment, then all four benefits and opportunities are lost to a large extent. In this situation, the only incentive for TK holders to seek protection is to enable them to have a title, which they can enforce as a so-called 'defensive right' against a third party who has usurped their rights (for instance, against a corporation that has been granted a patent for an invention that was based on the holder's traditional knowledge). The TK holder is thus obliged to participate in the intellectual property system in order to simply defend the *status quo*.

### 'MARKET ACTIVATION'

To achieve results that go beyond a merely defensive position from this system, TK holders should adopt a proactive approach. Exclusive rights can generate the above-listed benefits and opportunities (a) to (d). However, these rights have no value if the creative or innovative achievements are not marketed. Intellectual property rights can provide an incentive for commercialization. However, in the absence of commercialization, such rights have only a potential value. In order to reach the desirable policy goals underlying the granting of intellectual property rights, i.e. in our specific case including an increase in equity between the North and the South, the maintenance of traditional knowledge as a global public good, and indirectly, beneficial effects on bio-diversity, the so-called 'market-activation' of exclusive rights becomes necessary. If holders of traditional knowledge refuse to play this game, exclusive rights will not procure any of the contemplated benefits and opportunities listed above. Here we are

[78] See Section 3.3.6, this volume.

faced with an issue that is cultural in addition to being commercial. In this context we can refer to the Suva Statement of April 1995 and the Coica Statement of September 1994, which consider the intellectual property system as a colonialist instrument.[79] On the other hand, appropriate institutions are required to implement a level playing field when TK holders agree to act according to the rules of the intellectual property system, as adapted to their specific needs.[80] Such a fair environment for the exchange of traditional knowledge in consideration of other values such as money, technological transfer or innovative goods and services, requires an institutional interface between TK donors and receivers.

### *Collecting societies as a possible model*

#### INDIVIDUAL AND COLLECTIVE RIGHTS MANAGEMENT

A distinction must be made between the individual and collective management of rights. In the former case, the right holders or their assignees or licensees grant authorizations to use the intellectual property on a case-by-case basis. They conclude the agreement and collect the royalties personally. In the latter case, a separate entity such as a collecting society grants these authorizations on behalf of the right holders on a general basis, most often in the context of large-scale commercial exploitation of the work. As opposed to the situation that occurs in the field of technological innovation, we currently find the institution of collecting societies in the area of creative achievements that enjoy copyright protection (works of literature and music, films, software, etc.). This institution provides indispensable services to right holders as well as users, especially where mass reproduction and representation of the works are concerned.

#### THE FUNCTIONS OF A COLLECTING SOCIETY

We suggest that inspiration be taken from collecting societies for the purpose of designing this institutional interface. The functions of collecting societies include:

- The negotiation of tariffs for the use of specific intellectual property rights.
- The gathering of royalties from licensees and the distribution of royalties to licensors.
- The enforcement of exclusive rights and the building of capacity amongst owners and users of rights.

In the majority of jurisdictions, collecting societies act as independent private bodies, which are subject to public scrutiny through various administrative and judicial forms of control, including competition law mechanisms.[81] New technologies may contribute towards lowering the cost of rights management and thus reducing the bureaucracy that is generally inherent in larger collecting societies.

#### THE FUNCTIONS OF PUBLISHERS AND COLLECTING SOCIETIES

As mentioned, the commercial exploitation of intellectual property in the field of authors' rights or copyright may be assumed either by the original rights holder, or by a publisher who assumes the exploitation of the rights based on a corresponding assignment or licence agreement. In the former case, the original creator grants the authorization to use the protected work directly in exchange for money or other benefits. In the latter case, the original author assigns this task to a publisher. The publisher typically invests in the reproduction and, as the case may be, in the distribution and marketing costs. The publisher will pay the author either a flat fee

[79] Final statement from the UNDP Consultation on Indigenous Peoples' Knowledge and Intellectual Property Rights of April 1995 (Suva Statement) and Coica Statement of September 1994; these statements are quoted in Nordmann (2001).

[80] The Mataatua Declaration on Cultural and Intellectual Property Rights of Indigenous Peoples of 1993, for example, adopts a favourable approach to IPRs; see Nordmann (2001).

[81] See, for example, the Swiss copyright act in the CLEA database http://clea.wipo.int/clea/lpext.dll?f=templates&fn=main-h.htm&2.0

and/or, in case of a profit participation arrangement, a share of the revenues generated by the sale of the protected work. Publishers usually deal either directly with wholesalers or retailers, or via distributors. In addition, for certain types of exploitation, collecting societies may act on behalf of original rights owners and their successors or assignees in a legally binding way.

In the area of authors' rights or copyright under continental law, collecting societies have a long-standing tradition. In France, the first collecting society, Société des auteurs et compositeurs dramatiques (SACD), was founded in 1776. In fact, the management of exclusive rights for the purposes of representing a copyrighted work requires a collective approach in order to be economically rational. Further, in cases of representation, a production such as a musical or theatre play may be shown simultaneously in several places. On the other hand, the individual management of exclusive rights pertaining to the reproduction did not cause difficulties until recently and could therefore be assumed on an individual basis. For this reason, the collective management of rights appertaining to certain forms of mass exploitation became compulsory by law, for example, music dissemination through television and radio broadcasting and a levy on blank cassettes.[85] Nowadays, with the advent of new digital reproduction and dissemination techniques, the management of these rights is substantially even more complex. In many areas of commercial exploitation it is therefore neither in the interests of the right holders, nor of the rights users, to manage certain rights of reproduction on an individual basis.

Modern collecting societies grant the authorization to use copyrighted works for purposes that have been specifically determined, i.e. to gather royalties from users and distribute them to the entitled rights holders, to provide legal advice and to defend the common interests of their members in court and during the political and legislative decision-making process. In addition to these classical functions of collecting societies, today they also contribute to capacity-building amongst rights owners and users as well as assuming certain functions that promote social and cultural concerns. In this way, these collecting societies act as an interface between authors and users, and, in a broader sense, society at large. In many jurisdictions, their management is subject to supervision through the public administration or the courts.

The collecting societies' internal distribution modalities of the revenues among the right holders are in most jurisdictions subject to state control. These measures ensure transparent and fair procedures. This feature arguably meets the specific needs of TK holders (communities and individuals) who often have neither the means nor the will to enforce their rights among each other. We recommend that policy makers further explore whether adapted forms of collective society could work as an interface between local holders of traditional knowledge related to plant genetic resources and third party users. These users may be individuals or corporations having a commercial or academic interest in traditional knowledge. In this context, one may envisage different roles for collecting societies to be set up, specifically in order to facilitate the interaction between holders of traditional knowledge and users. Such institutions must be designed to fulfil several goals. First, these collecting societies could be instrumental in raising the awareness of holders of traditional knowledge on the intellectual property system and the benefits that this system may procure them. Secondly, these collecting societies could enter into agreements with TK holders in order to manage their rights within a clearly defined framework. This management would provide authorization for interested third parties who wish to use the rights, collecting royalties for this and distributing them to the right holders. Thirdly, collecting societies could enforce the rights of TK holders against infringing parties. Fourthly, collecting societies may act as know-how centres, advising their

[82] See Swiss copyright act, note 81 above.

members with respect to individual management of rights, contract negotiations or litigation. Eventually, they can contribute to the elaboration and articulation of their members' common interests, and promote these interests as policies in the political and legislative context. In this position they would act as liaison between TK holders and society at large.[83]

### *Domaine Public Payant*

In addition to the forms of intellectual property protection for traditional knowledge related to plant genetic resources that we have outlined so far in Chapter 3,[84] policy- and law-makers may also envisage the implementation of the concept of *Domain Public Payant*. This mechanism subjects certain transactions to a levy even if the intellectual values at stake are already in the so-called public domain. This concept applies to systems such as the levy on blank cassettes, known in many jurisdictions in the field of copyright. The blank cassette levy, for example, overcomes the impossibility of exactly assessing mass private copying of copyrighted content.[85] This system imposes a fee on the sale of blank cassettes to consumers. The revenues coming from this levy are distributed through collecting societies to the right holders of protected content based on a distribution key that takes into account the popularity of the content measured in other contexts.[86] This system is arguably much less cumbersome to implement than the patent system, and relies on agreed-upon average figures for the distribution of royalties. It nevertheless requires the definition of traditional knowledge that falls under the scope of protection (for instance, all neem farmers) and a consensus on how to distribute the revenues among the right holders, based upon the value of their respective contributions.

### *Further considerations*

Appropriate collective rights management institutions should be conceived and set up in order to implement intellectual property laws and policies that are adapted to protect traditional knowledge related to plant genetic resources. These organizations could be modelled upon collecting societies in order to act as interfaces between various legal cultures to promote the understanding of different systems and collaboration during the pursuit of public policy goals. In concrete terms, they should advise their members, represent their interests, manage rights (collection and distribution of royalties), and coordinate and monitor international prior art search mechanisms ('defensive rights' advocacy).

A system of collecting societies that is similar to the one in place in the area of copyright may contribute to better implementation of the various kinds of intellectual property laws and policies contemplated in the context of the management of rights on traditional knowledge related to plant genetic resources. Collecting societies could negotiate individual licence agreements as well as tariffs for mass use. In addition to the classical tasks assumed by collecting societies, this infrastructure could also work as a registration office for the rights at stake. Users would have the possibility of seeking rights clearance from a single entity that has both the capacity and the legitimacy to give genuinely prior informed consent (PIC) on behalf of the rights holders. This type of function implies that the collecting society should be liable *vis-à-vis* the rights holders

[83] See, for example, the various services provided by the Swiss collecting society for audiovisual works Suissimage: http://www.suissimage.ch

[84] Compare also World Intellectual Property Organization (WIPO), 2001.

[85] Another form of levy concerns the sale of photocopying machines, and the number of photocopies made by owners of such machines. The revenues generated by this levy are typically distributed amongst writers.

[86] For example, the composer of more popular songs, as expressed in market shares of compact discs, will receive a bigger share from the blank cassette levy since one may imply that his songs will be more often privately copied by the users.

with respect to the PIC that they grant to users. In practical terms, this means that rights holders have a legal entity that they can sue in case of non-compliance with PIC-modalities, based on predictable rules of law. It arguably would represent a substantial improvement to a claimant's situation in the case of litigation, so long as the defendant is located in the same jurisdiction. The defendant, in turn, would have recourse against the users. In this situation, the collecting society is likely to have a better financial standing than the original rights owners when fighting for relief against infringement by users who may be powerful corporations located in a foreign jurisdiction. Finally, the more efficient enforcement of rights over traditional knowledge relating to plant genetic resources will, in turn, improve compliance with such rights.

Classical collecting societies are designed primarily to facilitate the management of mass exploitation of rights, i.e. where the mass of users makes it no longer rational to commercially exploit the rights on an individual basis (for instance, broadcasting or blank cassettes). This type of commercialization may not always be relevant for most TK holders. However, the other features of collecting societies, the publicly controlled distribution of monies, could be of great benefit to TK holders for obvious transparency and fairness reasons. As opposed to arrangements inspired by publishing agreements, the collective gathering and distribution of royalties is likely to fulfil both an efficient management of rights and an equitable distribution of the revenues among TK holders.

### 6.3.3 Clearing house mechanisms[87]

As concluded above, the mere documentation and registration of TK and PGRFA does not necessarily lead to an increasing demand from the purchaser side,[88] and the presently existing national regimes on Access and Benefit Sharing seem to hinder rather than promote trade relationships (see Chapter 6).

It was concluded that an essential element to fostering trade in TK and related biological resources is the minimization of transaction costs in time, manpower and investment. Therefore, transparent and swift procedures, based on clear rules in order to promote legal security and minimize risks, are asked for. In addition, the fact has to be taken account of that trade in biological resources and associated TK frequently takes place at the interface of different cultures, including of course different legal cultures. Negotiations, in order to be successful, need to be built on a basis of trust and mutual understanding. This corresponds to the emerging insights into the value of the 'social capital', in this case the value of human networks that facilitate transactions (Krattiger, 2004). According to Krattiger, 'in order to get something used by as many people or institutions as possible, one must sell or license it. This requires transactions, and these happen between people who know, trust, and value each other' (Krattiger, 2004, p. 9).[89]

In turn, the discussion of the documentation and registration systems has shown the importance of a proactive approach to furthering trade. The mere documentation of the information, or its protection by an IPR, does at most serve a defensive end, but is commercially quite useless if nobody is interested in buying. Accordingly, it was concluded that, if the idea of market-based incentives for sustainable use of biodiversity was to bear fruit, it is necessary to think of additional strategies and devices to support communication and exchange.

Various institutions and instruments have been proposed under different head-

[87] Authors: Susette Biber-Klemm and Jonathan Curci.

[88] For the experience of the countries of the Andean Pact, see Ruiz (2003, pp. 2, 5–7).

[89] One of the above-cited examples, the Indian NIF (National Innovation Foundation (www.nifindia.org, accessed 5 February 2006)), has its emphasis on this communication-oriented networking between the stakeholders involved in the innovation processes regarding/integrating traditional knowledge and genetic resources.

ings to this end. Krattiger and Lesser (1995) put forward the function of a 'facilitator' to strengthen the equitable and sustainable use of biodiversity. Drahos (2000) recommends the creation of a 'global bio-collecting society'; and Krattiger (2004), in his recent discussion on means to facilitate biotechnology transfer, analyses a broad range of instruments, from different types of clearing houses and technology transfer agencies to brokers and other types of facilitators.

In spite of the varying designs, the instruments are meant to support the same underlying goal, which is the promotion of the networking and matchmaking processes between prospective sellers and buyers of goods and the fostering of equitable transactions.

This will be discussed in more detail, based on the model of the 'clearing house mechanism' (CHM) as a starting point. First an overview over the different types of CHMs in the field of biodiversity and TK will be given. On this basis, secondly, two proposed models will be described and the additional elements that would have to be integrated into a CHM specifically aimed at fostering trade in TK and related biological resources analysed and evaluated.

### *What is a clearing house mechanism?*

The term 'clearing house' is originally linked to bank jargon referring to financial establishments where cheques and bills are exchanged among member banks so that only the net balances need to be settled in cash. This term has been extended to identify any agency that brings together seekers and providers of goods, services or information, thus matching demand with supply. In the wake of the electronic revolution, the advances made in the development of the Internet and in the fields of information management technology and computer networking, the virtual communication system is made use of to create online clearing house mechanisms (CHMs), creating worldwide information networks. The concept promotes the advertising, discovery, access, dissemination and use of information and data held by numerous organizations, using the decentralized capabilities of the Internet.

A CHM typically consists of different 'nodes', i.e. participating sites, which usually are coordinated through a central node. The function of the central node is to facilitate and coordinate the decentralized nodes, by for example creating common protocols, linking the different nodes, designing and providing structured queries and searches to member sites and translation services. The responsibility for the decentralized nodes remains with the initial providers, and the central node typically is to remain independent, its operators having no interest in controlling or selecting the information.

CHMs are also being created within the framework of Multinational Environmental Agreements[90] to foster technology transfer or as a tool for capacity-building, and within WIPO to facilitate research in IPR-related matters.

### *CHMs in the realm of TK management: the CBD CHM and the WIPO Platform*

#### THE CBD CHM

The CBD's clearing house mechanism was established to promote and facilitate technical and scientific cooperation within the scope of the Convention,[91] namely to further the Convention's three objectives of conservation, sustainable use of biodiversity and fair and equitable sharing of the benefits resulting from its use. This will foster the development of a global mechanism for exchanging and integrating information on biodiversity and of the

[90] See, for instance, the CHM of the CBD (http://www.biodiv.org/chm/default.aspx), and of the Biosafety Protocol (http://bch.biodiv.org/Pilot/Home.aspx) and the CHM of the GPA (Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (http://www.gpa.unep.org/links/default.htm). See also the overview in Krattiger (2004, pp. 3, 18–31).

[91] CBD Article 18(3) and Conference of the Parties to the Convention on Biological Diversity, Decision I/3.

necessary human and technological network.[92]

So the CBD CHM has a twofold objective: first to provide improved access to information, and secondly to foster technology transfer, i.e. to promote scientific and technical cooperation.[93] According to the Strategic Plan,[94] this involves use of the CHM for identifying, developing and promoting opportunities for collaboration.[95] This is to be reached by, for example, providing a collaboration promotion mechanism that institutions, experts and service and technology providers can use to introduce themselves, and to identify areas of potential collaboration which they are interested in pursuing.

Thus the CBD CHM, which originally was based on Article 18.3, promoting mainly technical and scientific cooperation, also includes the objectives of Article 17 on exchange of information.[96] According to Article 17, this exchange is to encompass the results of technical, scientific and socio-economic research, information on training and surveying programmes and specialized knowledge, including indigenous and traditional knowledge as such and in combination with biotechnologies. This exchange is limited to information from publicly available resources (Article 17.1).

Decision VI/18 has further spelled out the aspect of exchange of TK. It asks for the development of specific communication networks, in the sense of a thematic focal point, for the use of indigenous and local communities. These networks are explicitly not to be used as repositories or for the public exchange of traditional knowledge (Dec. VI/18; UNEP/CBD/AHTEG/TK-CHM/1/3, Annex I). According to the *ad hoc* technical expert group on traditional knowledge and the clearing-house mechanism, its objective would be to support initiatives of indigenous and local communities in the use of communication technologies and networks to enable information sharing, mainly between the indigenous groups themselves, and to establish links between the many existing networks.[97]

Hence, the CBD CHM has a broad approach, going beyond the 'classic' concept of the CHM. It aims at supporting the implementation of the entire range of goals of the CBD and at fostering communication processes within the political debates. It not only promotes information exchange but offers additional services: it initiates capacity-building and supports the implementation of the CHM at the regional and national level. In its objective to connect people in order to promote collaboration, it comes close to the model of the NIF register described above.

### THE WIPO ONLINE PORTAL

The WIPO Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore (IGC)[98] at its third session established online inventories and databases, containing TK databases and compilations of other information relevant for the inter-

[92] Meeting of the Informal Advisory Committee, Clearing-House Mechanism of the Convention on Biological Diversity, Canada 11 November 2001, UNEP/CBD/CHM, available at http://www.biodiv.org/doc/meetings/chm/chmiac-2001/official/chmiac-2001–11–11–ann-agenda-en.pdf Compare also the CHM strategic plan (UNEP/CBD/COP/5/INF/3 and doc. UNEP/COP/7/Inf/12, p. 1).

[93] This second aspect has been particularly emphasized by COP VII (Decision VII/23).

[94] A.a.o. note 95.

[95] Decision-making tools and processes, training and capacity-building, research, funding, access to and transfer of technology, repatriation of information.

[96] For the chronology of the CHM establishment and development, see UNEP-WCMC, CHM Review Project, Final Report, UNEP/CBD/COP/7/INF/12.

[97] See the compilation in doc. UNEP/CBD/AHTEG/TK-CHM/1/3.

[98] The WIPO Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore (the 'IGC') was established by the WIPO General Assembly in October 2000 (doc. WO/GA/26/6) as an international forum for debate and dialogue concerning the interplay between intellectual property (IP), and traditional knowledge, genetic resources and traditional cultural expressions (folklore).

face between TK and IPRs. This portal encompasses the following databases:

- A non-exhaustive inventory of TK-related periodicals.
- A non-exhaustive inventory of TK-related databases.
- Online Databases and Registries of Traditional Knowledge and Genetic Resources which include hyperlinks to databases on TK and PGR compiled by China and India, to the TK database of the World Bank and the CGIAR's (Consultative Group on International Agricultural Research) genetic resources database.

The portal is a pilot project, meant to facilitate the study of intellectual property issues resulting from the establishment, management and use of such databases. In particular, the objective of the portal is to provide a trial product through which users can test in practice the potential of traditional knowledge databases for improving the availability of traditional knowledge as prior art, in particular the efficiency of online searches for prior art investigations by patent examiners (WIPO/GRTKF/IC/3/6). So the rationale behind the project is a purely defensive one, the portal encompassing only databases and references to databases which document TK in the public domain. This reflects the problem of the disclosure of publicly inaccessible TK by registration, as long as no positive protection exists, a topic which was prominent throughout the debates on the online databases in the IGC (WIPO/GRTKF/IC/3/17).

A capacity-building tool on the IGC website is the online, searchable database of biodiversity-related Access and Benefit-Sharing Agreements – a selection of model agreements and MTAs and a sample of actual ABS and licensing agreements – all with a particular emphasis on the intellectual property aspects of such agreements.

Thus the WIPO site corresponds more closely to the classic pattern of a CHM.

*CHMs to facilitate trade in TK: examples*

The goals of a TK CHM, which are to foster technology transfer in a broad sense, and the marketing and trade of PGR and TK, are broader than the above-described CHMs, even if some elements are rather similar. The specifics and objectives of a CHM for trade in traditional knowledge and associated PGR originate in the complexities and intricacies of the bioprospecting process. Bioprospecting is a long-term venture, taking place between different systems of innovation, which might also be geographically wide apart and are based on different cultures, including different legal, business and negotiation cultures, with a lack of know-how and opportunity to procure the relevant information for both providers and purchasers.

Krattiger (1996, p. 9) understands the transfer of TK and genetic resources as 'reverse' technology transfer (technology transfer also defined as geographic movement of productive capacity), but with significant differences: the transfer is predominantly South–North and secondarily South–South; the materials are natural products and the related know-how creates technical and institutional complexities (see also Krattiger, 2004, p. 30) as they follow patterns differing from the access to resources such as, for example, minerals.[99]

According to Drahos (2000), the relationship between provider and purchaser of information is characterized by a great amount of uncertainty and imperfect information on both sides. He mentions the uncertainty of a specific compound achieving marketing maturity, or the difficulty of indigenous groups in knowing the value of their knowledge and in judging whether the use made of it will be consistent with their cultures. The information necessary to reduce uncertainty and risk includes a broad range of elements, such as what information is traded, who is the owner of the information, information on the IPR-systems and on the means of tracking patent procedures and of controlling infringements.

[99] One of the main differences being the physical impossibility of controlling access (see Ruiz, 2003).

Both start out from the insight that the specifics of the trade relationships in matters of resources and traditional knowledge held by indigenous and local communities require specific support mechanisms. Drahos points out the 'intriguing and potentially unstable combination: some of the world's most globalised and hypermodern companies seeking deals with some of the world's most local and traditional people'. Accordingly they identify as basic goals of such a mechanism the promotion of equitable relationships between providers and buyers. In this context, Krattiger and Lesser (1995) point out the necessity of valuing the contribution of the providing countries,[100] i.e. to improve the market operations so as to reflect the legitimate contributions of genetic resources and value-added activities by the source countries and to assist in the determination of the value of TK for the groups that choose to share it (p. 212).

A second important point is to minimize risks and transfer costs, inherent for both parties in these transactions, given by the specific character of the technology transfer (Krattiger and Lesser, 1995, p. 212)[101] and the relative novelty characterizing the legal side of these transactions. Drahos (2000) perceives the risks as resulting from imperfect information on the value of the information on the side of the providers, and the uncertainty of the development of a marketable product on the side of the purchasers (p. 3).

Accordingly, to make supportive mechanisms operational for both TK providers and buyers, a series of specific prerequisites and objectives must be fulfilled.

- The basic objective would be to create a level playing field between traditional innovators and/or holders of biological resources and TK, and the bioprospecting companies, entrepreneurs or investors. To this end, capacity-building for both sides is needed – to provide negotiating skills and to bridge the cultural gap between the parties. This function might also be taken over by an intermediary, an 'honest broker' (see also Krattiger, 2004, p. 23), who preferably is familiar with both cultures.[102]
- There is a need to base the social networks on a foundation of mutual trust, which can be fostered by transparency of the information and negotiation processes, easy access to the essential information and at the same time respect for its possible confidentiality. Generally accepted codes of conduct or of good business practices might be means to this end.
- Another important objective would be the reduction of transaction costs and risks by creating a certainty regarding the partners, the tradable goods and the general conditions, e.g. by creating model contracts.
- A necessary function would consist of the often complex monitoring of the contract implementation and the settlement of disputes, in particular in cases where intellectual property rights are involved.

As mentioned above, Krattiger and Lesser (1995), Krattiger (1996) and Drahos (2000) each propose a model to overcome the problems and tasks outlined above: Drahos (2000) submits the idea of a global biocollecting society,[103] whereas Krattiger and Lesser propose to create 'facilitator'

[100] Drahos perceives the question of the valuation problem as a problem of imperfect information, adding to the risks of the transaction (p. 3).

[101] The transfer of genetic material (and TK?) perceived as productive capacity in a raw form. The differences in this kind of technology transfer consisting of its predominant South–North transfer, and the technical and institutional capacities created by the fact that the technology transferred is a natural product (or closely related to it).

[102] See, for example, the case of the UZACHI-Novartis negotiation process (Baruffol, 2003), published on CBD http://www.biodiv.org/programmes/socio-eco/benefit/cs.aspx

[103] The model of the global biocollecting society as suggested by Drahos in its proposed functions – to overcome the information problems inherent in/ingrained in the transcultural exchange of information – rather corresponds to the model of the CHM and accordingly is subsumed under this part of the chapter.

(1995) or 'honest broker' services (Krattiger, 2004).

### DRAHOS' BIOCOLLECTING SOCIETY

Drahos developed his model of a global biocollecting society in order to enhance the transfer of information, to promote the goals of the CBD and to stimulate a process of private ordering among companies and indigenous groups.

Drahos suggests the creation of a global biocollecting society rather than a great number of national collecting societies. His main arguments are first that it would be more easy to monitor an only and global society; therefore there would be more transparency; and secondly that an international organization may serve the interests of the often marginalized holders of TK and related PGR better than state organizations.

He proposes that a biocollecting society could be best established as a private organization outside the context of any inter-state treaty negotiation. He argues that the 'politicised waters of treaty negotiation would make it difficult for any initiative to reach the shoreline' (Drahos, 2000, p. 248). Membership of the society would be open for both companies and indigenous groups, and entirely optional. He proposes that the membership could be considered as an implicit acceptance of the principle of national indigenous property rights. Thus, a sort of respect for the use of indigenous knowledge could be secured by this simple acceptance, even though the state to which the indigenous group belonged had failed to provide legislative protection.

Drahos proposes that a collecting society offer the following functions and services:

- To act as a repository of and to assume custody over community registers of indigenous knowledge which is either in the public domain or is meant to be traded by its holders, the latter under strict obligations of confidentiality.
- To provide assistance with any contractual negotiations, possibly by maintaining a register of independent legal experts.
- To set up a monitoring service for the use of TK, which might also involve a regular check of patent applications around the world.
- To create a dispute resolution function, exercised by recommendations of a committee constituted by people of 'impeccable independence'.
- To function as a standard-setting body by developing an authoritative code of conduct, containing for instance standards including a pricing scheme, terms of contract and a royalty disbursement accounting system agreed upon by representatives of industry, indigenous groups and states.

To fulfil these functions, Drahos deems it necessary to have supportive, external funding. He proposes the World Bank as sponsor of the system.

### KRATTIGER AND LESSERS' FACILITATOR[104]

According to Krattiger and Lesser, the purpose of a facilitator is to:

> enable, on a voluntary basis, equitable and sustainable deals to be made between sources and users of genetic resources; to promote cooperation in the transfer of technological, human and information resources and skills, by providing information and training that are directed at making the market more efficiently and at rendering the negotiators more nearly equal in skills. (p. 213)

Krattiger insists that the facilitator is to be an independent entity, with no vested interests in the brokered arrangements and operating at the interface of genetic technology providers and users, development agencies and information.

He proposes the following functions:

- To provide 'honest broker' services, encompassing assistance in the germplasm marketing, including the

[104] The following is based on Krattiger and Lesser (1995, pp. 211–212).

identification and execution of relative arrangements, supporting the parties in recognizing the implications of the sales conditions and raising the necessary funds to underwrite the initial brokered agreements.
- To identify agreements which will provide for the necessary technical training of national marketing specialists, scientists and policy makers, providing training in technology marketing and contract negotiation; encourage sharing of knowledge and experience by the users of the resource, including training and access to information.
- To assisting governments, on their request, in the identification and implementation of legislation suited to the country's role as a technology seller.

Krattiger proposes start-up funding and organization by a non-profit entity, while the access and payment issues are worked out.

*Analysis*

The models of CHMs proposed for the transfer of TK-related technology start out from a broad concept. They advocate a proactive approach, encompassing various elements to secure a level playing field and to provide transparent relationships for both providers and purchasers.

The two concepts concentrate on slightly different aspects of the marketing of TK and biological resources: Drahos' focus is on the bioprospecting process in its entirety, thus including also instruments for monitoring, control and dispute settlement. Krattiger and Lesser include the aspect of technology transfer. Their model encompasses the (non-monetary) elements of the benefit sharing as criteria for the selection of prospective partners and consultancies to support governments in their role as technology sellers.

The link to the discussion of registration and documentation mechanisms is obvious; SRISTI and the described NIF database could be named as practical examples of a CHM.

To some extent the CHM corresponds to the model of the collecting society as proposed above (p. 266): both support a proactive approach to the marketing of TK and related biological resources and aim at creating equitable relationships between sellers and buyers. Accordingly, additional services and facilities are proposed, which are not included in the respective models *stricto sensu*, such as capacity-building, brokering and representation of right holders in the case of infringements.

However, there are also important differences: the collecting society is a partisan institution, representing the interests of the providers of the information. It is created bottom-up and remains under the control of its members. The CHM in turn has the function of an independent, neutral intermediary between the involved parties, facilitating communication and negotiation in taking the role of 'honest broker'.

THE CHM: ELEMENTS AND DISCUSSION

The described models of CHM are a combination of various existing technology access and transfer systems,[105] such as:

- Royalty collection agencies.
- Pure information clearing houses.
- Technology clearing houses.
- Honest brokers/facilitators.

Krattiger (2004) has analysed the pros and cons of the various systems. His conclusions might be important for assessing the cost–benefit ratio of the propositions.

He considers royalty collection agencies as advantageous as they are easy to set up, working at low cost with minimal overheads. They can be created by the users themselves and in principle need little support by governmental agencies. However, this applies only if many players participate.

Information clearing houses he considers relatively easy to set up. They can provide easy global access to the stored

[105] From Krattiger (2004).

information. However, they need considerable input as they are useful only if comprehensive, with user-friendly structures, e.g. by offering analytical tools. That means that they are to be constantly maintained and updated. Krattiger judges that they are useful for exchanging information on specific issues, but not by themselves useful for technology transfer. Accordingly he opts for broad models for clearing houses, identifying sellers and buyers and assisting in negotiations.

Honest brokers and other forms of facilitators as described above typically fulfil a range of integrated functions. They are appropriate for charting new territory and bringing (public and private) actors closer together. They are effective in setting new models of collaboration which are specific to technologies, industry types and needs. However it must be noted that they demand complex institutional arrangements and significant funding. Moreover, according to Krattiger, they are limited to serving non-profit, directly humanitarian activities.

### INSTITUTIONALIZATION AND STRUCTURE

With a view to the institutionalization and structure of a CHM for promoting trade in TK and biological resources, two essential questions need to be answered: the first relating its basic structure. The question is whether the CHM is created and controlled bottom-up in a decentralized manner, or rather initiated top-down, e.g. by an internationally acting society from a global level. The second question is whether a CHM ought to be privately organized (Drahos' point), integrating state members at most in their function as providers of biological resources, or whether it would be advantageous to base such an institution on some sort of international state consensus.

The bottom-up structure we find in the various local and national TK registers and in the collecting-society model. The advantage is that such locally managed institutions are closer to their users, remaining under their control. This might be useful in the case of a collecting society. However, for marketing purposes, i.e. for connecting sellers and buyers internationally, the creation of one address might be advantageous. It can be imagined that the nodes of the structure involve many national CHM focal points, e.g. the local or national registers of tradable TK, which remain under the control of its providers, but are linked by common protocols, systems and search criteria. Such a CHM might also integrate the international registers of protected TK (Chapter 5), which could be connected electronically to form a global one. In this case the main remaining question is whether it is (yet) possible to provide the additional functions and services (brokering, capacity-building) electronically, by a global institution, a solution which would be advantageous from the financial point of view.

With regard to the participation of state actors, it can be argued that sidestepping international negotiations would be detrimental to the activity of the CHM itself, especially if new types of IPRs are at stake for the protection of TK, and if the CHM aspires to a high level of credibility. The states' legal recognition of these eventual new IPRs or of the legitimacy of the entitlement of this traditional know-how might lead to a higher degree of success in terms of ample participation and compliance on the part of the private sector.

On the other hand it can be maintained (e.g. Drahos, 2000) that to reach a consensus in this matter, in particular if the question of rights to traditional knowledge is involved, is a long-term venture. None of the negotiations in the realm of the CBD, WIPO and TRIPS up to now has reached a conclusive level. So it could be advantageous to set up one or several pilot projects, inspired by the mechanisms and experiences of the CHMs existing in the field.[106]

Whether such CHMs, in the long run, could be managed as self-supporting entities can only be judged by experience. For the start-up financing and support during a

[106] As for example proposed by Krattiger and Lesser (1995, pp. 213–214).

pilot phase, external sponsoring would be necessary.

### *Conclusions*

The CHM mechanisms might be applicable and prove fruitful and advantageous for both types of access: access governed by the contractual ABS regime only (Chapter 7) or by seeking a licence for TK protected by a *sui generis* IPR (above, Chapter 5).

However, as has been pointed out above, the communicative aspect of such a CHM, in particular the exchange of information related to TK which is not in the public domain, is encumbered if such information can not be legally protected.[107]

A CHM may provide freedom to operate with substantial savings for traditional innovators and bioprospecting companies. A CHM on the Internet may inspire a host of entrepreneurs to communicate speedily and eventually to enter into contractual relations with the rightholders. By entering this marketplace entrepreneurs would have instant access to a cornucopia of content. Clearly, one-stop electronic shopping of this sort would make it much easier to create and market traditional grassroots innovations and technologies.

In sum, a CHM could enhance: (i) contacts between TK stakeholders and bioprospecting companies interested in the exploitation of the registered TK; and (ii) international contracts on the sharing of trans-boundary commercial benefits in a real, informed manner.

Dealing directly with TK stakeholders through a global CHM rather than with many national bureaucracies would lower industry's transaction costs. One or more electronic CHMs would consolidate all these transactions by bringing together indigenous groups and members of the life sciences and agricultural industry. This will lower the search of costs for both and the additional services granted by a CHM can reduce the risks which are otherwise implied in bioprospecting contracts for both sellers and buyers.

Since normal channels of communication do not enhance sources of creativity and immediate exchange of communication and contacts, an on-line CHM may reduce the very high transaction costs for innovators around the world in learning from each other and thereby improve the livelihood options.[108]

This series of proposals on the nature, structure and functions of a CHM should build the outline of what could be an international electronic infrastructure for the management of rights, whether in the form of know-how on the use of plants, existing IPRs related to TK or even a new generation of TIP-Rights. Although, as an end result, we rather opt for a CHM structure with global outreach, possibly embedded in the CBD and/or WIPO structure, the aforementioned essential services could be also adapted to various private law-based CHMs and a global CHM should be the result of many national efforts in an organic manner built upon the synergies of relevant international organizations.

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[107] See above (on registration) and the same in Drahos (2000, p. 2).

[108] In the field of agricultural biotechnology, no single online exchange provides access to all of the listings of relevant patents that – on the contrary – turn up scattered or empty results on even the most developed online exchanges. Therefore the costs of laboratory researchers or technology managers seeking access to a technology become significant. Graff and Zilberman describe the types of search costs: 'Those in search of a specific kind of technology have to go site to site, registering numerous times for web site memberships, remembering passwords, and in some cases paying significant fees for membership or pay-per-view for patent listings in which they are not yet sure they are interested. Two things would help to alleviate this problem, at least for a given industry such as agriculture: 1) a drastic consolidation of the online patent exchanges into a unified marketplace; or 2) a universal cross listing of current offerings across all of the online patent exchanges' (Graff and Zilberman, 2001, p. 8).

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