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SYSTEMS AND NATIONAL EXPERIENCES FOR PROTECTING TRADITIONAL KNOWLEDGE, INNOVATIONS AND PRACTICES

Background note by the UNCTAD secretariat

Executive summary

The importance of protecting the knowledge, innovations and practices of indigenous and local communities (TK) is increasingly recognized in international forums. Developing countries seek to ensure that the benefits of cumulative innovation associated with TK accrue to its holders while enhancing their socio-economic development. They also aim at preventing the improper appropriation of TK, with little or no compensation for the custodians of TK and without their prior informed consent.

Building on work carried out in other intergovernmental organizations, this note briefly describes possible instruments for the protection of TK, including traditional/customary law, modern intellectual property rights instruments, *sui generis* systems, and documentation of TK and instruments directly linked to benefit-sharing. In addition to national systems, the protection of TK and equitable sharing of the benefits derived from the use of biodiversity resources and associated TK may also require measures by user countries or cooperation at the multilateral level.

Protection of TK is a necessary but not sufficient requirement for its preservation and further development. To harness TK for development and trade, developing countries need assistance to build national capacities in terms of raising awareness on the importance and potential of TK for development and trade; developing institutional and consultative mechanisms on TK protection and TK-based innovation; and facilitating the identification and marketing of TK-based products and services. There is also a need to promote an exchange of experience among developing countries on national strategies for TK development, *sui generis* systems for the protection of TK and the commercialization of TK-based products and services. Special attention should be given to building such capacities in LDCs.

This note provides some analysis and background information to aid experts in their work. The final chapter contains a list of questions proposed for discussion.

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I. INTRODUCTION

1. The protection of knowledge, innovations and practices of indigenous and local communities (hereafter referred to as "traditional knowledge", TK) has been receiving increasing attention on the international agenda in recent years. This is due to several factors. First, it has been recognized that TK plays a key role in the preservation and sustainable use of biodiversity. This is highlighted in both the Convention on Biological Diversity (CBD) and the International Undertaking on Plant Genetic Resources (IU) of the Food and Agriculture Organization (FAO).

2. Second, many activities and products based on TK are important sources of income, food, and healthcare for large parts of the populations in many developing countries, including the least developed countries (LDCs). However, TK is being rapidly lost as local ecosystems are degraded and traditional communities are integrated into the wider society.

3. Third, concerns have been raised about how the benefits derived from the use of biodiversity and associated TK are appropriated and shared. The vast majority of plant genetic resources and other forms of biodiversity are found in – or originate from - developing countries. Access to these resources and the associated TK can provide substantial benefits to companies and scientific research centres in both developed and developing countries. However, there is concern that TK is at times appropriated, adapted and patented by scientists and industry, for the most part from developed countries, with little or no compensation to the custodians of this knowledge and without their prior informed consent.

4. Fourth, while the need to protect TK and to secure fair and equitable sharing derived from the use of biodiversity and associated TK has been fully recognized, there is no agreement on what would be the most appropriate and effective ways to achieve these objectives. There have been calls for a better understanding of the needs of TK holders and exchanges of information on the effectiveness of existing systems of protection such as customary law, intellectual property rights (IPRs), *sui generis* systems, access and benefit-sharing mechanisms, voluntary measures and documentation.

5. Fifth, the long term sustainable economic development of many indigenous and local communities may depend on their ability to harness their TK for commercial benefit. Traditional technologies and innovations, which are by their very nature adapted to local needs, can contribute to a viable and environmentally sustainable path to economic development. It is therefore important to encourage TK-based innovations and, if desired by the communities concerned, explore the commercialization of TK-derived products.

6. From a trade and development perspective, systems for the protection of TK should seek to preserve TK to ensure that the benefits of cumulative innovation accrue to TK holders, while at the same time allowing developing countries to utilize their TK to promote development and trade. This *inter alia* raises the question of responsibilities of both TK holders and users in ensuring equitable sharing of benefits deriving from the use of

biodiversity resources and associated TK. It is also important to ensure that the commercialization of TK-based products contributes to the long-term socio-economic viability of indigenous and local communities, as well as the creation of new trading opportunities for developing countries. This could be done, for example, through partnerships or other benefit sharing arrangements aimed at promoting innovation and the production of value-added products, or by seeking to ensure that TK-based products are traded as distinct products, based on their long-term uses and traditional know-how. Similarly, the promotion of innovation and capacity building play important roles in developing country efforts to ensure that their TK contributes to their socio-economic development.

7. UNCTAD's member States decided to address the protection of TK as part of UNCTAD's work in the area of trade and environment. The Plan of Action adopted by UNCTAD's tenth Conference stated that: "UNCTAD should also, in full cooperation with other relevant organizations, in particular and where appropriate WIPO and WHO, promote analysis and consensus building with a view to identifying issues that could yield potential benefits to developing countries" (UNCTAD, 2000). It specifies that this work should *inter alia* focus on: "Taking into account the objectives and provisions of the Convention on Biological Diversity and the TRIPS Agreement, studying ways to protect traditional knowledge, innovations and practices of local and indigenous communities and enhance cooperation on research and development on technologies associated with the sustainable use of biological resources" (paragraph 147, third bullet). In preparing this Expert Meeting, the UNCTAD secretariat has been working closely with the secretariats of other intergovernmental organizations, in particular the CBD and the World Intellectual Property Organization (WIPO).

8. This issues note provides information and analysis aimed at assisting experts in their discussions. Chapter VI contains a list of questions that could be addressed by experts.

II. THE CHARACTERISTICS OF TRADITIONAL KNOWLEDGE AND ITS ROLE IN THE GLOBAL ECONOMY

9. For the purposes of this paper and Meeting, the term "traditional knowledge" will be used to refer to "the knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles" as well as "indigenous and traditional technologies" (CBD Art. 8(j) and 18.4).[1] Thus understood, traditional knowledge has certain characteristics. Usually it is held collectively, although certain types of TK may be the purview of specific individuals or subgroups within the community. It tends to be transmitted orally from generation to generation; accordingly, it is usually undocumented. TK is not static, but dynamic, evolving over time as communities respond to new challenges and needs. Indeed, what makes TK 'traditional' "is not its antiquity, but *the way it is acquired and used*. In other words, the social process of learning and sharing knowledge, which is unique to each…[traditional] culture, lies at the very heart of its traditionality." (Four Directions Council, 1996).

10. Access to and use of TK within and outside communities is generally governed by a wide variety of unwritten customary laws. This seems to be true whether or not notions of ownership and property would be strictly applicable to traditional societies. Indeed many traditional communities express preference for words like stewardship and custodianship, which imply responsibilities as well as rights. Proprietary systems exist in many traditional societies. But any assumption that there is a generic form of customary regulations governing TK use and dissemination ignores the intricacies and diversity of traditional systems. According to the Canadian indigenous peoples organization, the Four Directions Council (1996): "Indigenous peoples possess their own locally-specific systems of jurisprudence with respect to the classification of different types of knowledge, proper procedures for acquiring and sharing knowledge, and the rights and responsibilities which attach to possessing knowledge, all of which are embedded uniquely in each culture and its language."

11. TK is valuable not only to those who depend upon it for their survival but also to modern industry and agriculture, and to sustainable development more generally. According to the World Health Organization (WHO, 1993), up to 80 per cent of the world's population depends on traditional medicine for its primary health needs. In India, for example, there are 600,000 licensed medical practitioners of classical traditional health systems and over one million traditional community-based health workers (Hafeel and Shankar, 1999). "Possibly two thirds of the world's people could not survive without the foods provided through indigenous knowledge of plants, animals, insects, microbes and farming systems" (Rural Advancement Foundation International, 1994). Over 90 per cent of food in sub-Saharan Africa is produced using customary farming practices (Dakora, 1997). For those comprising the poorest segments of societies, particularly women, indigenous people and rural inhabitants of developing countries, traditional knowledge is indispensable for survival. This is especially true in many LDCs.

12. A number of TK-derived products are traded internationally. These include handicrafts, medicinal plants, traditional agricultural products, and non-wood forest products (NWFPs). For example, some 150 NWFPs, including rattan, cork, essential oils, forest nuts, and gum arabic, are traded internationally in significant quantities. The total value of the world NWFP trade is of the order of US$ 11 billion (FAO, 1995).

13. Biogenetic resources and their associated TK also provide significant inputs into other markets including pharmaceuticals, cosmetics, agriculture, food additives, industrial enzymes, biopesticides, and personal care (Ten Kate and Laird, 1999). However, the future of bioprospecting is difficult to predict. While enhanced abilities to screen huge quantities of natural products and analyse and manipulate their DNA structures might suggest that bioprospecting will become more popular, it is also possible that advances in biotechnology and new drug discovery approaches based, for example, on combinatorial chemistry and human genomics will in the long term *reduce* industrial interest in natural product research for food, agriculture and health, as well as associated TK.[2] Concerns about food safety and other unknown side effects of DNA-modified products may promote interest in natural product research, especially in organic agricultural products. The recent interest in bio-dynamic agriculture which is based on TK is one such example of agricultural uses of TK.

14. There have been some attempts to estimate the contribution of TK, particularly biodiversity-related TK, to modern industry and agriculture. For pharmaceuticals, the estimated market value of plant-based medicines sold in OECD countries in 1985 was US$ 43 billion (Principe, 1989). That many of these would have used TK-leads in their product development is borne out by biochemist Norman Farnsworth's (1988) estimation that of the 119 plant-based compounds used in medicine worldwide, 74 per cent had the same or related uses as the medicinal plants from which they were derived. It is particularly difficult to estimate the contribution of traditional crop varieties (landraces) to the global economy. However, a study on the use and value of landraces for rice breeding in India (Evenson, 1996) estimated that rice landraces acquired from India and overseas contributed 5.6 per cent, or US$ 75 million, to India's rice yields. Assuming that landraces contribute equally to other countries where rice is cultivated, the global value added to rice yields by use of landraces can be estimated at US $400 million per year.

15. Unlike wild biodiversity, the source of plant-based medicines, agricultural biodiversity has developed under farmer selection in farming systems for over 10,000 years by the direct application of TK. Farmers have always swapped crops and landraces widely, and by acclimatizing them to new and very different ecosystems, have created the rich portfolio of agrobiodiversity on which food security depends. It is therefore characteristic of agriculture that countries overwhelmingly depend on agricultural genetic resources that originated elsewhere. This is the basis of the concept of farmers' rights, recognized by the 1989 FAO Conference as arising from the past, present and future contributions of farmers in conserving, improving, and making available plant genetic resources, particularly those in the centres of origin/diversity.[3] Agricultural genetic resources provide the basic material with which both traditional and modern farmers work.

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

III. INTERNATIONAL DEBATE

17. The international debate on TK covers many issues, such as biodiversity, food and agriculture, health, expressions of folklore, trade and development, and human rights.[4]

18. The CBD is the only international legal binding instrument that explicitly refers to the protection of TK. Article 8(j) states that: "(*Each contracting Party shall, as far as possible and as appropriate,) Subject to its national legislation, respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biodiversity and*

promote the wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of benefits arising from the utilization of such knowledge, innovations and practices".

19. The CBD further stipulates that access to genetic resources can only occur on mutually agreed terms (MAT) and with the "prior and informed consent"(PIC) of the Party providing such resources, unless otherwise determined by that Party (Art. 15).[5] Other Articles relevant for TK protection include 10(c), 17.2, 18.4 and 19[6]. The fact that Article 8(j) is subject to national legislation seems to imply that responsibility for its implementation lies with national Governments. However, there has been recent discussion on the role of multilateral mechanisms and the responsibility of user countries to support PIC requirements in provider countries (see section IV).

20. Article 8(j) is not explicit regarding the means by which national Governments would draw up national legislation to reflect its intent. To address this, the fourth Conference of Parties (COP IV) agreed to establish an Ad hoc Open Ended Inter-sessional Working Group on Article 8(j) and Related Provisions of the Convention on Biological Diversity. COP V adopted the Working Group's recommendations for a work plan. In its decision V/16, the COP emphasized the need for case studies to enable a meaningful assessment of the effectiveness of existing legal and other appropriate forms of protection for TK, and invited Parties and Governments to exchange information and share experiences regarding national legislation and other measures for the protection of TK (UNEP, 2000a).

21. In the FAO**,** the Commission on Genetic Resources for Food and Agriculture is the forum for negotiations among Governments on the revision of the International Undertaking on Plant Genetic Resources (IU) in harmony with the CBD. The IU is expected to become a legally binding agreement, closely linked both to FAO and the CBD, regulating access and benefit-sharing for plant genetic resources for food and agriculture. Its objectives are the conservation and sustainable use of plant genetic resources for food and agriculture, and the fair and equitable sharing of benefits that arise therefrom. The IU also covers farmers' rights[7] in recognition of the contribution of farmers and their communities to the preservation and sustainable use of plant genetic resources that are the basis of agriculture and food security. Because of the high level of interdependency between countries with regard to these resources,[8] a Multilateral System for Access and Benefit Sharing[9] is being developed. Benefit-sharing would also be multilateral, and include the transfer of technology, capacity-building, exchange of information, and funding.

22. The World Health Assembly has adopted a number of resolutions drawing attention to the important role played by traditional medicine in the primary health care of individuals and communities in many developing countries. International trade in herbal medicines is rapidly increasing. However, according to the World Health Organization (WHO), in most countries the herbal medicines market is inadequately regulated. Through its Traditional Medicine Programme, the WHO supports member States *inter alia* in their efforts to formulate national policies on traditional medicine and to study the potential usefulness of traditional medicine, including evaluation of practices and examination of the safety and efficacy of remedies.

23. Traditional forest-related knowledge (TFRK) is a specific subset of TK covered by the CBD. In addition, trade and development issues related to TFRK have been discussed in the Intergovernmental Panel on Forests and its successor, the International Forum on Forests, and will be an important programme area for the United Nations Forum on Forests. In a broad sense, any actions that protect either indigenous and local communities living in close contact with forests, or the forests on which their traditions depend, could be considered as actions aimed at protecting TFRK. These include, for example, actions relating to traditional resource rights. TFRK can also be included in criteria for sustainable management of forests and certification of forests and forest products.[10]

24. Discussions on the protection of TK initially centered around "expressions of folklore". The United Nations Educational, Scientific and Cultural Organization (UNESCO) and WIPO jointly held three expert meetings which led, in 1982, to the adoption of the "Model Provisions for National Laws on the Protection of Expressions of Folklore Against Illicit Exploitation and Other Prejudicial Actions". These provisions have not yet been adopted in full by any country.

25. WIPO was mandated in its 1998-1999 programme to undertake exploratory groundwork in order to provide an informed analysis of the intellectual property (IP) aspects of TK. In this context, it has been examining the intellectual property needs of holders of TK and genetic resources and the feasibility of TK databases. WIPO held a Roundtable on Intellectual Property and Traditional Knowledge in Geneva in November 1999 and undertook nine fact-finding missions. WIPO and UNEP jointly prepared and submitted to COP V selected case studies on the role of intellectual property rights (IPRs) in the sharing of benefits arising from the use of biological resources and associated TK (UNEP/WIPO, 2000). Elements of the 2000-2001 programme include: case studies on the use of IPR systems to protect TK; a study on customary law governing TK in relation to formal IPR systems; information exchange on IP implications of TK documentation and increased training; and awareness-raising worldwide for TK stakeholders.

26. In the WTO, the relationship between the CBD and the TRIPS Agreement, including with regard to the protection of TK, has been discussed in both the TRIPS Council and the Committee on Trade and Environment (CTE). The TRIPS Agreement does not explicitly address the protection of TK.[11] Several WTO Members have argued that nothing in the TRIPS Agreement prevents WTO Members from implementing national measures to support CBD objectives, including the protection of TK through *sui generis* systems. However, it has also been argued that national action alone may not be sufficient to achieve benefit-sharing and that some international action is required. In this context, some have suggested that the TRIPS Agreement could include a provision that requires the disclosure, in the process of patent application, of the origin of any relevant biological resources and associated knowledge. In this regard, reference has been made to Article 29 of the TRIPS Agreement.

27. With regard to UNCTAD, apart from the above-mentioned reference to the protection of TK, the Plan of Action, in paragraph 147, includes several other points of relevance to work in this area. These include transfer of technology issues (second bullet), promotion of

trade in environmentally preferable products (fifth bullet), the BIOTRADE Initiative (sixth bullet), and biotechnologies (ninth bullet). Such work is being implemented through UNCTAD's main functions, i.e. intergovernmental work, policy research and technical cooperation for capacity building, and, in accordance with UNCTAD's mission, should focus on strengthening the development dimension. Chapter V of this paper provides a brief summary of UNCTAD's capacity building activities that are relevant for TK.

28. The Global Knowledge Conference in 1997 emphasized the urgent need to learn, preserve and exchange TK and encourage its role in local and national development. In the context of the Partnership for Information and Communication Technology for Africa (PICTA), the World Bank agreed to lead an Indigenous Knowledge Initiative to stimulate recognition, utilization and exchange of indigenous knowledge in the development process (www.worldbank.org/afr/ik). Since the beginning of the 1990s, the World Bank also has a revised policy directive on the rights of indigenous peoples to choose the manner and level of participation in development projects. In this context, special procedures are outlined for incorporating indigenous peoples' concern into Bank-funded investment projects through the design of Indigenous Peoples Development Plans.

29. In 1994, UNDP collaborated with the Indigenous Peoples Biodiversity Network to create the Indigenous Knowledge Programme, which aims at the conservation and promotion of indigenous knowledge. The overall objective of UNDP's work with indigenous peoples is to integrate indigenous perspectives and concepts of development in future programmes and projects, and to make indigenous peoples' concerns a cross-cutting issue within UNDP. To do so, UNDP has prioritized the design of policy and operational guidelines for engagement with indigenous peoples for use of its country offices.

IV. SYSTEMS FOR THE PROTECTION OF TRADITIONAL KNOWLEDGE

30. As can be seen above, TK has a bearing on debates in several international forums. Nevertheless, no international system has yet been designed and implemented that effectively preserves TK, protects the rights of TK-holders, and compensates them equitably for its use. This chapter sets out a menu of possible options from which Governments could choose.

A. Objectives

31. When designing systems to protect TK, the objectives must be clear. Some possible objectives of protection schemes could be to:

- preserve and conserve TK
- increase awareness of the value of TK, among both TK-holders and others
- enable communities to continue using TK in the context of their traditional lifestyles
- prevent the unauthorized use of TK
- encourage TK-based innovations
- commercialize certain types of TK

- equitably share the benefits arising from the commercial use of TK
- facilitate access to TK for varying purposes, including research, commercial applications, or use by other traditional communities
- encourage the conservation and sustainable use of biodiversity
- promote social justice and equity
- recognize traditional customary laws and practices
- guarantee the participation of local and indigenous communities in the policy and decision-making processes related to TK
- recognize the important role of women as holders of TK and ensuring their participation in decision- and policy-making processes

32. There are different approaches to building systems to protect TK. One approach is to examine to what extent modern IPR regimes as specified in the TRIPS Agreement can be used or complemented to protect TK and promote the CBD objectives (particularly benefit-sharing), or how *sui generis* ("of its own kind") systems can be designed to take account of the specific characteristics of TK where existing IPR regimes are not suitable. Another approach is to strengthen and further develop existing TK protection systems, based on documentation of TK, building institutions, developing networks and strengthening the use of customary law. Both approaches can be used. In fact, any country designing a TK protection system can choose from a menu of options to create a combination of elements that will best meet its specific needs. These include:

- Strengthening customary law
- IPR protection, including existing IPR instruments
- S*ui generis* systems
- Prior informed consent and access and benefit-sharing mechanisms
- Documentation of TK
- Other measures to strengthen and develop TK protection systems.
-

B. Strengthening customary law

33. Securing the protection of TK according to the *existing* regulations requires, above all, respecting and, where necessary, strengthening the relevant customary law. This is easiest to achieve in countries where customary law systems can operate with relative freedom. In such cases, the possibility arises for traditional rules and norms to be asserted with as much legal effect within that country as patent rights, trademarks and copyrights. But whether customary laws regulating cultural and intellectual property are fully incorporated into national legal systems, are enforceable in local courts alone, or are just given some minimal recognition at the state level, the common assumption that traditional knowledge is by definition part of the public domain becomes much more open to challenge than if customary law has no recognition at all. All too often TK is misappropriated *because* it is conveniently assumed that since it has been publicly disclosed, communities have given up all claims over it. In fact, it is possible that the acts of disclosure and subsequent commercial use contravened customary law. Before considering the applicability of conventional IPRs or *sui generis*

systems, consideration should be given to enhancing the status of the established laws of the TK-holding communities.

C. Existing intellectual property rights instruments

34. This section examines to what extent some IPR instruments could be used or adapted to meet certain TK protection needs. This subject is controversial. The TRIPS Agreement covers several areas of IPRs that could be relevant to this issue, including the protection of inventions through patents and plant variety protection, copyright, trademarks, geographical indications, and trade secrets. Before going further, it is worth bearing in mind two important points. First, these IPRs were never designed with the intent of protecting TK, and thus do not easily accommodate the (usually) collective nature of TK generation and ownership. Second, discussion of this matter is difficult to separate from related issues such as the extent to which expanded IPRs can encroach on the public domain, incentivize the privatization of public goods, and encourage misappropriation of knowledge belonging to people who are in a weak position both to avail themselves of IPR protection and to contest the illegitimate IPR claims of others.

35. *Patents:* Patents are the subject of considerable debate in connection with TK. Patents protect inventions which, through an examination, are considered to be new, to involve an inventive step, and be capable of industrial application. Currently, some 97 per cent of patents in the world are held in industrial countries (UNDP, 1999). While individual TK holders could in theory acquire a patent, it is generally the case that TK is passed on orally from generation to generation and evolves incrementally. Thus, it would be difficult to meet the criteria of novelty and inventive step. Second, TK tends to be generated collectively to the extent that no inventors are identifiable. Indeed, the source of much TK cannot be traced to a specific community or even to a geographical region. Even if these obstacles were somehow overcome, most traditional communities do not have the resources to file patent applications or to take legal action to prevent patent infringement.

36. It has been suggested that TK holders could take advantage of utility model (petty patent) systems that are less expensive to use and have less exacting inventive step requirements. Kenya's *Industrial Property Act 1989* allows utility models for traditional medicinal knowledge in the form of "herbal as well as nutritional formulations which give new effects". Another possibility is to adapt IPR systems to include new forms of ownership such as communitarian titles. (Cottier, 1997)

37. For many traditional communities, patents are viewed primarily as a source of concern rather than an opportunity. There are several cases where TK has been used by others to develop a product that is then patented, with neither prior informed consent of the TK holders nor benefit sharing. In this context, concerns have been raised that some national patent laws define novelty in a territorially limited sense so that an 'invention' can be 'novel' even if it exists in an undocumented form in another country.

38. A possible means to help ameliorate this concern is through certificates of origin, according to which patent applications for inventions based on genetic resources would include a certificate of origin of the genetic resources and associated TK used and evidence that PIC had been obtained from the country and/or indigenous or local community concerned. Putting this in place at the national level should be fairly straightforward. Some have suggested an international certification system, where countries providing genetic resources and/or TK would issue standard certificates indicating that all obligations had been fulfilled in accordance with their national laws. (Tobin and Ruiz, 1996). This has been proposed by several countries at the CTE. In the negotiations leading to the recent adoption of the Patent Law Treaty, some developing countries suggested the inclusion of provisions in the treaty aimed at preventing the granting of patents involving unauthorized use of TK, for example through compulsory disclosure of the source of TK and/or PIC.[12] Another, complementary approach to address the concern about patents being granted improperly (e.g. an invention that is not new being awarded a patent due to inadequate information) is to develop a database of TK that can be used in national patent offices during the patent examination process. Indeed, in the WIPO Standing Committee on Information Technologies, such a proposal was made by India and accepted by that Committee.[13] This is also relevant to the issue of documentation of TK discussed below.

39. *Geographical Indications:* Under Article 22.1 of the TRIPS Agreement, geographical indications "identify a good as originating in the territory of a [WTO] member, or a region or locality in that territory, where a given quality, reputation or other characteristic of the good is essentially attributable to its geographic origin." Like trademarks, they allow producers to differentiate themselves and segment the market, thus achieving higher returns, if consumers are willing to pay a price premium for their distinct product.

40. Geographical indications have certain characteristics that are more in line with the ways in which traditional communities use their knowledge. As pointed out by Downes and Laird (1999a), geographical indications are based on collective traditions and a collective decision-making process; protect and reward traditions while allowing evolution; emphasize the relationships between culture, land, resources and environment; are not freely transferable from one owner to another; are not subject to unconditional control by a private owner; and can be maintained as long as the collective tradition is maintained. Some developing countries are interested in exploring the use of geographical indications for TK-based products such as kava from the South Pacific.

41. *Trademarks:* Like geographical indications, trademarks are marketing tools based on claims to distinctive or authentic products, and are indefinitely renewable. Collective marks or certification marks, which are usually owned by associations of producers, could be used to protect goods based on TK. Certification marks indicate that certain claimed characteristics of the goods (e.g. origin, quality, production method) have been authenticated by the producer organization owning the mark. In the United States, the Intertribal Agriculture Council licenses use of its annually-renewable 'Made by American Indians' mark for the promotion of agricultural or other Indian-made products that have been produced and/or processed by enrolled members of recognized Tribes." (Dutfield, 2000). The "Ayurveda"

trademark has been used extensively by India for marketing ayurvedic products, especially medicines and foods.

42. *Trade secrets:* The protection of undisclosed information (trade secrets) is covered by TRIPS Art. 39. Trade secrets could potentially be used to protect a fair amount of TK with commercial value. To do so, the community would have to comply with the condition that the information "has been subject to reasonable steps under the circumstances, by the person lawfully in control of the information, to keep it secret" (TRIPS Art. 39 (c)). If an individual such as a shaman or a small group of individuals (e.g. a family) has exclusive access to information, that individual, group, or the whole community would probably have a trade secret. (Axt, *et al*, 1993) This system is widely used in Chinese traditional medicine.

43. *Copyright:* Although folklore is not dealt with explicitly in this paper, it should be mentioned that copyrights seem to have some potential for its protection. The usual problems of attributing ownership and protecting information already in the public domain exist here as well. The 1976 *Tunis Model Law on Copyright in Developing Countries*, adopted by a committee of governmental experts with the support of UNESCO and WIPO, specifically addressed these difficulties and may be worth reconsidering.

D. *Sui generis* systems

44. Many interested parties, particularly in developing countries, are calling for the development of *sui generis* systems to protect TK (please note that this is not to be confused with the *sui generis* system for the protection of plant varieties referred to in Article 27.3(b) of the TRIPS Agreement[14]). As discussed in chapter III, CBD's COP V recognized the potential importance of such systems and called for an exchange of experiences.

45. Most discussions of *sui generis* systems for the protection of TK focus on the national level and on IPRs. *Sui generis* legislation to protect TK can comprise or be developed in conjunction with regulations governing access to genetic resources and benefit-sharing, as well as institutional and regulatory mechanisms and other measures such as registries of TK. To accommodate such a system, it is likely that other laws and policies governing natural resources, protected areas, environmental protection, intellectual property and land tenure would need to be reviewed (UNEP, 2000b). It is of paramount importance that traditional communities participate in the development of any such system, and that their cosmovisions, customary laws, and priorities are respected and taken into account. To oversee implementation and ensure enforcement of provisions, institutional measures such as setting up a multi-stakeholder coordinating body might be considered.

1. Possible elements of sui generis *systems*

46. In October 1999, the CBD's Panel of Experts on Access and Benefit-sharing met and suggested possible elements for *sui generis* legislation to protect TK. Regarding rights, the Panel suggested that legislation could include recognition: of ancestral community rights over TK; that these rights exist even when information is already in the public domain; that these

rights may be collective in nature; of the distinction between rights over genetic resources (where vested in the State) and rights over knowledge associated with such resources (vested in local and indigenous custodians); and that the use of genetic resources implies use of associated TK. The Panel also suggested that legislation could include the creation of administrative and judicial review processes to resolve disputes; benefit-sharing mechanisms; registers of TK; and programmes and processes for the strengthening of TK systems.

2. Examples of sui generis *systems*

47. Some countries have introduced legislation which seeks *inter alia* to protect the rights of TK holders. Examples include the Andean Community member States, Brazil, Costa Rica, Panama and the Philippines (recently Thailand has developed legislation in the area of community rights related to TK in three areas: medicine, forestry and food - plant varieties). The Peruvian Government is drafting legislation specifically on TK protection ("Proposal of Regime of Protection of the Collective Knowledge of Indigenous Peoples") with the active participation of traditional communities and their representative organizations. According to the draft law, those wishing to access TK for scientific, commercial, or industrial applications are required to secure the PIC of the holders of the knowledge. A register of collective knowledge will be created, with access requiring the written consent of the indigenous peoples who own the specific knowledge. In order to find out whether the register contains knowledge that may be of interest, the competent national authority administering the register will provide interested parties with information on the uses that certain indigenous peoples have for biological resources.

48. The Organization of African Unity (OAU) has drafted "African Model Legislation for the Protection of the Rights of Local Communities, Farmers and Breeders, and for the Regulation of Access to Biological Resources". It determines that any written contract shall be entered into by the state and the collector, but with the full participation and approval of the concerned local community or communities. It further suggests an institutional arrangement for developing a system of registration of items protected by community intellectual rights and farmers' rights according to their customary practices and law. Other provisions pertain to the development of a national information system to compile and document information on local knowledge and innovation practices of the communities and guidelines for collectors of resources (OAU, 1998).

49. A model Community Intellectual Rights Act proposed by the Third World Network in 1996 aims to protect the innovation and intellectual knowledge of local communities. It declares that "the local community shall at all times and in perpetuity be the lawful and sole custodians and stewards of all innovation". In view of its definition of innovation[15], the Act basically declares that all innovations derived in any degree from community knowledge are innovations of that community and owned in perpetuity (Nijar, 1996).

50. It is been suggested that the UNESCO/WIPO 'Model Provisions for National Laws on the Protection of Expressions of Folklore Against Illicit Exploitation and Other Prejudicial Actions' could be extended beyond folklore to encompass other types of TK. In these

Provisions, protection is not limited in time and is subject to authorization if use of traditional heritage is made both with gainful intent and outside traditional or customary context.

E. Access and benefit-sharing mechanisms

51. *Prior informed consent:* PIC represents the CBD's key mechanism for providing legal protection of TK and benefit sharing. However, much will depend on national and sub-national legislative definitions of what constitutes PIC, as well as the mechanism for enforcing it. Where PIC is given, mutually agreed terms (MAT) and benefit-sharing arrangements become a part of the contractual arrangement between the local community and the researcher/collector (Fourmile-Marrie, 1998). PIC could provide a link between traditional or customary systems of TK protection and modern IPR instruments.

52. In principle, the Convention refers only to the PIC of the State in possession of the genetic resources to which access is sought. Access legislation in the Philippines, Costa Rica and the Andean Community requires that PIC is also obtained from local and indigenous communities. For this to function properly, the rights of traditional communities to their TK should be recognized in national legislation.

53. The CBD Panel of Experts on Access and Benefit-sharing recognized that it might be necessary to explore possible measures to support, in user countries, PIC requirements in provider countries (UNEP, 1999). This has been reflected in CBD Decision V/26.[16] Since the Panel was unable to come to any conclusions on the issue of IPRs, COP V requested the CBD secretariat to prepare a report on issues identified as requiring further study.[17] The Panel recognized that IPR application procedures could require that the applicant submit evidence of PIC, but that the effectiveness of such measures should be further evaluated.[18]

54. *National legislation:* Some 50 countries are currently in the process of writing access and benefit-sharing legislation. This includes the Andean Community member States, Brazil, Costa Rica, India, Panama, the Philippines, and Thailand. It is important that any legislation developed should be flexible and not unduly complicated so as to keep transaction costs reasonably low. Also, it should be borne in mind that the special characteristics of agricultural biodiversity may necessitate multilateral benefit-sharing arrangements, rather than bilateral arrangements.

55. *Contractual agreements:* Apart from legislative protection for TK, contractual arrangements have been used for exchanges of biological resources and associated TK between TK holders and companies. One example is the know-how license agreement between the Aguaruna of Peru and the United States pharmaceutical company Searle (Tobin, 1997). The contract option has some limitations. These include the disparity in bargaining power of the parties, the high transaction costs, the secrecy of contracts, and the fact that such agreements are generally not binding on third parties. Some countries are in the process of formulating standard form contracts to reduce transaction costs.

56. *Guidelines and codes of conduct:* A number of guidelines for access and benefit sharing have been developed, primarily by members of associations that seek access to genetic resources. One example is the International Society on Ethnobiology's Code of Ethics.[19] The Government of Switzerland undertook a broad consultative process on this subject with relevant industries and other stakeholders in its country and drew up a set of draft voluntary guidelines that it presented to COP V of the CBD (UNEP, 2000).

F. Documentation of traditional knowledge

57. Documentation of TK, innovations, technologies, and practices in ordered collections or databases, generally called registers or registries, can contribute to preserving and protecting that knowledge.

58. In India there are several interesting initiatives. Several NGO-driven People's Biodiversity Registers (PBRs) document TK at the village level across the country. These aim to record TK for the benefit of present and future generations of local communities, to promote its continued use through recognition of its value and inter-community exchanges, and to protect it from misappropriation. A bottom-up approach is envisaged, aimed in the long term at creating a network of decentralized databases giving full credit to the provider of the information, be it an individual or a community (WTO, 2000).[20] The Society for Research and Initiatives for Sustainable Technologies and Institutions (SRISTI) aims to strengthen the capacity of grassroots innovators by documenting and disseminating technological and institutional grassroots innovations, protecting IPRs of innovators, and providing them with financial support (Gupta, 1999). As of November 1999, SRISTI had surveyed some 4,500 villages and documented 10,300 innovations related to agriculture, farm implements, herbal medicine, and soil conservation (Varma, 1999).

59. Registries can be an important tool to preserve TK for the use of local communities and the rest of the world. This is especially important because so much is being lost as elder generations pass on. Although entering knowledge in such a database would not necessarily establish a legal claim for most types of TK, such documentation can help to demonstrate the existence of prior art in the case of patent claims based upon TK. Consideration needs to be given to levels of accessibility to registries, since making TK more readily available could facilitate its being used without proper acknowledgement or compensation. Even with user access agreements, enforcing conditions is likely to present a practical challenge (Downes and Laird, 1999b).

V. HARNESSING TK FOR DEVELOPMENT AND TRADE

60. Legal protection of TK is a necessary but not sufficient requirement for its preservation and further development. According to the World Bank, TK is an underutilized resource in the development process. Its dissemination can help to reduce poverty (www.worldbank.org/afr.ik). Adequate protection needs to be supplemented by measures to (i) raise awareness of the importance of TK and its preservation; (ii) further develop TK-based innovation; and (iii)

exploit the opportunities for commercialization of TK-based products and services. This can best be achieved on the basis of comprehensive national strategies to harness TK for development and trade, reflecting the national development objectives and interests of indigenous and local communities. Besides the promotion of the use of adequate instruments of TK protection, such national strategies may comprise institutional mechanisms (both at intra-ministerial level and consultative mechanisms with non-governmental stakeholders) and a set of policy instruments and incentive measures to promote TK-based innovation and commercialization of TK-based products and services.

61. In this regard, the notion of a national system of TK-based innovation can be important. This refers to a network of economic agents and government institutions, based on supportive policies, that influence the innovative behaviour and performance of traditional and local communities in a forward-looking and coherent way. Even if single elements of such systems are strong, the system as a whole may be weak. The capability to learn and build new competencies will depend on how well the parts fit together and on the strength of these connections. The focus on innovation as a process wherein individuals and organizations take new initiatives is useful also because it brings entrepreneurship to the forefront. Without a general climate promoting individual and collective entrepreneurship, the strengthening of the knowledge base might not have any major positive impact (Nelson, *et al*, 1993). However, it must be recognized that, for efforts to integrate TK into national systems of innovation to succeed, they must reflect the reality that a great deal of TK is tacit, that is to say uncodified and, in many cases, inherently uncodifiable (Mytelka and Tesfachew, 1998). Accordingly, partnerships involving the TK holders themselves are essential in order that traditional know-how can be transferred and made useable. Principles of equity, prior informed consent and transparency should of course be integral to such partnerships. The tacit nature of a great deal of TK also makes the need for documentation of TK an urgent and pertinent issue.

A. Promoting innovation and commercialization of traditional knowledge

62. Strengthening the innovative capacity of indigenous and local communities to further develop TK in a range of natural product-based industries can support their long-term sustainable economic development and help to protect their TK. Central and local governments can enhance innovation by creating special supportive mechanisms or facilitating the exchange of experience and skills among indigenous and local communities. The Government of India, for instance, has set up a national innovation foundation with initial funding of US$ 5 million. This is intended to build national registers, mobilize IPRs for innovations based on these registers, set up incubators for converting innovations into viable business opportunities, and help in the dissemination of this information across different regions of the country.

Box 1

Examples of commercialization of TK-based products and services

Art and handicrafts: Indigenous artworks as tourist souvenirs are usually made by indigenous artists and crafts-people. However, traditional artworks are sometimes mass-produced for tourists as generic traditional works and sold through the souvenir trade. Usually this does not breach copyright because no specific artworks are copied. In such cases, certificates of authenticity guaranteeing that the item is in fact made by a traditional artist may be needed. In addition, fine art produced by traditional community artists specifically for art collectors and the investment market can generate significant revenues.[1]

Traditional medicines: Part of the US$ 60 billion world market for herbal medicines is based on TK. This may provide trading opportunities for developing countries, but taking advantage of such opportunities may require appropriate legislation, quality control and marketing as well as further study of suitable intellectual property protection. India, for example, currently exports more medicinal plants than herbal products, due to difficulties in getting formulations cleared by the United States Food and Drug Administration (FDA) and non-acceptance by medical insurance companies (particularly in Europe). However, the situation is changing and India is entering world markets for herbal products in a significant way. India's exports of medicinal plants and herbal products are about US$ 8 million annually, but growing quickly. Maharishi Ayurveda Products is planning to enter the roughly US$ 4 billion Japanese market with a portfolio of 120 ayurvedic products. This will include food supplements, aromatic oils, cosmetics and body care products.

Native species: Some countries are promoting the sustainable exploitation of native species. Indigenous peoples across Australia use some 10,000 native plant species for food. However, only a fraction is being exploited, largely by non-indigenous enterprises, in the still nascent but rapidly growing native bushfood industry.[2] The principal value of these various bushfoods is as ingredients (flavours, spices, condiments) in the preparation of other foods. The industry's real potential, based on the 'organic-ness' of its products, lies in overseas markets. The industry is starting to cultivate many popular food plants to reduce reliance on wild sources, providing opportunities for greater quality control, more reliable supplies, improved access to markets, selection of best strains and development of new varieties (Fourmile-Marrie). The potential for participation of local communities is large but needs encouragement. Indigenous communities may need to examine appropriate forms of intellectual property protection to capitalize on their TK in the market place without jeopardizing the very values that sustain it.[3]

TK-related resource-based products: A collaboration established in 1994 between POEMA and Daimler Benz of Brazil includes research in natural products (such as fibres, dyes, oils, latex, and resins) for the automobile industry, as well as the establishment of a pilot plant for the manufacture of truck headrests from coconut fibre (previously burned as waste) and latex. The pilot plant, administered by the Association of Rural Producers of Ponta de Pendras, Marajo Island, has been able to increase its production capacity from approximately 1,000 units per month to 4,000. This was achieved with the technical assistance and know-how of POEMA/Daimler Benz and funds from Bank of Amazonia SA. The association maintains direct relationships with its clients in São Paulo and continues to study ways of increasing and diversifying its production line.[4] UNCTAD BIOTRADE and POEMA have created the Programme Bolsa Amazonia to foster and replicate these types of partnerships in the Amazonian region.[5]

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1 For example, recent auction sales in Melbourne (February 1999) realized about A$ 4.4 million. The total value of the Aboriginal art market in Australia is around A$ 200 million per year. Half the sales are related to the tourism market. Of the total Aboriginal art trade, about A$ 50 million is estimated to go directly to Aboriginal producers.

2 The Australian Native Bushfood Industry Committee (ANBIC) has been established with a grant from the Rural Industries Research and Development Corporation. In the early 1990s, the bush food industry was worth an estimated $15 million per year, with ANBIC hoping to accelerate its growth to $100 million within three years. Few Aboriginal peoples/communities are currently participating in this industry (Fourmile-Marrie, 1995).

3 Aboriginal communities might find that plant breeders rights (PBRs) have already been taken out on many traditional species by both local and overseas companies. This means that they may only be able to grow certain species under license (Fourmile-Marrie, 1999).

4 The EU Directive for the Processing of End-of-Life-Vehicles is likely to encourage further developments in this regard.

5 For more information, see: www.ufpa.br/poema

63. Commercialization of TK-based products and services may provide opportunities, but it should be recognized that certain indigenous communities prefer to focus on cultural and spiritual values (Posey, 1999). It should also be noted that there are limitations for the commercialization of TK. In certain cases there is potential for over-harvesting of economically significant natural products, such as Pacific Yew.[21] In others, sustainable harvesting of a plant on which a TK-based product is derived is feasible, but may be blocked due to a preservationist conservation policy that does not allow *any* kind of harvesting. A good example is the jeevani herbal product based upon the TK of the Kani people of South India (Anuradha, 1998). Commercialization of TK may *inter alia* require appropriate systems of intellectual property protection that take into account the need to enhance the value of TK-based products (for example through brand names or geographical indications), but without adversely affecting traditional values. Communities that are interested in exploring possibilities of commercially exploiting their TK should first assess what aspects of their TK could be of interest to the wider world. They should then decide whether certain categories should be considered as "off-limits" for commercialization due *inter alia* to religious, cultural, spiritual or environmental sustainability considerations. Thereafter, they can develop a plan of action or a commercial roadmap (Lettington, 2000).

64. Since local and indigenous communities tend to be relatively small, they cannot usually on their own generate the economies of scale necessary in particular for entering the international trade arena. Thus partnerships become very important. These could take several forms. For example, local and indigenous communities could form a producers' association for one type or a defined range of products. Also, an association of communities organized in this manner could potentially make use of trademarks or geographical indications to differentiate their products from others in the market. The Native American Indians in the United States have done this, for example (see paragraph 41).

65. Interest in the commercialization of TK-based products and services is on the rise because of commercial interest in biodegradable products and other shifts in consumer behaviour in developed and developing countries. Experts may discuss examples along the lines of those provided in box 1.

B. Capacity-building

66. Capacity-building can help indigenous and local communities in harnessing TK for development and trade. Discussions within the CBD and recent seminars[22] suggest that the following focus could be given to capacity-building activities: (a) awareness-building on the importance and potential of TK for development and trade; (b) assistance in developing institutional and consultative mechanisms to harness TK for development and trade; (c) facilitation of the identification and marketing of TK-based products and services; (d) promotion of exchange of experiences among developing countries on national strategies, *sui generis* systems for the protection of TK, and the commercialization of TK-based products and services; and (e) special attention to building such capacities in LDCs.

67. In accordance with its mandate, UNCTAD is implementing capacity building projects to promote sustainable development through trade. These activities fall into two clusters: (a) the building of institutional and policy-making capacity for harnessing TK for development and trade, including assistance on equitable sharing of TK-derived benefits; and (b) the identification of and promotion of exports of TK-based goods and services.

68. The BIOTRADE Initiative of UNCTAD seeks to enhance the capability of developing countries to produce value-added products and services from biodiversity for both domestic and international markets.[23]. Country programmes are being developed in the Amazonian and Andean regions under the project "Implementation of the BIOTRADE Initiative of UNCTAD in the Amazonian Region".[24] These programmes seek to identify opportunities and constraints for sustainable development of biodiversity resources in each beneficiary country, focusing on bio-business development, bio-partnerships, incentives for conservation, sustainable use, and benefit-sharing. A subregional programme on TK, IPRs and benefit sharing, as they relate to trade and biodiversity, is under way in the Andean region in cooperation with the Andean Community (CAN), the Corporación Andina de Fomento (CAF), the International Centre on Trade and Sustainable Development (ICTSD) and the BIOTRADE counterparts in the beneficiary countries.

69. The UNEP-UNCTAD Capacity Building Task Force on Trade, Environment and Development seeks to contribute to the promotion of production and trading opportunities for environmentally preferable products, including organic and TK-based products from developing countries, *inter alia* based on the forging of proactive inter-community, public-private and business partnerships.[25] An UNCTAD/UNDP project in India explores how to add value to TK through partnerships with the private sector and how to commercialize such technologies. Incentives and experiences for developing such partnerships are being examined. An UNCTAD/UNDP project in Viet Nam examines the role of partnerships, including benefit sharing arrangements (at the national level) between scientific research institutes/universities and farmers, to support TK-based innovations.

70. As part of its capacity building work, UNCTAD is also promoting the exchange of national experiences among developing countries. Under the project "Strengthening Research and Policy Capacities in Trade and Environment in Developing Countries", 10 developing countries have identified several priority issues for examination, including national experiences with (a) *sui generis* systems for the protection of TK and (b) benefit sharing.[26] These issues have been discussed in seminars that were based on a series of country-focused papers. Studies have also been produced under the BIOTRADE Initiative, for example on codes of conduct, registers of TK, and geographical indications.[27]

VI. POSSIBLE ISSUES FOR DISCUSSION BY EXPERTS

71. The questions below are intended to stimulate the discussion of experts. In addition, country-focused papers by experts will elaborate on questions outlined in document TD/B/COM.1/EM.13/1.

A. Systems for the protection of TK and benefit sharing (chapter IV)

72. Experts may wish to address the following questions:

- What is the economic value of TK?
- What should be the objectives for protecting TK?
- What systems are available to achieve different objectives? For example, what are the lessons learnt regarding the use of customary law, existing IPR instruments, *sui generis* systems, prior informed consent, benefit sharing mechanisms, documentation, etc.?
- How can national systems for the protection of TK and instruments such as PIC be supported by policies and measures implemented by user countries or at the multilateral level?
- What rules are in place to regulate access to TK held in registries?
- To what extent have benefit sharing arrangements been successful? What are the conditions for effective benefit sharing arrangements?

B. Harnessing TK for development and trade (chapters II and V)

73. Experts may wish to elaborate on the following issues:

- How can TK and TK-based innovation contribute to sustainable socio-economic development in developing countries?
- What experiences have developed and developing countries had in promoting the innovative capacity of indigenous and local communities? What policies and mechanisms have been used in this regard?
- What are the experiences of developing countries and donor programmes in promoting trade in TK-based products? How do these programmes relate to programmes for environmentally preferable and fairtrade products? What is the role of modern IPR instruments in promoting trade in TK-based products from developing countries?
- What is the role of product certification and labeling?
- How can developing countries obtain greater benefits from the commercialization of TK-based products? What would be the role of inter-community, public-private, and business partnerships?

C. Capacity-building needs (chapter V)

74. Experts may wish to focus on the following questions:

- What are the capacity-building needs of developing countries in their efforts to:
  - protect TK;
  - promote TK-based innovations;
  - harness TK for development and trade;
  - promote trade in environmentally preferable and TK-based products?

- Building on paragraphs 68–70, how can UNCTAD, within its existing mandate and in co-operation with other organizations, assist developing countries in this regard? What are the specific needs of developing countries, in particular LDCs, for such capacity-building activities, in particular with regard to research and analysis; facilitating exchange of experience among developing countries; and training?

Notes

[1] Use of the word "innovations" in the CBD indicates that TK can be just as novel and inventive as any other kind of 'non-traditional' knowledge. The word "practices", on the other hand, suggests techniques and procedures that may be longer-established but are no less worthy of protection. Use of the word "technologies" again implies that IPR protection may be applicable and that the transfer of such technologies to others should be on mutually agreed terms as with any other technologies that may have wider application.

[2] According to Tanya O'Connor, IPR issues, large capital needs, a lengthy approval process and the lucrative propsects for bioengineering have all contributed to the drug companies' exodus from the forest, despite the huge contributions plant-based remedies have made to modern medicine over the last three decades. Because of the lengthy approval process, some of the plant-based remedies, under the name of Shaman Botanicals, are now being marketed as dietary supplements. O'Connor, T. (2000).

[3] This was for the purpose of ensuring full benefits to farmers, and supporting the continuation of their contributions, in order to ensure that the need for conservation is globally recognized and that sufficient funds for these purposes are available; to assist farmers and farming communities, in all regions of the world, but especially in the areas of origin/diversity of plant genetic resources, in the protection and conservation of their plant genetic resources, and of the natural biosphere; and to allow farmers, their communities, and countries in all regions, to participate fully in the benefits derived, at present and in the future, from the improved use of plant genetic resources, through plant breeding and other scientific methods.

[4] The International Labour Organization (ILO) Convention 169 Concerning Indigenous and Tribal Peoples in Independent Countries says that Governments have responsibility to develop measures for the full realization of these peoples' social, economic and cultural rights. Under the United Nations Economic and Social Council's Commission on Human Rights, a Working Group on Indigenous Populations has prepared a Draft Declaration on the Rights of Indigenous Peoples, which awaits adoption by the United Nations General Assembly.

[5] This does not apply to seed in gene banks collected prior to the date when the CBD came into effect. Such *ex situ* collections are dealt with in the International Undertaking.

[6] Article 10(c) calls upon Parties to protect and encourage customary use of biological resources in accordance with traditional cultural practices. Article 17.2 addresses scientific and technical information exchange with specific reference to indigenous and traditional knowledge. Article 18.4 states that Parties shall encourage and develop methods of cooperation for the development and use of technologies, including indigenous and traditional technologies, pursuant to the objectives of the Convention. Article 19 addresses the distribution of benefits arising from biotechnologies.

[7] A proposed Article on Farmers' Rights was agreed without brackets. The responsibility for realizing farmers' rights rests with national Governments. In accordance with their needs and priorities, national Governments should take measures to protect and promote farmers' rights, including: (a) protection of TK relevant to plant genetic resources for food and agriculture; (b) the right to equitably participate in sharing benefits arising from the utilization of plant genetic resources for food and agriculture; (c) and the right to participate in making decisions, at the national level, on matters related to the conservation and sustainable use of plant genetic resources for food and agriculture. It would also be recognized that nothing in the Article "shall be interpreted to limit any rights that farmers have to save, use, exchange and sell farm-saved seed and propagating material, subject to national law" (Article 15 of the Composite Negotiating Text).

[8] The wide and frequent exchange of genetic resources within agriculture is what differentiates it from the use of wild genetic resources, which are often limited to narrow niches and geographical reaches. Thus for plant breeding, solutions developed for biochemical bioprospecting would not be appropriate.(Stannard, 2000).

[9] The Multilateral System will cover a list of crops established on the basis of the criteria of food security and interdependence, and the collections of the International Agricultural Research Centres. Plant genetic resources in the Multilateral System may be used in research, breeding and training, for food and agriculture only. For other uses, mutually agreed arrangements under the CBD will apply. The Undertaking will be in accordance with applicable property regimes.

[10] For example, the forest certification scheme of the Forest Stewardship Council, under "Principles and Criteria" for certification include a "Principle on Indigenous Peoples' Rights" which incorporates a concept of "free and informed consent", as follows: *1.4. Indigenous peoples shall be compensated for the application of their traditional knowledge regarding the use of forest species or management systems in forest*

operations. This compensation shall be formally agreed upon with their free and informed consent before forest operations.

[11] In preparation for the Seattle Ministerial Conference (December 1999), some developing countries proposed to incorporate TK in the TRIPS Agreement. Proposals included the following: to establish within the TRIPS Agreement a system for the protection of intellectual property, with an ethical and economic content, applicable to the TK of local and indigenous communities, together with recognition of the need to define the rights of collective holders; to include a new Article specifying the rights of indigenous peoples and local communities in Part I ("General provisions and basic principles") of the Agreement; and to carry out studies and, on the basis of these recommendations, initiate negotiations with a view to establishing a multilateral legal framework that will grant effective protection to the expressions and manifestations of TK

[12] Statements made at the WIPO meeting on Intellectual Property and Genetic Resources, Geneva, 17-18 April 2000.

[13] WIPO document SCIT/5/10, 14 July 2000, paragraph 40 (The International Bureau [of WIPO] agreed to the proposal and announced that a preliminary evaluation of the CD-ROM provided by the Delegation [of India] indicated that a basic prototype system could be made available in two or three weeks…).

[14] This requires that all Members of the WTO provide intellectual property protection for plant varieties by patents, an effective *sui generis* system, or a combination of the two. Protection of plant varieties may have implications for indigenous and local communities. It has been argued that when deciding how to provide such protection for plant varieties, countries should bear in mind the specific characteristics of their agricultural economy and their development needs. Some observers would urge communities to protect their traditional varieties quickly, before others do so.

[15] 'Innovation' shall include any collective and cumulative knowledge or technology of the use, properties, values and processes of any biological material or any part thereof rendered of any, or enhanced use or value as a result of the said cumulative knowledge or technology whether documented, recorded, oral, written or howsoever otherwise existing.

[16] Decision V/26, in paragraph 4(c), urged recipient countries to support efforts made by provider countries to ensure that access to their genetic resources and associated TK is subject to Articles 15, 16 and 19 of the Convention.

[17] Issues include, for example: how to define relevant terms including subject matter of TK and scope of existing rights; determining whether existing IPR regimes can be used to protect TK and options for the development of *sui generis* protection of TK rights.

[18] COP V invited relevant international organizations, including WIPO, to analyse issues of IPRs, "including the provision of information on the origin of genetic resources, if known, when submitting applications for intellectual property rights, including patents."

[19] For more information, see: www.guallart.dac.uga.edu/ISE/SocHis.html.

[20] "Protection of Biodiversity and Traditional Knowledge – Indian Experience", Indian submission to CTE, WT/CTE/W/156 – IT/C/W/198), 14 July 2000.

[21] The bark of the Pacific Yew was found to provide a compound now extensively used in the treatment of ovarian cancer. This led to harvesting at an unsustainable level, and the Pacific Yew is now considered to be under threat.

[22] For instance, this was discussed in a UNDP-sponsored Workshop on Developing South-South Partnerships for Strengthening National and Regional competitiveness in the Area of Innovation, Culture, Traditional Know-how and Bio-resources, Accra, Ghana, 24-26 July 2000.

[23] The Initiative was launched in 1996 with the objective of stimulating trade and investment in biological resources to further sustainable development, in line with the objectives of the CBD

[24] This project is financed by the United Nations Foundation for International Partnerships (UNFIP).

[25] For more information, see: UNEP/UNCTAD, 2000.

[26] For more information, see: www.unctad.org/trade_env/index.htm

[27] See, for example Downes and Laird (1999) and the documents published during the BIOTRADE workshop in Villa de Leyva, Colombia in 1999 on www.biotrade.org and www.humboldt.org.co.

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