

Innovative Mechanisms for Sharing Benefits of Biodiversity and Related Knowledge

Case Studies on Geographical Indications and Trademarks

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I. Introduction

This paper explores the innovative use of selected legal tools to support the efforts of the people of local and indigenous communities to conserve and use sustainably their biological diversity, biological resources, and associated traditional knowledge. The paper reviews concepts of intellectual property – in particular trademarks and geographical indications – as possible incentives for the marketing of products from biological resources produced through traditional and environmentally friendly methods. It includes preliminary case studies drawn from Asia, Africa and Latin America.

In the agreements of the 1992 Earth Summit and elsewhere, the international community has recognized that the long-term prosperity of the world's societies will require the sustainable use of natural resources so that they are not depleted but remain available for future generations. This is particularly true for many rural communities in the developing world which remain heavily dependent for survival on local natural resources. The Convention on Biological Diversity (Biodiversity Convention), for instance, recognizes the close relationship and dependence of local and indigenous communities on biodiversity. It also recognizes the dependence of the life support systems of the Earth's biosphere on the maintenance of the biodiversity that comprises the structure of those systems.

It is widely recognized that conservation of biodiversity and biological resources depends upon the mobilization and support of local people and of the countries where the biodiversity is

found. For example, local people have valuable knowledge to contribute to conservation and sustainable management of forests, as recognized by the U.N. Intergovernmental Panel on Forests. Equally important, where sustainable and unsustainable uses of biological resources are in competition, local people need economic incentives to select sustainable uses, and legal and institutional protection of the right to maintain their sustainable uses, for example through legal recognition of their traditional land or sea tenure. The economic rewards to local and national economies from sustainable use must be maximized in order to make it economically feasible for the custodians of biodiversity and biological resources to conserve them.

Much of the world's surviving biological diversity is found in areas populated by the world's most impoverished and deprived populations. In many cases they inhabit communities excluded from national political systems that suffer the worst of the impacts — and receive the least of the benefits — from the global economy that extracts resources and promotes development projects in their regions. Yet these peoples have rich traditions of knowledge associated with their biodiversity and biological resources (together termed here “bioresources”), as well as practices relating to those resources.¹ This knowledge and these practices are often referred to by the shorthand phrase “traditional knowledge.” While we follow that terminology in this paper, we emphasize that the knowledge held by these cultures is dynamic and includes a constant stream of innovation -- the knowledge systems may be “traditional” but the results of the systems' operations are constantly changing.²

This knowledge is valuable in several ways. It informs resource management systems and practices of resource use that often have relatively low impacts upon bioresources. The existence of these systems and practices explains in part why these peoples are the custodians of much of the world's richest stores of biodiversity. Traditional knowledge also comprises extensive knowledge of the practical uses of these resources, as sources of medicines, foodstuffs, and other goods. As a result, traditional knowledge is itself a valuable resource not only for these communities but also for outsiders, including academic researchers, government agencies, and commercial firms, both foreign and domestic. Traditional knowledge has been used in a range of industries as a lead for new product development, including the specialty food and beverage, pharmaceutical, agriculture, horticulture, and personal care and cosmetics sectors, and it remains an important resource for many commercial research and development programs.

Traditional knowledge is also important to its holders as an integral part of their cultural heritage. As such, its protection is important for ensuring the enjoyment of the right to maintain and take part in cultural life recognized under international human rights instruments.³ Similarly,

¹ The Convention on Biological Diversity defines biological diversity as “the variability among living organisms from all sources including, *inter alia*, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.” It defines “biological resources” to include “genetic resources, organisms or parts thereof, or any other biotic component of ecosystems with actual or potential use or value for humanity.”

² See, e.g., Utkarsh, et al., 1999. Article 8(j) of the Biodiversity Convention reflects this fact, providing that Parties to the Convention must respect, preserve and maintain not simply “traditional knowledge” but “knowledge, *innovations* and practices” of indigenous and local communities “embodying traditional lifestyles”(emphasis added).

³ See, for instance, Article 27 of the Universal Declaration of Human Rights, and Article 15 of the

there is growing recognition that indigenous peoples have rights to control and protect this traditional knowledge as a form of intellectual property, as recognized in the UN Draft Declaration on Indigenous Rights. Because the structure and content of traditional knowledge is intimately linked with local bioresources and ecosystems themselves, the protection of rights to cultural heritage is closely linked to the protection of the environments and living resources of indigenous and local communities (Erica Daes 1993).

What is needed to protect traditional knowledge and the bioresources with which it is intimately associated? This paper explores a few of the many possible measures for protection, including market-related incentives for enhancing benefits.

Such measures can constitute implementation of the requirements of the Biodiversity Convention. Article 8(j), for instance, requires governments, subject to national legislation and as far as possible and as appropriate, to take measures to “respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities relevant for the conservation of biological diversity and promote their wider application with the approval and involvement of [their] holders . . . and encourage the equitable sharing of the benefits arising from [their] utilization.” The references to “promoting” wider use, and “encouraging” benefit sharing, suggest that this Article is intended to cover measures such as market incentives that influence behavior of civil society, including the private sector.

Market incentives influencing behavior in the private sector are relevant to implementation of Article 11 of the Convention. Article 11 requires parties, as far as possible and as appropriate, to adopt “economically and socially sound measures that act as incentives for the conservation and sustainable use of biological diversity.” Such incentives are critically important tools. Markets are social institutions defined by the dynamic interaction of individuals, private firms, voluntary associations, governments and other institutions, operating under evolving sets of laws, political procedures, ethical standards and customs. These rules are shaped in turn by factors ranging from formal decisions of political institutions (e.g. parliamentary enactment of legislation) to cultural values (e.g. a social belief that a good citizen recycles waste materials such as paper or glass). While markets often most effectively maximize the efficient production of goods and services without direct government intervention, governments must sometimes step in to correct market failures, such as the dominance of a market by one or a few sellers (monopoly or oligopoly), or the failure of firms to internalize the environmental costs they impose on society during the production process.⁴ More generally, governments play an essential role in crafting incentives, rules, enforcement mechanisms, and dispute settlement procedures, for shaping market behavior in the interest of social values such as internalization of environmental costs, equitable treatment, and compliance with contractual commitments.

International Covenant on Economic, Social and Cultural Rights.

⁴ The impact of private sector activity on bioresources is a good example of a typical market failure that requires intervention through the creation and enforcement of incentives or regulation. Bioresources are typically public goods that are depleted because firms competing to reduce production costs have an incentive to avoid paying for the damage to bioresources that makes up a significant part of the real cost of production in some sectors such as agriculture, forestry, or fishing. Thus, governmental intervention is needed to ensure that firms “internalize” rather than “externalize” such costs. Such measures can include regulation of production processes or methods, or the legal protection of property rights in bioresources, such as traditional land or sea tenure rights.

These factors contribute to market impacts on the ecosystems that support the human economy at every level from local to global. And all of these factors can, to some extent, be used or shaped according to the conscious choices of people and institutions operating in the market. We can choose to define and use various kinds of market incentives to encourage sustainable rather than unsustainable use of bioresources, or to encourage the protection of traditional knowledge.

This paper reviews the potential of certain legal tools – in particular, the intellectual property concepts of trademarks and geographical indications -- that could be used to enhance market rewards for sustainable production of traditional products from bioresources. The issues are explored through brief case studies that highlight relevant factors to be considered.

These mechanisms were selected because their promise has not been as well-explored to date as has that of other mechanisms, although some researchers have considered them (e.g., Downes 1997; Dutfield 1997). For instance, contracts for bioprospecting under legislative frameworks controlling access and benefit sharing are the subject of an extensive literature, including a number of case studies (see, e.g., Reid et al. 1993, UNEP 1995, UNEP 1996b, UNEP 1998, Glowka 1997). Other forms of intellectual property, such as patents, have also been widely discussed (see, e.g., UNEP 1996a and sources cited therein, para. 38).

While this paper focuses on market-related incentives, it is recognized that market relations are not necessarily a solution, or even part of the solution, for every indigenous society or traditional community, or for every bioresource or traditional knowledge formation. Historically, indigenous and local people have not typically benefited from commercial relationships and in many cases have suffered harm. Furthermore, many cultures believe that certain resources or activities are inherently inappropriate for commodification or market trading.

One example is the U.S patent granted on a purported variety of the ayahuasca vine, *Banisteriopsis caapi*. Many indigenous groups in the Amazon hold this plant to be sacred and therefore feel that it is inappropriate for private persons to have exclusive rights over any aspect of it. Within industrial societies themselves, certain activities or entities are typically excluded from market relations. For instance, a great deal of valuable, novel information -- such as scientific discoveries about the natural world -- is explicitly excluded from intellectual property protection (Downes 1997:4).

For some types of bioresources or production, in fact, separation from market relations may be precisely what is needed to ensure sustainable use (Downes 1996: 211). The mechanisms discussed in this paper are presented as possible, not necessary tools. Each indigenous or local community will need to evaluate whether to use them in light of cultural values and in light of whether they will effectively promote sustainable use and protection of traditional knowledge in the specific circumstances of that culture or resource.

II. Background on Geographical Indications and Trademarks as Possible Tools for Sustainable Use and Benefit Sharing

Through the use of case studies, this paper will explore two forms of intellectual property rights which have received relatively little attention to date in discussions of sustainable use or sharing of benefits derived from bioresources and traditional knowledge. These are geographical indications and trademarks (particularly trademarks relating to labels or symbols placed on products that communicate designated information to consumers on the social, cultural and environmental conditions of product sourcing). These forms of intellectual property could potentially serve as tools to help holders of traditional knowledge benefit more equitably from the commercial use of their knowledge, and could also help them prevent its objectionable commercial use by outsiders.

Case studies include:

- Kava (*Piper methysticum*), a plant native to the South Pacific;
- Rooibos (*Aspalathus linearis*) tea of southern Africa;
- Quinoa (*Chenopodium quinoa*), a grain from the Andean region;
- Basmati rice (a variety of *Oryza sativa*), also from the Indian subcontinent; and
- Neem (*Azadirachta indica*), a tree native to the Indian subcontinent.

For each case, the paper provides a brief overview of a number of relevant elements. These include: background information on the product, such as a description of the biological resource on which it is based; information on the history and geography of the traditional use of the product; and information on commercial uses.

The case studies then discuss options for enhancing benefit sharing and encouraging sustainable use through the use or adaptation of geographical indications or trademarks. Issues that are relevant include:

- the extent to which the mechanism could *enhance the market*;
- the extent to which the mechanism can be structured to *increase the flow of benefits* to the community level;
- potential for the mechanism to create/maintain incentives for *sustainable use*;
- the proportion between *transaction costs* and magnitude of benefits;
- the extent to which the mechanism can be developed through private or voluntary initiatives, and the degree to which changes to national or international *law or policy* may be necessary at some point to create a supportive framework;
- the mechanism's *relative effectiveness* compared to other tools such as bioprospecting contracts; and
- the extent to which the mechanism can be employed as a *practical* matter at the community level in developing countries.

A. General Issues

It is important to acknowledge at the outset that many commentators feel that the existing system of intellectual property rights inherently conflicts with traditional cultural property rights and customary law.⁵ They point out that it evolved primarily to serve industrial commercial

⁵ See, e.g. Kari-Oca Declaration 1992; Indigenous Peoples' Earth Charter 1992; Mataatua Declaration 1993; Greaves 1994; Brush 1996; Posey & Dutfield 1996; COICA/UNDP Regional Meeting 1994).

interests, rather than interests of indigenous or local communities. They also note that existing intellectual property systems emphasize private ownership, which conflicts with the collective and communal property traditions of many indigenous and local communities.

For several reasons, geographical indications and trademarks have the potential to respond to some of these concerns more effectively than do other intellectual property rights. Rights to control trademarks and geographical indications can be maintained in perpetuity. They do not confer a monopoly right over the use of certain information, but simply limit the class of people who can use a certain symbol.

These types of intellectual property are also more reflective of the traditional aspects of the knowledge created and maintained by indigenous and local communities. While copyright and patents are intended to reward investments in innovation, geographical indications and trademarks reward producers that invest in building the reputation of a product. They are designed to reward good will and reputation created or built up by a producer or a group of producers over many years or even centuries. They reward producers that maintain a traditional high standard of quality, while at the same time allowing flexibility for innovation and improvement in the context of that tradition.

While this study focuses on intellectual property as it relates to traditional knowledge, its preliminary findings have broader implications for sustainable development. Geographical indications and trademarks represent legal mechanisms that producers can use to differentiate their products, according to criteria such as the sustainability or traditional nature of production, and thus appeal to consumers. As such, they have great relevance to developing countries dependent on primary commodity exports:

A[I]t has been argued that a good strategy for commodity producers -- notoriously at the mercy of market forces -- seeking to gain greater control over markets and prices is to segment the market by differentiating different types of products within the commodity market (Von Moltke 1998). This is precisely what French wine producers, for instance, have done with great success, using tools such as geographical indications (now protected under the TRIPS Agreement)" (Downes, 1998a).

In another example, producers of specialty coffees such as Ethiopia Harrar, Guatemalan Antigua, and Sumatra Mandheling (traditional regional designations associated with particular levels of quality and styles), stand to gain greater profits from exports than do producers of less well-recognized, more generic coffees.⁶ As producers segment the market, by evolving distinctive product styles based on different production methods and crop varieties and building reputations for quality, trademarks and geographical indications become important tools to ensure that product quality is recognized by consumers, and to protect unfair competition from imitators.

⁶ The customary classifications in the coffee trade do not, however, reach the elaborate level of differentiation of wine found in the *appellation d'origine* system in France. This might reflect a distinction between the form of legal protection enjoyed by products such as wine, which have transcended their commodity status, compared to products such as coffee that are still considered commodities. Tom Mays, pers. Comm., 1998.

Of course, the extent to which a market can be segmented – and thus the extent to which diversification of brand names or geographical indications can reap rewards -- depends upon the preferences of buyers. Success is probably more likely with products that are purchased directly by consumers, as opposed to primary commodities that pass through many hands, and in some cases are heavily processed, before reaching the consumer as end products.

Similarly, ecolabels are a mechanism for designating a product as special in comparison to the generic commodity because of the reduced impact of the product or its production on the environment. However, many developing countries are concerned that such labels will reduce market access for their producers, because production standards for affixing the labels will be more expensive and difficult for them to meet. In the long run, this concern must be addressed through international processes for developing labeling standards, as well as efforts to assist producers in developing countries to meet standards and comply with qualification procedures. Through such measures, “production standards linked to ecolabels could be seen as measures to *increase* access to green consumer markets for producers from developing as well as developed countries, rather than as market access barriers” (Downes 1998a).

Market access issues relating to geographical indications will be minimized with geographical indications, if developing country producers employ such indications precisely in cases where they enjoy a market advantage because of the special character of the product or because of advantageous production conditions. Indeed, some developing countries are already exploring the development of systems for protection of distinctive products, e.g. Mexico (tequila) and India (basmati rice).

In order to serve as incentives for sustainable use, standards for products qualifying for geographical indications or trademarks must include guidelines for sustainable use. Very often, such guidelines reflect traditional practices that have developed over many years in the relevant region, which as such have internalized “sustainability” criteria that allow for continued production over time. In some cases, however, successful marketing of designated products might increase demand to an extent that creates unanticipated stress upon the sustainability of existing management systems. Similarly, some “ecolabels”, including those for timber, as well as “green marketing” of products such as brazil nuts, have been unable to meet burgeoning consumer demand for their certified products. The resulting economic pressure could distort traditional management systems to the point where target species are overexploited or ecosystems are damaged. Building requirements for sustainability into the guidelines for geographical indications will reduce the chance that marketing success destroys the long term productivity of the resource.

A final, important issue is whether the use of a geographical indication or trademark is worth the costs. First, there must be a national legal framework that provides for the registration of trademarks and geographical indications. Such a system is expensive to set up and requires resources to maintain. However, many developing countries are already required to provide for the registration and enforcement of trademarks, and several are considering establishing a system for protecting geographical indications.⁷

⁷ According to a recent report of activities of the TRIPS Council, developing countries interested in

Equally important, producers incur “transaction costs” in establishing a specific mark. These include the costs of going through the legal procedure of registering the mark in relevant markets. Legal costs may also be involved in policing use of the mark by preventing unauthorized use. A geographical indication or a certification trademark (a mark controlled by an association where compliance with mark standards is independently certified) requires the organization and maintenance of an association that can establish and modify standards for products and production methods, establish and apply criteria for membership, and monitor compliance with standards by those using the mark. There are also associated marketing costs involved in informing consumers of the product’s distinctive qualities. Market research is needed to assess which products have enough market potential to ensure a return in benefits that justifies the increased costs.

The preeminent international agreement relating to geographical indications and trademarks is the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) of the World Trade Organization (WTO).⁸ The TRIPS Agreement requires the WTO’s Members, numbering 131 countries as of April 1998, to meet certain minimum standards for protection of intellectual property.⁹ Members must provide protection for nearly all types of technology under certain categories of intellectual property, including not only geographical indications and trademarks but also copyrights, patents, plant variety protection (PVP), industrial designs, layout-design of integrated circuits, and trade secrets. They must also provide fair, effective judicial procedures and remedies for rights-holders claiming infringement. Developing countries have a five-year grace period to phase in most of the Agreement’s requirements, which will end in the year 2000; least developed countries have an eleven-year grace period from implementing most obligations.

B. Geographical Indications

Geographical indications are defined under the TRIPS Agreement as “indications which 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.” (Article 22.1). Based on an “underlying philosophy of the distinctiveness of local and regional products”, geographical indications enhance the power of local producers to sell their distinctive products in a global marketplace. Perhaps paradoxically, their protection under the rules of the WTO operates to counter the pressures for product standardization resulting from economic globalization (Moran 1993).

exploring protection of their products through geographical indications include India, Morocco and Venezuela. *See Trade Topics: TRIPS Council 1-2 December 1998: Discussion develops on geographical indications.* Available on WTO web site: <www.wto.org>.

⁸ Another agreement, the 1958 Lisbon Agreement for the Protection of Appellations of Origin and their International Registration (revised in 1967 and 1979), had only 18 parties as of May 1998. The text of the Lisbon Agreement and a list of parties are available through the WIPO web site, <www.wipo.org>.

⁹ This paragraph on the TRIPS Agreement is adapted from UNEP 1996a.

WTO Members must prohibit registration of trademarks that are misleading regarding geographical origin, and must provide legal procedures for interested parties to prevent competitors from placing designations on their products that mislead the public about their geographical origin (Article 22). The TRIPS Agreement provides for additional protection of geographical indications for wine and spirits (Article 23). Obligations regarding geographical indications are subject to a number of exceptions (Article 24). For instance, if the name of a geographical region has become “generic” – that is, associated with a broader category of products – then it can be used outside the region, even if it originally denominated a product from that region. One example is the term “cheddar” cheese, originally produced only in the United Kingdom, but now used to refer to cheese produced in many countries (Prakash 1998). Also important is paragraph 9 of Article 24, which provides that WTO Members are obligated to provide legal protection of geographical indications only if they are protected in their country of origin.

WTO Members are currently discussing whether to strengthen TRIPS protections of geographical indications in the WTO’s TRIPS Council; the European Union, for instance, has proposed an international system under which Members could register geographical indications within their jurisdiction. Members are also responding to a survey by the Secretariat of national rules regarding geographical indications.

Geographical indications are useful where consumers are willing to pay a premium on the market for products manufactured in the relevant region according to that region’s traditional methods. They allow small local producers to enhance their reputations, and potentially to sell directly to final demand, thus competing more effectively against large corporations. As a type of intellectual property that is attached to territory, they enable the relevant social and industrial groups to distinguish their products, not by company or by brand, but by linking them to their origin in a particular territory and the natural and cultural characteristics of that territory relevant to the distinct character of the product (Moran, 1993; Downes 1997).

While providing the consumer with reliable information and assurances with regards to authenticity, geographical indications create economic rewards for producers who use traditional methods in the region where the product has been traditionally produced. By differentiating products by their area of origin, restricting supply, and creating barriers to entry into production, geographical indications can increase the price of the commodity or product they are differentiating, thereby increasing rents captured by communities local to these regions, employing traditional practices (Moran 1993). At the same time, they can be used by communities to block outside commercialization of their cultures and the marketing of unauthorized products.

One primary criterion for whether a product qualifies for a geographical indication is, of course, whether it was produced in the relevant region. In addition, geographical indications typically have four types of criteria for determining whether a product meets the standards for carrying the indication (Moran 1993):

- variety or species (of plant or animal)
- yield

- production methods
- processing methods.

More than other major types of intellectual property, geographical indications have features that respond to norms for use and management of bioresources and traditional knowledge that are characteristic of the cultures of many indigenous and local communities.

Geographical indications are based on collective traditions and a collective decision-making process. The rules governing production under geographical indications are established, monitored, and modified over time by cooperative bodies and associations composed of producers (Berard and Marchenay 1996; Moran 1993). A producer may be an individual, a family, a partnership, a corporation, a voluntary association, or a municipal corporation.

Geographical indications protect and reward traditions while allowing evolution. In France, for instance, “[w]hile production methods can evolve over time,” the system of geographical indications reflects a strong commitment to traditional practices growing out of “long periods of empirical experience and experimentation” (Moran 1993:266). The system “merely records and formalizes” these practices into rules, but even then “the rules are not generally an imposition from a central or even a regional committee” (Ibid.). Rather, they evolve out of the close and on-going involvement of the producers themselves, such as grapegrowers and winemakers (Ibid.). In France, modification to the system’s standards are typically made and agreement reached at the level of local organizations (*syndicats*).¹⁰ Unlike patents and copyrights, geographical indications allow for innovation but do not protect the right to use an innovative technique or composition itself.

Geographical indications emphasize the relationships between culture, land, resources and environment. Geographical indications accord with the emphasis indigenous and local communities typically place upon the inter-connectedness of culture, ancestral lands, and resources. “Geography is at the heart of . . . appellations” (Moran, 1993). As one French expert on the French AOC system has explained:

An appellation of origin goes much further than a simple indication of . . . where a product is obtained or produced. [It also refers to] the further effects wrought upon a product by natural factors specific to the locality[,] such as micro-climate, soil formation, and so on[,] and also by specific human factors that pertain to the product[,] such as vinification procedure, pruning methods, maturation, and so on. The notion involves the interaction between these natural and human factors, specific and peculiar to the locality, which produces the distinctive quality or character of [that region’s] product. (Agostini 1992, quoted in Brown 1994:472-73 and Downes 1997).

¹⁰ Moran 1993:266. In a global economy, however, tension may grow between the local/regional, national and international levels of organizations needed to maintain and enforce geographical indications. For example, some winemakers in Burgundy complain that national regulators from Paris sometimes impose unreasonable production regulations on growers rather than recognizing standards agreed upon by the growers themselves. Personal comms., D. Downes, 1998.

Geographical indications are not freely transferable from one owner to another. A geographical indication such as an AOC lacks the typical private-property characteristic of being freely transferable. For instance, if an owner of a vineyard and winery qualified to use an AOC for the Medoc region of Bordeaux sells the business and land to another, the buyer will not be allowed to use the AOC without maintaining the required practices. And of course the AOC can never be transferred outside the Medoc region. (A partial exception is noted in the accompanying box on appellations of origin.)

Geographical indications are not subject to unconditional control by a private owner. A producer that qualifies for an AOC does not thereby gain an unmitigated right to use it indefinitely. If the producer's practices fall below the defined standards, which are usually set by an association of producers in the region, then the producer loses the right to use the AOC (Lorvellec 1996). A producer that moves outside the region loses the right to use the AOC. This is different from the unconditional right of a patent holder, for instance, to do whatever he or she pleases with the exclusive right to commercialize the invention during the 20-year patent period.

Geographical indications can be maintained as long as the collective tradition is maintained. Members of indigenous and local communities often emphasize that the communities' traditional knowledge is a heritage that must be protected indefinitely, for the lifetime of the culture, not merely for some fixed period. Geographical indications, like trademarks, can be maintained indefinitely, as long as the mixture of natural and cultural characteristics in the relevant region continues and as long as it has enough market value that producers will invest effort in maintaining the integrity of the indication.

Box: Appellations of Origin

The *appellation d'origine* or appellation of origin, a concept originating in France, is perhaps the best-known type of geographical indication. It is typically defined as "the geographical name of a country, region, or locality, which serves to designate a product originating therein, the quality and characteristics of which are due exclusively or essentially to the geographical environment, including natural and human factors" (Lisbon Agreement, note 5 above; see also (Moran 1993).

In France, the *Appellation d'Origine Controlée (AOC)* is a well-developed national and regional system that includes 400 designations for wine, 32 for cheeses, and others including spirits, walnuts, and poultry. AOC are applied to products that derive their value from a combination of environmental and cultural factors, in particular collectively-maintained techniques for production, and which require protection from claims which could alter or weaken the distinctiveness of the appellation of origin.

The French system evolved in response to problems with fraudulent labeling, and as an effort to limit or eliminate over-production. A government agency validates AOC, but regional producers establish the rule of production through collective bodies which they control. The

government prosecutes violators of AOC rules, and defends AOCs through legal action in other countries as well.

“While production methods can evolve over time,” the AOC reflects a strong commitment to traditional practices growing from “long periods of empirical experience and experimentation” (Moran 1993). The 7500 producers of *gruyere de Rouge* cheese, for example, do not permit the use of silage for feed, use only one breed of cow, and use little or no refrigeration as part of their traditional systems of production. Appellations for wine typically provide for strict regulation of techniques such as spacing between vines and the number of bunches allowed per vine.

In general, the AOC system does not allow for producers outside the relevant region to employ or imitate the relevant appellation. In an interesting exception, however, *Bleu de Bresse* cheese producers have licensed their expertise to producers in other countries (Moran 1993). Technical aspects of production are under the control of the cheese-makers from France, and the product comes out under a label that is similar but that notes the different country of origin. It has been argued that this demonstrates that the qualities of at least some cheeses are therefore not exclusively or essentially the result of their geographic environment, but primarily result from traditional production methods -- implying that they are unsuitable for appellations of origin (Moran 1993).

Systems modeled on appellations of origin have been adopted elsewhere in Europe, particularly in southern European countries which tend to place a high cultural value on distinctive local and regional products and cuisine. In July 1992, the European Community adopted a system for the protection of geographical indications and designations of origin for the agricultural and foodstuffs sectors. The aim is “to encourage diversification of agricultural production and promote products having certain characteristics to the benefit of the rural economy.” For many years Cypriot rivals to the Sherry producers of the Jerez region of Southern Spain were allowed to call their product ‘Cyprus Sherry’ (Sherry being an English corruption of Jerez). Now the same product must be labeled as ‘Cyprus Fortified Wine’ if producers wish to export it to EC countries (Dutfield 1998). Nations such as those of the EC, with long traditions of regionally differentiated artisanal production, tend to favor protection of appellations much more than many “New World countries,” especially the United States. In the latter, many economic cultures place a relatively higher value on innovation. Dominant cultural traditions (except for those of indigenous communities) reflect only a few centuries of settlement and so have not built up the empirical experience in adaptation to local conditions, or the sense of local cultural variation, that would support elaborate regional specialization. In addition, production in key sectors like food has become industrially standardized with little regional variation (Moran 1993).

Sources: Dutfield 1998; Moran 1993; Berard and Marchenay 1996; Downes 1997; Lorvellec 1996.

C. Trademarks

A trademark is a form of intellectual property right that protects a distinctive symbol, design, word, or series of words, typically placed on a product label or advertisement of a firm that owns the right to use the mark. Trademarks serve as marketing tools that highlight a producers' claim to authentic or distinctive products or services.

Trademarks are defined in Article 15 of the TRIPS Agreement, which provides that “[a]ny sign, or any combination of signs, capable of distinguishing the goods or services of one undertaking from those of other undertakings, shall be capable of constituting a trademark.” WTO Members shall provide for registration and protection of trademarks such that the owner of a registered trademark “shall have the exclusive right to prevent third parties, without the owner’s consent, from using similar signs for identical or similar goods for which the trademark is registered, where confusion is likely.”

Registered trademarks are indefinitely renewable (Article 18 TRIPS Agreement), similar to the practice with geographical indications. The trademark owner has exclusive rights to prevent third parties from using identical or similar marks in the sale of identical or similar goods or services where doing so would likely result in confusion (Article 16.1) (Dutfield 1998).

Specific types of trademarks that are particularly relevant for this study are collective marks and certification marks. Collective marks are trademarks or service marks used by the members of a cooperative, an association or other collective group. The association or other group is not necessarily the enterprise that produces the goods. Rather, it is a guild, union or other association, composed of producer firms, workers or others associated with the relevant goods.¹¹

Certification marks are “used upon or in connection with the products or services of one or more persons other than the owner of the mark to certify regional or other origin, material, mode of manufacture, quality, accuracy or other characteristics of such goods or services or [to certify] that the work or labor on the goods or services was performed by members of a union or other organization.”¹² Certification marks “indicate that the claims made by the traders [about the origin or production methods of the product] have been authenticated by an organization independent of the individual or company making or selling the product” (Dutfield 1997:19).

For example, in the UK Stilton cheese makers are entitled to use the “Stilton” certification trademark if their cheese is produced in or near the village of Stilton, in accordance with traditional manufacturing techniques, and making use of traditional ingredients (Dutfield 1997:19; Dutfield 1998:48). Use of the trademark is open to cheesemakers in the Stilton region that comply with the manufacturing guidelines, and is administered by a voluntary association of

¹¹ Article 7bis of the Paris Convention explicitly provides that countries must recognize and protect “collective marks belonging to associations the existence of which is not contrary to the law of the country of origin, even if such associations do not possess an industrial or commercial establishment.” Article 7bis is among the provisions of the Paris Convention which WTO Members must recognize under Article 2 (although it appears that a Member cannot use WTO dispute resolution procedures to challenge a failure to implement this requirement).

¹² Blacks Law Dictionary, 5th ed. 1979, at page 206. St. Paul, MN: West Publishing Co. *See also* 15 U.S.C.A. sec. 1127.

the cheese makers; a similar system is used for other traditional British products such as Harris tweed.

Such marks have been used by some indigenous and local communities, including agricultural products made by American Indians, certified as such by the Intertribal Agriculture Council, and Inuit soapstone carvings, certified by the Canada Department of Indian and Northern Affairs (Dutfield 1997:19).

If a collective or certification mark assures the consumer that a good has been produced through traditional and relatively sustainable methods, then it could stimulate markets for sustainably produced products derived from biodiversity and associated knowledge, thus enhancing economic returns at the community level and creating incentives for sustainable use. Such marks can be closely related to geographical indications, particularly where the owner of the mark is a regional trade association and the requirements for using the mark include location in a specific region.

Collective and certification marks also include those for organic foods as well as “ecolabels” that provide information about environmental impacts of products and their production. There are also a growing number of “fair trade” labels that seek to inform buyers of the social and employment conditions involved in production, for instance whether workers received a reasonable wage and enjoyed a minimum level of workplace safety.

BOX: Certification Marks – the Forest Stewardship Council

One of the most ambitious international efforts to develop a balanced, standardized forest product certification system is the Forest Stewardship Council (FSC). Founded in 1993, the FSC brings together environmental, social and economic interest groups to develop criteria for well-managed forests, and support their application through certification of forests and products. The FSC is based on the premise that consumers need reliable information about the environmental impacts of forest product production in order to exercise a preference for production that is environmentally and socially responsible, which in turn will create incentives for producers to shift to better management. Information about a product and its production will be most reliable if it is provided by independent, impartial certification, based upon sound principles for management. Through an extended process of consultations among interest groups and technical experts, the FSC has developed “Principles and Criteria for Forest Management” as well as requirements for accrediting certifiers, to ensure reliability of representations about products to consumers. It has also launched national and regional working groups to develop management standards for forests in given regions. The FSC accredits certification organizations that satisfy the global principles and criteria.

The FSC currently has 279 members from forty countries. The triennial general assembly makes decisions through a complex voting structure allocated among social, environmental and economic interests, and between developed and developing countries. Currently, six certifiers have been accredited by FSC, including Rainforest Alliance Smart Wood Program, SCS, and in the United Kingdom SGS Forestry and the Soil Association. FSC accredited certifiers have

certified more than 10 million hectares of forest. This includes more than 115 forests in 25 countries, with the largest area of certified forest found in Sweden (3.3 million hectares). More than 3,000 certified wood products are on the market, with a projected 10,000 products, and 40 million hectares of forest, certified by 2002 (FSC, 1998). The area of forest land certified accounts for an estimated 0.5% of global industrial production. While the percentage of world production actually covered by FSC accredited certification is quite small, some observers argue that the FSC's progress should be measured not only in market share but also in its broader influence, which has helped to stimulate the initiation of a number of national, regional and international efforts on SFM (Mankin in press; DuBois, et al 1996:61).

Some of the FSC's principles and criteria relate directly to indigenous and local communities' control and receipt of benefits. Principle 3, for example, provides that all sources (of timber) must recognize and respect the "legal and customary rights of indigenous peoples to own, use, and manage their lands, territories, and resources." Criterion 3.4 goes on to require that "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 commence." Draft Principle 11 on Non-Timber Forest Products (NTFPs) builds upon Criterion 3.4 and requires that Aindigenous and local communities should receive fair and adequate benefits for any use of their name or image in marketing. Whenever local or indigenous knowledge is the basis of an NTFP-related patent, the affected community should receive fair and adequate benefits."

FSC members are currently assessing the logistical, financial, and marketing potential of the certification and labeling of NTFPs according to environmental and social/fair trade standards. The category of NTFPs includes many of the products indigenous peoples and local communities would market under a certification scheme (Shanley et al, in press).

Sources: FSC 1998; portions adapted from Downes 1998b:11-12

An assessment of the potential of IPRs to share benefits and encourage sustainable use must address the significant practical obstacles to indigenous peoples and local community use of IPRs. IPR systems involve complex procedures and legal concepts, requiring expensive legal assistance, and repeated communication with national or international government offices (Downes 1997:8). In order for geographical indications and trademarks to effectively assist communities, financial and technical assistance, streamlined procedures, or other facilitating measures will be needed (Ibid.) National systems for registration and enforcement will be needed, though to a significant extent these must be developed anyway as countries phase in the requirements of TRIPS. In addition, regional and international structures will be required to support the implementation of geographical indication and trademarks systems.

Trademarks and geographical indications impose costs on enterprises and communities seeking to benefit from their protection. The process of applying for and maintaining a trademark, for instance, often necessitates legal advice. In the United States, for example, experts recommend that businesses concerned about trademark issues not only consult a lawyer, but seek out a trademark specialist (Field, Thomas G., Jr., 1998). National registration in the

United States can cost US \$1000 or more (Ibid.) Of course, national systems may, however, be tailored to some extent to the different conditions of different countries.

Case Study No. 1

KAVA

Kava or Kava Kava

Piper methysticum

Piperaceae

Kava, or *Piper methysticum*, is a slowgrowing perennial shrub, cultivated widely throughout the islands of the South Pacific, including the Federated States of Micronesia, Fiji, French Polynesia, Hawaii, Samoa, Tonga, Vanuatu, and Wallis and Futuna. It is one of about 2000 species of the genus *Piper*, within the pepper family. Other species within the *Piper* genus used by humans include black pepper, Ashanti pepper, betel, matico, cubeb, and the long peppers (Lebot et al. 1997:10-11). *P. methysticum* is probably descended from a wild relative, *P. wichmannii*; some evidence suggests that kava is in fact an asexually reproduced set of sterile cultivars of *P. wichmannii* (Op. cit.: 18, 23).

Kava is native to the Pacific Islands. It is thought to have originated in Vanuatu, although other possible origins are New Guinea or the Solomon Islands (Lebot et al 1997:23). There are numerous varieties of kava, with some cultivars more highly prized than others. In 1902 western botanists identified 9 varieties of kava in Samoa; in 1935, 21 varieties in the Marquesas. In 1984 more than 72 varieties were reported in cultivation on the islands of Vanuatu. A review published in 1992 reported that 80 of a total of 118 reported cultivars of kava were found in Vanuatu (Op cit.: 34).

The active compounds of kava are found in the rootstock. They consist primarily of the kavalactones, fifteen of which have been isolated. To date, scientific studies have identified three as responsible for a range of medicinal activities: dihydromethysticin (DHM), dihydrokavain (DHK), and kavain. Demonstrated activities include inducement of sleep, pain-killing, local anaesthetic, anti-convulsive and muscle , and anti-bacterial and food preservative (Lebot 1997: 69-72, and sources cited therein). The activity of kava is determined by kavalactone content and absorption, which depend upon the variety of the plant, the maturity of the plant, preparation and processing, and the manner of consumption.

Traditional Uses. Linguistic evidence suggests that kava has been in use among Pacific Islanders for at least 1700 and perhaps as many as 3000 years (Lebot, et al 1997: 36-37). Today, Pacific Islanders continue to exchange and consume kava root at many ceremonial and social occasions in the Pacific Island Countries. Kava plants are often cultivated in specific shapes, or in particular ways depending upon its use. On the island of Tanna in Vanuatu, kava grown for customary exchanges is cultivated in the trunks of tree ferns, yielding kava plants consumed historically only by chiefs and those of high rank (Kilham 1996).

The ritual use of kava is associated with its relaxing and contemplative effects on the mind. The partaking of Kava by two or more persons together serves an important social function analogous to that of tea, coffee and alcohol in other cultures. Kava is also used medicinally for a range of conditions, including urogenital inflammation, cystitis, to treat

headaches, asthma, tuberculosis, and to soothe stomach problems. It is applied topically to treat fungal infections and other skin problems. It also appears to inhibit gonorrhea (Kilham, 1996).

Cultivation of kava requires relatively little labour and capital investment, and no chemical inputs. It is propagated asexually, through cuttings, and sprouted by laying the stalks in trenches of mud. Once sprouted, the stalk sections are planted in shallow trenches where they grow to maturity in 5-7 years. Kava is harvested at approximately 6-8 feet high. Once planted, kava roots continue to grow perennially, and gardens and plantations are typically passed down through the generations (Kilham 1996).

Kava production is widely spread across the Pacific island countries, providing cash income to small farmers. In Fiji it is an important cash crop, second only in revenues to sugar cane (Kilham, 1996; Peteru, 1997). Commercial production of kava is reported in Hawai'i and research on cultivation is reportedly underway in Australia (Field, Michael, 1998).

Commercial Uses. Most of the kava produced in the Pacific Islands is consumed domestically. Of that, a significant amount is consumed commercially, for instance through the sale of kava beverages, or in "kava bars." Increasing amounts are also sent overseas for burgeoning herbal medicine markets. According to a study by Natrol, a U.S. nutritional supplement company, total kava production has a value of over US\$40 million per year (Verrengia 1998). Kava is the fifth fastest growing herbal product in the United States mass market, with growth during the year up to July 1998 of 473% (Brevoort 1998).

Kava products have been on the international market for more than 100 years. In 1860 a researcher named Cuzent made the first western scientific studies on extracts of kava rootstocks and roots. He developed kava-based pills and other products, which first appeared on the European pharmaceutical market in the late 1800s in Germany. In the early 1900s kava products were included in the British Pharmacopeia under the name "kava rhizoma". In the 1920s kava was used as a sedative and hypotensive. In 1950 the US Dispensatory listed kava as a treatment for both gonorrhea and nervous disorders. In Japan kava was used as a treatment for gonorrhea prior to WWII (Lebot 1997).

Raw kava products have long been shipped to France and Germany, but recently demand has increased, and the market has expanded to include the United States. As a result, market prices for raw and processed kava have increased dramatically, and shortages of high quality raw material are common today. European manufacturers include Potter's Herbal Supplies (UK), Brenner-Efeka (Germany), Fink (Switzerland), Merrell Dow (Germany), and Schwabe (Germany) (Kilham, 1996). United States bulk ingredient manufacturers include Hauser, Pure World Botanicals, and Quality Botanicals, Inc.

Most of the large finished product companies in the United States – such as Solgar, Twinlabs, Nature's Way, and Leiner -- include a kava product in their line. Recent statements from industry predict large increases in sales of kava products on the US market, with firms scrambling to create a range of kava products, from herb-vitamin combinations to "functional foods" such as kava-coated tortilla chips.

Farmgate prices for fresh kava rootstock in Vanuatu in the mid-1980s were estimated at \$1/kg (Lebot et al. 1997:177). Current prices for kava destined for North American and European markets are reportedly in the neighborhood of US\$ 5-10/pound, or \$11-22/kg (Field 1998). A typical price for a kava product in the US retail market, in contrast, is \$12-20 for a bottle of 30 capsules with a total stated kava content of 60 grams. Clearly, there is room for kava producers to capture additional value through processing of the commodity into end use products, which would be a logical accompaniment to labeling of consumer products indicating geographical origin.

Intellectual Property. When the secretariat of the South Pacific Forum sought an opinion on whether the name “kava” could be registered as a trademark, it was advised that the term was too well known as a generic name of the substance in relevant markets such as the Pacific, Europe and the US. However, it was suggested that Pacific Island Countries organize to create a “Pacific kava” trademark, collective mark or certification mark, which would be a distinctive term identified with kava products originating in the South Pacific (Peteru 1997). At an October 1998 Second Regional Kava Symposium held in Fiji by the Kava Forum, intellectual property methods for increasing local benefits from kava production were discussed, along with marketing, agronomy, and post-harvest handling.

US and European companies have trademarked a number of terms relating to Kava, including for instance the names “Kava Pure” and “Kavatril.” There are also at least five kava patents on kava extracts and active compounds (Peteru 1997). At least one company has obtained a patent on a combination of kava and other herbs, “Kavatrol.”¹³

Genetic resources for kava are distributed among a number of countries of origin in the Pacific, with an apparent center of diversity in Vanuatu, but additional cultivars found in a number of other islands, including Hawai’i, which is within the territory of a non-Party to the Biodiversity Convention. It appears that living exemplars of kava are also found in ex situ collections outside of the Pacific, presumably the result of collecting expeditions predating the entry into force of the Biodiversity Convention. In light of UPOV requirements, it appears doubtful that kava varieties could receive plant variety protection, “because all the traditional cultivars are probably centuries old” (Lebot, pers. comm.).

Kava appears to be a product with significant potential for use of trademarks or geographical indications. It is very possible that an appropriate trademark, particularly a certification mark that represents standards for environmental and socially responsible sourcing and processing of raw materials, would increase market share for its users.

Consumers, retailers and manufacturers of herbal products tend to be more conscious of environmental and social implications of production than the average. Increasingly, consumers and the media have criticized the herb industry’s sourcing strategies. A number of companies have begun to invest in ethical sources that guarantee control over plant material quality and

¹³ “Valley and Ventura County: Regional Roundup: Natrol Wins Patent for Plant-based Relaxant.” *L.A. Times*, Aug. 11, 1998, Part D, p. 12A. Natrol Inc., obtained a U.S. patent for Kavatrol, a dietary supplement that serves as a general relaxant, composed of kava, chamomile, hops and schizandra.

ensure reliable supply. For example, Pure World Botanicals — one of the largest bulk ingredient suppliers of kava to the US market — has invested in a sustainable sourcing strategy for kava, a strong selling point for some of the manufacturing and marketing companies that buy their products (e.g. Nature's Way).

At this stage, the demand is so high for kava that mediocre and adulterated material finds its way onto the market. A certification mark could represent responsible sourcing from the perspective of quality control (e.g. preferred variety; chemical markers for kavalactone content), as well as production that meets environmental and social criteria. Although a significant outreach campaign is required to educate consumers on the standards behind any label, a number of groups have already launched programs which could assist in this effort for kava, e.g. Rocky Mountain Herbalist Coalition (USA), and United Plant Savers (USA).

The growth in foreign demand for kava has led some farmers and harvesters to shift away from traditional methods -- which frequently involve multicropping and a waiting period for the kava to reach a certain age and size -- to more destructive techniques. The production of agricultural commodities or harvest of species from the wild for export can lead to destruction of bioresources through the displacement of habitat by cultivated areas, or the intensification of cultivation techniques resulting in soil erosion and water pollution.¹⁴ Systems for applying trademarks or geographical indications should be designed to avoid such patterns of exploitation and maintain the resource for long-term use. Thus, the same collective institutions that develop marks of origin should also explore basic standards for sustainable production, which may draw upon traditional techniques and customs.

Kava also appears a strong candidate for geographical indications such as appellations of origin. The production techniques for kava are based on "Along histories of empirical experimentation and experience," as Moran (1993) characterizes production techniques for products typically covered by geographical indications. These traditional practices continue to evolve over time, but a core of propagation, cultivation, and processing techniques combine to produce the optimally effective kava product. As leading kava researcher Vincent Lebot (pers. comm.) has commented, "it is obvious that kava is the product of Pacific farmers' science and the result of centuries of genetic selection. This has been largely documented and published in international journals." The four key elements needed for appellations of origin — distinctive varieties (nearly 120); variation in yield of dry matter and kavalactones; different production methods (such as organic and multi-cropping); and processing methods (e.g. sun-drying) — appear to be present (Lebot, pers. comm.). However, in order to establish a basis for a geographical indication, there must be a showing of distinctive qualities of kava grown by traditional methods in traditional growing areas.

At the second regional Kava Symposium held in Fiji in October 1998, and coordinated by the Kava Forum Secretariat, it was felt by participants that the first step towards developing geographic indications to "protect" their kava resource, is accurate characterization of existing germplasm. This would involve (Lebot, pers. comm., 1998):

¹⁴ Bioresources is defined here broadly to include not only kava itself but also the ecosystem and its components, such as soil and other plants, that support production of kava.

1. Identification by all Pacific Island Country of the morphotypes (morphologically distinct kava varieties) within their jurisdiction, using international standardized morphological descriptors;
2. Analysis of each variety for its chemical composition (reflecting its economically valuable trait); chemotypes need to be fully characterised with standardized extraction and analytical methods;
3. Development of genetic fingerprints to allow identification of duplicates and to distinguish genotypes.

Once these steps have been undertaken, the “Original Vanuatu Kava” could be defined as including morphotypes “x”, chemotypes “y”, and genotypes “z”. The “Original Fijian Kava” could be defined on similar criteria. All of these kava types taken together could be denominated as the “Original Pacific Kava.” A catalogue might be published to describe the existing 120 distinct varieties. The Kava Forum Secretariat is continuing to explore such an approach, taking into account systems such as the AOC employed in France, or the system used to distinguish between California, Korean, and Chinese ginseng (Lebot, pers. comm., 1998).

Certification marks, collective marks and geographical indications all have the potential to provide incentives for sustainable use, by increasing benefits captured at a local level and rewarding wise management. Perhaps most important, the cooperative development of such marks enables producers to establish shared standards for sustainable management, and to monitor and enforce compliance with those standards. This is an essential step in avoiding destructive competition in which producers harvest resources as cheaply and quickly as possible in order to maximize short term profits at the expense of the long term sustainability of their resources.

Moving in this direction will require a number of steps. One is the creation of an institutional framework, however flexible in the beginning, to support regional cooperation. Within this framework producers, government officials, and those involved in export, distribution and marketing can come together. Ultimately, a more formal institutional structure will be needed to maintain and elaborate standards and a system for awarding certification and monitoring and enforcing compliance among producers and sellers. The proposed name for this body is the “Pacific Kava Council” (Lebot, pers. comm.). The Pacific Kava Council might also provide technical advice and help build local capacity to add value to products before export, perhaps through extraction and standardization. In addition, exporting countries will need to enact legal measures to support this system in order to allow international enforcement against unauthorized use of the geographical indications.

Case Study No. 2:

ROOIBOS TEA

Rooibos Tea¹⁵

Aspalathus linearis

Fabaceae

Aspalathus linearis is a shrub of half a meter to two meters in height with bright green, needle-shaped leaves which turn a rich reddish-brown colour upon fermentation. The species is endemic to the fynbos ecosystems of Mediterranean shrubland found in the western parts of the Cape in South Africa. Fynbos constitutes the main land cover in the Cape floristic region, which has the densest known concentration of plant diversity in the world (Cowling et al. 1997). While fynbos ecosystems provide significant economic and cultural values to surrounding communities, they are under severe threat of destruction, primarily due to the introduction and spread of alien species (Ibid.) In addition to rooibos, a number of other fynbos plants have been the source of foods, drugs, and horticultural crops (Ibid.:348).

Commercial cultivation of rooibos is centered in the Nieuwoudtville, Clanwilliam, Citrusdal, and Piketberg districts, on mountain slopes and plateau at around 450 meters above sea level, with soils of Table Mountain sandstone origin, and limited winter rains. The stress of the local environment reportedly contributes to the plant's development. *A. linearis* is highly variable morphologically, genetically, and chemically. Only one type is commercially cultivated B the Red type, or Rocklands type, originally from the Pakhuis Pass area (Van Wyck et al 1997; Rooibos Ltd. 1998)

Rooibos tea has become a popular beverage throughout South Africa, where it occupies a position in the mainstream of daily life alongside coffee and black tea. In Europe, it has a niche role and is sold in health food stores.

Rooibos is prepared and consumed much as black tea, but it contains no harmful stimulants and is devoid of caffeine. There is growing evidence that the flavonoids, as antioxidants, contribute to a reduction in heart disease and other ailments associated with aging. Rooibos tea is also used as an ingredient in cosmetics, and there have been claims that it is beneficial in cases of eczema (van Wyck et al 1997).

The original product name of "Red" tea was reportedly replaced by marketers of the product with the term "Rooibos or "red bush," in order to indicate to consumers that the product was, in contrast to earlier, less standardized supplies, a high quality cultivated and processed

¹⁵ Research for this case study was conducted by Rachel Wynberg, and involved interviews with a number of individuals, including: Henrietta Souter, Cape Natural Tea Products; Peter Schulke, KhoiSan Tea; Steve P. Du Preez, Rooibos Ltd.; Dawie de Villiers, Rooibos Natural Tea Products; John Rourke, National Botanical Institute Herbarium; Kay Bergh. This case study also draws upon information found in Rooibos, Ltd. 1998.

product”; the new name was also intended to replace a confusing variety of names such as Koopmans tea, Needle tea, Pin tea, and Bush tea (Rooibos Limited 1998).

Traditional Uses. Rooibos tea is a traditional beverage of the Khoi-descended people of the Clanwilliam region in the Cape, and is one of the few indigenous plants to become an important commercial crop in South Africa. Local Khoi-descended communities harvested the wild plants and produced a tea by a process of cutting the twigs and leaves with axes, bruising them with wooden hammers, fermenting the material in heaps “until the bees came”, and drying it spread out in the sun (van Wyck et al 1997; Kay Bergh, pers. comm., 1998). As early as 1772, botanist Carl Thornberg, while working in the region, noted the indigenous people’s use of rooibos tea. In some places, such as pockets in the Clanwilliam area, the tea is still prepared in this traditional way.

Commercial Uses. Around 1900 European immigrants in the Clanwilliam district took note of the local traditional use of rooibos tea. By the early 1920s one company was marketing a rooibos product under the trademark “Eleven O’Clock.” That company’s founder encouraged others to undertake research on the cultivation of rooibos tea with a view to establishing plantations. Rooibos soon became a recognized agricultural crop in the region. During WWII Ceylon tea was difficult to come by and demand for rooibos increased dramatically. This further stimulated investment in cultivation practices, and a decline in the use of wild plants. At the end of the war, the market for rooibos shrank. In 1954 the Rooibos Tea Control Board was established under the National Marketing Council in order to regulate rooibos tea production and marketing, stabilize prices, and improve and standardize quality (Rooibos Ltd. 1998).

In 1993 the Rooibos Tea Scheme was discontinued, replaced with Rooibostea Natural Products Ltd. which was intended to oversee the handling, storage, processing, and marketing of rooibos tea to the optimal advantage of the producers, without political interference (Rooibos Ltd. 1998). Currently five companies produce and market rooibos: Rooibos Limited, the largest company and successor to Rooibostea Natural Products Ltd., which held a state-sponsored monopoly over rooibos production until 1994; Cape Natural Products, which has a significant share of the international market; Khoisan Tea, which is also aimed at the international market; and Kings Products and Redbush Herbal Tea Trades, both small companies. Rooibos tea brand names include: Eleven O’Clock, Freshpak, Laager, Vital, Southalls, Clantee, Ou Huis, Annique, and Perfect Rooibos Baby tea.

Commercial cultivation practices began in the 1930s, but in the last two decades methods have been refined and made uniform based on the experiences of producers and new developments in research. Early researchers drew upon the ecological and management knowledge of indigenous communities in developing their cultivation strategies. For example, one industry representative reported that Dr. le Fras Nortier — the first researcher to work on rooibos cultivation — made his early commercial plantings with seed collected by indigenous peoples from antheaps. The seed was extremely difficult to collect at first, because each legume pod contains only one fruit, which is projected out immediately upon being ripe. Knowledge that ants collected the seeds allowed researchers to collect seed for planting. Some within the industry argue that the difficulty of locating seed and the importance of the local ant population are reasons why rooibos has never been cultivated outside of South Africa. Today, some material continues to be collected from the wild, but the bulk is produced in intensive agricultural systems which bear little resemblance to what would have been traditional management of “wild” populations.

While cultivation of the plant has changed dramatically, “modern” commercial processing is essentially a large-scale version of the traditional processes developed and practiced by the Khoi-descended people to make the tea that first impressed immigrants. As described by Rooibos Ltd. (1998), commercial processing is a complex and precise process which requires cutting of shoots or branches followed by crushing and applying uniform moisture through the use of a “special heavy apparatus with rubber wheels” (this bruising facilitates contact between the enzymes and tannins). Next comes aeration, placement in piles for fermentation (during which the enzymes work on the tannins and the desired flavour is produced), and finally the thin spreading of materials on large concrete lanes to dry in the sun.

Rooibos is currently marketed in close to thirty countries around the world, with the largest markets being Japan and Germany. Great market potential exists in the Far East, USA, Europe, and Australasia, but costs associated with penetrating new markets are high. Estimates of production in 1997 range from 5,000 to 10,000 tons. About one tenth of this was exported. Total sales of rooibos in 1997 were an estimated R50 million, or about US\$ 10.3 million (pers.comm. P. Schulke, KhoiSan tea, 1998; pers. comm. H. Souter, Cape Natural Tea Products, 1998).

Intellectual Property. Existing trademarks include a logo depicting a steaming cup of tea, owned by Rooibos Ltd. (previously the Rooibostea Natural Products Ltd.). In general, however, rooibos tea brand names do not appear to be registered as trademarks in South Africa. In 1998, Annekie Theron, who first publicized the beneficial effects of rooibos for babies (e.g. anti-spasmodic) took out a trademark on the name “rooibos” in the US and The Netherlands. In the UK a trademark on the name is thought to belong to Benjamin Ginsberg. Thus far, these trademarks have not been enforced and there may be questions as to whether they could be maintained in light of what is apparently the generic nature of the term rooibos in South Africa, and perhaps elsewhere.

Options for Benefit Sharing and Sustainable Use. Since South Africa remains the main producing and consuming country for rooibos tea, it is not clear to what extent geographical indications and trademarks are immediately warranted. Certified trademarks representing environmental and social benefits might find niche markets within South Africa, however, and with the primarily health food sector consumers in other countries. Khoisan Teas, for example, recently exported the first batch of certified “organic” rooibos tea through the German company “Laachen”, which certified their production in early 1998. Demand for organic rooibos is on the increase, particularly in Europe and Japan.

A number of rooibos-producing company representatives anticipate that international demand will continue to grow, particularly in the health food sector. If demand grows significantly, it is possible that other countries will seek to produce rooibos in large quantities to feed this market (it takes only one year for the plant to reach harvesting age, and it is likely to flourish more outside of its native habitat, away from co-evolved predators). In such circumstances it might prove worthwhile for South African producers to protect their markets with a “South African Rooibos” trademark, or perhaps a geographical indication for rooibos.

The species and variety in question is clearly of South African origin, as are the production and processing methods. Less clear in this case is which South Africans should benefit from such an indication or trademark, and in what manner. The bulk of producers are not indigenous people. For example, the largest marketer of rooibos sources only 1-3% of its raw material from “small scale farmers and those from disadvantaged communities” (S.P. Du Preez, Rooibos Ltd. pers. comm. 1998). Large-scale producers are best-positioned to make the investments needed to capture benefits from commercial markets for rooibos.

Should mechanisms be established to channel benefits to the settler community who developed and invested in a commercial product, and who control the modes of production today? Or should the benefits flow to indigenous communities who first developed the use of *Aspalathus linearis* leaves and twigs for sale, as well as the processing techniques (and aspects of propagation and cultivation know how) still employed today? Arguably, it is difficult to draw sharp lines between these categories. A more effective approach might be to focus on enhancing benefits to disadvantaged communities in the Clanwilliam area in which the tea was originally developed. Other areas outside Clanwilliam only began growing rooibos much later, and might have a weaker claim to benefits than the communities in which the tea was first used and cultivation and processing techniques were developed.

Examples of possible benefits would be funding for clinics or schools serving small-scale and historically disadvantaged farmers in the region. A mechanism for doing this could be a trust fund generated from use of a trademark which would have the additional benefit of promoting the industry in general. Funds could also be channeled into generic advertising, initiatives to promote organically farmed rooibos, or measures to conserve the mountain fynbos from which rooibos originates. Criteria associated with a collective trademark or geographical indication must also ensure that market demand does not lead to conversion of the endangered fynbos habitat for cultivation.

Such an approach would require cooperation among the stakeholders in the industry to set up and maintain some kind of institutional framework for collective marks and a trust fund. Efforts have been made to organize a national Rooibos tea forum, which would better coordinate producers, but because the trade is highly competitive this has not moved forward. In particular, the largest producer, Rooibos Ltd., has resisted this step. However, a number of companies interviewed as part of this study expressed interest in the development of a trademark/geographical indication, although others expressed reservations and considered it unlikely that the industry could be brought together to such an end. If enough industry participants can be persuaded, then the South African Department of Agriculture might be able to facilitate or catalyze a collaborative effort that included relevant stakeholders such as industry, small scale farmers, and environmental and development NGOs.

Case Study No. 3

Quinoa¹⁶

Quinoa

Chenopodium quinoa

Chenopodiaceae

Quinoa (*Chenopodium quinoa*) is a drought-resistant food crop native to the Andes. It successfully grows in high elevations, and is cultivated from sea level to nearly 4000 meters in altitude (Tapia pers. comm.) It tends to be cultivated in marginal soils with low yields, although it responds to fertile soils.¹⁷ Although not a cereal, quinoa produces a grain that is highly nutritious, providing protein of higher quality and quantity than comparable foods such as maize, rice, wheat, oats and other grains (Junge 1973). It has similar culinary purposes to that of barley, but cannot be used alone to make bread, due to the absence of gluten.

Traditional Uses. Quinoa was traditionally cultivated by native people of the Andes. Indigenous communities in the Andes have bred numerous quinoa varieties, including Apelawa (named after a village in Bolivia), Chullpi, Kanccolla, Marangani, Blanca de Junin, Rosada de Junin, Witulla, Ccoitu, and Real. Over 30 varieties are cultivated at present.

As a food crop, quinoa is versatile since culinary use can take a range of forms: whole grain, uncooked or roasted flour, small leaves, meal, instant powder. Moreover, the whole plant can be used as green fodder and parts of the plant have traditional medicinal uses. Traditional cultivation techniques consist of sowing in a crop rotation, typically following potatoes. Quinoa may also be cultivated in mixed cropping with maize, potatoes and beans (Tapia pers. comm.) Soil preparation is minimal and only the residual fertilizers from the preceding crop are applied. There is great potential to increase yields but this would in part require greater soil preparation, fertilization and disease control (Hernandez Bermejo and Leon, 1994).

From the Spanish Conquest of South America until the mid-1970s, there was a decline in cultivation of quinoa and it came to be grown only on marginal lands by subsistence farmers, mainly in Peru and Bolivia. At that point, Bolivian domestic consumption of quinoa was being displaced by wheat imports from the United States. The decline in quinoa cultivation has been attributed in part to the labor-intensive nature of harvesting and threshing, which usually are done by hand; additionally, bitter components of the grain must be removed before consumption (Hernandez, Bermejo and Leon 1994).

Commercial Uses. Since around 1975, interest in quinoa in its center of origin has increased. In large part this revival can be attributed to the promotional work of a cooperative of farmers in Bolivia that developed both foreign and domestic markets.¹⁸ Breeding programmes

¹⁶ Initial research for this study was prepared by Graham Dutfield. The authors are very grateful to Mario Tapia for factual information and comments on an earlier draft of this case study.

¹⁷ Most of the information in the first two paragraphs was acquired from Galwey 1995 and from Mario Tapia, pers. comm. 1998.

¹⁸ This and much other information in the following several paragraphs is drawn from a pers. comm. with

were initiated in Peru and Bolivia, and quinoa was sold in urban supermarkets in these countries. Breeding programmes were also launched in Ecuador (by Nestlé), in the state of Colorado in the U.S., and in Cambridge, England. In addition to quinoa's use as a food, research and development is underway on its potential use in other applications such as pesticides and pharmaceuticals.

Beginning in the late 1970s, a market for quinoa grain was established in the health food sector in North America and Europe, supplied by imports from the Andean countries and from quinoa grown in Colorado, USA. In the 1990s, this market grew rapidly, but some industry observers predict a leveling off of demand for quinoa as a food. The large majority of US demand is satisfied through imports, much of them from Bolivia. Currently, only about 2-3% of United States demand for quinoa is supplied by United States production; most US production is exported to Europe.

Today, over 40,000 hectares are cultivated in Bolivia, and 30,000 hectares in Peru (Tapia pers. comm.). Yields vary widely, from 400 to over 2000 kilograms per hectare. Some small farmers produce organic quinoa (Ibid.).

Quinoa is still a little-known food outside the Andean countries except for the niche market in health food breakfast cereals. However, according to Galwey, "if current efforts to develop quinoa for affluent markets are successful, this is likely to raise the status of the crop in the Andes, and to lead to increased production and consumption". Naturally, there is a risk that Peru and Bolivia may be unable to match increased world wide demand for quinoa, and will lose market share to other countries with advanced crop breeding programmes.

Intellectual Property. While health food manufacturers sometimes emphasize quinoa's association with ancient and exotic indigenous Andean cultures in their promotional materials, there does not appear to be any systematic certification or marking of products to indicate their geographic origin or the conditions of quinoa cultivation.

Controversy has arisen, however, regarding patents on varieties of quinoa being researched by plant breeders in other countries. In particular, the international non-governmental organization RAFI and Bolivia's National Association of Quinoa Producers recently questioned the propriety of a 1994 United States patent on "Cytoplasmic Male Sterile Quinoa"¹⁹ One of the patent's claims was for Aa reliable system of cytoplasmic male sterility." The application argued that such a reliable system had not previously been reported, and that "cytoplasmic male sterile plants have not heretofore been available for commercial production of quinoa hybrids." Opponents of this patent argued that it failed the novelty requirement, because the existence and value of quinoa plants with the male sterility characteristic were known to many traditional cultivators. One of the inventors argued that the variety was indeed new as it resulted from a

Kevin Healy, InterAmerican Foundation, June 30, 1998.

¹⁹ Description and discussion of the patent is based on information from US Patent 5304718 and the following sources: A. Bonifacio (1997) "Technical Considerations on Cytoplasmic Male Sterility in Quinoa"; exchanges between Sarah Ward and Pat Mooney on the Environment in Latin America Network e-mail listserv; and the two press releases issued by RAFI on 19 June 1997 and 22 May 1998.

natural, fortuitous transfer of cytoplasm from a related weed species growing in a field near the field where the relevant quinoa plants of the Bolivian *Apelawa* variety were growing in a field in Colorado. In the end, the patent was abandoned when the holders failed to file renewal fees.

Given the wide genetic diversity of cultivated quinoa, the existence of many traditional varieties, its excellent nutritional properties, its various uses, and the prevailing environmentally-friendly cultivation practices, it is argued that wider quinoa cultivation merits support for economic, social and environmental reasons (Hernandez Bermejo and Leon, 1994). Geographical indications or trademarks such as certification marks might be a useful tool for encouraging wider cultivation and the distribution of benefits to local communities, to the extent that production is carried out by small-scale farmers. There are active local associations of quinoa producers in Bolivia that could formalize the rules of production and processing required for a system of geographical indications. Traditional production methods appear to impose little environmental degradation, but enhanced market demand can create pressure to use more intensive techniques that inflict environmental harm and damage the long term productivity of soil and other resources. Thus, the criteria by which producers qualify to use the marks will need to incorporate environmental aspects, if the marks are to serve as incentives for conservation or sustainable use.

On the demand side, there are some indications that consumers might find Andean quinoa more attractive than quinoa from non-native sources such as Colorado. Consumers and often retailers in the relevant health food markets tend to prefer environmentally sound or socially responsible products. If quinoa product manufacturers are right, these consumers also respond to the cachet of products associated with ancient indigenous cultures of the Andes.²⁰ Trademarks such as certification marks that verify the production method and the nature of the producers (i.e. small independent farmers) could help South American exporters enhance the market value of their quinoa *vis-à-vis* quinoa grown elsewhere.

Quinoa varieties, yields, production, and processing methods are distinctive to regions and groups of producers, and have grown out of centuries of traditional management. A geographical indication would be appropriate if quinoa from its region of origin can also be shown to have distinctive characteristics resulting from being grown in the region according to traditional methods. Appellations of origin might indicate the folk variety, as well as the place, from which material is produced, e.g. *Apelawa*, or *Real*. If such a system were developed, a national legal framework would be needed to support it.²¹ Since the transaction costs involved in establishing and maintaining a system of marks are substantial, further research would be useful to assess whether anticipated benefits are likely to outweigh the costs.

²⁰ A “heritage” breakfast cereal manufactured by Nature’s Path Foods, Inc., a Canadian corporation, includes quinoa, which is described as “an ancient flavor favorite [sic] ... savored for centuries” by the “people of the Andes.” While the California-based Quinoa Corporation packages its quinoa flour with an emphasis on nutritional value, it also labels the product with the brand name “Ancient Harvest.”

²¹ As discussed in Part II.B, above, a WTO Member is obligated to protect a geographical indication only if the country of origin itself has provided legal protection.

Case Study No. 4 Basmati²²

Basmati Rice

Oryza sativa (rice)

Poaceae

Basmati rice is a long-grained aromatic variety of rice that is cultivated in areas of Northern India and Pakistan, mainly in the Punjab. The word “Basmati is Hindi for Athe fragrant one” or “fragrant earth” (Prakash 1998). Like other famous rice varieties, such as Dehra Dun and Patna (both from India), and Thai Fragrant (also known as Jasmine rice), Basmati is widely recognized as having specific desirable qualities. It has a distinctive, rich flavor that is highly prized in the cuisine of the Indian subcontinent and around the world.

There is a substantial number of traditional varieties, some still cultivated by small farmers and some held in gene banks (Ibid.). Its germplasm is found in a number of ex situ collections of crop genetic resources, including those of the International Rice Research Institute (IRRI) in Manila. The United States on-line Genetic Resources Information Database of germplasm in US collections lists 67 varieties of basmati.²³ The most widely used varieties today have been developed for the most part by public agricultural research institutions.

As discussed below, the evidence gathered to date is unclear as to the extent to which basmati’s characteristics are derived from the rice variety, local conditions such as soil, or production/processing methods.

Traditional Uses. Basmati originates in the Karnal region and the Dehra Dun region in the foothills of the Himalayas (Dwijen Rangnekar, pers. comm. March 1999). Traditional cultivars are currently used only by marginal farmers, who do not produce for large-scale markets (Dwijen Rangnekar, pers. comm. March 1999).

Commercial Uses. Substantial amounts of basmati are grown for sale on national and international markets. Commercial production of basmati appears to rely on high-input methods (Dwijen Rangnekar, pers. comm., March 1999).

Basmati commands a high price internationally. In 1997, Basmati rice provided 51% of the value of India’s rice exports yet constituted only 37% of the tonnage.²⁴ Indian basmati exports had an estimated annual value of US \$277 million (Prakash 1998). Major markets for Basmati rice are the United States, which imports about 45,000 of the 480,000 tonnes exported

²² Initial research for this study was prepared by Graham Dutfield.

²³ See <http://www.ars-grin.gov/npgs/>.

²⁴ The Economic Times (1998a) ‘Foodgrain exports decline’. 11 July. (Internet edition - <http://www.economictimes.com/110798/11poli05.htm>)

per year²⁵, and the United Kingdom, which is the largest importer in Europe. Rice producers in the United States are also producing rice from basmati varieties.²⁶ Public and private sector agricultural research institutions in the United States²⁷ and other countries²⁸ are developing modified basmati rice varieties intended for growing conditions outside the Indian subcontinent.

Reductions in tariffs in the European Community required by the completion of the Uruguay Round of international trade agreements may enhance market access for basmati exports (FAO 1995). While addition of value to the export through further processing can enhance returns to the place where the commodity is produced, exporters to Europe are hindered from doing so because EU tariffs are higher for milled rice than for unpolished rice (Owen 1993). Consequently, milling is often carried out in Europe and the added value is captured not by the exporters or Basmati growers, but by the Europe-based milling companies.

Intellectual Property. International controversy has arisen regarding the application of intellectual property to basmati. Corporations in France and the United States have been producing rice based on basmati varieties in those countries, and registering trademarks that refer to basmati, seeking to gain from its high reputation. In France, a food company called *Etalissements Haudecoeur La Courneuve* has been granted two French trademarks using the

²⁵ Economic and Political Weekly (1998) 'Looking beyond basmati'. February 21, 371-2; International Centre for Trade and Sustainable Development (1998) 'IPR Claims Continue to Oppose India and US. *Bridges*, 2(2), 9.

²⁶ For example, Penguin Natural Foods, Inc., a small California-based company, advertises basmati rice, "[a]n extremely slender, long grained rice known for its perfumed taste and aroma. Chosen for its excellent quality, our Basmati rice is grown in Texas and is available as a white or brown rice." See <http://www.penguinfoods.com/n_rice.html>.

²⁷ The Texas A&M Agricultural Research and Extension Center, for instance, announced research on specialty rices for "niche markets" including "basmati (mainly Indian), arborio (Italian), and jasmine (Thai) rices." It highlighted the "aromatic TX2126, now in testing for possible release . . . from a traditional basmati variety crossed with a high-yielding Texas semidwarf." A representative said that the new variety "has that special basmati aroma, and its grains elongate when cooked. But unlike the Indian basmatis, ours grows well in Texas. . . . We hope TX2126 will give imported basmatis some Texas competition." See "New Rice Varieties 'Tailored for Texas' Featured at Beaumont Center Field Day," July 1997, <<http://www.agcomintl.com/beaumont.htm>>. In another example, the California Cooperative Rice Research Foundation, primarily funded by the California rice industry, supports research at the California Rice Experiment Station (CRES) on improved rice varieties, including basmati varieties. See <<http://agronomy.ucdavis.edu/ricestation/cc00001.htm>>.

The Texas research center's web site also includes a report of an early example of American "biopiracy." One of the center's new varieties was named "Jefferson," in part to honor "Thomas Jefferson, the third U.S. President and an early supporter of the U.S. rice industry." The web site explains that "[i]n 1782, Jefferson served as Minister to Europe, based in France. Promoting U.S. products abroad was a key duty. Jefferson saw that the French preferred Italian Piedmont rice over U.S. Carolina rice because it had fewer broken grains. Wanting to ship Piedmont seed to rice growers in South Carolina and Georgia, Jefferson crossed the Alps on a 3-week journey to Lombardy, Italy, where Piedmont was grown. There, he learned that taking Piedmont seeds out of Italy was a serious crime--punishable by death. Undaunted, the future President smuggled unhusked Italian rice seeds, hidden deep in his coat pockets, back to France, then sent them to the United States. Jefferson also had dryland rice seeds shipped from Africa and Vietnam to America."

²⁸ Research on basmati varieties adapted to local conditions is also underway in Australia. See <<http://www.rirdc.gov.au/pub/97comp/rice.html>>.

word “Basmati”: “Riz Long Basmati” and “Riz Long Basmati Riz du Monde”.²⁹ The Indian government, through its lawyers, has filed an opposition with the French trademark office and is awaiting a decision. In the United States, the Texas-based company RiceTec, Inc. has for several years been selling its own Basmati rice in the US and the Middle East using such trademarks as “Texmati” (Dasgupta 1996), “Texmati Texas Aromatic Rice”, and most recently, “Kasmati.”³⁰

A recent patent on a rice variety related to basmati has sparked particularly intense criticism. In 1997, RiceTec was awarded a US patent for modified Basmati rice varieties consisting of “novel rice lines, whose plants are semi-dwarf in stature, substantially photoperiod insensitive, high yielding and produce rice grains comprising characteristics and qualities similar or superior to those of good quality Basmati rice grains produced in India and Pakistan.”³¹ RiceTec claims to have used a combination of traditional breeding techniques and biotechnology to produce the new basmati lines.

RiceTec is reported to have acquired the original germplasm from a germplasm collection in Idaho, United States, operated by the United States Department of Agriculture (Prakash 1998). The original collection was probably made through the International Rice Research Institute (IRRI) based in The Philippines (CSE, 1996; The Nation, 1998). The germplasm was reportedly acquired prior to the entry into force of the Biodiversity Convention. Thus, even if the United States were a party to the Convention, the Convention’s benefit sharing principles would not apply to RiceTec.

Neither India nor Pakistan regulates the use of the term “basmati” as a geographical indication. Thus, other WTO members have no obligation to protect the rights of producers from the Indian subcontinent where the rice type originated.³² In the long term, however, it would be possible for the two governments to establish legal protection for the term, perhaps through an appellation of origin system for rice varieties. Regional varieties of rice are indeed protected in Italy, for instance, where more than 40 domestic rice varieties are labeled with variety names, and in Spain, where rice varieties are labeled with *denominaciones de origen*, in a manner similar to wines (Owen 1993).

Such legal protection could be a useful tool for enhancing marketing of basmati produced in its region of origin. The potential linkages to conservation, sustainable use and benefit sharing, however, require further study. Most export oriented production of basmati reportedly involves high levels of inputs (Dwijen Rangnekar, pers. comm. March 1999), which is not typically the method of production most friendly to the environment or biodiversity. Nor is it

²⁹ The Economic Times (1998b) ‘India confronts basmati-pinching French’. 4 July. (Internet edition - <http://www.economictimes.com/040798/04econ5.htm>)

³⁰ RiceTec has also trademarked the word ‘Jasmati’ for a product based on Thai Jasmine rice, causing concern among Thai rice producers..

³¹ *Basmati rice lines and grains*, U.S. Patent No. 5,663,484, September 2, 1997.

³² As noted in Part I.A.2 above, Article 24.9 of TRIPS provides that a WTO member has no obligation to protect a geographical indications unless it is protected in the country of origin.

clear how much of the benefits from export sales are shared with local people in the region of origin.

Basmati would qualify for protection as a geographical indication under the TRIPS Agreement if “a given quality, reputation or other characteristic” of basmati is “essentially attributable to its geographical origin.” Whether a given quality is attributable to its origin relates to objective evaluation of the qualities of the rice. Whether basmati’s reputation is so attributable depends on subjective beliefs of consumers and experts in the trade. More information is needed on both the qualities of basmati from the subcontinent and from other regions, variations among the quality of basmati produced from different varieties or soils and through different methods, and linkages between these differences and geographic regions, and on the attitudes of consumers in relevant markets.

Arguing in favor of basmati’s status of a geographical indication is the fact that it is so treated in some importing countries. For instance, the UK’s rice “code of practice” defines “long grain aromatic rice grown only in India and Pakistan” as basmati rice, while Saudi Arabia requires that rice sold as basmati have its origin only in the Indian subcontinent.³³ Interestingly, RiceTec itself, in its patent application, states that the “limited success” of efforts to improve basmati rice varieties “supports the belief in consumer, trade and scientific circles that authentic Basmati rice can only be obtained from the northern regions of India and Pakistan due to the unique and complex combination of environment, soil, climate, sowing practices and the genetics of the Basmati varieties.”³⁴

On the other hand, RiceTec claims to have made the “surprising discovery that certain Basmati plant and grain characteristics and aspects of the growing environment for traditional Basmati rice lines are not critical to perceived Basmati product quality.” Thus, the company claimed that its novel “Basmati lines” had the utility of making possible “the production of high quality, higher yielding Basmati rice worldwide.” Consistent with this, the United States-based Rice Federation has reportedly “the terms basmati and jasmine refer to types or generic classes of aromatic rice and that these terms cover many varieties and a broad range of qualities. Additionally, these terms are not restricted to products or varieties produced in any specific country or groups of countries” (Prakash 1998).

Also potentially problematic is the fact that the term Basmati itself does not literally refer to a place. On the one hand, some advertising emphasizes the region of production. One web site, for instance, trumpets its basmati as “[o]ne of the finest varieties in the world,” an “exotic pick” that “grows in the fertile plains of lush green Punjab where fine Himalayan rivers water the soil.” Yet another merely states that its basmati, “the world’s most exquisite rice,” is produced “in the most fertile valleys and plains of India,” without referring to any specific region. Nor do Basmati producers or exporters typically label the rice in a way that indicates a strong connection between the product and a place. Usually, only the country of origin is printed on Basmati packets.³⁵

³³ BRIDGES Weekly Trade News Digest 2(7), March 2, 1998 <<http://www.ictsd.org>>

³⁴ U.S. Patent, *op. cit.*

³⁵ A notable exception is the UK-based company, Tilda Rice, which states the following on its basmati rice

The situation of Darjeeling tea provides a useful comparison. Darjeeling tea planters are able to command high prices in international markets, and healthy profits, while avoiding overproduction that would lower prices and degrade the environment and long term productivity. India has no national legislation that designates geographical indications *per se* for Darjeeling. However, only genuine Darjeeling tea may carry a special logo, which is the intellectual property of the Teas Board of India, and only such tea can be referred to on the packaging as “Darjeeling”, “pure Darjeeling” and “100% Darjeeling”.³⁶ Furthermore, some Darjeeling tea gardens are certified as organic by the Institut für Marketecologie, Switzerland, and Naturland-Verband, Germany, which carry out periodic inspections.³⁷

Achieving protection of basmati as a geographical indication would require a successful outcome under the TRIPS Agreement and the design and implementation of national legal measures to protect the use of the term basmati. It would also be necessary to assemble the evidence that basmati rice from the Indian subcontinent has unique characteristics and a reputation based on its geographic origin, and to counter the arguments from competing producers in other countries.

It is not entirely clear whether it is possible to make that case under TRIPS, at least in the near to medium term, given that rice marketed as basmati is being produced in a number of places around the world. Yet the potential benefit of protecting the basmati name to producers in its region of origin argues for further assessment of the potential. Furthermore, protective measures could strengthen marketing and consumer identification of basmati from the subcontinent, laying a foundation for international recognition of its distinctive characteristics farther down the road.

Finally, it might be possible to protect specific varieties of basmati regardless of whether the term in general qualifies as a geographical indication. Outstanding varieties that are recognized either within the region or internationally — such as Lalkilah, Red Fort, and the rice which originates from the village of Rambirsingpura (Owen 1993) — might be individually protected as appellations of origin.

In the meantime, trademark protection may offer useful measures for Indian or Pakistani producers or their buyers in importing countries, if they have registered trademarks using the basmati name. At the international level, Article 16.1 of TRIPS provides that WTO Members must protect a trademark owner’s right to prevent competitors from using similar trademarks on similar goods in a way that is likely to cause confusion among buyers. Brand names like the “Texmati” term used by RiceTec connote Texas more than they evoke the Indian subcontinent,

packets: “Tilda basmati rice has travelled from the foothills of the Himalayas. It has been carefully tended and harvested by hand in an area whose unique soil and climatic characteristics give the area its exquisite and delicate flavour”. This statement evokes a strong connection between the product, a specific geographical location, and the local people’s cultivating and harvesting practices. The company protects the words ‘Tilda Rice’ as a trademark, but does not protect the term “basmati.”

³⁶ Website of the Darjeeling Planters Association (<http://www.darjeeling.com>).

³⁷ Ibid.

and thus are probably safe from such challenges. In contrast, the use of the term basmati itself, as in the French trademarks mentioned, has greater potential for misleading consumers into thinking that the product has valued qualities that it lacks.

Yet TRIPS also allows an exception to a trademark owner's right for the fair use of descriptive terms. It is possible that basmati as used by the competing producers might be found to be a term that merely rice produced from certain varieties and having a certain flavor, regardless of where it is produced. However, it might be possible to take legal action in United States or French courts to prevent companies from marketing their competing rice in a way that misleadingly implies that it has its geographic origin in the Indian subcontinent, on the grounds of unfair competition.

As this discussion indicates, the reactive international strategies on which public debate has focused are of little use at this time. Much more important will be active national or regional strategies by producers and governments to boost the recognition of basmati from the region. These strategies must include not only legal measures but stronger institutions for marketing cooperation among producers, and improved emphasis on the regional origin and local growing methods and other related characteristics in marketing, packaging and labeling. Once these measures are begun, and effective protective systems are in place there, basmati producers will be much better situated to take action to protect against unfair competition in their export markets.

Development and use of a collective or certification trademark might form a useful part of this strategy. Given the important role of Basmati rice in Indian cuisine, its high reputation for taste and quality, and the importance of authenticity for many Indian restaurant owners and consumers throughout the world, the producers in the subcontinent should consider creating a logo and trademarking it as well as such terms as AGenuine Indian/Pakistani/ or Punjabi Basmati.”

Case Study No. 5

Neem¹

Neem

Azadirachta indica

Meliaceae

The neem tree (*Azadirachta indica*) is a common and widespread species, thought to be native to the Indian subcontinent, but now naturalized throughout the tropics (Mabberly 1987). The neem tree is widely grown in India in arid and semi-arid environments. It reportedly survives drought well, grows and bears fruit quickly, produces seeds prolifically, and needs little in the way of inputs from farmers (Gupta 1995). In dry years, its leaves are used as fodder for livestock (Ibid.) It also grows well in Indo-Gangetic plains with good irrigation systems, but cannot compete economically with more profitable trees in those areas such as mangoes, guavas or eucalyptus (Ibid.) Reportedly, there is a great deal of genetic diversity in neem populations found in India.³⁸ Neem is now cultivated in a number of regions outside India, including Africa, Central America, the Caribbean, and Hawaii. One of the world's largest plantations is in Saudi Arabia (Prakash 1998).

Traditional Uses. Neem have been ground and scattered on fields by Indian farmers for centuries to protect their crops from insect pests. The neem tree also has a number of other traditional and commercial uses: it is used to treat malaria and intestinal worms; the leaves are used to protect stored grain from pests and clothes from moths; neem oil is used to make candles, soap and as a contraceptive, and can even fuel diesel engines; and 500 million Indians reportedly use neem as a toothbrush (Latum 1991; Duke 1996). It is generally assumed that many, if not most, of these general categories of uses were discovered by members of rural communities in the Indian subcontinent. However, the same or similar properties may have been discovered independently elsewhere; for instance, neem is reportedly used in West Africa to treat malaria (Iwu 1993).

Commercial Uses. As a pesticide, neem has a rare ability to target crop pests without harming other organisms, and has great potential as a cheap and environmentally-friendly alternative to commercial synthetic pesticides. It is also effective against fungal diseases such as rusts and mildew (Prakash 1998). Both public and private sector research on neem is widespread. In Burma, Nicaragua, the Philippines and other countries, neem trees are cultivated in order to assess their efficacy and suitability for local conditions (Latum & Gerrits op cit.). Giessen University in Germany has for several years conducted tests in various countries aimed at helping small farmers prepare and use seed extracts. Entomologists and social scientists from the University of Minnesota and from Niger are carrying out research into traditional uses of neem. Neem use is making it possible for Niger to reduce its imports of chemical pesticides (Radcliffe 1995).

³⁸ Gupta 1995, citing unspecified studies by Dr. Venkateswarulu, Central Research Institute of Dry Land Agriculture (CRIDA).

W.R. Grace, owner of several neem related patents, is producing neem-based pesticides with an Indian company called PJ Margo at a new facility in India. They estimate that the global market for their product may reach \$50 million per annum by 2000.³⁹ AgriDyne Technologies has US government approval to sell neem-based bio-insecticides, and has applied for registration of its products in several European and Latin American countries. While pesticides appear to be the main application for neem exports, there are also products for niche markets in areas such as cosmetics and personal care, and medicine. Neem toothpaste is marketed in the US, for instance. In the early 1990s, Showa Biochemicals was reportedly marketing two neem-based products in Japan: one is an insect repellent, and the other is a treatment for gastrointestinal problems.⁴⁰

Intellectual Property. Inventions relating to the neem tree have been the subject of a considerable number of patents, with more than 40 in the United States alone, as well as a number in other countries including several patents by Indian companies in India.⁴¹ Examples of neem-related patents building upon traditional knowledge include such products as: a more stable and easier to store synthetic derivative of the naturally-occurring chemical azadirachtin; a preparation of azadirachtin more stable when stored; and a pre-treated extract of neem bark effective against certain cancers.⁴² While all of these patents involved an incremental innovative step, most if not all of them relied upon knowledge originally developed by local people in India within traditional knowledge systems. It is important to understand that these patents only give the owner the right to prevent others from using the precise innovation claimed. They do not affect the rights of people in India to carry on their traditional uses of neem.

It is unclear whether trademarks or geographical indications to market neem-based products would create incentives for sustainable use or sharing of benefits. It is unlikely that neem's survival as a species is threatened, nor does it appear that significant degradation of the environment results from neem exploitation (Gupta 1995). The main neem product, a pesticidal compound, is sold primarily to agricultural business users, so a shift in buying preferences in response to calls for social or environmental responsibility is unlikely. In addition, it is unclear whether a neem product is superior in quality by being derived from neem trees growing in India, rather than Saudi Arabia, for example. Nor is it clear that the input of local traditional knowledge results in a demonstrably better process or final product (e.g. a more environmentally-friendly process or a higher quality product) compared to competing products. There may be some potential for marketing neem pesticides labeled as having been produced in environmentally or socially sound ways (e.g. benefiting small farmers in India) to home gardeners and organic growers. Something analogous might be possible for personal care products given that consumer awareness about neem has been raised to some extent. These markets are small, and as a result may not justify the transaction costs involved in setting up a

³⁹ AgBiotechnology News (1993). Feb., 4.

⁴⁰ RAFI Communique (1993). Dec., 2.

⁴¹ An enormous number of applications for patents on neem products are described in the Website of the Neem Foundation (<http://www.neemfoundation.org>).

⁴² See Axt, J.R., Corn, M.L., Lee, M. & Ackerman, D.M. (1993) 'Biotechnology, indigenous peoples and intellectual property rights'. Congressional Research Service. The Library of Congress, Washington DC.

system for defining and policing marks. Still, green niche markets are on the rise, and neem is allowed under many organic trademark schemes.

Industrial biopesticide production is by now so far removed from traditional production and processing practices, that it is unlikely geographical indications would successfully ensure any increased level of local control over commercialization or benefits for local communities and farmers. Additionally, there are a number of domestic and international corporate neem product manufacturers based in India whose production would dwarf that of small, traditional producers. Overall, neem appears to be ill-suited to systems of trademarks or geographical indications, with the exception of niche marketing certification trademarks.

IV. Preliminary Conclusions

This brief review of five cases illustrates a number of issues relevant to whether geographical indications or trademarks might serve as incentives for conservation and sustainable use of traditional products of biological resources. These case studies are intended to highlight the potential of these intellectual property tools. As an in-depth review of all relevant elements was beyond the scope of this paper, however, they do not provide a basis for conclusive recommendations.

Relevant issues tend to fall into three categories: issues involving aspects of production; issues relating to the nature of product demand; and issues relating to various kinds of capacity. For geographical indications in particular, an additional set of issues which relate to both production and demand involves the extent to which unique product features are associated with a specific geographical region.

Regarding production, one question is whether there is a traditional method of production, processing or cultivation that has survived to the present day. Traditional knowledge and practices are rarely static, but typically evolve over time and provide for innovation within a framework of custom. While current methods need not be identical to older practices, there should be significant threads of continuity. From the perspective of conservation and sustainable use, it is equally important that the traditional production practices have relatively low environmental impact, and/or that they preserve biodiversity values. From the perspective of benefit sharing, it is important that the production and cultivation are controlled and carried out by local and indigenous communities. All these elements are reflected in the language of Article 8(j) of the Biodiversity Convention which refers to “practices” that embody “traditional lifestyles” and that are relevant for sustainable use of biodiversity.

From a practical standpoint, just as important as the nature of the production is the nature of the demand. Trademarks and geographical indications have an impact only to the extent that they respond to consumer interest. A preliminary question is whether there is a significant export market for the commodity. Within that market, there should be significant potential for “segmented” market demand for the commodity, based on the appeal to consumers of some distinctive feature, such as: traditional production, cultivation or processing methods; distinctive geographic source; environmentally sound production; biodiversity-friendly production; or a practice or a system of sharing benefits with the community.

The development and use of these intellectual property forms as incentives is most likely to succeed if there is capacity in place in the relevant region. A key question is whether there is an organization of producers, or at least a forum within which they can organize. Equally important is the question of whether marketing, technical and legal expertise are available. Is there a national legal and administrative framework to support enforcement of sustainable and tradition-based production norms? Such a framework will be important if demand increases and puts pressure on producers to reduce standards for short-term gain. Another framework that should be in place is the one needed to support a system for registering and enforcing marks.

The use of geographical indications requires an additional factor. There should be unique product characteristics, or a unique reputation of the product, associated with the qualities of the geographic region and the production methods peculiar to that region.

Both geographical indications and trademarks show the greatest potential where traditional small-scale production is still present, on the supply side, and where end-use products are marketed directly to consumers. In other words, they are less likely to be appropriate when the product is a commodity traded primarily in bulk. Most promising are commodities where at least part of the market is significantly segmented. Markets for specialty food, beverage, and medicinal products are among those where consumer taste and preference has great impact. In recognition of this potential, certification schemes relating to organic, environmental or social responsibility criteria have been developed for bananas, coffee, cocoa, and other products.

Of the cases reviewed here, kava seems perhaps the most likely candidate for protection under trademark and potentially through a system of geographical indications. The product on sale today reflects thousands of years of development of traditional production, processing, and use of materials, in a limited geographic region. Geographical indications might help South Pacific producers reap greater rewards from the cultural and intellectual input, and the interconnectedness of place and method, which have yielded the kava varieties and products in use today. Such marks might identify kava as produced in its region of origin, by traditional low-impact methods, with benefits returning to communities. However, more information would be needed about the extent to which kava produced in the region has distinctive characteristics. It is conceivable that there could be further distinctions made between kava from different varieties, perhaps linked to specific places. Such distinctions are made by local users, but success in foreign markets would depend on the extent to which kava becomes so popular that such fine distinctions are usefully made.

Basmati rice appears to be another example of a product that might benefit from a system of geographical indications. While many consumers identify basmati closely with its origin in the Indian subcontinent, further exploration is needed on the extent to which basmati's qualities stem from its cultivation in that region and from methods of processing and production employed there. More broadly, an evaluation of the suitability of geographical indications or trademarks will also depend on the collection of additional information about the extent to which current production norms reflect sustainable traditions, and the extent to which benefits flow back to local communities

Quinoa and rooibos both have small but growing international markets, are closely connected to a geographic origin, and have long histories of traditional processing. These food and beverage products are also sold direct to consumers as end users. Either geographical indications or trademarks might be an option for enhancing marketing of these products, although further information would be needed on the extent to which product characteristics are linked to the origins and the production and processing methods employed there. In addition, the institutional framework may need further development in both cases. Because both products primarily sell to international natural foods outlets, raw material is expected to be organic (something the rooibos industry is catching up to at the moment), the standards for which are already international.

Neem appears perhaps least suited for the application of these intellectual property tools. Much of the product is sold in bulk on international markets to users other than direct consumers. However, there may be a niche market for product designated as traditional and sustainable among organic farmers, and a trademark might help reach that market.

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Trademarks or Geographical Indications as Incentives for Conservation and Sustainable Use Preliminary Table of Relevant Factors

- *** = Factor apparently present or likely to be present
 ** = Evidence equivocal or incomplete
 * = Factor apparently absent or unlikely to be present

PRELIMINARY INDICATIONS OF WHETHER FACTORS ARE PRESENT¹

FACTORS TO CONSIDER	KAVA	ROOIBOS	QUINOA	BASMATI	NEEM
PRODUCTION FACTORS					
Is there a living tradition of cultivation or production?	***	***	***	**	***
Does traditional production have relatively low environmental impact?	***	***	***	**	***
Does traditional production preserve biodiversity values?	***	***	***	***	***
Is production mainly controlled and carried out by local and indigenous communities?	***	*	***	*	**
DEMAND FACTORS					
Is there a significant export market for the commodity?	***	***	***	***	***
Is there significant potential for niche or “segmented” market demand for the commodity, based on: <ul style="list-style-type: none"> • distinctive traditional methods; • distinctive geographic source; • environmentally sound production; • biodiversity-friendly production • sharing benefits with the community; • environmentally friendly product. 	***	***	***	***	**
GEOGRAPHICAL INDICATION FACTORS					
Are there unique product characteristics associated with the qualities of the geographic region and the production methods practiced only there?	***	**	**	**	*
CAPACITY FACTOR					
Is there an organization of more traditional producers, or a forum within which they can organize?	***	**	**	**	**

¹ These indications are highly preliminary and indicative, since the case studies included here were brief and illustrative rather than conclusive. Further research would be needed to establish them with a significant degree of certainty.