



Relevance of geographical indications and designations of origin for the sustainable use of genetic resources

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- 5.4. Pisco, Peru and Chile (1990s)
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- 5.7. Quinoa Real del Altiplano, Bolivia (2002)
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- 5.10. Giant White Cuzco Maize, Peru (2005)
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Abbreviations and acronyms

AO	Appellation of Origin
AOC	Controlled Appellation of Origin
CBD	Convention on Biological Diversity
CTM	Certification, Quality or Collective Trademark
DO	Designation or denomination of origin
EC	European Council
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FTA	Free Trade Agreements
GB	Governing Body of a geographical indication (equivalent to regulatory council, syndicate or inter professional organization)
GI	Geographical Indication <i>sensu lato</i> (including preventive and positive protection).
GR	Genetic Resources
GRFA	Genetic Resources for Food and Agriculture
ITPGRFA	International Treaty on Plant Genetic Resources for Food and Agriculture
IPR	Intellectual Property Rights
MDG	Millennium Development Goals
PDO	Protected Designation of Origin
PGI	Protected Geographical Indication
TRIPS	Trade Related Intellectual Property Rights in the WTO
TSG	Traditional Specialty Guaranteed
UNCTAD	United Nations Commission on Trade and Development
WIPO	World Intellectual Property Organization
WTO	World Trade Organization

Executive summary

Relevance of geographical indications and designations of origin for the sustainable use of genetic resources

This study provides a worldwide panorama of current trends in Geographical Indications (GIs) as they relate to biodiversity conservation and rural development, and their potential contributions to poverty, hunger alleviation and environmental goals. When peasant and indigenous producer organizations decide to participate in the marketplace with a product that is not generic, GIs can be useful in developing and consolidating a differentiated geographical identity and a reputation, building quality systems and providing governance to value chains based on local biological resources and traditional and innovative knowledge and practices. Challenges and opportunities facing small producers from developing and transformation countries are identified, based on the experience of two dozen GI cases from all continents.

The introduction includes the basic definitions of preventive and positive GI protection to provide a flexible approach to the geographical differentiation of products that can accommodate the diverse protection approaches available worldwide. This section also outlines the rationale adopted for the description of GI cases. Economic performance is a key issue for sustainability, but it should be kept in mind that economics is much more than monetary transactions, finance or productivity: in fact “the search for (reliable) information is an ubiquitous feature of economic life” (Rangnekar 2003) and “economic activity rests on knowledge, not only in a ‘high tech’ society, but also on the products and methods of production in rural societies” (Addor et al. 2003). Thus, the economic benefits of GIs include fair competition through knowledge in the market; precise and concise information can be seen as a benefit in itself that is embedded in economic principles and rationale.

GIs have a link to a territory and biodiversity components are usually the resources that sustain them. The knowledge and practices that allow regional cultures to harvest and transform a resource into a useful good are also key components of GI value chains. Thus, the framework for the analysis of GI cases included the territory and the biodiversity involved, the knowledge and practices of the human group which has created the GI product and the governance needed to protect it.

The legal frameworks within which GIs can be protected are described in section 2. European countries have a long tradition in the protection of geographical indications, for a variety of product classes, including cheeses, fresh, dried and processed vegetables and legumes. Based on precedents from 1992, in 2006 the EU Council adopted innovative regulations on protected geographic indications (PGI) and protected designations of origin (PDO); in addition, they recognized traditional specialties guaranteed (TSG) in a separate regulation.² These types of GIs and their multilateral register are reviewed in depth since they are not only important for European farmers but they are also open to register by producer groups from non EU countries. This window of opportunity for rural producers in developing countries to access European markets with a geographical identity requires that the GI be protected in the country of origin through a detailed description of the product and a governing body that oversees compliance with it. *Café de Colombia* is the well deserved first non European PDO, which was recognized in 2007. Besides these

² 510/2006, formerly 2082/92, for PDO and PGI and 509/2006, formerly 2081/92, for TSG.

European instruments, an overview of other available multilateral schemes for GI protection are described in this section.

GI implementation is described through cases that were selected to illustrate both tradition and innovation; contributions and threats to biodiversity conservation; the use of traditional and innovative knowledge and practices; economic benefits at different levels; and also governance issues. GI contributions to these aspects of sustainability are assessed qualitatively as 'relevant', 'modest' or 'negligible'; and negative and positive trends are identified. Lessons drawn from the cases are presented in tables, grouped by component, distinguishing both opportunities and pitfalls.

The first case presented is a cluster of GIs within a product class and a region: the cow milk cheeses from Eastern France. Such an approach was taken because individual GIs may give the impression of exceptional differentiation processes in a sea of generic production. This view tends to neglect the overall rural development context in which GIs are being implemented in Europe. As a cluster, the presentation of cheeses emphasizes the role of multiple GIs as a regional process and their overall positive contributions to landscape and genetic resource conservation, the valorization of knowledge and practices; and local and regional economies.

The other 10 GI cases from developed countries include Scotch Whisky (perhaps the oldest GI in common law countries); the first designations of origin (DO) for rice and asparagus in Spain; a quality label related to the recovery of a rare and endangered breed of pork in Germany; the diverse types of honey belonging to the Miel Corse DO in France; the olive groves of Granada; two distinctive maize signs: a traditional specialty flour from the Veneto region in Italy and a landrace from the Rhine Valley in Switzerland and Liechtenstein; the sugar maple forests of Eastern North America and their syrup; and lastly, the special designation sakes of Japan.

Most GI cases from developed countries are from less-favored areas in terms of productivity (mountainous or dry areas) and given the economic context (purchasing power and volume in national and regional markets) differentiation allows for the development of local and regional economies that provide more jobs per production unit and higher commercial value. These simple outputs improve the viability of rural livelihoods that are threatened by competitive economic conditions but that can capitalize on the *originality* and *authenticity* of their resources and products. The contributions to the conservation of biodiversity are not necessarily explicit objectives of the GIs but a consequence of the economic viability for a specific livelihood tied to a genetic resource. Indirectly, certain practices of GI production create conservation benefits at the landscape and ecosystems levels. Evidence shows that biological and genetic resource conservation may be a direct consequence of GI value chain development.

In describing GI cases from developing and transformation countries, thirteen cases were provided from America, Asia, Africa and Europe, involving all sectors of rural production. The documented and potential contributions to conservation and rural development are less straightforward than in developed countries.

From developing and transformation countries 3 DO for spirits and 1 beer are included because their history has been relatively well documented and they provide useful lessons. They are not foodstuffs but contribute to poverty alleviation as value added products from rural production. *Tequila* is Mexico's first DO and illustrates the impacts of

industrial development on diversity with or without a GI; while *Mezcal* is a DO that is an indirect GI or a generic concept and whose enormous boundaries pose challenges to governance; the *Budvars* beers are European PGI registered by Czech producers, and have a long history of conflict with trademarks overseas; *Pisco* is an AO that has an important diversity of grape varieties but is also afflicted by governance problems due to the simultaneous register by both Perú and Chile.

In GIs other than alcoholic beverages, the *Rooibos* tea from South Africa illustrates the successful defense of a GI through its being recognized as a generic, and also the role of fair trade and organic markets for the sustainability of small cooperatives; the *Phu Quoc* fish sauce from Vietnam introduces the challenges of governance over non-sessile resources and the potential exclusion from the staple foods of poor consumers; Bolivia's DO for *Quinoa Real del Altiplano* was developed to face unfair competition in an already successful export value chain; the DO for aromatic rice from the Hai Hau district in Vietnam shows the positive contributions of governance but signals the risk, as in the case of quinoa, of excluding landraces that are less recognized or valued commercially. The layer pie from Slovenia illustrates the delocalized nature of TSGs and their role in defending the character of regional foodstuffs; the giant white maize from Cuzco is a Peruvian AO driven by an export market and with the still-unrealized potential to include small farmers in the value chain.

Finally, three cases are presented in which no GI has been registered as yet but discussions are underway. One of these, Guanaco, is a wildlife animal species from South America and the other two from Africa involve a staple food (Casava Gari) and a non timber forest resource for high end markets (Argan oil).

The challenges for GI implementation in developing countries are greater than in developed economies because the institutional context tends to be weaker or undeveloped vis-a-vis fraud repression, intellectual property, and natural, biological and genetic resource management. Consequently, the results are not as straightforward or positive as in developed countries: in fact, negligible effects and negative trends are more frequent, while contradictory situations abound. Such adverse conditions are challenging but there are also important opportunities to be grasped, because of the existing biological and cultural diversity. The experience gained through success and mistakes, and the ongoing innovation in GIs in developed and developing countries should all be carefully studied to avoid costly frameworks or conflicts in GI implementation. GI strategies in developing and transformation countries do not only imply supporting GI protection but also strengthening national and regional institutions and the economic environment in which the GIs will develop. The enabling institutional environment in which GIs develop bears as much importance to their success as does their reputation and quality achievements.

Section 7 examines current trends in multilateral and national GI protection systems, including the nature and number of GI registrations that are underway. Regardless of the final outcome of negotiations at the WTO on the extension of the protection given to wines and spirits to other products also, the fact is that developing countries are getting organized and beginning to make decisions regarding GI protection (as the four continental reviews of progress in GI implementation clearly indicate in terms of reformed or new GI legal frameworks and the growing number of GIs registered).

Three basic conclusions emerge from this study:

Enabling institutional environment. For developing and transformation countries, the design and implementation of GI protection frameworks is not a question of deciding which type of protection to choose – preventive or positive: it is a matter of identifying the best way of developing both to their benefit and with the lowest possible transaction costs. Indications of source, basic labeling of generics, the possibility of registering GIs or DO according to the specific value chain, and or promoting innovative approaches to marketing with a geographical identity, should all be considered within GI implementation strategies.

Sustainability. GI development may promote biodiversity conservation directly through the use of a specific genetic resource or indirectly through production and management practices that include landscape and ecosystem considerations. Direct benefits in terms of sustainability in rural landscapes derive from the fact that governance and market success contribute to the viability of rural livelihoods that depend on the sustainable use of specific biological and genetic resources.

Value chain differentiation. Successful GI implementation may become an economic mechanism that excludes poor farmers or consumers from staple and culturally relevant foods due to price increases. For nutritional and cultural reasons, such outcome of GI implementation is unacceptable. To avoid it, producer organizations, cooperation agencies and developing and transformation country governments should focus on clear differentiation in policies, regulations and product development of the value chains that address local, regional, national and export markets.

Based on the evidence gathered, the final section presents general recommendations to be considered in the implementation of GI protection systems as they relate to biodiversity conservation and rural development. Under each of the 8 recommendations in the final section, specific considerations are given to issues that merit opportune action, further discussion and comparative research.

- Focus on the creation of an enabling institutional environment prevents the false or misleading use of GIs, favours fair competition, the reduction of knowledge asymmetries and the implementation of legal and institutional frameworks in intellectual property and GI governance.
- GI registration systems should be precise and flexible and consider also the legal framework for the development of governing bodies.
- GI recognition in all sectors of food production is required if they are to contribute to the in situ conservation of genetic resources for food and agriculture. Policy objectives not inherent to GIs, such as the sustainability of a harvest, should be validated and products clearly labeled as 'limited productions'.
- The biological and cultural resolution of rural resources information in developing countries should increase substantially in order to respond to specificity of resources and products in biologically-rich countries.
- The governance features of GIs should contribute to the respectful and creative use of traditional knowledge and practices. Innovation in GI governance may be needed to address the particularities of community and indigenous resources and knowledge.
- Regarding hunger and poverty alleviation goals, it is important to avoid economic exclusion processes at the local and regional level that are a consequence of developing only high end, valuable national and export markets. Differentiation of value chains for local and regional markets may help avoid such exclusions.

- The challenges for small farmers in GI development are basically related to their scale. Thus, emphasis should be placed on flexibility in GI protection strategies, regional markets, and access to market knowledge.
- Value chain analysis is a useful tool that will contribute more to understanding the emergent properties of GI value chains if we also consider the tangible territory and its biodiversity, and the intangible knowledge and practices of the regional cultures that create foodstuffs which merit recognition as GIs.

1. Introduction

“Geographical names that indicate that a product has qualities and characteristics beyond the generic help the consumer choose.”
Bernard O’Connor 2004:19

A geographical indication (GI) is “a sign used on goods that have a specific geographical origin and possess qualities or a reputation that are due to that place of origin”.¹ Products protected by geographical indications (GIs) must have qualities linked to their territory of origin. The character and strength of the quality/geographical link varies according to the natural and cultural history of the resources and their transformation processes, and the legal framework in which the GI develops. The increasing use of GIs worldwide reflects that economic stakes involved in the commercial use of geographical names are high (Josling 2006), and that diverse stakeholders perceive in origin-labeled products a strategy that promotes rural development (Fink and Smarzynska 2002; van de Kop *et al.* 2006).

GI protection involves recognizing a collective, exclusive right to the use in trade of a geographical name or symbol on an item or product. The GI-labeled product represents a public good because its intrinsic characteristics have patrimonial values that belong to no-one in particular: a reputation built collectively over generations. This is why GI management is delegated by the State and their patrimonial character justifies public intervention against misuse (Barjolle and Sylvander 2000, Rangnekar 2004).

GIs are usually geographical names but they can also be just symbols or icons, as long as they convey geographical information. Legally, the options for GI protection include defense against unfair competition (e.g. through litigation or fraud repression) and positive protection through registration under various forms (such as designations or appellations of origin, protected geographical indications or certification trademarks). Figure 1 presents a schematic overview of available GI protection schemes. Although the diversity of legal approaches to GI protection might suggest that it is a subject difficult to grasp, it has a basic, simple rationale: to provide producers with legal protection against “free riders” and give them the means through which to differentiate their product on the market. A broad definition of GIs helps to avoid cultural or geographical bias in a study that seeks to provide an overview of current trends in GI development worldwide.

Preventive protection gives producers the legal means to defend their reputation against unfair competition, and basic labeling rules allow them to use the GI without registration. Under the preventive form of GI protection, available legal instruments include unfair competition and consumer protection, neither of which are intellectual property rights (IPRs). The rationale is that harm is inflicted by someone who is “free riding” on the reputation of someone else - the ‘victim’ of such harm being either the producer of the authentic product or the consumer who is misled into believing in its authenticity (Rangnekar 2003).

¹ O’Connor 2004:26.

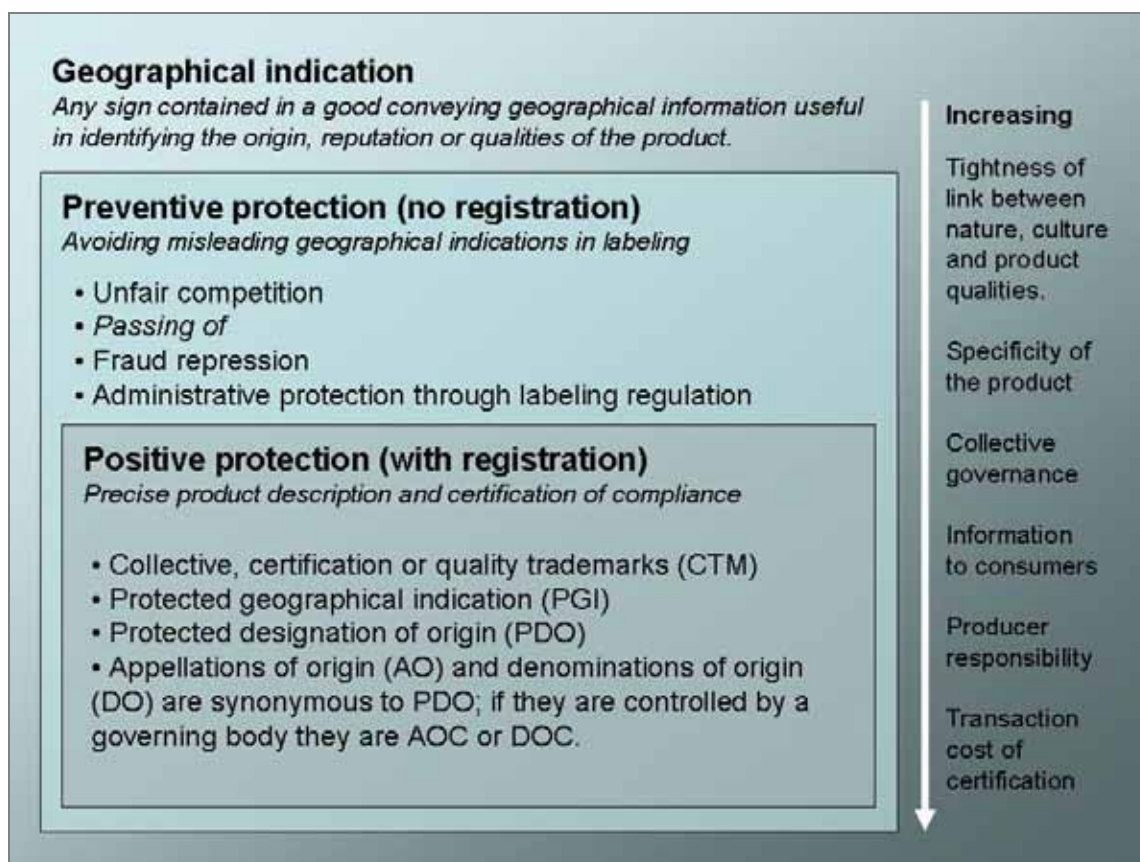


Figure 1. Overview of different types of geographical indications.

The current understanding of GIs is an umbrella concept that includes preventive and positive protection. GIs, when registered, can be either protected geographical indications (PGI) or appellations/designations of origin. The latter may or may not be *controlled* by a governing body - thus the 'C' in AOC and DOC.

Positive GI protection schemes require a description of the product that proves its link to a particular territory, and a governing body (GB)² to oversee compliance with the description. Within registered GIs we find various options, including special types of trademarks, protected geographical indications (PGI) and protected designations of origin (PDO). The latter is synonymous to appellation of origin (AO) or denomination of origin (DO) – meaning where there is a strong link to a territory, collective know-how, and the production takes place in a defined area. The appellation of origin (AO) is the oldest type of registered GI. It guarantees a closer link between quality, reputation, territory, resources and culture. Every AO is a GI but not every GI is an appellation of origin. Those GIs that are not AOs tend not to have such a strong link to the territory. Whichever the type of GI, there is always some kind of geographical information on the product that is of use to the consumer when making his/her purchasing decision. The quality conveyed to the consumer by the GI is defined by the meaning of the protected name, the specific type of GI used and the product description to which it conforms. When consumers associate a geographical name with a certain quality, then there is a reputation to be protected and used for the benefit of producers. If the GI helps in the success of an economic activity

² The term 'governing body' is used in this study because of its cultural neutrality. It is intended to include legal figures such as the French *Syndicate*, the Spanish *Consejo Regulador* or the Italian *Consorzio* used in Europe, and also the wide array of organizational schemes that perform similar governance activities.

based on a biological resource, then the connection between GIs and biodiversity conservation becomes evident.

Trademarks and GIs have a similar role to play in trade because they assist consumers in differentiating products: “*The conventional and largely uncontroversial wisdom regarding trademarks is that they reduce consumer transaction costs by allowing individuals to scan product displays and make purchasing decisions by associating signs with known qualities of goods or services, including the reputation of the producers*”. The logic supporting the idea that consumers benefit from GIs is the same, but instead of differentiating private undertakings or businesses they identify groups of producers in specific regions. It is also generally accepted that in addition to enabling the consumer to identify the source of the product, “the trademark may also serve to protect the goodwill of an enterprise. (...) the term ‘goodwill’ is used to capture an intangible: the reputation (...) an enterprise (...) has built”.³ However, in GIs the reputation belongs to collectivities that include production units owned by individuals, families, cooperatives and privately- or collectively-owned businesses.

The geographical dimension of a GI is defined primarily by the significance of the protected or registered name. GIs can be geographical names in themselves (a locality or a region); non-geographical names with a geographical meaning; or else a combination of both (a product from a place). Table 1 provides examples of these three major types of GI. Geographical names that, alone, give the product its name are the typical AO. Note that a geographical name alone provides information about the product only if the GI already has a reputation.

Table 1. The names of Geographical Indications.		
A. In the typical GI the locality or region names the product; B. Indirect GIs are not geographical names but have a geographical meaning; C. a product from a place is a simple and informative GI.		
A. Geographical name (Typical AO)	B. Non geographic names (Indirect GI)	C. A product from a place (Typical GI)
<i>Champagne (a locality).</i> The product is named after a locality in France, it has worldwide recognition. AOC	<i>Rooibos (name of product).</i> A generic product in South Africa. It is not generic to distant consumers. CTM	<i>Quinoa Real del Altiplano (product and place).</i> A landrace from a very large region in Bolivia. AO
<i>Calasparra (a locality).</i> Reputed in Spain but uninformative to distant consumers. DO	<i>Mezcal (name of product).</i> A generic product in Mexico. It is not generic to distant consumers. AO	<i>Emmental from Savoy (product and place).</i> A localized generic cheese from France. PGI

AOs are usually well-established GIs with a reputation and an important economic activity and they usually invest considerable sums in legal protection to face unfair competition. Indirect GIs – those that do not indicate the name of a place but identify a product from a region or country - face a paradox in that they are generic descriptions in culturally-close markets, but are specific and geographically defined for distant consumers. They tend to become generic in their own region at least, and this can create ambiguity. And lastly, defining a GI as a product from a place (the typical modern GI), is both informative and simple, while allowing for a precise definition of the product that is being protected. The double significance of the name (a product from a place) eliminates the possibility of registering generic products as GIs or of using uninformative geographical names. It is important to note that the cultural meaning of the names that become geographical indications defines the area to be included, the type of producers considered and the

³ UNCTAD/ICTSD 2005:216 and 229

qualities of the product. Thus, the protected name, together with the precise description of the product, are the result of strategic decisions of considerable importance.

How does the use of GIs relate to the *in situ* conservation of genetic resources and rural development? It is widely acknowledged that the genetic diversity in the hands of farmers is of worldwide importance. Globalization of food trade impacts the everyday decisions of farmers throughout the world because agroindustrial generic products are increasingly gaining access to local and regional markets. Farmers' attempts to compete with generic products (usually supported by public policies) may change local agricultural practices and genetic resource use. Market success is a key requisite for the sustainability of small farmer livelihoods and for the conservation of their diverse genetic resources. Geographical indications and informative labeling give them the possibility of commercializing products that have a link to a particular area with a differentiated identity; in this way they avoid competition based on volume, low prices and marketing.

In agriculture, biodiversity includes biological and genetic resources that are managed, used and preserved by rural communities, as well as the interactions that take place in agroecosystems. Biodiversity components become resources once they are harvested or used; use is mediated by the traditional and innovative knowledge and practices (TK) of the inhabitants of a particular territory.⁴ Although wildlife may sometimes be conserved by isolating a territory from human activities, conservation of agricultural diversity relies on the TK of peasant and indigenous communities. When such communities use their biological resources to develop marketable products based on their TK, new challenges arise regarding governance of these resources and practices. Communities and organizations must build or strengthen such governance capacities, otherwise they run the risk of losing their resource base or control over their TK. GIs are a means of providing the necessary governance to retain control over resources, TK, and the names of products that can be successfully differentiated in the market.

GI differentiation is of use when farmers and their organizations are involved in producing a final item that the consumer will purchase (even if it is not processed), as a fresh produce of a certain quality that is packed and labeled. However, in the rural economies of developing countries, farmers who are linked to the market are generally simple suppliers of raw materials (Figure 2A).

A simple value chain (Figure 2B), beyond the supply of raw materials, highlights the dynamic interaction between links and also the governance structures (organization, regulation and upgrading capabilities) that define the relationship between stakeholders. However, while this simple value chain is well-suited to innovative industrial markets aiming at product development, it does not work for GIs because it does not consider the (tangible and intangible) natural and cultural inputs that are implicit in geographically-indicated products.

In this study, the value chain framework is used to describe various GI cases including the tangible territorial and biodiversity components of a product, as well as the intangible contributions of TK in value chains (Figure 2C). These aspects are central to the *in situ*

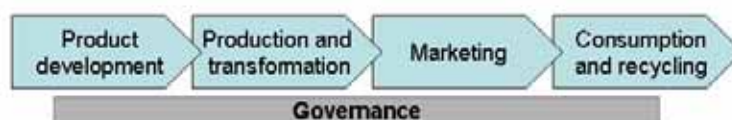
⁴ In this study, the expression traditional knowledge (TK) conveys a flexible understanding of tradition - it is not always old but can be innovative; it is collective and inter generational. In particular, it considers practices as part of TK because of their relevance to *in situ* genetic resource management and sustainable harvesting of biological resources, as well as their transformation into useful and marketable products.

conservation of genetic resources because biological resources are not isolated from agroecosystems and they are highly dependent on the TK inherent to rural livelihoods. By means of a sign or a symbol, a GI indicates a territory and its resources, as well as the work, knowledge and practices of the people whose livelihoods are linked to the particular product. Because of these intangible aspects, agreements and regulations have to be adopted collectively in order to meet a production standard that respects tradition and authenticity while necessitating certain innovation(s) to achieve specific qualities and presentations (Figure 2C). Since such agreements are reached and supervised through governance, the role of governments and GB is included in the framework of this study as an issue to be addressed throughout the value chain.

A. Supply chain for rural products sold by producers as raw materials



B. Simple value chain with four links (Kaplinsky and Morris 2000)



C. Simple GI value chain recognizing biological and cultural inputs

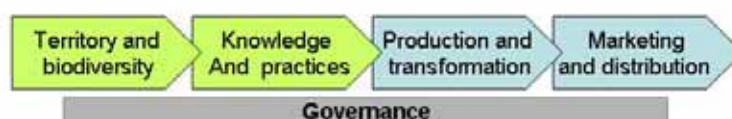


Figure 2. From supply chains to GI value chains.

A. A simple supply chain of raw rural produce;

B. A simple value chain including its governance component;

C. A simple GI value chain modified to include territory and biodiversity, knowledge and practices, as natural and cultural inputs for production. Governance is also a central component in this modified GI value chain.

Producers will naturally have more information about their product than the consumer. This creates an information asymmetry that tends to work against the interest of consumers in that they have to invest in time or money to figure out if a product meets their expectations. Informative labeling is the simplest means of reducing this asymmetry. Labeling⁵ is a central component of governance along a GI value chain because the

⁵ Labeling in foodstuffs, as defined in Directive 2000/13/European Council (20 March 2000), "shall mean any words, particulars, trade marks, brand name, pictorial matter or symbol relating to a foodstuff and placed on any packaging, document, notice, label, ring or collar accompanying or referring to such foodstuff."

information given to the consumer, with or without a registered GI, conveys a message of trust and confidence regarding quality and authenticity. The economic benefits of credible differentiation are a reality and they can benefit small farmers if the governing structure allows them to participate in this type of value creation and capitalization.

GI labeling allows producers to differentiate themselves in the market and to communicate such differences to consumers in global, national and regional markets. The production practices and the work involved in GI value chains may be less 'efficient' than industrial production of 'equivalent' goods but they provide environmental, social and cultural benefits, such as the sustainable use of genetic resources and the survival of rural livelihoods, which cannot be measured solely on financial grounds.

2. The legal frameworks of geographical indications

GI protection is a matter of having exclusive right in trade to the use of a name. The ways in which this right can be exercised are defined by the available legal framework. It is thus useful to understand the different options that exist for protecting producers' exclusive right to use a geographical name in trade. Those already familiar with the legal frameworks for GI protection may wish to proceed directly to the GI cases presented in sections 3 to 6.

In the Trade Related Intellectual Property Rights Agreement (TRIPS) in the World Trade Organization (WTO), geographical indications are "*indications which identify a good as originating in the territory of a 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 origin*". The indication used as a GI can be words or phrases, distinctive marks, symbols, icons or groups of characters or traits that have a conventional meaning. They convey information in a simple manner and enable consumers to distinguish products within the same class. For a sign to have a conventional meaning in trade it has to be known by consumers and relate to a certain product and quality. Reputation is relative to history and geography (UNCTAD/ICTSD 2005). When such quality or reputation is recognized and valued by consumers, the opportunity arises for 'free riders' to adopt such an indication on an item that was not produced in the place in question. This is the main reason why GIs are protected.

In a comprehensive review of The Law of Geographical Indications, O'Connor (2005) proposes categories of GI protection that are helpful in explaining the different legal options available. **Preventive and positive protection** are the two main approaches and within them different practices have developed that are described in the following sections. Table 2 describes preventive forms of protection including 'unfair competition' and '*passing off*'.

Preventive protection is needed to prevent the incorrect trade practice of pretending our product is someone else's. It has been codified as 'unfair competition' and most countries offer protection against it. Administrative or judicial authorities may order that the misleading indication cease to be used and thus the interest of the authentic producers is protected. This type of protection is a negative or preventive right that gives affected parties the possibility of preventing others from using their GI.

Table 2. Preventive approaches to GI protection (Based on O'Connor 2005)
Preventive protection
Unfair competition and consumer protection. Protection against acts of competition contrary to honest practice; protection of trade integrity and of consumer reliance on statements about products; specific prohibition of indications that mislead the public as to the nature, manufacturing process or characteristics of the goods.
Passing off. A term used in common law countries. It is a legal wrong that occurs when one trader presents his goods in a manner that injures the business of another trader. If proved, this legal wrong is reversed by order of court. It has no statutory basis; it was created by courts in litigation.

Positive protection, on the other hand, includes special types of trademarks, administrative protection through labeling approval, and passive protection (similar to copyright) (Table 3.) It also includes the strongest forms of protection which are grouped

under 'protection through registration'. Registration is a positive right that recognizes the GI and provides relevant protection once certain criteria are met and procedures complied with - the most important of these being proof of a link between quality and geography, and the existence of an organization that verifies compliance with product description. The GI conveys to the consumer, by a sign or through a label, a guarantee of quality and origin.

Table 3. Positive approaches to GI protection (Based on O'Connor 2006)
Trademark regimes. Special types of trademarks. <i>Collective</i> : owned by an association that sets the requirements to use it. <i>Guarantee</i> : indicates a common characteristic that may be the origin of the good. <i>Certification</i> : applies to goods with qualities or characteristics certified by the proprietor. In all three cases they are GIs only if they have geographical content.
Administrative schemes of protection. Certain types of goods, such as foodstuffs, wines, spirits or medicinal preparations based on plants, require administrative approval before being marketed, for taxation or sanitary reasons. In such cases, labels are subject to approval and the use of geographical indications within them is usually regulated.
Passive- or non-registration protection. This is automatic protection, similar to copyright given to the legitimate owner or user of the geographical indication, which can bring action in court against those who use the GI unlawfully. It is similar to unfair competition but as the GI is codified, the burden of proof is lessened on the affected party.
Protection through registration. Registered GIs include appellations of origin (AO), protected designations of origin (PDO) and protected geographical indications (PGI). Registry requires a detailed description of the product and the existence of a system that guarantees compliance with it.

Although protection through registration is the most commonly-cited type of GI, the other approaches offer interesting possibilities for GI protection in developing countries. The diversity of legal and institutional frameworks in developing countries suggest that some of these options may be useful for countries that are in the process of developing GI protection. Furthermore, globalization of trade implies that the rules of GI protection will vary from one country to another and when export markets become a possibility for producers, knowledge and understanding of the legal framework in the country of destiny will be of considerable use.

2.1 Preventive approaches to GI protection

Most countries have legal instruments available to protect producers and consumers from "the act or practice of engaging in a number of actions including false advertising; unauthorized substitutions of one brand of goods for another, (...) and false representation of products and services". For example, the German Unfair Competition Act states that "any person, who, in the course of a business activity, for purposes of competition, makes misleading statements, particularly concerning [...] the origin of individual goods or commercial services [...] may be ordered to abstain from making such statements." O'Connor (2005) explains that "the provision (...) is aimed at protecting the integrity of trade and the reliance of consumers on true statements concerning the origin of a product."

Based on the principle of providing legal protection against unfair competition, common law countries protect against misappropriation of geographical indications using jurisprudence established in courts since the early 19th century. This approach is based on

proof that there was a legal wrong - a tort⁶. In order to bring action in court, the plaintiff must show that the way in which goods or services are presented by the defendant is likely to cause confusion and that this confusion caused injury to the plaintiff in trade. Both injury to the plaintiff and confusion in the minds of consumers are conditions in a legal action of *passing off* (Marett 1996 and Rangnekar 2003).

2.2 Positive approaches to GI protection

Within the positive approach, available instruments are special types of trademarks with a geographical content (collective, guarantee and certification trademarks); administrative schemes; and two options of *sui generis* systems: a *passive right* that does not involve registration, and *protection through registration* (Table 2). The latter includes appellations of origin and protected geographical indications, which are the main focus of this study.

Within trademark regimes, some countries recognize trademarks with geographical references. However, these have to be registered as *special types* of trademark for several reasons: trademark law prohibits the registration of purely descriptive words in relation to a product (e.g. 'old' cannot be registered for a spirit) and geographical names are, by nature, descriptive. It is also forbidden to mislead the consumer through the trademark itself. Consequently, if it is a GI and it is not descriptive (meaning that the product is not made where the trademark suggests) then it is misleading. If the GI is descriptive and is not misleading (meaning that it is both true and informative) then it cannot belong to an individual or a business because it would imply recognition of a private monopoly right over a public good. The use of certification, guarantee or collective trademarks, offers a partial way out of these problems within trademark law, because they can be at the same time descriptive, non-misleading and collectively owned.⁷

Collective trade marks are owned by an association that sets the requirements for the use of same. Quality and origin specifications can be included and it is the association that registers who is responsible for maintaining the voluntary standards assumed by it. **Guarantee trade marks** indicate a common characteristic that may be the origin of the product. For example, the well-known cotton sign used on clothes worldwide belongs to this category of trademark. **Certification trade marks** apply to goods that have qualities or characteristics certified by a third party, the owner of the trademark. Thus, it is an individual or a private organization that owns the trademark and establishes the qualities or characteristics to be certified. In the context of health, environment and solidarity markets, commonly recognized certification trademarks are those related to fairly traded, sustainable and organic products. However such trademarks are not geographically localized.

Administrative protection schemes are part of product approval procedures, including review of labeling and, in some cases, rules related to geographical indications. Certain types of goods, such as wines, spirits or medicinal plants, require administrative approval before marketing, for reasons of taxation and hygiene. Label approval regulates GIs directly, although it does not involve registration.

⁶ A 'tort' is 'the breach of a duty primarily fixed by the law, where the duty is one towards persons generally and its breach is redressible by an action for damages. In www.thelockeinstitute.org, Journals, The Classical Law of Tort.

⁷ Within trademark law the registration of geographical names as certification, collective or quality trademarks does not recognize exclusivity over the use of the name (as does GI registration), it only protects the sign -a symbol or even a type set- associated with the name.

Sui generis systems for the protection of geographical indications are those systems that have been developed to address this matter specifically. Countries that have regulated a passive or non-registration protection for GIs created a sort of automatic protection, similar to that recognized for a creator to whom copyright is acknowledged without registration. The legitimate users of the geographical indication can bring action in court against those unlawfully using the GI (O'Connor 2005). This approach is similar to the protection given by unfair competition regulations, in the sense that litigation against the free rider can be initiated, but it goes further because it defines the geographical indication and the burden of proof of damage and existing reputation on the affected party is lessened.

2.3. GI protection through registration

The strongest protection for GIs is provided through registration for use, in trade, of names that indicate the origin of the product. These systems are over a century old in formal modern institutions but they have deeper historical traditions. Appellations or designations of origin are the primary legal reference for the protection of GIs and they are protected, without being defined, in multilateral agreements since the late 19th century, in the Paris Convention for the Protection of Industrial Property.

As defined by the Lisbon Agreement of 1958, appellation of origin means “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”. The two main components of the definition are the geographical name that designates a product, and the quality and characteristics that are linked to its origin. According to this definition only geographical names can be registered (Table 1A).

In practice, there is a certain flexibility as to the type of indication that conveys or suggests a geographical origin. It does not always have to be a geographical name, as is, in fact, considered by WIPO's model law of geographical indications which states that “*any name which is not that of a country, region or specific place is also considered a geographical name if it relates to a specific geographical area, when used in connection with certain products.*”⁸ This type of GI is referred to as an ‘indirect GI’ (Table 1B).

Registration of a GI usually comes in the form of a decree that gives it a legal status. The name becomes exclusive to a certain group of producers but the recognition in itself does not provide a guarantee of quality. In this sense, legal recognition is the intellectual property component of the GI but the governance structure that can guarantee a certain quality is not there by definition. Thus, recognition is part of a process that involves the codification of specific rules that are acceptable to all producers within the GI and the creation or designation of a control body that supervises compliance. When there is governance over quality, the GI becomes more than an intellectual property right - it evolves into a governing body that promotes and recognizes the value of a know-how and it guarantees the quality conveyed by the sign. This is why the word *Contrôlée* is used in France, *Controlata y Garantita* in Italy and *Controlada* in Spanish speaking countries, in addition to the AO name itself. Thus, the difference between AO and AOC, or between DO and a DOCG, lies in the existence of a governing body for quality control.

⁸ WIPO model law in wipo.org

Registers for GIs are predominantly ascribed to intellectual property offices in economy and trade ministries. Some countries place GI authority in the agricultural or primary sector (e.g. Italy or Switzerland for PDOs) or create inter-ministerial organizations (such as in France). Most developing countries are elaborating their GI protection systems within industrial property frameworks (e.g. India, Vietnam and Brazil). The position that the office responsible for GI registration occupies in public administration is an indication of the role given by governments to GIs as development strategies.

In Mediterranean European countries, the verification of compliance with GI product specifications is usually the combined responsibility of public and private institutions. In France, there is a specialized public institute, the INAO⁹, which requires that applications be made by local, representative inter-professional bodies recognized by the State. In Italy, voluntary consortiums are created with the approval of producers. They function as self-regulatory entities that perform the public service of monitoring products and repressing fraud. In Switzerland, there is a federal commission, and professional bodies can receive official recognition that may grant them authority to supervise supply chains (including tax collection for product promotion and defining minimum quality criteria). An interesting aspect of GI protection in Switzerland is that AOs are administered by the ministry of agriculture and GIs by the intellectual property office. In Spain, registration takes place first at the level of the autonomous communities where the regulatory council or *Consejo Regulador*, is created; ratification is then sought at the federal level (Barjolle and Sylvander 2000). Although most common law countries rely on unfair competition and fraud repression authorities for GI protection, collective and certification trademark protection also require governance structures with certain overseeing capacities.

Registration procedures are varied but the minimum requirements are to provide documentation to the effect of proving the name, address and legal status of the applicant (which is usually a producers' association); the name for which registration is sought, and the justification; a delimitation of the geographical area and the goods to which it applies; and the quality, characteristic or reputation of the goods that are related to the specified origin.

2.4 Multilateral protection: Paris, TRIPS and the WTO

Globalization of trade has produced several agreements on matters relating to GI protection since the end of the 19th century. The Paris Convention for the Protection of Industrial Property of 1883 includes indications of source or appellation of origin among patents, utility models, industrial designs, trademarks, service marks, trade names, and the repression of unfair competition. It thus recognized AO and indications of source as being equivalent and of similar status among six other types of industrial property. The Paris Convention did not define appellation of origin or indications of source but established in article 10 bis that the *"countries of the Union are bound to assure to nationals of such countries effective protection against unfair competition"*, which is constituted by any *"act of competition contrary to honest practices in industrial or commercial matters"*. In particular, the *"following (...) shall be prohibited: (...) indications or allegations the use of which in the course of trade is liable to mislead the public as to the nature, the manufacturing process, the characteristics, the suitability for their purpose, or*

⁹ The Institute National des Apellations D'Origin recently added Quality to its mandate although it retained the same use of initials.

the quantity, of the goods.” Thus, all 164 countries that are parties to the Paris Convention provide, in principle, the legal means for preventing the inappropriate use of GIs.

Table 4. Geographical indications in the TRIPS agreement.
<p><i>Article 22. Protection of Geographical Indications</i></p> <ol style="list-style-type: none"> 1. Geographical indications are (...) indications which identify a good as originating in the territory of a 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 origin. 2. (...) Members shall provide the legal means for interested parties to prevent: <ol style="list-style-type: none"> (a) the use of any means in the designation or presentation of a good that indicates or suggests that the good in question originates in a geographical area other than the true place of origin, in a manner which misleads the public as to the geographical origin of the good; (b) any use which constitutes an act of unfair competition within the meaning of Article 10 bis of the Paris Convention (1967). 3. A Member shall (...) refuse or invalidate (...) a trademark which contains or consists of a GI (...) if use of such indication is of such nature as to mislead the public as to the true place of origin. 4. The protection under paragraphs 1, 2 and 3 shall be applicable against a GI which, although literally true (...) falsely represents to the public that the goods originate in another country
<p><i>Article 23. Additional Protection for Geographical Indications for Wines and Spirits</i></p> <ol style="list-style-type: none"> 1. Each Member shall provide the legal means for interested parties to prevent use of a geographical indication identifying wines [or spirits] for wines [or spirits] not originating in the place indicated by the geographical indication in question, even when the true origin of the goods is indicated or the geographical indication is used in translation or accompanied by expressions such as “kind”, “type”, “style”, “imitation” or the like. 2. The registration of a trademark for wines [or spirits] which contains or consists of a GI identifying wines [or spirits] shall be refused or invalidated. 3. [Describes obligations in case of homonymous names for wines] 4. [Undertake negotiations on the establishment of a multilateral system of notification and registration for wines eligible for protection]
<p><i>Article 24. International Negotiations; Exceptions</i></p> <p>[Nine paragraphs that include exceptions relating to the temporal frame for the interpretation of the obligations; the issue of generics, phrased as the “term customary in common language as the common name for such goods”; use of “person’s names”; and GIs “which are not or cease to be protected in their country of origin”]</p>

The expansion of trade liberalization during the last decade of the 20th century, through the creation in 1994 of the World Trade Organization (WTO) - an organization that now has 150 members - was the context in which a comprehensive system on intellectual property rights protection developed: the ‘Trade Related Intellectual Property Rights Agreement’ (TRIPS) that defines GIs in article 22.1 (Table 4). It provides GI protection for all sorts of goods and prevents false representation of the origin of the goods in question. It is important to note that the indication does not have to be a geographical name and that the quality, reputation or other characteristics, need not be tied together - one or other suffices. The GI defined in TRIPS is a much wider concept than an AO.

Although more than a hundred years separates TRIPS from the Paris Convention, the two instruments are closely linked in that they share the definition of ‘unfair competition’. TRIPS specifically establishes the obligation to refuse or invalidate registration of trademarks that are themselves geographical indications, if the use of such indication is misleading. It protects the GI over the trademark only if the latter is misleading. If the true origin is stated on the label, although the trademark suggests a geographical origin that is not true, then this is not considered to be misleading. Consequently, the TRIPS protection of products other than wines and spirits is similar to that already given by the Paris

Convention. The Lisbon Agreement of 1958 is a multilateral agreement based on registration of appellations of origin; however it did not fulfill its promise, since only 20 countries are signatories to the agreement. One of the main problems of the Lisbon Agreement is that it did not create a negotiating space for the solution of problems between AOs and generic names. The multilateral agreements predating GIs in TRIPS are relevant legal and conceptual frameworks with accumulated experience that will be of use in the event of the development of a multilateral register of GIs.

Article 23 provides additional protection for wines and spirits (Table 4): their names are protected even if the true origin is stated, a translation is used, or it is accompanied by expressions such as 'type', 'kind' or 'style'. This additional protection discriminates goods that are not wines or spirits (for example beer or sake that are alcoholic drinks not made from grapes, or all other products that are not alcoholic). The possibility of eliminating such discrimination in the future is now the subject of intense debate and negotiations at the multilateral level. However, as it now stands, TRIPS only mandates the negotiation of a multilateral register of GIs for wines and spirits.

2.5 European Protected Designations of Origin and Protected Geographical Indications

In 1992, the European Union adopted a common system for the protection of two different types of GIs related to agricultural products and foodstuffs: Protected Designations of Origin (PDO) and Protected Geographical Indications (PGI). The performance of this instrument was evaluated and the general positive outcome supported a strategy to promote its enhancement (Barjolee and Sylvander 2000). Thus, on March 20, 2006, the European Council passed a regulation¹⁰ to address the diversity of approaches to the protection of GIs in European countries. This regulation (510/2006) seeks to provide 'a more uniform approach'. It recognizes that *"the production, manufacture and distribution of agricultural products and foodstuffs play an important role in the Community economy"* and that *"such framework ensures fair competition between the producers of products bearing such indications and enhances the credibility of the products in the consumer's eyes."* It also states that diversification should be encouraged because *"it can be of considerable benefit to the rural economy, particularly in less favoured or remote areas, by improving incomes and by retaining the rural population in those areas"*. The arguments by which European legislators decided to pass this regulation include policy objectives on fair competition, consumer protection, diversification as an economic strategy in less-favored areas, and demographic considerations. The fact that all such policy objectives converge in the protection of GIs and DOs is evidence that they are a strategic area of development that goes well beyond intellectual property policy. The regulation applies to agricultural products¹¹ and foodstuffs intended for human consumption in general, but regulation 510/2006 adds categories that are covered by PGI and PDO but are not mentioned in the European Union treaty.¹²

¹⁰ Council Regulation (EC) No. 510/2006, 20 March 2006, on the protection of geographical indications and designations of origin or agricultural products and foodstuffs. This regulation has an immediate precedent in regulation (EEC) 2081/92 on the same subject. The new regulation is simpler and clearer but the principles and basic features are the same, including definitions and availability of protection to third countries.

¹¹ Article 32 of the treaty states that agricultural products "means the products of the soil, of stock farming and of fisheries and products of first-stage processing directly related to these products"

¹² For foodstuffs, Annex I includes beers; beverages made from plant extracts; bread, pastry, cakes, confectionery and other baker's wares, natural gums and resins; mustard paste, and pasta. And for non agricultural products Annex II includes hay, essential oils, cork, cochineal (raw product of animal origin),

Table 5 presents the EC definitions of PDO and PGI, as well as the elements of product specification that are required for eligibility. To be eligible for a PDO, a product must have “*quality or characteristics which are essentially or exclusively due to a particular geographical environment with its inherent natural and human factors.*” The link between quality and territory is strong and the “*production, processing and preparation*” of the item or good must take place in the same geographical area. On the other hand, PGI eligibility can be achieved by possessing “*a specific quality, reputation or other characteristics attributable to that geographical origin*”. In the expression “or” lies the difference between a PDO and a PGI, in which any of the three conditions are sufficient, including reputation. Furthermore, the three conditions need to be attributable to geographical origin but not essentially or exclusively due to it. Finally, “*processing and/or production and/or preparation*” must take place in the geographical area and not necessarily the three activities altogether.

The difference between a PDO and a PGI may seem subtle but the structure of the value chains may be radically different and the territorial and economic stakes are high. The production chain of a PDO is fully realized in a territory but in the case of a PGI it may involve external inputs and activities. Thus, a PDO is fully localized, whereas a PGI can be more or less de-localized while retaining certain geographically meaningful features.

In both types of GIs the application for registration may be presented by a ‘group’, which is defined in article 5 as “*any association, irrespective of its legal form or composition, of producers or processors working with the same agricultural product or foodstuff.*” Such definition of group is inclusive of the legal and organizational diversity existing within the European Union, as well as that of third countries. The extent of the use that has been given to the multilateral register of PDO and PGI in Europe will be presented in section 7. The modern type of GI that has evolved in less than 30 years went from a strict link requirement, such as the AOC, to a more lax association between the product and the region, like the PGI (Rovamo 2006).

Table 5. European Protected Designations of Origin and Geographical Indications. The key difference between both figures is highlighted	
Article 2. Designation of origin and geographical indication	
1. For the purpose of this regulation:	
<p>(a) ‘designation of origin’ means the name of a region, a specific place or, in exceptional cases, a country, used to describe an agricultural product or a foodstuff:</p> <ul style="list-style-type: none"> - originating in that region, specific place or country, - <u>the quality or characteristics of which are essentially or exclusively due to a particular geographical environment with its inherent natural and human factors</u>, and - the production, processing and preparation of which take place in the defined geographical area; 	<p>(b) ‘geographical indication’ means the name of a region, a specific place or, in exceptional cases, a country, used to describe an agricultural product or a foodstuff:</p> <ul style="list-style-type: none"> - originating in that region, specific place or country, and - <u>which possesses a specific quality, reputation or other characteristics attributable to that geographical origin</u>, and - the production <u>and/or</u> processing and/or preparation of which take place in the defined geographical area.

flowers and ornamental plants, wool, wicker, and scutched flax. Since wine names are already regulated in specific instruments, they are excluded from protection under this regulation.

Article 4. Product specification

1. To be eligible for a PDO or a PGI, an agricultural product or foodstuff shall comply with a product specification.
2. The product specification shall include at least:
 - (a) the **name** of the agricultural product or foodstuff comprising the DO or the GI;
 - (b) a **description** of the agricultural product or foodstuff, including the raw materials (...), and principal physical, chemical, microbiological or organoleptic characteristics (...);
 - (c) the definition of the **geographical area** (...);
 - (d) evidence that the agricultural product or foodstuff originates in the defined geographical area referred to in Article 2(1)(a) or (b), as the case may be;
 - (e) a description of the **method of obtaining** the agricultural product or foodstuff and, if appropriate, the authentic and unvarying local methods as well as information concerning packaging (...)
 - (f) details bearing out the following:
 - (i) the **link** between the quality or characteristics of the agricultural product or foodstuff and the geographical environment referred to in Article 2(1)(a) or, as the case may be,
 - (ii) the **link** between a specific quality, the reputation or other characteristic of the agricultural product or foodstuff and the geographical origin referred to in Article 2(1)(b);
 - (g) the name and address of the **authorities or bodies verifying compliance** with the provisions of the specification and their specific tasks;
 - (h) any specific labeling rule for the agricultural product or foodstuff in question;
 - (i) any requirements laid down by Community or national provisions.

2.6 European Traditional Specialties Guaranteed

A traditional specialty guaranteed (TSG) is a “*traditional agricultural product or foodstuff recognized (...) for its specific character*”.¹³ In its preamble, the TSG regulation recognizes that “*economic operators should be provided with instruments ... to enhance the market value of their products while protecting consumers against improper practices and guaranteeing fair trade*” and that “*any references which may be made to the quality in trade are substantiated*”. TSG registration applies to all agricultural products mentioned in Annex I of the European Union Treaty (section 2.4. above) and also to those mentioned in Annex I of regulation 509/2006.¹⁴ Definitions relevant to the TSG and product specification requirements are presented in Table 6.

Table 6. European Traditional Specialties Guaranteed.

Article 2. Definitions

- (a) ‘specific character’ means the characteristic or set of characteristics which distinguishes an agricultural product or a foodstuff clearly from other similar products or foodstuffs of the same category;
- (b) ‘traditional’ means proven usage on the Community market for a time period showing transmission between generations; this time period should be the one generally ascribed to one human generation, at least 25 years;
- (c) ‘traditional specialty guaranteed’ means a traditional agricultural product or foodstuff recognized by the Community for its specific character through its registration under this Regulation;
- (d) ‘group’ means any association, irrespective of its legal form or composition, of producers or processors working with the same agricultural product or foodstuff.

Article 6. Product specification

1. In order to qualify as a traditional specialty guaranteed (TSG), an agricultural product or foodstuff

¹³ Council Regulation (EC) No. 509/2006 of 20 March 2006 on agricultural products and foodstuffs as traditional specialties guaranteed.

¹⁴ It includes beer; chocolate and other food preparations containing cocoa; confectionery, bread, pastry, cakes, biscuits and other baker's produce; pasta, whether or not cooked or stuffed; pre-cooked meals; prepared condiment sauces; soups or broths; beverages made from plant extracts, and ice-cream and sorbets.

shall comply with a product specification.

2. The product specification shall include:

- (a) the name referred to in Article 4(2), in one or more languages, indicating whether the group applies for registration with or without reservation of the name (...);
- (b) a description of the agricultural product or foodstuff including its main physical, chemical, microbiological or organoleptic characteristics;
- (c) a description of the production method that the producers must follow, including where appropriate the nature and characteristics of the raw materials or ingredients used and the method of preparation of the agricultural product or foodstuff;
- (d) the key elements that define the product's specific character (...);
- (e) the key elements that prove the product's traditional character (...);
- (f) the minimum requirements and procedures to check the specific character.

In order to register a TSG, the agricultural product or foodstuff *"shall either be produced using traditional raw materials or be characterized by a traditional composition or a mode of production and/or processing reflecting a traditional type of production and/or processing"* (Art. 4). Thus, TSGs are not tied to an environment that gives the product specific qualities but to the presence of a human group ('economic operators' is the language used in the preamble) that has developed particular practices that generate a product with a 'specific character'. The group registering the TSG may include members from more than one country and there is no explicit localization of the product or the producers. In fact, it is explicitly prohibited to register geographical indications as TSG. However, the product may be made from specific raw materials or make use of environmental conditions in production processes and include them in the product's description. Indirectly, TSG may protect a high end market segment for local products.

The definition of 'traditional' provided in article 2 (Table 4, above) is pragmatic: it *"means proven usage on the Community market for a time period showing transmission between generations"*. It is a product that has been commercialized for at least one generation, which is the time period *"generally ascribed to one human generation, at least 25 years"*. Thus, it allows for relatively recent innovations (more than 25 years), that have a collective character, to qualify as traditional.

The extent to which TSG can be interpreted as a specific type of geographical indication is debatable. The regulation explicitly prohibits that geographical indications be registered as TSG, thus, they are mutually exclusive. However, the name of a traditional product conveys at least a certain amount of geographical meaning. If there is a reputation to be protected, then there is a group of producers that have something in common: it may not be the territory or a biological resource but there is at least a cultural link between them. Consumers who value such a distinctive sign will also have a cultural link to the product. Evidently, they are not as localized as PDOs or PGI in terms of the raw materials used, but the so-called "economic operators" do share a knowledge and practice that is not completely de-localized. For the purpose of this study, TSG are broadly included as a form of GI but the differences should be kept in mind.

There is potential in linking the TSG description with ingredients that come from GIs, thus giving localization to a figure of protection that specifically can not be a GI. A precise description of ingredients (including local landraces or other GI ingredients) would promote diversity and it is a model that would be useful in basic staple foods. For example, a traditional specialty pasta can be made from commodity wheat produced far away and be stuffed with specific and local cheeses or herbs, or a condiment sauce made with generic olive oil and generic spices, but prepared with a certain know-how.

2.7 Potential conflicts in GI registration

Knowing what are the names that can not be registered is a useful start and trademark regulation usually excludes the registration as trademarks of geographical names, or of technical, common and purely descriptive names (as well as their translations) used in the production and processing of the class of product in which the trademark is being registered (e.g. mature for cheese or whole wheat for bread). It is useful to note that the excluded names are precisely those that comprise geographical indications.

In Europe, potential conflict with trademarks is dealt with in the EC regulation on PDO and PGI by providing that *“A designation of origin or geographical indication shall not be registered where, in the light of a trademark’s reputation and renown and the length of time it has been used, registration is liable to mislead the consumer as to the true identity of the product”*, thus providing trademarks with a degree of protection against GIs as long as the GI would be misleading, while the trademark is considered to be reputed, renowned and has a historical record.

Generic names are commonly excluded from registration both in trademark and GI law. However, in positive registration systems of GI there are explicit definitions of the meaning of generic. Product names become generic when the link between the territory and the product is lost. For example, according to India’s recent GI Act¹⁵ generic is *“the name of a good which, although relating to the place or the region where the good was originally produced or manufactured, has lost its original meaning and has become the common name of such goods and serves as a designation for or indication of the kind, nature, type or other property or characteristic of the goods.”*

Generic status is defined in similar terms by EC regulations 509/2006 and 510/2006 within the limits of the European Community. However, they further indicate that *“To establish whether or not a name has become generic, account shall be taken of all factors, in particular: (a) the existing situation in the Member States and in areas of consumption; (b) the relevant national or Community laws.”* Thus, defining the generic status of a product requires evidence from trade and existing laws and regulations.

Box 1. The feta cheese case.

Several cases have produced jurisprudence relevant to defining the generic status of a product. Feta cheese from Greece exemplifies an indirect GI because it is not a geographical name but it conveys an origin to consumers; this type of GI can easily become generic. Feta has been produced in other European countries and in the new world for decades. Until 1987 Greece had not adopted measures to regulate Feta cheese production or marketing: it recognized a PDO in 1994 and applied for EC registration the same year. Germany, France and Denmark opposed the PDO with the argument that it was generic and that there was no geographical link since the production area was basically Greek territory. To assess whether or not the designation had become generic, an opinion survey of 12 800 EC nationals was carried out, which showed the importance given to consumer perception in decision-making, regarding generic status of product names. A Scientific Committee evaluated diverse evidence and concluded that the name Feta was not generic for consumers in the community, and the PDO is now valid. By the end of 2007 feta indications will cease to be used by producers outside Greece. At least within the realm of the EC, the feta case signals the real possibility of reversing or stopping generification processes.

¹⁵ Geographical Indications of Goods Registration and Protection Act 48, 1999.

In the EU, the institutional environment is clearly in favor of the protection of both GIs and trademarks. The Torres wine trademark was at risk when Portuguese PGI *Torres Vedras* was recognized by the EC, but special provisions were adopted to protect the interest of a well-established trademark. The cases in which jurisprudence has been invoked show that proving generic status may protect certain GIs by placing them in public domain; and also that owners of reputed, legitimate, non-misleading and well-established trademarks need not be afraid of GI protection implications for their own trade.

It is also important to bear in mind that although conflict between GI and TM arises when the latter are misleading and are the cause of unfair competition, most of the time these two figures converge harmoniously in products since the GI is a club good, comprising private goods in which all benefit from the GI and still compete between them (Ragnekar 2004). Protection of GIs is also a new issue for many intellectual and industrial property institutions worldwide: the register of geographical names as trademarks was a common practice, but there is a clear trend to avoid these conflicts by simply being more careful when evaluating the geographical content in trademark registration.

Additional precisions introduced to ensure a more precise application of GI registration in the recent European PGI and PDO legislation include article 3, which explicitly indicates names that may not be registered. For example, *“where it conflicts with the name of a plant variety or an animal breed and as a result is likely to mislead the consumer as to the true origin of the product.”* The issue of homonymous GIs appears when two regions or localities share a name and seek protection. The two EC regulations described state that *“a name wholly or partially homonymous with that of a name already registered under this Regulation shall be registered with due regard for local and traditional usage and the actual risk of confusion.”*¹⁶

¹⁶ Article 3, 3. (...) In particular (a) a homonymous name which misleads the consumer into believing that products come from another territory shall not be registered even if the name is accurate as far as the actual territory, region or place of origin of the agricultural products or foodstuffs in question is concerned; (b) the use of a registered homonymous name shall be subject to there being a sufficient distinction in practice between the homonym registered subsequently and the name already on the register, having regard to the need to treat the producers concerned in an equitable manner and not to mislead the consumer.

3. Cases of geographical indications in developed countries

“If Comté had not been protected by an AOC, it would undoubtedly have met with the same fate as Emmental, and the Jura Massif - like other mountainous areas - would gradually have been deserted”.
Jean-Jacques Bret 2005

This section describes eleven cases of GIs in developed countries. They are mostly AO but there are other GI categories as well. These latter categories were chosen to provide an overview of the diverse approaches implemented world-wide and include GIs with a long history, notoriety and reputation, as well as recent innovative approaches to geographical differentiation.

The first case presented concerns a cluster of GIs within a single product class and a broad region: the AOC for cow milk cheeses from Eastern France. This approach was taken because individual GIs could give the impression that there are exceptional differentiation processes within a sea of generic production. Such a view tends to neglect the overall rural development context in which GIs are implemented. As a cluster, the presentation of cheeses emphasizes the role of multiple GIs as a regional process. Its treatment is different from that used in the other 10 GIs from developed countries. Included in the other 10 are Scotch Whisky, perhaps the oldest GI in common law countries; the first AOCs for rice and asparagus in Spain; a quality label related to the recovery of a rare and endangered pork breed; the diverse honeys of the Corsica AOC; the olive groves of Granada; two maize distinctive signs: a traditional specialty flour from the Veneto region, Italy, and a landrace from the Rhine Valley in Switzerland and Lichstenstein; the sugar maple forests of Eastern North America and their syrup; and the ‘special designation’ sakes from Japan. Their description uses as a framework the simple value chain, modified to consider the tangible and intangible inputs given by the territory and its biodiversity, the knowledge and practices adopted, the economics of the GI value chain and relevant governance issues (Figure 2C).

3.1. Eastern France’s AOC cow milk cheese

Biological resource: *Bos taurus*, various cow breeds adapted to alpine landscapes.

GI: 5 AOC, 2 PGI and a generic.

Product description: diverse cow milk cheeses from Eastern France.

Cheese is a value-added production chain, but AOC cheese production systems add even greater value. At the end of the 20th century France’s AOC cheeses made from cow milk represented approximately 1.2% of the world’s cheese production and although they represented 18% of purchased volume in France in 1998, they took a 22% share of the value¹⁷. Within this single product class, France has developed 36 AOCs, 26 of which are made from cow’s milk and 15 come from mountain regions. The strategic character of cheese in France is shown by the fact that dairy farms represent some 30% of national agriculture (surface, production units and employment), while in less-favored mountain regions¹⁸ they represent 35% of both units and employment.

¹⁷ Estimated by the author on the basis that cheese production in 1998 was 15 million tons worldwide, 6.58 million tons in Europe, 1.58 million tons in France and AOCs produced 181 000 tons. Data from www.fromag.com

¹⁸ For the effect of applying agricultural policies, mountain regions are defined as those above 700 meters and with >20% slopes, while high mountain begins at 1200 meters and includes livestock density as criteria.

Table 7. Selected AOC cheeses from the Jura and Northern Alps, France. (1)			
Name, GI, date (2) and GB			
Territory and biodiversity	Product description	Production and transformation	Marketing and distribution
Comté , AOC, July 22, 1952; Comité Interprofessionnel du Gruyère de Comté			
Jura Massif. Department of Jura, Doubs and part of Ain. Breeds: Montbeliard and French Simmental	Weight: 30 to 48 k Maturation: 120 days in cedar wood cellars	51 249 tons/year 175 dairies (private and cooperative) and 16 cellars. Comté production increased 3% a year last decade.	Bell logo registered as certification trademark in USA
Beaufort , AOC, April 4, 1968; Syndicat de Défense du Fromage de Beaufort			
Beaufortain, Tarentaise, Maurienne and part of d'Arly Valleys. Breeds: Tarine or Abondance	Weight: 20 to 70 k Maturation: 150 days (up to a year)	4 160 tons/year 43 dairies (ca. 30 maturation cellars)	Loaf with a convex heel is part of its identity in trade and is regulated.
Abondance , AOC, March 23, 1990; Syndicat Interprofessionnel du Fromage d'Abondance			
High Savoy. Breeds: Abondance, Tarine and Montbeliard	Weight: 7 to 12 k Maturation: 90 days	1 421 tons/year 54 farmers dairies and 9 semi industrial dairies	Differentiation of farmer and semi industrial product
Tomme des Bauges , AOC, November 12, 2002 ; Syndicat Interprofessionnel de la Tome des Bauges			
11 communities in High Savoy and 8 only partially, Savoy 29 and 7. Breeds: Abondance, Tarine and Montbeliard	Weight: 1.1 to 1.4 k Maturation: 5 weeks	655 tons/year 22 farm dairies and 4 cooperative dairies	Green label for farmers' dairies and red for semi industrial production
Reblochon de Savoie , AOC August 7, 1958; Syndicat Interprofessionnel du Reblochon			
Eastern High Savoy (176 communities) and Savoy (9 communities in Arly valley). Breeds: Abondance, Tarine and Montbeliard	Weight: 0.45 k Maturation: 2-3 weeks.	16 886 tons/year 161 farm dairies 24 dairies 12 cellars	Green label for farmers' dairies and red for semi industrial production
Emmental de Savoie and Emmental Français East Central (4) , PGIs; Fédération Départementale des Coopératives Laitières de Haute-Savoie and Syndicat des fabricants et affineurs d'emmentals transformés Grand Cru			
Savoie: Savoy, High Savoie and parts of Ain. East Central: 13 departments in 4 regions. Cow breed not specified.	Weight: 60 to 70 k Maturation: 70 days	Not available	Reversal of generic status in trade: relocalization.
Emmental (5) , Generic, no GI. Minimum EU requirements and Stresa Convention (1958).			
Delocalized, many areas in France and in Germany, Finland, Austria, Ireland and Denmark. Cow breed not specified.	Cheese in Europe does not include non dairy fats. Rind reconstituted through technical "maturation".	242 345 tons/year in France 490 000 tons/year in Europe	Decreasing share of the market (3% yearly decrease last decade)
(1) Information from the decrees of each AOC and from www.fromage.com ; (2) Only date of first decree is presented, most have been revised several times; (3) 2005 data from www.cniel.com , produits laitiers, AOC, except for Emmental (1998); (4) www.formaggio.it ; (5) www.lactalis.fr and www.fromage.com			

AOC cow milk cheeses from the Jura Massif and the Northern Alps are a cluster of GIs that have developed since the 1950s but in which there is ongoing innovation. They were

selected for several reasons: (a) it is widely accepted that biodiversity conservation in mountain and sub-alpine ecosystems is important; (b) mountainous regions are considered to be disfavored and are subject to differential support in agricultural policy; and (c) geographically indicated French cheeses are relevant players in global cheese production and are well-documented historically, while current research from diverse perspectives is available.

A diversity of cheeses

Five AOC and two PGI cheeses are dealt with here, as well as an additional generic cheese, Emmental, which was included as a useful parameter. From the Jura Massif, *Comté* cheese provides the best documented example; from the Northern Alps, four smaller AOCs were selected: *Beaufort* and *Abondance* - belonging to the same family of cheeses as *Comté* (produced with cooked milk, the paste is pressed and salted, and loafs are matured in cellars), but they have smaller production units and use less common cow breeds; *Reblochon* and *Tomme des Bauges* have different value chains because they use raw milk, maturation time is much shorter and loafs are smaller. It is useful to note that the AO areas for *Reblochon* and *Abondance* overlap. The general description of the selected cheeses is presented in Table 7.

The Jura Massif and the Northern Alps are mountain regions¹⁹ in which natural grasslands develop in plateaus and valleys surrounded by forests, the seasons are marked and the winters are extremely severe. As far back as the 12th century, specific cheese cultures developed around the need to preserve food for a long winter. The solution they found at that time is now a living heritage and an important productive activity. The value chain of cheese production involves use of pastureland, herd management of specific cow breeds, milking farms, maturation cellars and distribution. Within this basic scheme, specific AOC cheeses use different cow breeds and diverse production processes, ripening times, sizes and presentations.

Comté production in the Jura Massif averages close to 300 tons per dairy, while the biggest AOC in the Northern Alps, *Reblochon*, produces some 100 tons a year. In *Beaufort*, the average output (approximately 97 tons/year per dairy) is similar to that of *Reblochon*. Both *Abondance* and *Tomme des Bauges* have much smaller average outputs (approximately 22 and 25 tons/year per dairy, respectively).

It is important to grasp at the outset the structure and mandate of the GBs and the role of the decree that recognizes the GI. The example in box 2 relates to *Comté*, France's first AOC cheese, both in time (1951) and in current production (over 50 000 tons in 2005). The *Comté* Bell logo is presented in figure 4a.

The governance structure in the Northern Alps AOC cheeses is similar to that of *Comté* but with interesting innovations. For example, all 5 AOC cheeses use milk of the day, thus eliminating the possibility of concentration of milk for industrial processing. Delimitation of the area of milk collection contributes to keeping farmers as the main actors in the value chain.

¹⁹ Northern Alps include the departments of Savoy, High Savoy and Isère. The Jura includes the departments of Ain, Doubs and Jura. The two regions share structural and geographical characteristics but the Northern Alps have a bigger proportion of high mountain terrain.

Box 2. Governance in a GI value chain: the Comté AOC committee

The Interprofessional Committee Gruyère of Comté (ICGC)¹ was created by decree. It gave it legal personality (Art. 1) and mandate in 4 areas (Art. 2): research on production and marketing, technical assistance to producers, supervision on compliance, and consumer education. The ICGC is given exclusivity of *Comté* label production (Art. 3) and the main budget comes from the sale of such casein protein labels (Art. 6). The ICGC has the legal and financial means to deliver results on its mandate and it covers 95% of its operating costs from the sale of Comté labels.²

The ICGC is composed of 18 members with voting rights representing four sectors: milk farmers (4 members), cooperative (4) and non cooperative dairies (4), and cheese distributors (4, appointed by the agriculture minister), the president of the national AOC cheese committee (1) and the president of the national association of agricultural AOCs (1). Relevant technical authorities are present in the meetings as advisors³. A commissioner designated by the minister of agriculture assists at meetings of the Committee with the powers of a State controller and may oppose their decisions. The representation of all stakeholders in the value chain, the participation of partners according to their technical capacities and of government officials with defined obligations and powers, altogether account for the legitimacy of the governance structure. The AO was achieved in court in 1952 and registered in 1958 (with further modifications in 1976, 1986, 1998 and 2000)⁴. Current text describes Comté cheese with precision in fourteen articles: the area of the AO is delimited by department, canton and community (Art. 1) and the product is described in size and presentation (Art. 2); cow breeds, pasture and feed practices, milk and milking characteristics are clearly defined (Arts. 3 and 4). A key component for compliance with AOC rules is that only milk conforming to articles 1, 2, 3 and 4 can be introduced to *Comté* fabrication facilities (Art. 5). Production processes that further define the quality of the final product are also detailed (temperatures, pressure, salting, maturation, etc.).

Governance of labeling is relevant all along the value chain: article 6 indicates that the green casein guarantee label is introduced on each individual loaf while in production, no signs of alteration are acceptable and details include day and month of production, allowing full traceability of each loaf. The decree extends its governance to the relation of the ICGC with State authorities as it has to deliver a yearly report with detailed statistics and economic data to the national committee of dairy products (Art. 12); and to labeling (Art. 13) in which, besides presence of the logo, INAO characters and the legend Appellation d'origine contrôlée, it requires that the appellation Comté must be present in written characters no less than two thirds the size of the biggest character appearing on the package. Any other qualification besides the trademarks or producer names cannot be included in packaging. Comté cheese is assessed by juries of experts who rank the product before definitive packaging and commercialization.

Four decades after their creation the ICGC now state their mission, including social, environmental and consumer protection objectives: “to enable the producers working a difficult land (...) to carry out a durable economic activity”, and to ensure “consumers that their expectations are being fulfilled in terms of (...) a natural and authentic product”.

(1) Decree n°63-575, June 11, 1963; (2) www.comte.com; (3) The director general and the agricultural and veterinary services of the interested departments; the inspector of the division for the repression of fraud; the directors of the national dairy schools in the region, and other personalities the committee deems fit; (4) www.fromage.com, AOC les dates des décrets des Fromages et Produits Laitiers.

In *Comté*, a 25 km ratio limit from the dairy avoids spatial concentration of cheese production (Gerz and Dupont 2006). It also allows for the development of *crus* or subtypes within *Comté* due to floras that create particular flavors. In *Tomme des Bauges* there is a 15 km limit along the road for milk collection that has the similar objective of localizing production and benefiting small farmers. Milk farmers in the Northern Alps receive a 20% higher price for milk than those of Comté – where it is already above national average. The

overall milk price was 15% higher in AOC regions in 1985 but it reached a 30% differential in 2000 (Chatellier and Delattre 2003). Thus, direct benefit to farmers is a fact and a fundamental aim of AOC cheese development in these mountainous regions.

Farmers from mountain areas in developed countries face further trade liberalization, technological advances and changes in consumer behavior. However, they are confident in consumer willingness to pay a price differential for quality products and consider it indispensable to keep rigorously to regulations. The development of quality labels related to tradition, origin and the environment is a regional process in which many AOCs are experiencing growth: Beaufort and Reblochon doubled production between 1985 and 2000, and Abondance grew 5 times during the same period (Chatellier and Delattre 2003).



Figure 3. Labeling in AOC cow milk cheeses from Eastern France. a. The *Comté* Bell logo registered as certification trademark in USA in addition to AOC protection in France. b. Individual wrapping for *Reblochon de Savoie*, green indicates it is a farmer cheese. c. Supermarket label for slices of *Beaufort* cheese: note the AOC logo guaranteeing integrity of the product. d. The obligatory INAO logo in a *Tomme des Bauges* presentation for supermarkets. Photos: Jorge Larson.

There is also a trend towards labeling strategies that differentiate the farmer's product (*fromage fermier*) from that of semi industrial dairies. In Beaufort, summer and winter cheese are differentiated; *Challet D'Alpage* is produced in winter from single herds kept indoors and located above 1500 m. In Reblochon and Tomme des Bauges, cheese from farmer dairies are strictly single herd and use green labels, while semi-industrial dairies use a red label (Figures 3b and 3d). In practice, they are developing what can be called

“single herd cheese” (echoing the single malts of Scotch whisky). This differentiation strategy represents a process that Barjolle and Thevenod (2002) call “local relocalization”: reflecting that although the AOC implies localization, production was delocalized within the territory and small farmers require further differentiation to survive even within the “localized” AO.

The coexistence of semi industrial firms and farmers in a GI provides direct benefits to both because the relative contribution of smaller organizations to the overall budget of the governing body will be smaller than that of the semi industrial or industrial stakeholders, yet they will still benefit from technical assistance and marketing that is beyond their means. On the other hand, semi industrial firms benefit by associating their product to the traditional or artisan production in the eyes of the consumer (Barjolle and Thevenod 2003).

Specific or generic: lessons from Comté and Emmental

Emmental cheese followed an industrial pathway, became generic and production was delocalized to more intensive dairying regions with lower production costs. *Emmental* became generic not only by the common use of the name but also within a specific legal framework.²⁰ From a cultural perspective, it went from being a table cheese to an ingredient for cooking. However, two *Emmental* cheeses are in the process of reversing their generic status and have achieved PGI status: *Emmental Haute Savoie*, which is relatively localized in three departments, and *Français East-Central*, which in practice functions as a quality label, as both the extent of its territory and the name of the inter professional organization suggest (Table 6).

Comparing *Comté* and *Emmental* illustrates the social and economic differences between two production systems: one specific and traditional, the other generic and industrial. Both have their place in French cheese production and consumption, but they provide differential social benefits. *Comté* producers achieved the AO status by the judgment of the Dijon Court on July 22nd, 1952 and not by registration²¹. They were fighting unfair competition and while using the preventive approach they contributed to establishing jurisprudence which, in turn, contributed to the development of the AOC registration system for products other than wines and spirits in France. *Comté* development has since focused on differentiation based on their identity (Dupont 2003 in Bret 2005).

Average French farmers get €0.30 per milk liter, while *Comté* farmers get 14% more and their farms are 32% more profitable than equivalent farms in the region but outside the AOC. Industrial dairies of *Emmental* produce up to 5 400 tons a year (over 100 tons a week), while *Comté* dairies produce an average of 270 tons a year (less than 1 ton a week). However *Comté* generates 5 times more jobs than *Emmental* per milk liter used: 3 direct, full time jobs per million liters against 0.6. Moreover, *Comté* generates 0.5 indirect jobs per million litres in promotion, advisory, and other activities. It is not surprising that

²⁰ The Stresa Convention on the Use of Appellations of Origin and Denominations of Cheeses (1951) recognized the utility of international regulation and cooperation to assure the loyal use of cheese names to protect originality and provide consumer orientation. It defines cheese (prohibiting the addition of non dairy fat) and recognizes appellations of origin, which are given a high protection standard, as well as cheese names that can be used in many countries, including Edam, Emmental and Gruyère. Thus, some cheeses were deemed quasi generic (O'Connor 2005) but retained a minimum requirement defined in terms of shape, weight, size, rind type and fat content. As of March 29, 2005, it is applied in Austria, France, Italy, Germany and Switzerland.

²¹ www.fromage.com, AOC les dates des décrets des Fromages et Produits Laitiers

migration from the countryside in the *Comté* area is only half the rate in the non-PDO area (Gerz and Dupont 2006).

The marketing numbers are also eloquent: price differential between both cheeses was 20% in 1992 in favor of *Comté* and increased to 46% in 2004. *Emmental's* retail price grew by 0.5% yearly between 1992 and 2004 while *Comté's* grew by 2.5% yearly in the same period: the value added was appropriated by retailers in the case of *Emmental* while in *Comté* it was distributed along the value chain. In addition, 5% of the farms in the *Comté* area engage in a least one tourism activity while only 3% do so in the region. Of the tourists visiting the AOC region, 5.3% visited a cheese dairy and some 1.5% visited a cheese cellar (Gerz and Dupont 2006). In addition, although *Comté* experienced a decrease of -2% in sales volume between 1998 and 1999, the value of this renowned cheese decreased by only -0,7%, reflecting a growth in value and less sensitivity to market change.²²

In 1991, the *Comté* Bell logo was registered by the ICGC as a certification trademark in the USA in order to facilitate protection of their commercial interest (Figure 4a). They recently approved an increase from 90 to 120 days for maturation, thus increasing the intrinsic quality of the cheese. Quality control is strict: only cheese loaves that are awarded a minimum of 12 out of 20 points are allowed to bear the AOC official label²³, the rest goes to generic fondue products. The *Comté* Committee undertake detailed market research: they know, for example, that 31% of their buyers are between 35 and 49 years of age and that 37% belong to two-member households. This type of information allows them to design effective advertising and communication to which the CIGC directed 63% (€3.7 million) of their total budget in 2000 - an average of €82.5 per ton of cheese produced (Voix du Jura, 2002 in Gerz and Dupont, 2006). Job quality in general is also higher in the AOC than in generic production: extensive livestock-keeping practices means livestock management is easier and less time-consuming for farmers and while at the national level PDO cheeses account for 10% of cheese production, they are responsible for 40% of the job offers for students who have been trained in cheese-making in vocational schools (Gerz and Dupont 2006). The separation of tasks - for example, cheese making from maturation, in *Comté* - allows for the defense of a decentralized production to many villages (Jeanneaux et al., 1999). This enables AOCs to offer local people the opportunity to develop profitable businesses on a small area of land and improve their viability (Dupont, 2004).

How are such impressive results achieved? Simply put, governance in the *Comté* value chain works for the territory, linked to the market; in *Emmental*, it works for the market, disregarding the territory.

A variety of specific cheeses: diverse landscapes and cow breeds

The pasturelands of the Jura Massif and the Northern Alps are secondary ecosystems, created as a result of centuries of agricultural practices and they present notable botanical richness (Muller et al. 1998). *Comté's* key contributions to landscape conservation are extensive livestock management (herd density below 1 head per hectare) and low external inputs (minimal fertilization). Both promote the conservation of open landscapes - the

²² www.fromage.com, Production des AOC en 1998.

²³ From 20 points, 9 are taste, 5 texture, 3.5 internal appearance, 1.5 rind quality and 1 overall appearance. 15 or more points gets a green label and 12-15 gets a brown stripe. Less than 3 in taste is unacceptable.

transition between fields and forests - and a diverse flora. Livestock management in the *Comté* area has limited the loss of pastureland: between 1988 and 2000, the extension of grassland fell by 7% in the AO area, but by 18% -2.5 times faster- in the non-PDO area (Ministry of Agriculture, Food, Fishing and Rural Affairs 2003/2004 in Gerz and Dupont 2006). The Valley where *Abondance* is located has considerable forested area (50.2%) even though livestock production is well developed.²⁴ The *Tomme des Bauges* decree explicitly prohibits cultivation of transgenic plants in the AO area.

The five cow breeds involved in the production of the cheeses described here are not categorized as 'endangered'.²⁵ However, within these breeds there are relevant levels of genetic diversity. A genetic analysis of 8 cow breeds in France²⁶ shows that dairy cattle breeds are genetically small populations and that there are different levels of introgression from exotic breeds (Boichard *et al.* 1996). In agroindustrial farming, genetic resources are managed intensively and artificial insemination is widely applied. As a consequence, the number of males is drastically reduced and although the overall population of a breed may be large, the effective population is quite small in number. For example, in the Montbeliard breed there is an estimated population of 519 000 females in Europe while the effective population size is estimated at 5,930 (EAAP Animal Genetic Data Bank).

The Tarine (or Tarentaise) breed, on the other hand, is a completely closed population with a much smaller herd size (approximately 30 000)²⁷ and, on average, it has lower levels of consanguinity than the other breeds. Thus, it is more uncommon, genetically more diverse and relies less on insemination. This breed from the Northern Alps is an example of a genetic resource that is kept isolated and adapted to local conditions (steep slopes and harsh winter).

Tomme des Bauges for example is using Montbeliard, Tarine and Abondance but the decree specifies the timing for breed specialization: by the end of 2006 no other breed was to be tolerated and by 2012 all herds will have a minimum 50% of tarine and abundance. Thus, there is a trend towards specialization in particular breeds within each AOC. This implies a reduction in breed richness (4 or 5 breeds against 1 or 2), but from the perspective of rare breeds, herd size grows and this benefits their diversity.

There is a trend towards homogeneity that favors the development of distinctive characters but decreases the internal diversity of practices and products (Gerz and Dupont 2006). This trend reduces diversity within small regions but it favors their market competitiveness and their own survival possibilities, thus achieving the rural development objective. The fact that there are many GIs implies that, although becoming internally homogeneous, the overall regional process conserves both biological and cultural diversity.

The case of AOC cheeses shows that GIs are an appropriate instrument in rural development because they benefit local communities through the localization of economic activities. Table 8 presents a qualitative assessment of the contribution of AOC cheeses to landscape and genetic resource conservation in Eastern France; the utilization and recognition of traditional and innovative knowledge and practices, as well as the economic benefits to local farmers and to the national economy.

²⁴ Troisième Inventaire Forestier Haute Savoie 1998

²⁵ According to FAO Global Databank for Animal Genetic Resources criteria (cited in Thies 2000).

²⁶ Holstein, Normande, Montbéliarde, Simmental, Brune, PRP, Abondance and Tarentaise.

²⁷ www.sabaudia.org L'agriculture dans les pays savoyards (Author, A. Marnezy)

Table 8. Cow milk AOC contributions to conservation and development						
Case	Biodiversity conservation		Knowledge and practices used		Economic benefits	
	Landscapes Ecosystems	Genetic resources	Traditional	Innovative	Local Regional	National
Comte Cheese, AOC	++	+	++	++	++	++
Emmental, generis	~ ↓	~	~	+	+	++
Reblochon de Savoie, AOC	+	+	+	+	+ ↑	~
Beaufort, AOC	+	+	+	+	+	+
Abondance AOC	+	+	+	++	++	~
Tomme des Bauges, AOC	++	+ ↓	+	+	++	~
Emmental de Savoie GI	+	~	~	+	+ ↑	+
Emmental Francais East Central, PGI	~	~	~	+	~ ↑	+

++ , relevant; + , modest; ~ , negligible; ↑ , positive trend given certain interventions; and, ↓ negative trend without intervention.

Their contribution to biodiversity conservation at the landscape and ecosystem level relates to management of the herds at low density with little fertilization favoring species diversity in the prairies. In genetic resource conservation, they contribute to the population growth of rare breeds, while there is a potentially negative trend lying in the specialization of certain cheeses (e.g. *Tomme des Bauges*) in only one or two breeds. All AOC cheeses use traditional knowledge and practices while PGI and generic cheeses use semi-industrial techniques. Innovation in labeling strategies seeks to incentive further localization of cheese production (e.g. farmers' cheeses, using green labels). From the economic perspective, AOC cheeses provide relevant income at the local and regional level while only a few have an impact nationally. If the trend towards localizing farmers' cheeses continues, then economic benefits for local and regional economies will be defended and, perhaps, increased. The overview shows that *Comté* is not an exceptional experience and that the rural territories of the Jura and the Northern Alps have chosen AOC differentiation as their mainstream strategy to face the challenges of the 21st century.

3.2 Scotch whisky, UK.

Biological resource: *Hordeum vulgare*, Poaceae.

GI: protected in common law since the 19th century; Scotch Whisky Acts of 1988 and 1990
 Product description: Malted barley is fermented, distilled and aged in Scotland. A clear alcohol to begin with, aging in wooden casks gives it colour and aroma. Bottled as blends (mixed with other grain whiskies), as pure malt whisky and single pure malts.

Territory and biodiversity. Whisky distilleries are located all over Scotland but they are concentrated in the Speyside and the central and northern highlands. Water and peat bog are territorial characteristics strongly related to the qualities of the distinct whiskies produced. Barley is the basic raw material but its link to the quality is somewhat unclear. It

is mostly produced from modern cultivars such as Golden Promise, Tyne and Prisma in Scotland or imported. At least three barley cultivars are not sown anymore and are only present in seed collections. The need to encourage greater barley diversity is recognized by the Scottish government.

Knowledge and practices. Whisky production in Scotland goes back to the 15th century at least and reached its peak in the late 19th century with 161 distilleries. It was made from malted barley in single batches until the beginning of the 20th century when the patent still (a continuous distillation technique) introduced the pressures of industrialization into a traditional production chain. Crisis hit heavily in the 1930s when only 2 distilleries operated. The 1960s marked a period of reconstruction and consolidation of production while the differentiation levels now existing (aging periods, types of cask - oak and used wine barrels that add color and aromas, bottling at different strengths of single malts and blending) are the result of the last five decades of development (Figure 5a).

Economics. There are over two thousand Scotch Whisky trademarks but only 87 working malt distilleries and 7 grain distilleries: blending is the practice that allows such commercial diversification, based on a small number of production units. Blends use pure malt whiskies from several distilleries – sometimes as many as 50 individual malt and grain whiskies, as a source of flavors, aromas, color and texture, mixed with grain whiskies that contribute most of the volume. Thus, there are at least three value chains within Scotch whisky:

- (a) the blends produced by businesses that do not distill whisky but blend pure malts and grain whiskies (which use most of the imported barley and other grains) to produce a stable mixture that represents the character of the trademark;
- (b) the businesses that produce pure malt whiskies but may mix batches from different distilleries; and finally
- (c) single malts which are pure malts from one distillery - usually limited editions.

The industry creates 11,000 jobs located in fragile urban and rural areas and supports over 40 000 indirect jobs. Soon after the colonization of North America, whisky became a generic product. Exports represent 90% of all Scotch Whisky sales and current stocks (2005) are in the range of 2,900 million liters.

Governance. The adjective 'Scotch' was added to 'Whisky' creating the model GI in the common law world. After Scotch Whisky was defined and labeling rules developed it was then necessary to introduce labeling rules to differentiate pure and single malt whiskies. Two main trade associations represent the industry: The Malt Distillers Association of Scotland, involved with production, and The Scotch Whisky Association, devoted to the protection of Scotch Whisky world-wide. This protection is done by bringing *passing off* action into the courts wherever a beverage that is not Scotch Whisky is being sold as such. The Scotch Whisky Act 1988 and The Scotch Whisky Order 1990 clearly define whisky, Scotch Whisky,²⁸ and all of the practices considered unlawful in whisky production and trade. They provide a powerful legal framework to act in court in Scotland or in other

²⁸ The Scotch Whisky Act 1988 defines Whisky as "spirits which have been produced by the distillation of a mash of cereals which has been saccharified (...) and fermented (...), to an alcoholic strength of no less than 94.8 per cent volume (...) and that have been matured for at least three years in wooden casks (...)". Thus, the first definition is whisky as a generic. The Scotch Whisky Order 1990 defines Scotch Whisky as "whisky which has been produced at a distillery in Scotland from water and malted barley (to which only whole grains of other cereals may be added) all of which have been processed at that distillery (...) and which has been matured (...) in Scotland in oak casks (...) not less than 3 years".

countries, based on this jurisprudence. The economic drive that finances such an amount of litigation is beyond the means of most producers of agricultural produce world-wide.

3.3 Calasparra Rice, Spain.

Biological resource: *Oriza sativa*, Poacea

GI: National DO (March 4, 1986)

Product description: Rice from Calasparra, from two distinct rice varieties.

Territory and biodiversity. Produced in the river basins of Segura and Mundo in Murcia and Castilla-La Mancha. Recognized production surface is 2000 ha but only 500-700 ha are ploughed each year because of rotation practices. The DO includes only the varieties BalillaXSolana (created in 1948) and Bomba (local landrace since the 19th century). Organic production methods (*Arroz ecológico*) benefit water quality.

Knowledge and practices. Seed for planting is conserved and bred by associates of the organization. The biological control of plagues during storage is being developed in association with regional research centers. Rice from this source is used as a side dish or in *paella*.

Economics. Production is between 3000 and 3500 metric tons per year. “Virgen de la Esperanza”, the cooperative, which has 160 associates, is responsible for 95% of the production, while 5% is from a family business. Spain’s 3 rice GIs represent almost 10% of the total rice area, while commercializing less than 3% of national production, reflecting lower productivity than agroindustrial generic rices.

Governance. Quality procedures include overall quality assessment (twice daily), package weight control (every 30 minutes) and package presentation (4 times daily). Post harvest management and quality control eliminates up to 40% of the harvest from commercialization, which goes to feed. They comply with GI and organic production regulations; they have also introduced strict food safety control. In the late 1920s, the municipality registered the trademark “Arroces de Calasparra”; the AO therefore had an early differentiation attempt as a relevant reference.

3.4 Huétor-Tajar Asparagus, Spain.

Biological resource: *Asparagus officinalis*, Liliaceae; tetraploid varieties developed from local landraces.

GI: National specific denomination (October 22, 1996); European PGI (March 15, 2000)

Product description: A local landrace of asparagus commercialized as fresh produce and as canned preserve.

Territory and biodiversity. Huétor-Tajar is the name of a community west of Granada but the AO includes five surrounding municipalities. The regulation does not mention the landscape but precisely indicates the biological resource: tetraploid varieties-populations of *A. officinalis* developed from local landraces. The regulatory council has a specific mandate for the “conservation, selection, breeding, (...) adequate multiplication and commercialization of the plant material of the population-varieties autochthonous to Huétor-Tájar” (Art. 8 of regulation). Such mandate includes specific agreements on progenitor plantations (either for seed or vegetative propagation), which is an *in situ* genetic resource management and conservation strategy; they have also developed *ex situ* conservation through *cryo* preservation in alliance with local researchers. The use of fertilizers, water

and pesticides is clearly regulated and carefully managed, but the production is not organic.

Knowledge and practices. Cultivation began in the 1930s for local consumption and the region has since developed culinary traditions based on asparagus. It is one of the earliest fresh produce GIs in Spain.

Economics. The Centro Sur cooperative, founded in 1977 with 40 associates, has grown to its current 800 members. Small family plots of 0.5 ha are the average. Asparagus production reaches 4000 tons but only 15% is based on the local landrace and uses the GI; the rest is hybrid conventional. The region exemplifies a change in rural production from home consumption to production for the market. Selection, preserve preparation, packaging and canning provide employment for women and for recent migrant populations. The GI came after the cooperative had successfully commercialized their produce nationally. The cooperative competes with another asparagus GI (Navarra) in Spain's high end market, but together they face competition from imported Peruvian and Chinese generic asparagus.

Governance. Specific denomination in Spain is equivalent to a European PGI (Figure 5b). GI production is a value added supply chain that coexists with a higher volume and cheaper generic production: there is a diversification strategy using both traditional and conventional asparagus. The governance structure in place to achieve this differentiation of production chains is one of the keys to the success of the GI.

3.5 Quality Swabian Hall Pork Meat, Germany.

Biological resource: *Sus scrofa*, Suidae; Swabian Hall Saddleback breed.

GI: National quality label and European PGI 1998

Product description: A pig breed valued for its meat quality (higher fat and intramuscular fat content) and feed conversion rate.

Territory and biodiversity. Germany has 16 pig breeds but production is dominated by only three (95.4% of the herdbook in 1990); although the Swabian Hall represented 8% of the herdbook in 1950, by 1970 they were only 0.1%. A genetic resources assessment of 11 European pig breeds showed that the Swabian Hall could not be distinguished unambiguously from the German Landrace (suggesting introgression) and heterozygosity levels indicated endogamy. In 2000 there were only three subpopulations in the federal State of North Rhine-Westphalia (25 males and 139 females; an effective population size of 84.8 individuals) and it was classified as a "highly endangered population for which a conservation program must begin as soon as possible".²⁹ The development of a quality label successfully contributed to the breed moving out of the endangered status. The breed is well adapted to outdoor management and there are positive environmental benefits, compared to intensive pork production.

Knowledge and practices. The Schwäbisch-Hällisches Qualitätsschweinefleisch label was the initiative of one individual (who is now president of a producer group) with the aim of saving the pig breed that developed the traditional high-quality pork into a marketable and economically viable product.

²⁹ The Conservation Population category applies to breeds with an effective population size below 200.

Economics. They produce 4000 tons of pork per year in 100 farms, generating 250 jobs at the production plant (BESH is its German acronym) which deals with slaughtering and marketing. Production costs are 12% higher than for standard pork but the cost is compensated by a 20-30% price premium which is paid to farmers by the BESH.

Governance. This PGI is recognized as an *in situ* genetic resource conservation strategy in Germany's National Management Plan for the Conservation and Sustainable Use of Animal Genetic Resources because it is a successful example that, in order "to prevent risks to the endangered breeds (...)" an option is to "promote their use to produce marketable, competitive products."

3.6 Corsica Honey, France.

Biological resources: *Apis mellifera mellifera* ecotype *corse*.

GI: AOC (January 30, 1998); European PDO.

Product description: 6 different honeys according to season and vegetation

Territory and biodiversity. A mountain island with 8748 km² of diverse vegetation coverage. Insularity favors natural differentiation. The genetic variability of bees in Corsica is higher than in any other department in France, and there is genotypic differentiation between Corsica's 7 regions. The endemic Corsican ecotype uses flower resources of the *maquis* (Corsican name for a dense vegetation of small rosaceous plants and shrubs), chestnut forest and citrus plantations. No other cultivated plants are accepted in the AOC. Genetic differentiation was increased by a 1982 decree prohibiting admittance to the island of queens or colonies, so as to prevent the introduction of *Varroa jacobsoni* (a parasite that eventually arrived in 1985). From then on no more exotic bees have been introduced to the island and the rearing of queens within the ecotype is an ongoing activity.

Knowledge and practices. Honey bee keeping was only a complementary activity for farmers until the late 1970s when a new generation of professional bee keepers started working. The development of the regulation was supported by innovative research for honey characterization that focused on the sensorial diversity of the honey itself and on the season and vegetation type, rather than on identifying mono floral honey. Thus, *Miel Corse* honey comes from different vegetations and seasons - both of which define floral composition: spring *maquis*, *miellats du maquis*; summer *maquis*; autumn *maquis*; and chestnut forest plantations (Figure 5c shows these different types of honey harvested and bottled by the same beekeeper).

Economics. 200 tons are produced per year. Close to 100 members participate in the AOC and they sell over 95% of their product in the island to local consumers and tourists. Honey that does not fit their profile may be commercialized as *Miel Corse* without further differentiation.

Governance. The decree emphasizes genetic and ecological differentiation of the bees. Precisely, it describes the vegetation of the island as well as the main types of honey recognized and labeled as such within the GI. Lot traceability of honey bearing the *Miel Corse* AOC goes all the way to the specific locality and date of collection, and samples of each are analyzed for compliance with health, quality and sensorial standards, before marketing. Most producers use only their name and the AOC on the labels, without registering trademarks.

3.7 White Pearled Maize Flour, Italy.

Biological resource: *Zea mays mays*, local landrace *biancoperla*.

GI: recognized in Italy's inventory of traditional products.

Product description: flour from the biancoperla variety, Veneto region.

Territory and biodiversity. The Italian peninsula became an important center of maize diversity and a strategic location for regional diffusion in the 16th century. Flint maize varieties were already important at that time. The introduction of hybrids in the late 1950s led to a loss of traditional landraces but, as is usually the case, small farmers in remote areas continued using their own seeds and resources. The Veneto region has the greatest maize diversity amongst 17 Italian administrative regions (28 out of a total of 65 agroecotypes and 17 out of 34 landraces). The *biancoperla* landrace belongs to one of the three agroecotypes of pearled white flint maize recognized in Italy. It is grown in less than 50 ha of land, using little fertilizer due to local adaptation. Production is not entirely organic but it is within sight of the producers' association.

Knowledge and practices. Traditional production methods have higher costs so the retail price of the association's stone-ground meal is approximately five times the average price of commodity cornmeal. In fact, the retail price of the cheapest available commodity cornmeal is about equal to the cost of stone-grinding the *biancoperla*. One of the practices that makes the flour a specialty results in a substantial increase in price.

Economics. It is produced in small quantities and available in certain mills and specialty stores in the production area, in three presentations: flour, whole flour and whole flour grounded in rock. They do their own distribution and are aiming at local restaurants and shops that will be willing to pay the premium price.

Governance. The *Associazione Conservatori Mais Biancoperla* was formed with 13 members. The context in which this experience has developed is one in which cooperatives and rural tourism initiatives in the Veneto region have the support of diverse public policies.

3.8. Montes de Granada Olive Oil, Spain.

Biological resource: *Olea europea* subsp. *europaea* var. *europaea*; seven cultivars.

GI: National AOC (October 1, 1998), European PDO.

Product description: pure olive oil differentiating two flavors in labeling.

Territory and biodiversity. Cultivated olive trees have long lives (100-1000 years), are self-incompatible and belong to one variety in one subspecies. Over 2000 cultivars have been recorded worldwide and there is no evidence of genetic erosion. Both wild populations and cultivated olive trees in the same region have correlated genotypes. Plantations have a high genetic diversity and there are significant differences between regions. The olive oil PDO Montes de Granada has 56 000 ha of olive groves (2.5% of Spain's olive-growing surface and 0.1% of the world's, respectively) in mountain areas where the cold climate and altitude naturally reduce both plagues and illness. This has allowed for environmentally friendly cultivation practices. The AOC recognizes 7 varieties within its approved listing, being one of the most diverse in Spain. However, the AOC regulation favours 3 varieties - should new areas or regeneration of plantations emerge. Thus, the regulation favours certain varieties over others.

Knowledge and practices. The autochthonous origin of olive cultivars suggests long-term interaction between olive culture and available resources. Basic extraction technology is similar everywhere. Cultural differences are minimal but differentiation in cultivars and environmental factors are important.

Economics. The agroindustry generates 25% of Andalusia's income. In the olive industry, 50% of the undertakings are cooperatives, while the overall figure for the rural sector is only 14%. Olive groves represent one-third of the cultivated area of Andalusia but they generate 50% of the agricultural jobs. The Granada province has 16% of Andalusia's olive oil industries. Convergence with organic production labeling is an important part of their added value. Colouring of the GI label is being used to convey information on the intensity of the oil - flavor: red for the intensely-fruited and green for the soft fruited.

Governance. The public policies of the Andalusia Autonomous Community have supported the promotion of associations, the concentration of product offer, organizations and certification entities, and various activities such as AOC product promotion, which grew from €629,364 in 1993 to €1 412,976 in 2001.

Box 3. Varietal specialization in olive oil AOC and biodiversity conservation.

Article 7 of the AOC Montes de Granada regulation recognizes 7 exclusive varieties, 3 of which are considered to be the main varieties.¹ In terms of diversity, point 3 of article 7 indicates that in the case of an increase or renovation of olive plantations in the production zone, the regulatory council can promote the main varieties and advise on the limitation of the other varieties. This would have the effect of reducing diversity within the AO. However, new varieties can be introduced, if previous essays and experience prove that they produce oil of a similar quality to those characteristic of the area. In the case of the Sierra Mágina AOC, 2 varieties are accepted and Picual accounts for 95% of the production (a variety that accounts for half of the national production). Thus, there is a tendency to promote homogeneity within each AOC. It is a reasonable strategy in terms of character development for consumer perception, but its consequences for genetic diversity are not positive.

1. Picual (80% of production), Lucio and Loaime (15%), and the rest (5%): Hojiblanca, Gordal de Granada, Negrillo de Iznalloz and Escarabajuelo.

3.9. Rheintaler Ribel Mais, Switzerland and Liechtenstein.

Biological resource: *Zea mays mays*, Poaceae.

GI: AOC August 7, 2000.

Product description: a local landrace used to produce flour and beer.

Territory and biodiversity. The Rheintaler variety was introduced from Italy and is probably of Turkish origin. The production of other cereals in the Rhine Valley was difficult due to high temperature and humidity. In 2000, when the AOC was recognized, a project was launched for the conservation of the genetic diversity of Rheintaler.

Knowledge and practices. Maize appears in 17th century documents from the region and became the principal food cereal by the middle of the 19th century. Diversified derived products such as flour, semolina and beer are based on traditional practices.

Economics. The association includes producers from four districts in the St Gall Canton, 7 communities in the Canton des Grisons, as well as the Liechtenstein Principality. Although

a small supply chain (50 tons), it is diversified and sold mostly through direct local channels (stores and restaurants) and promoted through culinary activities for tourists and the local population.

Governance. Application for AOC recognition was presented in September 1999 and registration was one year later. It is an AOC with a very small production area and productive output. In spite of this, however, it is a transboundary GI that includes two sovereign territories (Switzerland and Lichtenstein). A control body was not created specifically to perform the task, since the cost would be too high. Instead, they use the services of an independent private certifier (ABCert) based on a control manual established in collaboration with the inter professional organization. They collaborate with an official federal program (Diversity in agriculture Plant Action, Swiss Commission for the Conservation of Cultivated Plants) on the conservation of genetic resources.

3.10. Sugar Maple Syrup, Quebec, Canada and Vermont, USA.

Biological resource: *Acer saccharum*, Aceraceae.

GI: *sui generis* protection through labeling and quality and certification trademarks

Product description: the sap of sugar maple trees processed into syrup.

Territory and biodiversity. Exclusive to North America, this non-timber forest species favors the conservation of forested areas. The production season is short, due to ecological factors - approximately 6 weeks in early spring during which daily freezing and thawing cycles generate pressure potentials that make the sap flow. There is professional forest management in most sugar maple parcels. Industrial plantations reduce genetic and floristic diversity while organic production and managed natural stands promote floristic diversity. Vegetative reproduction is underway and genetically homogeneous monocultures threaten long-term resistance to plagues and climatic change.

Knowledge and practices. European settlers learned production practices for the use of sugar maple from the indigenous populations; there was not much change until the 20th century. The image of traditional practices is now used in marketing and promoted with regard to rural tourism activities, although collection and processing methods have been modernized. There are strong local traditions attached to derived products, such as candies, and there is ongoing innovation using maple syrup as a cooking ingredient. Authenticity and purity are signaled in most commercial presentations.

Economics. There are 16 000 producers and the overall production in 1995 was 18 981 kl (78% in Canada, 71% in Quebec alone). Quebec consumes 13% of world production and 70% of Canadian production is exported. The value of Canadian exports in 1995 was 80.4 million CD. The USA produced 5 300 kl in 2002, worth 38 million USD. In 2000, Vermont State had 2 000 producers that generated 13.3 million USD and 37% of the US crop. In commercialization, there are special presentations for high end markets and for tourists; there are also the popular canned or gallon presentations with producer identity.

Governance. There is extensive positive protection through administrative federal and state-level regulation of labeling, including content description (pure maple syrup is indicated only for 100% maple sugar) and a certification trademark that is a GI (Vermont Maple Syrup). In the USA, the definition of names and quality-related statements in labeling and traceability is guaranteed by administrative regulation. In Canada, there is a quality trademark (SIROPRO) registered by the *Fédération des producteurs acéricoles du*

Québec (Figure 4d). The grading criteria are standardized, although there are slight differences between countries, states and provinces.

3.11. Special Designation Sakes, Japan.

Biological resources: *Oryza sativa*, dozens of varieties; molds and yeasts.

GI: labeling rules, quality labels (at least 5 with geographical content), and an AOC (2006).

Product description: sake is brewed from steamed rice processed simultaneously through saccharification and fermentation.

Territory and biodiversity. Sakes are produced in most of Japan and breweries are generally located close to water sources. Rice growing around factories is common, thus contributing to regional differentiation. Sake rice varieties share traits such as large grain size, low protein content, and a large white core. A recent study characterized genetic diversity in 95 sake rice varieties (28 local and 67 modern cultivars) and found that it was much less than the diversity found in cooking rice cultivars. Modern cultivars have greater diversity than local landraces, probably due to the introgression of modern cooking cultivars in modern sake brewing cultivars. Microbial diversity is also involved in saccharification by a mold - koji or *Aspergillus oryzae* - and fermentation by yeast - *Saccharomyces cerevisiae*. The diversity in rice varieties and production processes creates a great diversity in sake products.

Knowledge and practices. The origins of sake go far back in history. The 20th century saw a change: in 1904, the government created a sake-brewing research institute and hygiene and quality standards were fostered. Even though industrialization was strongly promoted, nowadays diversity is lively and traditional, both in rice varieties and in the brewing methods of the various guilds of master. The link between sake brewing, water, local climates and culinary cultures is rich in TK.

Economics. Sake represents 2% of Japan's government income tax: there are more than 1,500 sake breweries in Japan. Special designation sakes (that comply with certain quality requirements) represent 25% of production. Although in the 1970s sake trademarks proliferated, using the product of other breweries, this practice has drastically diminished and most brewers now sell their own sake. Most sake is consumed within Japan and labeling practices are precise, detailed and informative for consumers. Mandatory and voluntary labeling provides a high level of differentiation that usually includes the type of sake (if it's pure rice), the saccharification process and additional contents (brewers alcohol or sugar), as well as a measure of sweetness/dryness; rice polishing ratio; rice and yeast varieties, water source, school of brewers, brewer's name, fermentation time and acidity.

Governance. In the 1960s, premium sake was defined and it was permitted to include a small proportion of distilled alcohol; later "pure rice sake" was also defined. Labeling rules were already strict before GI differentiation began and there is full traceability. Regional differentiation is being driven by producers, government and consumer demand, through several channels. Regions have begun to define rules associated with the use of labels with a geographical content (Sake from the Nagano, Saga, Hokkaido and Niigata prefectures). In 2002, the Nagano Prefecture began a local 'product control' system: rice varieties are diverse as long as production takes place in the prefecture, whereas the quality control of the final product is strict and includes tasting of each batch, classifying sake in flavor profiles rather than grading quality - a practice that prevents different but valid sakes from being eliminated. In Hokkaido, quality control tasting involves non-professionals on the panels. In 2006, the first Appellation of Origin, Hakusan Kikusake, was

registered. This does not involve the entire Ishikawa prefecture, but a more specific region. The name corresponds to the mountain from which water has been used to produce sake for five centuries. Income from the label is used in collective marketing and in inspections of the five participating breweries (there are other breweries in the prefecture but the AO includes a smaller territory). However, the AO allows for the use of rice produced outside the AO (approximately 20%).



Figure 4. GI labeling in developed country cases. a) Scotch Whisky label showing extreme differentiation (bottle and cask number), The Balvenie; b) Consecutive labels used to certify the Huetor-Tajar Asparagus as PGI; c) Five different types of honey from the same beekeeper, Paul Tristani, all certified within the Corsica Honey AOC; no trademark is used; d) The SIROPRO logo is a quality label; it is not a GI and is only used on sugar maple syrup from Quebec. Photos: Jorge Larson (a,b), Juan Manuel Martínez (c).

4. Overview and lessons from developed countries

Table 9 presents a schematic assessment of the contributions of specific GIs to the conservation of biodiversity at two levels (landscapes and ecosystems, and genetic resources): the use of traditional and innovative knowledge and practices; and the economic benefits of their value chains. Together, they provide useful insights into the contribution of GI differentiation to the *in situ* conservation of genetic resources and rural development in less-favored areas.

Table 9. Developed country GI contributions to conservation and development.						
Case, Country, Type of GI	Biodiversity conservation		Knowledge and practices used		Economic benefits	
	Landscapes Ecosystems	Genetic resources	Traditional	Innovative	Local Regional	National (exports)
Scotch Whisky, UK. Common law GI	++	~ ↑	++	++	++	++
Calasparra Rice, Spain. AOC	+	+	~	++	++	~
Huetor-Tajar Asparagus, Spain. PGI	~	++	+	++	++	~
Quality Swabian Hall Pork Meat, Germany. PGI	+	++	~	++	++	~
Corsica Honey, France. AOC	++	++	~	+	++	~
White pearled corn flour, Italy. TSG	~	++	++	+	+	~
Montes de Granada Olive Oil, Spain. AO	+	+ ↓	+	+	++	+
Rheintaler Ribel Mais, Switzerland & Liechtenstein, AO	+	++	+	++	+	~
Maple Syrup, Quebec, Canada and Vermont, USA. CTM	++	+ ↓	+	+	++	+
Special designation sakes, Japan. CTM and AO	+	+ ↑	++	++	++	+
++ , relevant; + , modest; ~ , negligible; ↑ , positive trend given certain interventions; and, ↓ negative trend without intervention.						

It is useful to stress the fact that although these GI cases are located in developed countries, they come from less-favoured areas in terms of productivity. Given the economic context (purchasing power and volume in national and regional markets), differentiation allows for the development of local and regional economies that provide more jobs per production unit and higher commercial value. These simple outputs improve

rural livelihoods that are threatened by competitive economic conditions but that can capitalize on the originality and authenticity of their resources and products. The contributions to the conservation of biodiversity are not necessarily explicit objectives of the GIs but rather a consequence of economic viability for a specific livelihood. Indirectly, certain GI production practices create conservation benefits at the landscape and ecosystem levels. However, biological and genetic resource conservation is a direct consequence of GI value chain development.

From the perspective of developed country consumers, GI differentiation conveys a notion of quality and origin which complements the perceptions of safety and traceability inherent in developed market economies. However, a consequence of the hyper industrialization of food chains has been the failure of vertically-imposed safety criteria (e.g. the mad cow disease); consequently, consumer trust in industrial foods has been undermined and there is increased demand for products with a clear origin and “natural” qualities (Barjolee and Sylvander 2000). This situation represents an opportunity for rural producers who defend or recreate “natural” production methods, using a creative combination of tradition and innovation.

Table 9 shows that at the landscape and ecosystem level, none of the production systems associated to the GIs results in negative environmental outcomes, at least compared to their conventional equivalent. However, their positive contributions tend to be modest or negligible, since many agriculture systems are inherently less diverse than the natural ecosystems. This is why relevant contributions are related to GIs in which a resource lies in natural vegetation or in environmental services. From the perspective of genetic resource conservation, over half of the cases involve relevant contributions indicating that GI specificity is closely linked to the use of unique and locally-adapted genetic resources, and that governance includes the sustainable management of local landraces or breeds. The potentially negative trends identified lie in the specialization of GIs in particular genetic resources (landraces or breeds) while excluding others (e.g. Montes de Granada olive oil) or the intention to promote the widespread use of selected clones homogenizing huge surfaces (e.g. sugar maple stands). However, in both cases there is evidence that either government or the governing bodies of the GIs are aware of the potential risks of specialization and are either taking action to promote diversity (e.g. Scotch Whisky) or are developing flexible regulations that do not tie the GI to a specific genetic resource but recognize and make use of available diversity (e.g. sakes).

In terms of knowledge and practices, tradition is not always the most important component, and innovation plays a relevant role in product development and marketing. This apparent contradiction is explained by the fact that although the traditional character of the product is respected, the social conditions for production change (e.g. work force being strongly limited or expensive) and new market demands (e.g. packaging for longer shelf life, or labeling for culturally distant consumers) require innovation. Thus, innovation and tradition go hand-in-hand in GI value chains. In most cases, basic research, in association with local or regional institutions for the characterization of the production system and the products themselves, shows that formalization is also an important component in GI development.

The economic benefits of GIs are clearly positive at the local and regional level, but most are negligible from the national perspective. This is important because it shows that export markets are not the most important market goals and that all GI cases have a either a relevant or modest impact on local and regional economies. Although in developed

countries the economic benefits from GI protection would seem obvious, the specific effect of GI itself is not easily isolated from the existing enabling environment (fair competition in a well-developed market) or existing complementary institutional support.

Within the described GIs, governance is highly developed and involves producers, federal and State institutions, as well as private-sector distributors who have introduced mechanisms to maintain traceability all the way to the consumer. Regulations, institutions and organizations together constitute an enabling environment in which recognizing and building a GI is a process supported by many policy instruments related to rural development in productively marginal areas. The GBs are sustained, for the most part, by production and commercialization itself (e.g. by charging its members a fixed percentage for certified or labeled products), even without national or export markets. This is evidence of the existence of an economic activity (volume and purchasing power) that provides sufficient resources for the work of the GB.

The main lessons provided by these GI cases are presented in Table 10 below, under the same subjects as the simple, modified GI value chain used to describe the cases. The overall assessment of GIs in developed countries indicates more opportunities than pitfalls and this implies that the positive contributions of GIs to conservation and development are real, given the governance that is in place and the enabling environment that recognizes them

Table 10. Main lessons from developed country GIs.

Opportunities are indicated with a ✓ symbol and pitfalls with ✗.

Biodiversity conservation

- ✓ *Direct contributions to landscape and ecosystem conservation are important in GI production systems based on natural vegetation, perennial crops or extensive low input livestock management.*
- ✓ *In GIs based on agricultural systems (monocultures) direct environmental benefits result only from convergence with organic production methods.*
- ✓ *Direct conservation of genetic resources results from GI implementation when they are intrinsic to the product itself.*
- ✓ *Endangered genetic resources can be recovered directly when a successfully marketed GI is developed and management of germplasm is carried out by producers, the GB and in alliance with regional research institutions.*
- ✓ *Insularity provides exceptional conditions for GI differentiation: ecology, biogeography, history and culture create "insularity" in continental environments.*
- ✗ *Promotion of landrace or breed specialization to better define the product's character in the eyes of the consumer incentives loss of genetic diversity.*
- ✗ *Practices such as irrigation or intensive fertilization may contradict GI principles because the link to the territory is implicitly modified and production is unsustainable.*

Knowledge and practices

- ✓ *In GI differentiation, cultural differentiation may be as important as natural factors (e.g. the biological identity of the raw materials).*

- ✓ *There are no fixed concepts regarding tradition, while innovation to face the challenges of marketing is ongoing within local and culturally relevant production practices.*
- ✓ *GIs have played a role in the recovery and valorization of traditional practices linked to the use of underutilized genetic resources that were neglected by industrialization.*
- ✗ *Formal concepts of quality tend to homogenize production processes. This may imply the marginalization or loss of relevant TK.*
- ✗ *Quality criteria may provoke the elimination of a high percentage of products from commercialization due to selection criteria.*

Economic benefits

- ✓ *Benefits from added value and market segmentation can be directed to producers given that adequate provisions are in place to keep production localized.*
- ✓ *Precise and respectful delimitation GIs in their geography, product description and quality criteria empowers small farmers and promotes localized production practices.*
- ✓ *Many small GIs within a well-defined product class or generic favor localization of production, incentive diversity and avoid speculation with the GI raw materials.*
- ✓ *Generic and specific production can be managed simultaneously by the same producer organization if governance is in place to keep the supply chains separate.*

Governance

- ✓ *The legal frameworks that provide preventive and positive protection for GIs are mutually supportive.*
- ✓ *Legal status and legitimacy of the GB, supported by public authority, are central to the success of GI differentiation.*
- ✓ *The main fields of action for GB are production practices, market management, legal protection of the GI, definition of regulation and compliance inspection, technical control, research, advertising, political representation and networking.*
- ✓ *Adequate governance and institutional support allow for several GIs to coexist within a single region or the implementation of transboundary GIs.*
- ✗ *Economically and geographically small GIs with small production face the challenge of designing GB with low transaction costs.*

Enabling environment

- ✓ *The rural development policy context (e.g. valorization of environmental services or landscape conservation and tourism) in which a differentiation strategy develops is fundamental for the success of small GIs.*
- ✓ *Full product traceability for whichever reason (natural resource management, sanitary or fiscal) is useful in the development of quality systems, to comply with importing party obligations and provides a framework for GI development with low transaction costs.*
- ✓ *Regulation of labeling, presentation and advertising of foodstuffs contributes to the creation of an enabling environment for GI differentiation.*
- ✓ *The definition of the minimum characteristics of generic products (e.g. honey or cheese) is a fundamental part of fair competition.*

- ✓ *Generic status of a name can be reversed simply by adding the geographical origin of the product: a product from a place.*
- ✓ *Labeling that is truthful and meaningful to consumers is a solid education media that operates like a GI in terms of the information it provides, and contributes to diminishing asymmetries between producers and consumers.*
- ✓ *Private distributors and supermarkets are increasing their involvement in origin and tradition based products in most developed countries.*
- ✗ *Litigation based on unfair competition may provide GI protection, although the cost is high and consequently an option that is inaccessible by small producers*

5. Cases of geographical indications in developing and transformation countries

While giving a brief look at the cases indicated herein related to geographical indications in developing and transformation countries, one gets a panoramic view of the dynamics of GI implementation worldwide. The cases cited include thirteen examples from America, Asia, Africa and Europe, involving all sectors of rural production. These GIs are recognized nationally and where there is international recognition this fact is indicated; some of them have not been registered yet. *Tequila* is Mexico's first AO and shows the impact of industrial development on diversity; *Mezcal* is an AO that is, at the same time, a generic concept whose enormous demarcation area poses challenges to governance; the *Budvars* beers are a European PGI registered by Czech producers with a long history of conflict in relation to trademarks overseas; *Pisco* is an AO with an important diversity of grape varieties but with governance problems due to simultaneous conflicting registration by Perú and Chile; the *Rooibos* tea from South Africa illustrates the successful defence of a GI through its recognition as a generic and also the role of fair trade and organic markets in the sustainability of small cooperatives; the *Phu Quoc* fish sauce from Vietnam introduces the challenges of governance over non-sessile resources and the potential exclusion from the staple foods of poor consumers; Bolivia's AO for *Quinoa Real del Altiplano* was developed to face unfair competition in an already successful export value chain, while it favours one variety over underutilized landraces; the layer pie from Slovenia illustrates the delocalized nature of TSGs and their role in defending the character of regional foodstuffs; the AO for aromatic rice from the Hai Hau district in Vietnam shows the positive contributions of GB to governance and signals the risk of exclusion of landraces that are less recognized or valued commercially; the giant white maize from Cuzco is a Peruvian AO driven by an export market and with the potential to include small farmers in the value chain. Finally, three cases are presented in which no GI has been registered as yet but discussions are underway. One of them, Guanaco, is a wildlife species from South America. The other two come from Africa and involve a staple food (Casava Gari) and a vegetal oil for high end markets (Argan oil).

5.1. Tequila, Mexico.

Biological resource: *Agave tequilana*, Agavaceae; blue variety.

GI: AO (1974); recognition in NAFTA and other bilateral and multilateral agreements.

Product description: A distilled spirit made from the cooked stems of Agave tequilana.

Territory and biodiversity. The name of a town in what is now the State of Jalisco became the name of the spirit, in this case. Delimitation of the AOC region used administrative delimitations and the total territory of 111 946 km² includes the whole State of Jalisco and neighboring municipalities in the states of Guanajuato, Michoacán and Nayarit, as well as non-contiguous municipalities in Michoacán and Tamaulipas. *Tequila* plants reproduce asexually through underground sprouts - a trait that has favored selection of cultivars. The *blue* variety became the only variety recognized in the AO for the production of tequila. This resulted in the loss or marginalization of at least half a dozen other varieties of *A. tequilana*. Biotechnology introduced *in vitro* reproduction of millions of identical individuals with uniform maturation periods and "quality". The homogenization of the genetic resource base has resulted in lack of diversity in the fields and has facilitated the spread of infectious diseases and plagues. As demand for *Tequila* grows, so do environmental costs in the form of soil loss, due to planting in rows oriented with the slope, intensive pesticide use, and clearing of tropical dry forests rich in biodiversity. The

speculative increase in production areas has resulted in occupying inadequate terrain in terms of soil and climate (e.g. Tamaulipas, where the planted surface has grown from 2,000 ha to 10,000 in four years -2000 to 2004-).

Knowledge and practices. Tequila production was first *legally* recognized in 1795 when the Spanish crown recognized the *vino mezcal de Tequila*. Its reputation grew until the appellatives *vino* and *mezcal* were eventually abandoned. During the 19th century industrialization favored technological innovation and large production units. The revolution and agrarian reform in the first half of the 20th century introduced small farmers as new stakeholders in the Tequila supply chain. Tequila production has deep historical roots but is now a full-fledged agro industrial system.

Economics. Socially speaking, although planting Tequila is an option for small farmers, the plantations have grown outside the traditional Tequila production regions, substituting maize and other crops in the fields. The regulation recognizes two types of Tequila: “Tequila 100% Agave” which is bottled in the AO region without additional sugars, and “Tequila” in which use of up to 49% of sugars from other sources is allowed. The latter can be exported in bulk to other countries, where it is then bottled. The value chain has been widely penetrated by foreign firms. In 1999, Tequila production reached 190 million liters, over half of which was exported, representing approximately 3% of Mexico’s agricultural exports.

Governance. Fame brought *unfair competition* and the need for protection: thus Mexico’s first registered AOC came into being in 1977. However, it took 15 years before the Tequila Regulatory Council was formed. Conflict between distillers and farmers reached violent levels in the 80s and early 90s. The addition of sugars from other sources, non-bottled exports and authorized addition of glycerin, caramel color, sugar syrup and oak wood extracts up to 1% of the total weight, have disrupted the traditional character of Tequila and furthered delocalized production. This means that although *Tequila* is legally an AOC, it is managed as a PGI (where only part of the inputs and processes come from the region). However, the PGI denomination does not exist in Mexico.

5.2. Mezcal, Mexico.

Biological resources: over a dozen cultivated and wild species of *Agave*.

GI: Mezcal AO, November 28, 1994.

Product description: Distilled spirit from the cooked stems of over a dozen Agave species.

Territory and biodiversity. Mezcales are produced from plants cultivated in monoculture (e.g. *Agave angustifolia*) or from wild and managed populations that are still involved in natural interactions, such as pollination by bats. The delimited territory of 434 626 km² includes the states of Durango, Guerrero, Oaxaca, San Luis Potosí and Zacatecas, as well as neighboring municipalities in Guanajuato and Tamaulipas. Harvesting of the cultivated or wild plants takes place as soon as they mature (*i.e.* when they are ready to develop the floral stem); thus *mezcal* production eliminates sexual reproduction. Many *Agave* species also reproduce asexually through underground sprouts. This feature has facilitated the selection of cultivars but its abuse causes reduction in genetic variation.

Knowledge and practices. Before the arrival of the Spaniards, the cooked stems of these plants were an important source of edible sugars. When distillation techniques arrived in the early 17th century, they were applied to fermented *mexcalli* and the spirit was thus

born. The name rapidly lapsed into *mezcal* in the day-to-day usage of New Spain. Regional *mezcales* (such as tequila) developed rapidly, as defined by the available *Agave* species and the local adaptation of distillation techniques by indigenous and regional cultures. TK to identify plants at the mature stage is highly valued since immature plants have less sugar and the taste is affected. For Mexicans, *Mezcal* is a generic name meaning a spirit from *Agave* plants, but there are dozens of specific *mezcales* in existence (e.g. tequila, bacanora, tobalá).

Economics. Most traditional *mezcales* have local and regional markets and they barely reach national markets. Many *mezcal*-producing regions are following the industrial path of tequila (in fact, the regulation allows for the addition of 20% of non-*Agave* sugars) while traditional production faces the challenge of higher production cost and a market that does not yet recognize the difference between the various *mezcales* and their traditional qualities, nor is it willing to pay for the difference. Voluntary informative labelling schemes are playing an important role in the valorization of traditional *mezcales* by reducing information asymmetries and recognizing collective governance over resources and TK (see box 4).

Governance. Besides *Tequila*, the worldwide known *mezcal*, Mexico has recognized AO status for *Mezcal* as such, and it includes over a dozen *Agave* species in an extensive geographical area: in this case a product was protected and not a territory. *Mezcal*-producing areas were arbitrarily excluded from the AO and now face the problem of illegally naming their product *mezcal*: this is a consequence of the fact that *Mezcal* is a generic concept. The *Consejo Mexicano Regulador de la Calidad del Mezcal* was created a decade after the AO was declared and the transaction cost of verification procedures is high, due to the distances involved.

Box 4. Peasant quality control in Chilapa, Guerrero, Mexico.

Within the *Mezcal* AO, a small producers' organization is developing its own differentiation strategy through the use of a collective trademark: *Mezcal Papalote de Chilapán* and although the group have not registered the trademark yet, they have constituted the regulatory council (*Asociación de Magueyeros y Mezcaleros del Chilapán*, AMMCHI) in which over 30 *Agave* producing communities and 17 distilleries are represented. They have adopted extensive forestry management of a wild species instead of intense cultivation and labeling principles that include *vintage* bottling (single producer and year explicitly indicated). In this region most *mezcal* producers are *nahuatl* language speakers and only a minority are literate. In order to develop quality control strategies that do not promote homogenization, the AMMCHI has instrumented peer review of *mezcales* before labeling in which master distillers perform blind tasting, and qualifications in which written codification of quality criteria is not obligatory (although it is being developed with respect for local traditions).

5.3. Budvar beers, Czech Republic.

Biological resource: *Hordeum vulgare*, Poaceae; non differentiated varieties of barley
GI: Budějovický měšťanský var PGI (1991) and Budweiser Bürgerbräu and Budějovické pivo (Budweiser Bier, Biere de Budweis or Budweis Beer), PGIs in 1993.

Product description: a family of differentiated beers coming from the Budejovice region in the Czech Republic

Territory and biodiversity. Although the breweries are located in a small region of the Czech republic, their main ingredient, barley, comes from far away and quality criteria include size and low protein content, which are not geographically defined. The origin of

the barley origin is not mentioned as a feature defining the character of the beer, thus it is mainly a valuable cultural product without a strong territorial or biodiversity link.

Knowledge and practices. Historical references regarding Budweis beer go back to 1265 when the town was founded. In the last two centuries, there have been numerous changes in administrative structures, company names and owners, but the reputation of Budejovice beer is long-established (officially called Budweiser Bier since 1802, due to its origin). Budweiser beer is recognized by its “golden color, deep fermentation and a touch of bitterness that gives it a unique taste.” What some foreigners may recognize as Czech beer, and many would identify as American beer, is in fact a family of differentiated beers coming from the same region in the Czech Republic, whose subtle differences are recognized by both Czech consumers and sophisticated international beer drinkers.

Economics. The Czech Republic usually produces enough barley to meet the large demand (it is the world’s 9th exporter of beer and number one per capita consumer), but in bad harvest years, such as 2006, imports were needed and barley prices rose as a consequence. With the GI, a reporter writes, “ingredients for Czech beer, including barley, would have to come from a (...) defined location similar but not identical to the borders of the Czech Republic.” Albeit a traditional beer, Budweiser is a full fledged industry and a big exporter whose protection as a GI requires a precise definition of production rules that allowing for flexibility in the face of change in provisioning of the raw material.

Governance. The town shield is used in labels and advertising, with the approval of the town council. By 1882, they had registered the Budweiser Export-Lager-Bier trademark and in 1899 the Budweiser Bürgerbräu was also registered in several countries. In 1875 they exported their first hectoliter to the USA. The ongoing trademark-GI conflict between Czech and USA producers is described in box 5, below).

Box 5. The Budweiser saga.

This trademark-GI conflict begun when a beer similar in taste and color to that from the town of Budweis, in what is now the Czech Republic, was brewed in the USA in 1876. Two years later a Budweiser Lager Bier trademark was registered in the USA by a beverage dealer while another USA producer used the indication without registering the Budweiser name. The conflict between them was settled in 1891. In the early 20th century Czech brewers were exporting Budweiser beer to the USA and transatlantic conflicts began over the use of the name¹; finally, brewers from the Budweis region had to give the use of Budweis and Budweiser indications when trading in the USA. There are over 44 ongoing disputes worldwide; the American producer has won exclusivity over the Bud trademark in many countries, while Czech Budvar have won exclusivity in many others. Interestingly, England courts ruled that both producers may use their designations in England (O’Connor 2004). In Europe, Austria and Czechoslovakia signed a treaty on GIs in 1976 that included extensive protection to the Bud, Budejovické pivo, Budejovické pivo–Budva’, and Budejovický Budvar. In 2003 the European Court of Justice (ECJ) reached conclusions on the case of an Austrian company seeking to sell and market ‘American Bud’ arguing that only direct simple GIs with a strong reputation could be protected. Austria stated that the names protected by the treaty enjoyed a special reputation, while Germany said there was no need for actual reputation and a GI with ‘even merely potential reputation’ could be protected. The ECJ concluded that absolute protection to indirect simple GIs was correct if it was not generic (Rovamo 2006) and thus it is currently protected in the EC. This battle is far from over but it has already produced useful jurisprudence.

1. www.budweiser1795.com (www.budweis); Zhao et al. 2006.

5.4. Pisco, Chile and Peru.

Biological resource: *Vitis vinifera*; over a dozen varieties.

GI: both Chile and Peru have recognized nationally the AO

Product description: a spirit distilled from various grape varieties in Southern Peru and Northern Chile.

Territory and biodiversity. Pisco is a geographical name identifying a port, a valley, a river and a town located south of Lima, in Peru. The name 'Pisco' was also given to the product that comes from distilling the fermented juices of fresh grapes. Historical references to the beverage abound in pre-independence times, in what is now known as Northern Chile, when it was part of the same Colonial political unit. No one questions the fact that Pisco is a name that originated in what is now Peruvian territory but history indicates that the regions of Atacama and Coquimbo in what is now Chile have also been using this GI for centuries. The GI is currently a matter of conflict between 2 neighbouring nations. Biologically, Pisco is a product open to over a dozen grape varieties, providing an economic incentive for genetic resource conservation. Peru recognizes 8 varieties³⁰ and is addressing conservation concerns for the Quebranta variety. Chile recognizes 13³¹ varieties.

Knowledge and practices. There are interesting variations in the use of grape varieties and in production processes. Those that blend grape varieties are called *acholados*, with the connotation of being traditional.

Economics. In Peru there are some 150 registered distillers (from an estimated 500-700) and an estimated production of 1.5 million liters, creating 304 000 daily wages, of which approximately 60% are for agricultural workers. Close to 5% of the product is exported (89 000 liters in 2001 with a value of 0.25 million USD). In terms of product types, the approaches are different: Peru recognizes four types (Pure Pisco, from one grape variety, which can be aromatic or not; green must Pisco, from unfinished fermentation musts; and *acholados*, which blend different grape varieties). Chile recognizes four types based on alcohol content (traditional, 30° GL; special, 35°; reserved, 40°, and great pisco, 43°), plus aged piscos that are at least one year-old.

Governance. Pisco is a GI that is recognized simultaneously by two countries and is subject to an ongoing international trade and GI conflict.³² Legally, between the 1930s and 60s Perú recognized the Pisco designation in various decrees related to the protection of the industry's integrity (prohibition of adulteration), as well as health and taxation objectives. In 1988 it was declared National Heritage³³; in 1990 and 1991 decrees recognized it as a Peruvian denomination for the "products resulting from the distillation of wines derived from the fermentation of fresh grapes along the coastline of Lima, Ica, Arequipa, Moquegua and the valleys of Locumba, Sama and Caplina in the department of

³⁰ Non aromatic varieties: Quebranta, Negra Corriente, Mollar and Uvina (the latter being analyzed to verify if it belongs to the species *Vitis vinifera*). Aromatic varieties: Italia, Moscatel, Albilla y Torontel.

³¹ Main varieties: Moscatel de Alejandría o uva Itali, Moscatel Rosada o Pastilla, Torontel, Moscatel de Austria, and Pedro Jiménez. Accesory varieties: Moscatel Blanca o Temprana, Chasselas Musque Vrai, Moscatel Amarilla, Moscato de Canelli, Moscatel de Frontignan, Moscatel de Hamburgo, Moscatel Negra and Muscat Orange.

³² Newspaper note on a WIPO meeting in www.rpp.com.pe, *Chile habría ganado a Perú disputa por denominación de origen del pisco*, August, 17th, 2006.

³³ Resolution No. 179 dated April 07, 1988 issued by the National Institute of Culture.

Tacna”³⁴. Finally, in 2001, a “Multisectorial Committee (was established) in charge of preparing a regulatory proposal corresponding to the creation of (...) the Ruling Council of the Denomination of Pisco Origin”.³⁵ Although there are 10 producer associations corresponding to the same number of valleys, there is a lack of horizontal organization. Innovation proposals emphasize the irrigation of fields, which is a practice partly contradictory to a natural link in a GI. At the international level, Peru developed bilateral recognition schemes with at least 9 Latin American countries between 1998 and 2000. On the other hand, Chile officially recognized the AO Pisco and published its regulation on December 30, 1999 which includes two production areas: Atacama and Coquimbo. Chile’s regulation recognizes grape producers, wine producers, distillers and bottlers and all four stages must be realized within the area of the GI. Although politically complex, the solution to further differentiate and localize Pisco production in a nested fashion (Pisco-Peru and Pisco-Chile, as well as their regions) may well be a simple one.

5.5. Rooibos Tea, South Africa.

Biological resource: *Aspalathus linearis*, Fabaceae.

GI: non registered, trademarks registered in the USA (1990’s)

Product description: a red tea produced from leafs of an endemic plant.

Territory and biodiversity. The leguminous shrub *Aspalathus linearis* (0.5-2m) is endemic to a threatened ecosystem of world-wide relevance: South Africa’s fynbos. There is more diversity within *A. linearis* than the Red or Rocklands type that is cultivated. Other species in the genus are also used to produce tea. Thus, only a fraction of the available biological resources are exploited in this globally-valued product while other varieties and over a dozen species remain threatened, along with the fynbos ecosystem remnants.

Knowledge and practices. The leaves of the Rooibos plant turn red upon fermentation. The traditional knowledge that allows this resource to become tea is rarely acknowledged. A unique biological resource plus indigenous knowledge, documented since the 18th century, are at the origin of an agroindustrial development set-up that began in the 1930s.

Economics. Rooibos is an agricultural industry that employs 5000 people and exports 60% of its 10,000 ton per year production. The cultivated area has grown from 14 000 ha in 1991 to 30 000 in 2004, mainly in four districts. Commercially, an umbrella marketing company called Rooibos Co. Ltd. – representing over 20 undertakings - has a 90-95% share of the national market and 50-60% of exports. Less than 5% of the commercialized tea is bought from small producers, so it is neither the indigenous people nor poor peasants who benefit from the trade. Local collective initiatives are addressing this issue, building small value chains supplying fair trade and organic specialty export markets. The Heiveld cooperative, founded in 2000 with 14 members, has grown to 34 members and is commercializing their organic produce through fair-trade channels: the cooperative pays double the legal minimum wage in the area. Another initiative, the Wuperthal Rooibos Association, founded in 1998 with 40 members, grew to 170 by 2005 with a variable yearly output of 80 tons. They still harvest wild populations (11% of their production). Collection by hand contributes to their quality and reputation: in fact, they have switched from commodity suppliers to specialty producers. The existing global demand for a product that

³⁴ Director’s Resolution N° 072087-DIPI issued by the Industrial Property Bureau, December 12, 1990. and the Supreme Decree N° 001-91-ICTI/IND, January 16, 1991.

³⁵ Supreme Resolution N° 247-2001-Itinci, November 17, 2001.

is now deemed generic, but clearly recognized as a South African tea, has enabled the development of specific niche markets based on fair trade and organic production differentiation.

Governance. “Rediscovered” by Annique Theron in the 1970s, by the mid 90s the name Rooibos was the object of a transatlantic trademark battle. The issue has been partially settled with the recognition that Rooibos is a generic term, a relevant legal precedent set by jurisprudence in the USA, as demanded by South African producers and authorities who recognize the name as a public good that cannot be registered as a trademark. The objection process took 10 years and cost €750 000. After the court recognized the generic character of the name, the trademark was cancelled. The development of a single geographical indication for Rooibos tea would address the issue of retaining identity on the global market - an important economic objective in itself - but would not necessarily give an edge to small producers within the value chain. The development of several GIs within Rooibos would provide additional market segmentation that may well empower small producer organizations.

5.6. Phu Quoc Fish Sauce, Vietnam.

Biological resource: *Stolephorus* spp. (Anchovies and other small fish).

GI: National AO (June 1st, 2001).

Product description: anchovies are grounded, fermented and salted in Phu Quoc Island.

Territory and biodiversity. Fish sauces are a mixture of grounded small fish and salt, left to ferment for a period between 6 and 18 months: the types of fish, the amount of salt, processing procedures and names vary from country to country in Asia. Vietnam’s fish sauce is called *nouc-mam* (or *nouc-nam*) and is produced on a small scale all along the coastline. In May, 2005, Sau Tinh - the owner of a fish sauce factory called Thanh Quoc and located at Phu Quoc Island - stated at a meeting with environmental authorities: "Never in my life have I seen these prices for anchovies!", a reflection of the fact that anchovies are scarce. Fish sauce production is not a major factor in the depletion of anchovy fishery but the production chain is highly vulnerable to what happens elsewhere in the fishing industry.

Knowledge and practices. Fish sauces are an important staple food that complements simple dishes, such as boiled rice, by adding minerals and proteins. From a traditional and local product, fish sauces have developed into export industries, supplying both culturally-close migrated populations and new consumers of exotic foods.

Economics. An estimated 80 million liters were produced in 2004. The island of Phu Quoc is reputed for the quality of its fish sauce and accounts for close to 10% of national production. The island has 96 processing facilities producing 6-8.5 million liters. The Association of Phu Quoc Fish Sauce producers was recognized in 2000 and had numbered 76 members in 2005. Phu Quoc has set a precedent within a sector that, in 2004, forecasted the doubling of its fish sauce production in 10 years.

Governance. Unfair competition using the Phu Quoc indication, both in Vietnam and abroad, triggered the process for GI registration that took about four years. In 2005, the Ministry of Fisheries issued provisional regulations for the production of generic fish sauce and for “certification of the appellation of origin of Phu Quoc Fish Sauce”. This includes

delimitation of production areas and the use of salt from Ba Ria -Vung Tau. In 2005, the application for a European geographical indication was drafted.

5.7. Quinoa Real del Altiplano, Bolivia.

Biological resource: *Chenopodium quinoa*, Chenopodiaceae.

GI: AO (August 23, 2002)

Product description: Annual herb producing small nutritious seed in the Andes highlands.

Territory and biodiversity. Quinoa has been cultivated in the Andean region for hundreds of years, at high altitudes with low precipitation. Environmental variation and self pollination have favored the selection of varieties, landraces and ecotypes whose diversity is difficult to assess. Fifty main varieties are recognized. Quinoa Real is not clearly delimited as a genetic resource, since it includes a modern variety, several landraces and ecotypes that produce large, clear-coloured grains. There is market demand for this trait which benefits quinoa real, but it has marginalized other landraces that are in critical conditions of conservation. For example, in the Southern highlands, where Quinoa Real predominates, there are 5 other ecotypes that are being maintained by only 0.4% of farmers.

Knowledge and practices. Quinoa has multiple uses: leaves and stems for feed and food; saponines for cosmetics; and grain, flour or flakes in over 35 traditional and innovative products.

Economics. Bolivia's share of world quinoa production is 46% (Peru 42% and USA 6.3%), where it is now cultivated in approximately 35 000 ha by 70 000 producers with an approximate 600 k/ha productivity. Roughly one-third of the surface area is market oriented and concentrated in the central and southern highlands, where plot sizes are 3-10 ha and quinoa production specialized. In the northern highlands, quinoa is grown for home consumption in very small plots. Organizational processes have enhanced productivity and quality while compacting offer (some 5000 producers organized in several second level associations). Rural development objectives were achieved through organization and without the GI. To give an example, the National Association of Quinoa Producers (ANAPQUI), with 7 sub centers and over 2000 producers, commercializes 750 tons to the USA, 6 European countries, as well as Chile and Brazil. There has been a constant increase in export markets (2700 tons in 2003, with a 3.09 million USD value).

Governance. The Quinoa Real del Altiplano AO resulted from increased awareness on the part of producers and authorities regarding biopiracy provoked by the granting of USPTO patent 5304718 in 1996 (now abandoned after the opposition of indigenous peoples and civil society organizations). The extent to which the GI will promote rural development and conservation of genetic resources remains to be seen. Registration is viewed as a successful form of protection in itself. As far as can be ascertained, there is no Regulatory Council as yet.

5.8. Layer-pie from the Prekmurje region, Slovenia.

Biological resource: non specific.

GI: protected nationally in 2004 as traditional speciality.

Product description: a traditional pastry from North Eastern Slovenia.

Territory and biodiversity. *Prekmurska gibanica* is a festive traditional pastry from the Prekmurje region in North Eastern Slovenia with no particular productive link to its biodiversity.

Knowledge and practices. It is an eight-layer pie with poppy grains, curd cheese, ground walnuts and grated apples (in two layers, divided by a flaky crust) on top of a pie crust pastry. "It belongs to a broader family of layer pies resembling the *Prekmurska gibanica* but is not exactly identical (differences in number of layers, order of layers, shape, size, appearance, ingredients) and its reputation is less renowned."

Economics. There are three industrial producers, as well as bakers and restaurants. In developing the description of the product there were differences between operators because the manufacturing methods evolved in different technical and commercial environments: whether or not to add aromatic substances; to use vegetable fats or butter instead of grease, freezing options during processing or of the finished product. In terms of type of protection, at the start the applicants meant to exclude operators outside the Prekmurje region, even if the latter respected the manufacturing specifications. This implied exclusion based on geographical origin and would imply a GI and not a TSG which, explicitly, cannot be a GI. Marketing and distribution refers mainly to local and national markets.

Governance. *Prekmurska gibanica* was protected as a traditional specialty at the national level in 2004 (application has been made for European recognition). Demand for protection came from the Association for the promotion and protection of the culinary specialties of the Prekmurje region. The motivation for protecting the name was to guarantee respect for the traditional recipe by Slovenian producers and ensure its differentiation from similar layered pies. The *Prekmurska gibanica* complemented the already existing collective trade mark *Diši po Prekmurju (Savours of Prekmurje)*. The description of the product does not contain geographically specific ingredients, but the cultural link among the operators in the Prekmurje region is important.

5.9. Hai Hau Tam Xoan rice, Vietnam.

Biological Resource: *Oriza sativa*, Poaceae, Tam Xoan landrace of aromatic rice

GI: AO (2004)

Product description: Tam Xoan aromatic rice variety grown in the Hai Hau district.

Territory and biodiversity. Vietnam's share of world rice production is approximately 4%, close to 7 million hectares. The Red River Delta's lowland agroecosystems are considered centers of diversity of aromatic rice. Farmers that grow modern varieties still grow *Tam Xoan* in the wet season, due to its high economic efficiency. Rice genetic diversity research in the Nam Dinh province³⁶ showed significant geographic variation between districts, a fact that justifies market differentiation but may imply regional specialization followed by diminishing diversity. In the Hai Hau district (located in eastern Nam Dinh Province) there was less diversity due to dominance of the Tam Xoan landrace. There is, thus, a local loss of diversity through specialization but a contribution to aromatic rice conservation in general.

³⁶ 6 landraces in 26 fields assessed through RAPD genetic markers.

Knowledge and practices. *Tam* means aroma and there are dozens of such varieties; *Xoan* means slender, and thus the specific variety Tam Xoan. The Hai Hau District was identified as a GI for Tam Xoan rice due to its production tradition and existing market demand in nearby urban areas.

Economics. The scenario was set for developing a differentiation strategy and a regional rural development center (RUDEC/IPSARD) assumed the leadership. They focused on the GI as an objective for promoting collective action to create an integral value chain. The experience has proven positive: starting with a diagnosis and farmers' workshops, they reached a cooperation commitment and a plan for collective action towards the GI. In a gradual process, farmer groups were created, beginning with a production group of 26 households and a process-trade group of 5 households in 2003, which increased to an Association of 442 households, 54 ha and a processing factory, one year later. The price of Hai Hau Tam Xoan GI rice was 55% higher than the same rice without GI (2004 and 2005). Producers face unfair competition because not all commercialized Tam rice is authentic. Moreover, there are difficulties in developing a niche because supermarkets do not differentiate specialty products in their displays.

Governance. The file for the GI was presented and registration took place. The Association has developed management principles for all stakeholders, economic rules for profit distribution and a distribution network. Its members participate in trade fairs and have signed contracts with supermarkets.

5.10. Giant White Cuzco Maize, Peru.

Biological resource: *Zea mays mays*; landrace from Peru's Andean highlands.

GI: AO (September 26, 2005)

Product description: Dried corn kernels of the Giant White Cuzco maize landrace.

Territory and biodiversity. The Andean region is a center of maize landrace diversity. The *Blanco Gigante del Cuzco*, or *Paraqay Sara* in its local quechua name, is grown in the high mountain Valley of Urubamba from 2600 to 3050 m. The AO decree recognizes that the name "distinguishes the species white giant maize (Paraqay Sara)", defines a geographical area (6 districts in the Calca and 5 in the Urubamba provinces), and describes the product, acknowledging the interaction between genetic material, physical environment and culture. Genetic resource conservation is not explicitly mentioned in the decree.

Knowledge and practices. The official description of management techniques includes the traditional quechua names for each activity. Women's labour is recognized for their skills in kernel separation and classification.

Economics. Identification of unfair competition practices ('white giant' being produced in other valleys but being sold as if it were produced in Urubamba) and important overseas demand were the main drivers towards the AO process. Among the reasons for selecting the species for GI registration in Peru, promoters signal the economic potential and creation of employment (compared to potato and coffee cultivation, Cuzco maize requires three times more work, 180 days/ha/season, 40% of which is undertaken by the women's work force). High, medium and low technique producers are recognized with corresponding productivity at 6.5, 4 and 1.5 tons/ha, reflecting the strong cultural, ecological and economic differences within the supply chain. Production is atomized; out

of 5000 producers 58% have less than 1 ha and 98% less than 5; only six producers have over 10 ha. It has recently reached international market exports, with over 5000 tons, driven by its softness and exceptional size of 24 grains/ounce. Innovation in markets is indicated by the fact that even the decree uses the concept of *snack* as one of the niche markets driving the AO registration process.

Governance. APROMAIZ, an organization of 27 medium and large producers, was the leader in an alliance that involved two government-related programs - the national intellectual property authority and international cooperation agencies. Once they had managed to create a solid document and filed for registration, they obtained it within 2 months, but the overall process took 2 and a half years. To date, the control body has not been established. Small traditional farmers are always mentioned in the documents but their participation in the process is not reflected nor is their interest explicitly considered.

5.11 Guanaco fiber and meat, Argentina, Chile and Peru.

Biological resource: *Lama guanicoe*, Camelidae.

GI: non registered, documented proposals and a Patagonia Ham trademark.

Product description: meat and fiber from a wild native ungulate..

Territory and biodiversity. *Guanaco* was originally distributed from southern Ecuador to Tierra del Fuego. The current range is 40% of the original area. Populations are small and isolated. In spite of this, it is the most abundant, wild ungulate in the arid ecosystems of South America. Decline in populations and the unrestricted trade of pelts brought its inclusion in CITES appendix II in 1978 at the request of Peru (Argentina ratified CITES in 1981). Due to the high volume of exports, CITES asked Argentina to provide information on the scientific basis for such exploitation. Since it failed to do so, CITES recommended the suspension of Guanaco imports in 1993. Thus, the conservation regulation catalyzed a series of regional studies and the development of a national management plan. The positive environmental potential for the sustainable use of guanaco populations include landscape conservation, since 30% of the arid and semiarid Patagonia faces desertification due to the massive, extensive ranching of sheep and cattle.

Knowledge and practices. Stakeholders acknowledge the need for a scientific basis for management and innovative strategies for use and commercialization are being proposed. Preliminary studies on the economic viability of fiber harvest indicate the better performance of guanaco, compared to ovine wool. Comparison has been made between two different guanaco management systems - reproduction in captivity and harvesting of wild populations. The differences in fiber quality and environmental benefits favour wild management. However, social benefits, such as employment, are more stable in the captivity system.

Economics. In Argentina, markets and a possible GI for guanaco "wool" or fiber and meat have been proposed and guanaco meat is mentioned as a traditional product with market potential in the rural tourism route of Andean Patagonian Flavours (an incipient but growing activity). In Chile, only one population could be subject to commercial exploitation but an innovative product, similar to Mediterranean dried hams, has now been developed and the *Patagonia Ham* trademark is being used.

Governance. Discussions have included the possibility of developing geographical indications (AO, specifically) both for meat products and for fiber. International

conservation-oriented governance structures (CITES) catalyzed a process that includes commercial strategies and GIs to support the sustainable management of wild populations. The Chubut Province in Argentina, which includes most of the wild populations of Guanaco in Patagonia, has its own provincial law on geographical indications and appellations of origin (Law No. 5534).

5.12. Argan Oil, Morocco.

Biological resource: *Argania spinosa*; genetic and growth habit variation.

GI: not registered.

Product description: oil extracted from the nuts of the argan tree.

Territory and biodiversity. The argan tree is endemic to Morocco and the only species in the genus. Long lived (150-250 years) and well adapted to drought and high temperatures, its distribution covers 5 provinces, 8000 km² of arid and semi arid ecosystems in which it grows in varying densities and habitats. In a land critically threatened by desertification, the argan tree plays a role in retaining soils and water cycles. Flowering phenology is complex and takes from 9 to 16 months, affecting production planning. In 1998, a biosphere reserve was recognized by UNESCO acknowledging its worldwide importance. Most of the natural distribution of the resource was included.

Knowledge and practices. The trees are used for fuel, forage and oil extracted from the nuts. Resource-use rights are culturally defined and are mostly related to the family unit.

Economics. Argan oil is the most relevant non-timber forest resource of the region. Adding value through oil production by holders of user rights is an obvious alternative that is being developed, particularly through women's cooperatives. Maintaining quality control in transformation processes is an identified priority linked to organic certification initiatives. Dozens of cooperatives and second level organizations have been created in the last decade. Dramatic market expansion, with prices reaching 200 USD a liter, has only doubled the local price, with an uneven distribution of this potential benefit among local producers.

Governance. The possibility of developing high value supply chains has been demonstrated, but the return of benefits to poor kernel collectors and traditional oil extractors has not been achieved. This is a governance issue because those with resource use rights, traditional knowledge and work force are not empowered. The National Association of Argan Cooperatives is now actively promoting production standards that may lead to GI or AOC protection.

5.13. Cassava Gari, Western Africa.

Biological resource: *Manihot sculenta*, Euphorbiaceae.

GI: non registered.

Product description: slightly fermented pulp of cassava roots.

Territory and biodiversity. Over 100 species belong to this genus that originated in tropical America. The cultivated species was taken to Africa's west coast, through the Gulf of Benin, by the Portuguese towards the end of 16th century. Africa became the secondary center of diversity of this out-crossing species whose varieties are heterozygous individuals that have been reproduced asexually.

Knowledge and practices. No mention was found of the relationship between specific varieties or landraces of cassava and their traditional products. Manihot is consumed mainly in granulated forms (*gari*, *attieke* and *tapioca*). Gari is prepared by peeling, washing and grating the roots. The resulting pulp is pressed in a porous sack for three to four days, eliminating effluent while fermenting. The resulting dehydrated lump is pulverized, sieved and toasted in a pan - an overall process that reduces cyanogens to a safe level.

Economics. Cassava or manihot is now a very important staple food in Africa, where 31 countries produce more than half of the world's production and *per capita* consumption of 0.4 k a day is high. In Benin, gari is the most important food product from manihot and there are between 250 and 270 women's groups producing gari or tapioca. A special gari, called Missè, which is produced by women from a District by the same name in Savalou City, is differentiated in production and in the markets of South Benin as a specialty product with a higher price. A distinct quality is recognized; more raw material and work is involved in its production. It has not been protected, since most of its production is sold directly to local and regional consumers who are confident of its quality and authenticity. There are strong local cultural regulations regarding quality and price, on the part of both producers and consumers. Unfair competition practices have been detected and a GI may prove useful.

Governance. There is a general norm for Gari in Benin but control is irregular. Protection of a GI for Gari Missè would be difficult, due to lack of legal and institutional framework (Gerz and Fournier 2006). Recently, a workshop in Ghana looked at cassava transformation and commercialization, explicitly considering GI registration and quality control as useful conditions for gaining access to European markets.

6. Overview and lessons from GI cases in developing and transformation countries

Table 11 presents a schematic assessment of evidence from developing and transformation country GI contributions to biodiversity conservation, the use of traditional and innovative knowledge and practices, and local and national economic benefits.

Table 11. Developing and transformation country GI contributions to conservation and development.						
Case, Country Type of GI	Biodiversity conservation		Knowledge and practices used		Economic benefits	
	Landscapes Ecosystems	Genetic resources	Traditional	Innovative	Local Regional	National
Tequila, Mexico AOC	~ ↓	~ ↓	~	++	~ ↑	++
Mezcal, Mexico AOC	++ ↓	++ ↓	++ ↓	~ ↑	++	+ ↑
Budvar beers, Czech Republic PGI	~	~	+	+	++	++
Pisco, Peru and Chile. AOs	~	+	+	+	+	~
Rooibos Tea, South Africa. Generic / CTM	++ ↓	+	+	+	+	+
Phu Quoc Fish Sauce, Vietnam AO	+ ↓	+	++	+	+	+
Quinua Real del Altiplano, Bolivia AO	~	+ ↓	+	+	++	+
Layer-pie of Prekmurje, Slovenia. TSG	~	~	++	~	+	+
Hai Hau Tam Xoan rice, Vietnam. AO	+	+ ↓	~	+	+	+
Giant White Cuzco Maize, Perú. AO	+	+ ↓	+	+	+ ↑	+
Guanaco, Argentina, Chile and Peru.	+	+	+	++	+	~
Argan Oil, Morocco.	++ ↓	++ ↓	+	+	+ ↑	+
Cassava Gari, Western Africa.	~	+	++	~	++	+

++, relevant; **+**, modest; **~**, negligible; **↑**, positive trend given certain interventions; and, **↓** negative trend without intervention.

In developing countries, the challenges for GI implementation are greater than in developed economies because the institutional context tends to be weaker with regard to fraud repression, intellectual property, and natural, biological and genetic resource

management. Thus, the results are not as straightforward or positive as in developed countries. In fact, negligible effects and negative trends are more frequent in developing countries and contradictory situations abound. Such adverse conditions are challenging, but the opportunities are also important because of the existing biological and cultural diversity. The experience gained, the mistakes, and the ongoing innovations taking place in developed countries should be of use to avoid costly frameworks or conflicts. The implementation of GI strategies in developing and transformation countries does not only imply supporting GI protection. It also means strengthening national and regional institutions and the economic environment in which the GIs will be developing. The institutional environment in which GIs develop is just as important for their success as is their reputation and quality achievements.

From the perspective of biodiversity conservation at the landscape and ecosystem level, diversity itself is an asset that should be capitalized by promoting increasing differentiation of markets. At the same time, these biologically diverse resources are threatened and under pressure to increase productivity through homogenization, intensification and expansion of monocultures affecting natural vegetation and landscapes, water and sea ecosystems.

In genetic resources, the use of local landraces or wild species creates a positive incentive to use and maintain the genetic resource. However, productivity objectives emphasize the use of modern breeds or the homogenization of the resource base and thus become a threat – rather than an incentive - to diversity. The main challenge is to avoid the register of GIs in which the main distinctive characteristic is a particular variety, since this will result in the abandon of other varieties. Such a mistake has already been made several times in developing countries and should be avoided. The recognition of cultural inputs and rights in GI value chains is central to the conservation and legitimate use of TK, which is inherent to certain farmers or indigenous livelihoods.

The cases described in this text show that registration of a GI alone will not generate biodiversity conservation or the distribution of economic benefits to small farmers. However, GI development can contribute to fulfilling such goals if certain pitfalls are avoided and opportunities are seized creatively. To do so, collective governance in value chains emerges as being one of the fundamental qualitative features of GIs that is of use in achieving development goals.

Several of the examples show that large GIs introduce complex governance issues because they have to use a minimum common denominator within which the various production methods can be accommodated. If the selected GI implies a huge production area we are faced with a “broad-based sectoral regulating body (that) will (...) tend to reproduce the power relations that exist within the supply chain” (Sautier and Van de Kop 2006). On the other hand, small GIs face the transaction cost of certification within a small economic operation. The name selected for the GI is directly linked to the area in which production takes place and governance is constructed.

GI governance has emergent properties different from governance in communities, cooperatives, producer organizations or private undertakings. In developing countries, most peasant and rural producer organizations are oriented towards production but there is little experience in organizational schemes of an inter-professional non-lucrative character. The organization and governance structures for GI development should not be a burden for producers. In fact they should provide a legitimate framework to support them

and reward their efforts through the market incentive of the GI. To be supportive of small producers, GI governing bodies themselves need to have a positive and enabling institutional environment.

Table 12 presents the main lessons drawn from these 13 cases. Compared with the assessment of GI cases in developed countries, there are currently more pitfalls to be avoided than opportunities to be seized. The recommendations presented in section 8 are specifically focused on changing this situation, creating more opportunities and taking action to avoid legal conflicts, costly institutions or environmentally and socially negative outcomes. Most of the lessons learned from developed countries are also relevant for developing and transformation countries and should be given careful consideration since they contain some of the solutions that will have to be implemented in order to avoid the numerous pitfalls identified, and deliver the benefits using the opportunities available.

Table 12. Main lessons from developing and transformation countries.	
Opportunities are indicated with a ✓ symbol and pitfalls with ✗	
Biodiversity conservation	
✓	<i>GI production systems based on well managed extractive activities promote the conservation of natural vegetation and forested areas with the consequent benefits to ecosystem and landscape conservation.</i>
✓	<i>The existing biological and cultural diversity in developing and transformation countries is an asset that can be developed through GI differentiation.</i>
✗	<i>Linking a GI to a specific variety, breed or subspecies as a response to productivity and market demands marginalizes other genetic resources that are biologically and culturally relevant.</i>
✗	<i>In situ conservation practices cannot be easily recognized and developed under structural economic conditions in which financial and human resources are lacking.</i>
Knowledge and practices	
✓	<i>Strong links between product and culture justify GI protection and benefit rural development even if there are no biodiversity conservation contributions.</i>
✓	<i>Once small producers have achieved the quality standards needed to access new markets, precise use of geographical information in labeling can be easily implemented with or without GI registration.</i>
✓	<i>TK that is key to food production such as seed selection criteria, recipes and food conservation practices, can be effectively used for GI development and thus protected from the most obvious forms of biopiracy.</i>
✗	<i>Formal and well distributed knowledge and information about the biological resources and the cultural practices with GI potential is lacking in developing countries.</i>
✗	<i>It is common that small farmers that conserve and use genetic resources cannot produce surpluses to participate in market oriented activities such as GI development which requires a minimum economic activity.</i>
Economic benefits	
✓	<i>Convergence of GI strategies with other market incentives such as fair trade labeling and organic certification is useful for small organizations (Sautier and Van de Kop</i>

2006).

- ✓ *When a reputation already exists, small farmers may benefit directly from preventive GI protection coupled with niche market development (e.g. gourmet, organic or fair-trade).*
- ✗ *Small producers are vulnerable in national and export markets for economic and scale reasons which cannot be addressed solely by GI differentiation.*
- ✗ *Although evidence of economic benefits from GI protection is found in developing countries, the distribution of benefits within value chains remains unclear and several cases point to concentration of power in transformers and distributors.*
- ✗ *Employment generated by agroindustrial GIs may contribute to rural economy but not necessarily generate benefits for conservation and small farmers.*
- ✗ *Farmers oriented to self consumption do not benefit from a GI because they are located in marginal areas where surplus for the market is not easily achieved.*
- ✗ *In the absence of democratic governance structures the value added by the GI monopoly may not be capitalized by regional interest or by small farmers.*
- ✗ *Market segmentation that attends only high end niches may generate economic exclusions or inhibit access to nutritious and culturally valuable resources by local or low income populations.*

Governance

- ✓ *GI governing bodies are collective spaces in which organizational processes focused on regional identity may bring governance needed to transform supply chains into value chains that create added value and address benefit distribution.*
- ✓ *Legal precedents on the generic status of traditional resource names are a useful tool in preventing unlawful use of names in trade and can sustain preventive GI protection.*
- ✓ *GB can benefit small groups of producers that could not possibly finance such activities by themselves.*
- ✓ *Arbitrary exclusions or conflicts due to errors in GI name selection can be avoided by using the best available information.*
- ✓ *Wide or imprecise geographical delimitations (due to the recognition of generic names as GIs, mistakes and political considerations) function against the empowerment of small farmers favoring speculation with raw materials and delocalization of production.*
- ✗ *Differentiation of production processes, qualities and markets will be difficult to achieve without operating governance structures that are respectful of local culture.*
- ✗ *Registration of names that are generic within a cultural region (although they may seem specific to a distant consumer) may generate exclusion problems and even provoke international trade and IPR conflicts.*
- ✗ *Statutory declaration of GIs without existent operating regulatory bodies is a consequence of viewing GIs as IPR only and not as a rural development policy.*
- ✗ *Formal definitions of quality imposed by external stakeholders tend to provoke exclusions of legitimate but culturally different producers.*
- ✗ *Among the objections to AO by indigenous peoples is the fact that the state is the owner of the AO and it does not belong to them.*

Enabling environment

- ✓ *“A Product from a region” is a simple formula that suffices for localizing a product (it can be an DO or a GI). This localization of generic names by adding its origin facilitates governance and the empowerment of small producers if it has the adequate size.*
- ✗ *Complying with labeling, safety and traceability regulations implies organizational and technical efforts for small organizations that are challenging by themselves.*
- ✗ *Legal frameworks and support measures coming from different sectors of government are not well coordinated producing complex scenarios for GI development.*
- ✗ *Registration of indirect GIs creates problems because they usually are, or tend to become, generic regionally or nationally and localization of production is difficult.*

7. Extent of protection and trends in GI registration

7.1 Multilateral protection

The 164 countries that are parties to the Paris Convention have, in principle, preventive GI protection through prohibition of unfair competition practices. Thus, the legal means to defend GIs from unfair competition practices are basically available worldwide (UNCTAD/ICTSD 2005). Depending on national laws, actions against free riders may be brought to court or to administrative authorities by affected producers or consumers. Bringing legal action against false or misleading use of GIs will require, in most cases, a demonstration that damage has been done and that the public has been misled (Rangnekar 2003). These are the same legal principles that apply to trademark infringement in which there is extensive jurisprudence that shows the importance of demonstrating that the use is likely to cause confusion or to deceive consumers (Agarwall and Barone 2005).

Within the WTO, protection given in the TRIPS agreement is stronger in the sense that there is a precise and flexible definition of geographical indications. Moreover, a membership of 150 countries, as at November 2006, provides for the most comprehensive and global GI protection now in existence. The last decade has seen a considerable amount of new GI regulation because countries have developed GI systems on their own initiative or in order to comply with their international obligations in trade, particularly the TRIPS obligations. Still, it "can be said that geographical indications implementation has occurred in the most diverse and uncoordinated manner" (Watal 2001 in O'Connor 2004). The challenges for compatibility in a multilateral GI system remain complex but minimum common denominators can be found.

Besides the issues of national compliance with TRIPS in GI protection - a relevant subject in itself - the main issues in the negotiations now being held in the Doha Round of the WTO are the implementation of the multilateral register for wines and spirits and the extension of protection to products other than wines and spirits. If extension is eventually agreed upon, then a natural step would be medium term development of a multilateral register for all products. The legal, economic and cultural importance that countries give to geographical labeling in their internal markets will ultimately define their profit from a stronger multilateral protection system.

The extension of protection to products other than wines and spirits, if accepted, would mean that translated GIs as well as mentions such as type or style (even if the true manufacturing place is provided in small letters) would be prohibited, given certain conditions, for all products and not just wines and spirits (Grazioli 2002). In this debate, countries group into agricultural commodity exporters, and exporters of transformed or specialty products, but there is also a legal divide between common law countries in which unfair competition repression is seen as good enough protection for GIs, and statutory law countries which tend to protect GIs encompassing fair trading practices, consumer protection, national heritage concerns and rural development policies. All in all, it can be said that GI protection systems differ from one country to another, but exceptions should not obscure the fact that geographical labeling is a trend that is growing in number and in quality, world-wide.

There is an apparent contradiction in the opposition of many developing countries to the extension of protection, which would benefit differentiated exports in the medium term. It is useful to look at Europe to understand why. If countries are agricultural commodity exporters and producers of generics, why would they want extension? First, the fact that all European agriculture is facing structural change and differentiation of product quality is one of the major new components. Investment in quality products needs to be recognized in the market, and that 'quality' paid for, if it is going to be economically sustainable. Second, there are democratic decision structures in operation which allow both small and big producers' interests to be taken into account. On the other hand, in developing countries small farmers who would benefit from GI in the medium term usually lack the knowledge or the political power and lobbying capacity to voice their concerns and interest, while leading agroindustrial exporters of commodities and generic products have all of the above.

If the negotiations now taking place at the WTO lead to an extension of the protection given to wines and spirits to other products, this would probably imply the development of a comprehensive multilateral GI register in the medium term. Currently, negotiation is centered around two proposals³⁷: one is a register to protect all goods with voluntary membership (the proposal of the EU, Switzerland and several European countries); the other is a voluntary notification system with a public database useful to countries implementing GI (a joint proposal led by commodity exporting countries; USA, Argentina, Australia and Canada, and supported by Chile and New Zealand). Until 2006, the differences between these two groups had not been resolved.

The EU has been consistent in stressing the need for a strong protection system and have included the subject in the discussions on market access, in agriculture talks. The EU disagrees with discussing agriculture in the current (Doha) round of WTO talks until there is movement on the issue of geographical indications (Bereskin 2003 and Bridges 2005).³⁸ One of the arguments against developing a multilateral register is its possible cost. Hong Kong contributed a useful exercise to the discussions in evaluating the cost of a register, concluding that it was similar to the fees commonly used to register trademarks.³⁹ It may still take years of negotiation until such multilateral GI system comes into existence, if it ever does. The European PDO/PGI is a multilateral register that provides insight into what an international multilateral register would look like. Current development in bilateral and regional GI protection is reviewed by Vivas-Eugui and Spenneman (2006).

7.2 Europe

Europe has established, in practice, a multilateral register of PGI and PDO for all agricultural products and foodstuffs. The current status of registration is presented in Figure 5 by product class. To date, 711 products have been protected through PGI or PDO

³⁷ Documents TN/IP/W/5 and TN/IP/W/6 on the US lead proposal and IP/C/W/107/Rev.1 and TN/IP/W/3 on the EU proposal and supporting position. WTO....

³⁸ Bridges Weekly Trade News Digest (Vol. 9 (37)) November 2, 2005.

³⁹ Hong Kong provide cost estimates stating that "Based on our experience, two full-time university graduate staff are required to carry out (...) examinations, supported by a small clerical staff (...), overheads and accommodation. (...) we estimate the cost of (...) a computer system and secure Internet server with (...) software (...) will be U.S.\$10,800. The annual recurrent cost is estimated at U.S.\$253,900." Using these figures, government estimates put the cost of registering an individual GI at U.S.\$180 (based on a maximum capacity of 10,000 registered GIs, 1,000 applications per year, required renewal after 10 years, and a GI renewal rate of 70 percent (Hong Kong Economic and Trade Office 2003 cited in Babcock and Clemens 2004).

in the EC, based on regulation 510/2006 (or the earlier version 2081/92) - a growth of 15% from 2003. Products derived from livestock account for over half of the registered products (48%); plant-derived products account for most of the rest (fruits, vegetables and cereals; beer; olive oils, table olives, and other drinks) and only 1% are fish products.

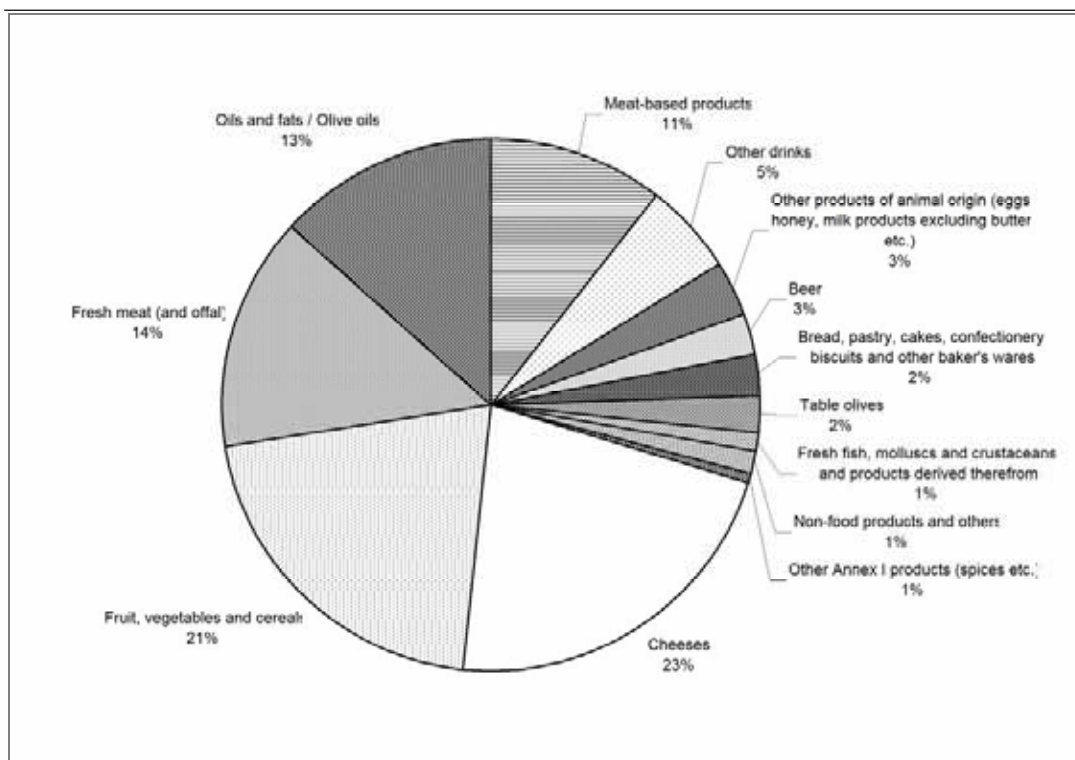


Figure 5. Protection of PGI and PDO by product class, based on EC regulation 510/2006 (Data from December 2006). From a total of 711 registered products.

The five main users of the register are Italy (with 154 products, 21.7%), France (148 products, 20.8%), Spain (97, 13.6%), Portugal (93, 13.1%) and Greece (84, 11.8%). These five Mediterranean countries account for 81% of the registered GIs; followed by Germany (67, 9.4%), United Kingdom (29, 4.1%) and Austria (12, 1.7%). Specialization of countries in certain products is also evident. For example, France leads in cheese and fresh meat (mostly poultry) products; Italy in vegetables and olive oils. Countries with a smaller number of GIs also specialize: for example, Germany in beers and other drinks; the UK in cheese and fresh meat. The number of GIs that have been entered in the register highlights the importance given by the European Community, led by the Mediterranean countries, to this consumer protection and rural development strategy. The data confirm a dominance of Mediterranean countries but highlight the fact that most European countries are beginning to develop such strategies and to use the multilateral register.⁴⁰

Even if these data show the importance of GI registration in Europe, consumers are not very well informed as to their significance: an Eurobarometer study on consumer knowledge and perceptions of PDO products (1998) found that many consumers do not

⁴⁰ The following countries have less than 6 PGI or PDO and less than 1% of the products registered: Belgium, Czech Republic, Denmark, Finland, Ireland, Luxembourg, Sweden and The Netherlands.

even notice the PDO label or do not know what it means (Barjolle *et al.*, 2000). So it is unlikely, therefore, that they are moved to buy a cheese merely because of its PDO label. Other motivations, such as taste, origin, quality and perceived food safety (which is related to traceability) are likely to be stronger (Gerz and Dupont 2006).

Quality labeling schemes are being developed as well as national registers. This shows that countries are getting prepared for multilateral recognition of GIs. For example, the Czech Republic (2005) has awarded the Klasa Mark⁴¹ to 688 products from 117 national producers (data from July 2005), including a wide range of products such as alcoholic and non-alcoholic beverages (wine and beer), fish and fish products, flour mill and flour products, fruit and vegetables, meat and meat products, and also milk and milk products.

The EC registers for PDO, PGI and TSG are open to non-EU country producer organizations. Colombia has become the first non EU country to obtain a PDO registration and Café de Colombia was the product that achieved this. The National Federation of Colombian Coffee producers is thus recognized after decades of successful efforts to differentiate their product in the world's markets through complementary intellectual property strategies (beginning in 1959 with a trademark symbol named Juan Valdéz)

7.3 America

Most countries in Latin America have statutory protection of GI, predominantly through AO, codified in industrial property law. Argentina and Chile have AOC protection for wines but have not developed the system for other foodstuffs. Brazil, on the other hand, is the only country in the region with a complete PDO/PGI system for all product classes. They recognized Parma ham from Italy and Região dos Vinhos Verdes from Portugal in 1997; and Cognac from France in 1998. Their first AO in 1998 was for coffee, Cerrado. However, they now have 12 GIs, including one AO for colored cotton, and the rest are protected indications including mineral waters, electronic equipment, and four more for coffee.⁴² In the Andean Community countries, there are national registers for AO and there is mutual recognition of the registers and high expectations as to the protection given by them to TK and genetic resources.⁴³ The registered GIs have all faced the challenge of developing the organizational and labeling skills required to build operating GB, and in implementing labeling strategies that indicate to the consumer the existence of quality control.

Central American countries and Mexico have statutory national protection of AO but no clear equivalent to a PGI. In the multilateral and bilateral free trade agreements that have been signed, protection rests on unfair competition principles and reciprocal recognition of geographical designations for spirits (e.g. in NAFTA there is recognition of Tequila, Mezcal, Kentucky Bourbon and Canadian Whiskey). Canada and the USA belong to the common law tradition and many wines and food products are commercialized using generic names from the Old World. In Canada, there is abundant jurisprudence in *passing off* that has mainly benefited Canadian producers of semi generics. However, Quebec on its own protects the name 'Champagne' and prohibits use of the Canadian Champagne designation in its territory. Protection of GI through trademarks is much more common in the USA than is usually assumed (Babcock and Clemens 2004) because of what is

⁴¹ The Klasa Mark is similar to France's "Label Rouge" and it is oriented to quality control but it is not linked to territorial or environmental criteria.

⁴² www.Brazil's Industrial Property Institute

⁴³ www.origenandino.com, geographical indications, includes descriptions of Pisco, Singani, Cacao de chuao, Cocuy pecadero, rum, giant corn, quinoa and coffee.

reflected by governmental positions in global negotiations⁴⁴. However, there is evidence that US producers are going beyond trademarks and beginning to develop localized forms of production and protection.⁴⁵ It is useful to highlight the fact that “Net Lake Wild Rice” is registered in Minnesota and is a certification trademark owned by the Bois Forte Band of Chippewa Indians (an Indian tribe recognized at the Federal level).

7.4 Africa

No registered geographical indication for foodstuffs was found in Africa. At the beginning of GI negotiations at the WTO, African countries opposed extension, fearing protectionism. However, positions have been changing (Kenya, Mauritius and Nigeria now support GI extension) and initiatives for GI implementation are underway. The African Organization of Intellectual Property has not yet addressed the issue in terms of its operating structure. Specific countries, such as Jordan and Egypt, have GI laws, and Algeria is a member of the Lisbon Agreement. Due to its interest in wine production, South Africa has signed an agreement with the EU in which it accepts to gradually eliminate the *Port* and *Sherry* appellations in exchange for increased market access and financial support for restructuring and modernizing the wine industry.

There is increasing awareness in the Arab region (including both African and Asian countries). At a recent meeting of the Arab Society for Intellectual Property, it was suggested to build a comprehensive database of potential GIs and create a GI division.⁴⁶

7.5 Asia

In Asia, activities surrounding GI protection and registration are moving forward rapidly (Wagle 2007). Turkey has 67 registered GI products, based on law 555 of 1995 (Ilbert, pers. com). Pakistan does not have a sui generis system of GI protection yet (Shah 2003) but they have certain protection in the Pakistan Trademark Ordinance of 2001. In addition, they foresee a GI registration system akin to that of trademarks but in which communities would file the application.

India passed a GI law in 1999 – the Geographical Indications of goods registration and protection act⁴⁷ - which covers all types of goods, including natural resources (e.g. coal and bauxite) and manufactured goods (e.g. Kanchipuram sarees and Kohlapuri sandals). They are equivalent to European PGI whose production and/or processing and/or preparation must be carried out locally. They add the clarification that non-geographical names with geographical meaning are included and explicitly define that a “*geographical indication shall be deemed to be deceptively similar to another geographical indication if it so nearly resembles that other geographical indication as to be likely to deceive or cause confusion*”; also clearly stating those that shall not be registered⁴⁸, including generic

⁴⁴ The following trademarks and owners are examples of GIs registered as certification trademarks in the USA: Arizona Grown (Arizona Department of Agriculture); Alaska Sea Food (Alaska Seafood Marketing Institute, a nonprofit corporation); California Avocados or Lobster Quality Certified from Maine. The Department of Agriculture of the State of Hawaii holds certification marks for 6 coffee GIs such as 100% Oahu Coffee.

⁴⁵ One example of changes in attitudes towards geographical labeling is in the “Napa Valley Declaration of Place” issued by wine producers in California in July 2005 (Joling 2006)

⁴⁶ First Geographical Indications Symposium held in Abu Dhabi, April 14, 2005, AGIP Bulletin, April, 2005

⁴⁷ Act 48 of 1999, entered into force in September 2003.

⁴⁸ (a) the use of which would be likely to deceive or cause confusion; (...) or (d) which comprise or contains any matter likely to hurt the religious susceptibilities of any class or section of the citizens of India; (...) or (f) which are determined to be generic names or indications of goods (...); or (g) which although literally true as to

indications. To date, 28 GIs have been registered including Darjeeling, several fabrics (silks, shawls, towels) and foodstuffs.⁴⁹

In Thailand, the GI law, popularly known as the “Champagne Law” reflecting the perception of a regulation for high end products, came into force on April 28th 2004. It contains standard procedures for misuse, registration and appeal, and cancellation. Cambodia exemplifies the situation of poor countries that make efforts to comply with TRIPS, drafting and passing laws without being in the process of developing their own GIs. Indonesia has four separate articles under its 2001 Trademark Law No.15 covering protection of GIs, including solutions to conflicts with trademarks. Vietnam has a section on IP in its Civil Code of 1995, and a regulation on GIs under Decree 54/2000/ND-CP, but these have not been applied, as there has been no litigation to date. Three AOs have been registered in Vietnam so far: two of its own (Phu Quoc and Moc Chau) and one from France (Cognac).

China has two distinct regimes (one through the Trademark Office as collective trademarks, and the other through the Administration for Quality Supervision, Inspection and Quarantine (AQSIQ). There were 100 registered certification trademarks in 2003 (out of 233 existing applications) and in cooperation with the French government the AQSIQ developed a system similar to the EC law 2081/1992 in which 123 applications were made and 49 accepted by November 2003. Sri Lanka, which relies overwhelmingly on its most famous Ceylon Tea GI,⁵⁰ set up provisions for GI protection (2003) in intellectual property law, giving the same protection to agricultural products as to wines and spirits. It is a *sui generis* protection system without registration, similar to copyright (Wagle 2007).

Korean Ginseng was the country’s first GI scheme restricting the use of this designation to raw materials from Korea (1996), further localizing Red and White Ginseng to local raw materials. It later adopted a protection system closely resembling AO protection applied to raw materials and processed agriculture and fisheries goods (Agro-fishery Products Quality Management Act, December 1998, in force since July 1999). To apply for registration, the product must have renown, quality and characteristics attributable to the area of origin and must comply with standards of the act or the applying group, be totally produced in the area and the name refer to an administrative unit, a mountain, a sea or river (OECD 2000).

Japan has preventive protection systems in place (the Madrid Agreement, unfair competition act, the Export and Import Trade Act and the Customs Act). In 1950, the country passed a law on Standardisation and Proper Labeling of Agricultural and Forestry Products (Law 175) based on which there is a Japanese Quality Standard (JAS) and a Quality Labeling System. JAS was developed to improve quality, rationalize production, and the rational use and consumption of agricultural and forestry products. It is a voluntary system that in 1993 introduced a new standard within JAS for special production methods. The Quality Labeling Standards are additional to JAS and are applied by producers and/or distributors, depending on the mode of distribution. In addition, the trademark office carefully considers potential conflicts with GIs in the process of registering trademarks (OECD 2000). So as to avoid conflict, Japan modified its industrial property law in 2006, in

the territory, region or locality in which the goods originate, but falsely represent (...) that the goods originate in another territory, region or locality”

⁴⁹ www.indlawnews.com, 28 products registered as geographical indications, November 9, 2006

⁵⁰ Ceylon tea generates nearly US\$700 million in annual exports and 1 million jobs.

order to accommodate geographical indication registration with a simple system to define the protected names: a product from a region.

7.6 Intellectual property and rural development

This overview on the extent of protection and trends in registration shows that all countries and regions are beginning to address the issue of GI protection at a steady rhythm. Whether they embrace it as rural development and consumer policy, or only as basic preventive protection to comply with TRIPS obligations, the fact is that GIs are no longer a strategy exclusive to developed European Mediterranean countries and that there is increasing protection for GIs worldwide.

If GIs are to contribute to policy objectives such as biodiversity conservation and poverty alleviation, they have to evolve and develop - not only as an IPR over the use of geographical names in trade but also as an innovative axis to articulate regional value chains in the context of rural development, and growing suburban and urban populations in developing countries. The cases described in this text show that the success of GIs is not isolated from complementary agricultural and rural development policies that may or may not include economic support but that provide a positive institutional environment for product differentiation.

The legal frameworks in which GIs can be protected belong to trade law (unfair competition and labeling) and industrial property rights (trademarks and geographical indications). However, it is now evident that regulating the use of geographical names should not be their only objective. The fact that European PDO and PGI regulation requires an existing organization that oversees compliance with product description is evidence that GI implementation requires organizational development. The existence of governance structures that organize the value chain to reach the market, invest in the intrinsic quality of the product and defend its values in trade is, perhaps, the most important condition for GI implementation. Governance structures in GIs have diverse forms, institutional designs and legal basis for association but they share the objective of collectively defending the specificity of a product and promoting regional economic growth and development.

Value chain organization is one of the key instruments used in rural development policies to channel technical support and economic incentives to producers. Value chains that are generic (e.g. olive oil) remain for the most part invisible to the consumer, but geographically specific value chains are clearly signaled to the consumer by distinctive signs in labeling. GIs promote quality in production and market differentiation in specific value chains, and thus become a strategic component of rural development policies. For GIs to fulfill their rural development objectives, they have to meet two conditions: the market should recognize the quality and be willing and capable of paying the cost; and these economic benefits should reach the producer (Hassan et al. 2006). The mechanisms through which to achieve these two objectives are diverse and GIs cannot do it all by themselves. In any case, a legitimate and operating governance structure must be in place to organize the value chain of a product from a specific region.

The two most extensive multilateral agreements relating to the conservation of genetic resources are the Convention on Biological Diversity (CBD)⁵¹ and the International Treaty

⁵¹ www.biodiv.org

on Genetic Resources for Food and Agriculture.⁵² They outline rights and obligations with regard to the conservation and sustainable use of biological and genetic resources that rest mostly with national authorities. Biodiversity conservation and sustainable use, TK and farmers' rights and obligations require legal frameworks for their implementation but also the "creation of cross-sectoral linkages and coherence among concerned ministries at national level" (FAO 2005). GI differentiation creates innovative organizational and institutional approaches towards the coordination of policies and production systems focused on a value chain in a region. This 'collective governance' feature of GIs, in which public and private interests are simultaneously recognized and supported, is perhaps their single most important contribution to the development of differentiated production and commercialization strategies that promote conservation, motivate the use of underutilized species and respect the rights of peasant and indigenous communities over resources and TK.

Box 6. Information resources on geographical indications and development on the web

Biotrade Initiative (<http://www.biotrade.org>)

This UNCTAD Initiative promotes sustainable trade in support of the objectives of the Convention on Biological Diversity. They promote the differentiation of sustainable products through distinctive signs – such as certification and collective marks, appellations of origin and geographical indications - that have the potential to promote biodiversity conservation, sustainable development for rural communities and provide a framework for the protection of traditional knowledge. The initiative includes documents and news on the subject.

Dolphins (<http://www.origin-food.org>)

DOLPHINS (Development of Origin Labeled Products, Humanity, Innovation and Sustainability) is a program for concerted action to ease and strengthen exchange of the scientific results of the research conducted in European countries on origin labeled products (OLP). Besides research, it seeks to disseminate instruments in order to meet the needs of citizens, policy-makers, researchers, firms and all other operators involved in OLPs. Its web page contains useful information and links on OLP in Europe.

Geographical indications (www.geographicindications.com)

Information about the protection of regional product names is available in this web resource for those interested in the use of names for agricultural and other products that point to a specific geographic place. It includes links to national laws, international regimes, research, practical application and discussion groups.

IPRS online (www.iprsonline.org)

A portal on Intellectual Property Rights (IPRs) and Sustainable Development, containing a selection of documents, news, resources and legal instruments related to IPRs and sustainable development. The section on GIs contains documentation providing both the legal and political basics on the issue. It also provides an overview of the last decade in GI negotiations in TRIPS. Managed by the International Center for Trade and Sustainable Development (ICTSD) of the United Nations Conference on Trade and Development.

Origin (origin.technomind.be)

The first international network of GI producers that now represents over one million producers of traditional products from more than 30 countries. In the website there is information about OriGIn, its actions and publications, as well as technical and legal information regarding the various Geographical Indications' systems of protection around the world.

The considerable potential and actual benefits that GI development may contribute to delivering are the motor behind intense cooperation and research activities from the perspectives of conservation and development. Recent publications on the topic (Berard et al. 2005; CIPR 2002; van de Kop et al. 2006; Riccheri et al. 2006) and ongoing web

⁵² www.fao.org

initiatives focusing on information resources and discussion (Box 6) indicate the interest the subject is receiving worldwide. Mediterranean developed countries are particularly active in the subject for obvious reasons, and bilateral technical and policy cooperation is underway. For example, France has specific GI development components in partnership with Asian, African and South American countries (CIRAD 2004). It will be interesting to see the outcome of these cooperation efforts in the medium term.

8. Geographical indications, biodiversity conservation and rural development: recommendations and considerations

*“Goods are neutral, their uses are social: they can be used as fences or bridges”
Mary Douglas and Baron Isherwood 1979:xv*

The number one challenge of the Millennium Development Goals targets reduction in extreme poverty and hunger by the year 2010. Employment and food availability for poor populations are the main instruments for achieving this goal. One crucial fact sets priorities for action: for the first time in human history, in the year 2007 the majority of the world's population will be living in urban areas. A threshold has been reached globally, the same one that developed nations reached as a result of industrialization in the 19th and 20th centuries. Enhancing quality of life in urban and suburban areas in developing countries will require infrastructure and employment, but also food in quantity and quality, in a culturally-respectful manner. Environmental sustainability - MDG 7 - targets the halting of deforestation and increasing sanitation in urban environments. MDG 8 is a global partnership for development that targets debt relief and increasing aid but also commitments to create decent and productive employment; an open, rule-based, predictable and non-discriminatory trading system; and to increase the availability of new technologies.

The obvious links between these major goals are food production, distribution and consumption. Yes, but how and under which conditions? What role can GI implementation play to achieve these MDGs? To begin with, the obvious potential contradictions must be avoided: we cannot increase food production by clearing forests and destroying biodiversity; or by using carbon-intensive inputs and polluting water. Thus, food production requires innovation and tradition. It is also important to increase productivity outside agricultural landscapes. Technology will play a definitive role in addressing productivity and the diversity of genetic resources, and TK should be an asset and not a casualty of such transfers and developments. Partnerships should carefully consider the mechanisms by which to increase equity in the distribution of the benefits of economic growth and do so in a manner that respects cultural diversity.

Surprisingly, the MDG on environmental sustainability does not mention the role of biodiversity - the biological and genetic resources that underlie rural production. A GFU initiative specifically addressed the contribution of genetic resources for food and agriculture in fulfilling the millennium development goals: the Chennai Platform (2005) concluded that “endemic hunger (...) can be overcome through an integrated strategy for the conservation and sustainable and equitable use of agricultural biodiversity.” Furthermore, they indicated that there is a need to “promote local markets and facilitate access to international markets for the products of agricultural biodiversity, especially traditional foods, ensuring equity and fairness amongst all participants”. This idea merits reflection from the perspective of GI implementation.

Local and international markets involve two very different production and market scales. GI cases from developed countries showed that regional and national markets are the most important for traditional foods (e.g. cheese) because the consumers are both physically and culturally closer to producers. Thus, it is useful to explicitly address the promotion of and access to regional and national markets, recognizing their economic and cultural specificities and the fact that they will be growing steadily over the next century, in developing countries. It will prove wise to lower expectations on export markets because

long-distance food trade involves intensive energy expenditures with the corresponding contradictions regarding environmental sustainability targets. Markets that are closer are more rational in terms of energy, while they offer opportunities for traditional foods.

The evidence shown in this study indicates that GI governance can contribute to implementing regional strategies for the sustainable management of biological and genetic resources through the empowerment of small farmer organizations. Such empowerment is the most efficient instrument to promote equity and fairness among participants in value chains. It must be kept in mind that GIs are an option only when there is surplus production and a market; and this is not the case for many underutilized biological and genetic resources. If the natural availability of the resource or its productivity levels cannot sustain surplus production at the local and regional level, then GIs are not an option and basic self-sufficiency should be promoted in the absence of market mechanisms. However, if there is a surplus for the market then GI governance can play an active role in organizing offer, promoting environmental and product quality and educating consumer demand.

The fact that most recent urban dwellers now live in developing countries indicates that the markets for processed and fresh foods will keep growing. Thus, GI implementation in developing countries should focus on regional and national urban and suburban food markets - both fresh and processed - for equity reasons but also because there is an opportunity to capitalize on consumers' memory with regard to the products and cultural values of their regions of origin. These millions of consumers/citizens will be demanding food and they will not be a culturally or financially homogeneous mass. GI governance structures may contribute to developing differentiated value chains that can provide food in adequate quality and price at the local and regional level, while generating surpluses for national and export markets with a higher value. Thus, market segmentation within developing countries poses specific challenges and opportunities for GI implementation beyond high end national or export specialty markets.

Table 13. Conclusions: enabling environment for fair competition, sustainability and geographical differentiation.
Enabling institutional environment. For developing and transformation countries, the design and implementation of GI protection frameworks is not a question of deciding which type of protection to choose – preventive or positive: it is a matter of identifying the best way of developing both to their benefit and with the lowest possible transaction costs. Indications of source, basic labeling of generics, the possibility of registering GIs or DO according to the specific value chain, and or promoting innovative approaches to marketing with a geographical identity, should all be considered within GI implementation strategies.
Sustainability. GI development may promote biodiversity conservation directly through the use of a specific genetic resource or indirectly through production and management practices that include landscape and ecosystem considerations. Direct benefits in terms of sustainability in rural landscapes derive from the fact that governance and market success contribute to the viability of rural livelihoods that depend on the sustainable use of specific biological and genetic resources.
Value chain differentiation. Successful GI implementation may become an economic mechanism that excludes poor farmers or consumers from staple and culturally relevant foods due to price increases. For nutritional and cultural reasons, such outcome of GI implementation is unacceptable. To avoid it, producer organizations, cooperation agencies and developing and transformation country governments should focus on clear differentiation in policies, regulations and product development of the value chains that address local, regional, national and export markets.

This final section provides recommendations that focus on the enabling environment needed for GI development to take place. They also point to the contributions that development cooperation and research can make towards this end. These recommendations address: the creation of an enabling environment for GI development through actions that favour fair competition, the reduction of knowledge asymmetries and the implementation of legal and institutional frameworks in intellectual property and GI governance. *In biodiversity conservation*, two subjects are dealt with separately: indirect contributions at the landscape and ecosystem level, and direct contributions to the sustainable use of biological and genetic resources. *In TK protection and promotion*, the role of GI governance is stressed as a potential space for recognition and equity. *In relation to hunger and poverty alleviation goals*, it is important to avoid economic exclusion processes at the local and regional level due to developing only high end, valuable national and export markets. In order to address the specific challenges faced by small farmers in GI development, flexibility in GI protection strategies and access to market knowledge are emphasized. Finally, it is proposed that value chain analysis consider two new links - territory and biodiversity, and knowledge and practices towards a better understanding of GI emergent properties.

Under each of the eight recommendations, specific considerations are made on issues that merit opportune action, further discussion and comparative research.

8.1 Fair competition and reduction of knowledge asymmetries

The creation of a fair competition environment will help develop markets for geographically indicated products derived from local and traditional resources, with the lowest possible transaction cost. Even before developing a GI registration system, basic and clear regulations about what can, cannot, and should be said in labeling is a basic starting point for developing countries. As a basic principle, what is written in labeling should reflect as clearly as possible what the product is and its origin. Such fair competition environment in trade can be created without a registration system for GIs. Moreover, it can provide - particularly to small farmers - the benefits of differentiation with a low transaction cost. In addition, such fair competition environment helps to comply with TRIPS obligations while creating a time-span useful for carefully designing the positive protection scheme that each country chooses to suit its needs beyond intellectual property. The legal framework and the institutional capacities of authorities and producer organizations is part of the enabling environment.

The information asymmetry between the producer and the consumer can be addressed through informative labeling, conveying significant information to consumers in a simple manner. Truthful, meaningful and educational labeling in itself contributes to the creation of a fair competition environment.⁵³

Recommendation 1. Fair competition and reduction of knowledge asymmetries
Support the creation or adaptation of national and regional, legal and institutional frameworks to prevent the false or misleading use of geographical indications, conflicts with trademarks or abusive generication processes.

⁵³ Regulation EC 2000/13 states that "Detailed labeling (...) giving the exact nature and characteristics of the product (...) enables the consumer to make his choice in full knowledge of the facts, [this] is most appropriate since it creates fewest obstacles to free trade."

Actions for development cooperation

Support the implementation of legal and institutional frameworks in trade to address fraud repression and the administrative regulation of labeling.

Aid in the establishment of basic regulation for the labeling of generic products to avoid unfair competition and create an enabling environment in which further differentiation due to biological and cultural specificity can be easily developed.

Support organization efforts towards informative labeling and grading of qualities, with or without GIs, oriented to market segmentation that is respectful of local and traditional markets and includes lower income urban and suburban consumers.

Contribute to the integration of databases on geographical and product names to increase the availability of adequate information for administrative authorities related to GI, foodstuff labeling, trademark and genetic resource collections and registers.

Develop communication instruments on the basics of labeling considering both the obligatory elements and voluntary additional information useful to communicate with culturally distant consumers.

Actions for development-oriented research

Generate basic descriptive catalogues and databases on local and traditional foodstuff in developing countries based on published sources from anthropology, ethnology, biology and agronomy available in developed country research institutions.

Invest in the dissemination and wide communication of integrated knowledge on traditional biological and genetic resources focusing on the producers and their regional and national markets.

8.2 Legal and institutional designs in intellectual property and GI governance

Countries that have opted for positive protection through GI registration should fully recognize the fact that it involves (not only) collective intellectual property rights over the use of geographical names but also the development of quality production systems (Sans et al. 2006) supported in marketing by the careful positioning and protection of the corresponding reputation.

For the development of quality systems, the institutional design of GI governing bodies is a framework that should have a transaction cost adequate to the economic scale of the production process and the product. Governing bodies should undertake concrete activities to guarantee something specific to consumers but this should be as simple as possible (e.g. guaranteeing the use of certain raw materials with a clear geographical origin).

The mandate and attributions of GI governing bodies must be well defined, fully recognized and supported by state institutions. Their legal status should suit the level of autonomy and responsibility that such GB should achieve, while considering the necessary independence of quality certification and avoiding possible conflicts with antitrust law. The cost of registering and defending a GI should be as low as possible if it is to benefit small farmers.

Current tendencies in the role of certification in global trade indicate that independence will become increasingly important. This poses specific challenges for the development of governing bodies in both developed and developing countries. The experience and role of existing certification systems provides a relevant background with infrastructure and human resources for traceability and quality that may benefit from diversification of services towards geographical labeling.

Recommendation 2. Intellectual property and GI governance.

Support the design and implementation of precise and flexible GI registration systems in adequate coordination with the legal framework needed for the healthy development of GI governing bodies.

Actions for development cooperation

Support capacity building for the development of GI registration systems that are precise and flexible, by providing diverse and clearly defined GI options

Include options for GI registration beyond strict designations of origin considering also protected geographical indications, as well as collective and certification trademarks.

Support other forms of differentiation such as traditional specialties, farmers products, and family and individual undertakings to develop regional niche markets that are compatible in classification with GI products derived from similar resources.

Actions to increase understanding in developing countries of the collective and voluntary nature of GI governance and the differential roles played by authorities, producer associations and GB.

The legal statutes of GB should allow them to invest in human resources and infrastructure to guarantee a certain quality and defend exclusivity of the right to use a name without conflicting with antitrust law.

Support fair trade, organic and sustainability certifiers and producers to increase the use of precise and informative geographical information in labeling.

Actions for development oriented research

Current change in the status of GB in developed countries should be better understood in its implications for developing countries and to avoid future conflicts due to future independent certification requirements.

Assess the challenge that the diversity of available associative forms which may apply for GI registration poses for the future development of a multilateral register.

GI-trademark relations should be better understood (e.g. status of collective marks or solution mechanism for conflicts with GIs) to avoid conflicts and contradictions while promoting their positive synergies.

8.3 Ecosystems, landscapes and sustainability

Biodiversity conservation requires healthy ecosystems and diverse plant and animal communities and populations. The sustainable use of its components should offer economic alternatives that are sustainable (*i.e.* relatively stable, long-term and equitable). A well-managed biological resource that sustains a GI production system should also promote diversity within the biological system for the benefit of those biodiversity components that are not used. These are the indirect conservation benefits of GI production systems.

Every environment has a productive carrying capacity, given the technologies that mediate production and natural resource use. Thus, under certain production practices and within a delimited area, the productive output of every GI should be limited. If the GI is linked to nature, it should also involve variable qualities and production volumes according to seasonal and yearly variations. Small-scale producers, traditional and innovative, may profit from these features of GI value chains if they are adequately transmitted to consumers: in order to be sustainable it has to be limited, if it is limited then it is special, unique and original. The easiest way in which to transmit this message to consumers is through informative text, careful voluntary descriptions and the use of serially-numbered labels (lots and product individualization).

GI value chains should be supported and promoted in all actions concerning the agricultural policy of the country concerned (Sans *et al.* 2006). The main policy areas requiring coordination are trade and IPR, agriculture, rural development, forestry, fisheries and environment. If GI development contributes to fulfilling multiple objectives, then their institutional and legal frameworks must consider such mandates, rights and obligations. The valorization of rural space requires institutional and legal designs allowing the implementation of support measures that are clearly differentiated from direct subsidies which distort trade and have negative environmental consequences. Thus, recognizing in public policy the multiple objectives to which GIs may contribute (conservation, sustainable use of biological resources, protection of TK, farmer's rights and rural development in particular) requires creative institutional designs for the efficient coordination of multiple sectors (agriculture, forestry - in particular, non timber products-, fisheries, wildlife and protected areas).

As food is produced in all sectors of primary production (even salt in the mining sector), GIs should be recognized for all rural products and not only for wines and spirits, or exclusively for agricultural products. Forested areas (be they extractive or perennial plantations) may provide smaller food outputs in volume but they are culturally valuable (e.g. mushrooms) while providing additional environmental services such as carbon sequestration or water, soil and biodiversity conservation.

Recommendation 3. GIs for all foodstuffs and limited productions.

A substantial contribution of GIs to biodiversity conservation requires that they are recognized in all sectors of food production, that their contribution to different policy

Actions for development-oriented research

Increase understanding of consumer perception of limited productions and sustainability and disseminate the results of such research.

Assess the relative importance of foods from the forest, natural vegetation, lakes, rivers and fisheries in the diets of traditional and local communities, as well as growing suburban and urban markets in biodiversity-rich regions and developing countries.

8.4 Biological and genetic resources management

Sustainable harvests of naturally-occurring biological resources and locally-adapted genetic resources have inherent environmental benefits because they grow under marginal conditions with low energy and technology inputs. However, the strategies by which local genetic resources can be enhanced or selected are not the subject of this study. The neglect of local landraces or underutilized species does not derive only from their 'lower productivity' but in many cases from their 'invisibility' in policy. If generic information is used to make decisions about support policies for rural production, then generic strategies will be developed. This has been the predominant policy in most developing countries since the green revolution began. Thus, a key issue in policy development is to "bring a change in mind-set (...), re-designating (for example) 'coarse cereals' as 'nutritious cereals', where appropriate, and classifying a wide range of leafy vegetables, tubers, grain legumes and tropical." (The Chennai Platform 2006). In order to do so, it is necessary to disaggregate data recognizing diversity within currently recognized crop and product classes. It is urgent to go beyond the generic rice, cassava, mezcal or cheese and provide *specific information* on varieties, landraces and the geographical origins of products.

The relevant point emerging from this study is that GI differentiation can create a space for visibility of the sustainable use of wild biological resources and rare and endemic genetic resources in agriculture, both in public policy and in the minds of consumers. It is also an important collective governance space in which to promote and develop creative agreements and actions for the *in situ* conservation of biodiversity coordinated with *ex situ* (regional and national) conservation, characterization and breeding efforts.

The selection of names for GI products that are to be protected is an issue that merits careful consideration and resource investment. There are two pitfalls that should be carefully avoided. The size of GIs should balance the need for a sizeable economy, while respecting localized production schemes. Most indirect GIs that are, in a sense, generic will create huge areas and increase governance problems and de-localization of production. In general, they should be avoided and GI differentiation should build on the localization of legally-defined generics. On the other hand, using the name of a specific genetic resource in the GI name will tend to marginalize other local varieties. This situation is present in several of the GI cases from developing countries that were presented. One solution, exemplified by a recent GI case in France, is to localize the generic and to recognize several varieties. The AOC Chataigne d'Ardeche, shows that producers decided to maintain 19 varieties within the AOC (from an original census of 65, all local); the name describes the product, Chataigne, and the region, the Ardeche, without fixing a variety (Berard and Marchenay 2007).

Recommendation 4. Increase resolution of rural resources information.
Support developing country rural sector institutions to adapt methodologies to increase the biological and geographical resolution of data and information on food production and commercialization systems.

Actions for development cooperation

Support initiatives to disaggregate information about rural production systems beyond generic data and the application of hierarchical and compatible classification systems.

Actions for development-oriented research

Natural and cultural history institutions in developed countries harbor collections and documentation on developing country local resources and products that should be made accessible through the integration, repatriation and dissemination of agronomical, biodiversity, ethnological and anthropological information.

Comparative studies on the economic and biological considerations needed to identify optimal GI sizes considering the financial and geographical thresholds above which a governing body can be sustained and beyond which it cannot be affordable, democratic and representative.

Basic and participatory research on resource description (including natural, biological and genetic resources, landscapes and ecosystems) to sustain solid management actions in the context of GI production systems.

8.5 Traditional knowledge and practices

“A resource is not one until it is known to be one by a human group” (Narotsky 1997). This simple statement underlines the relevance of knowledge and practice, traditional and innovative, in order for the components of biodiversity to become resources. Such knowledge has been the subject of illegitimate appropriation (*i.e.* biopiracy) and this is a legitimate concern for indigenous peoples, peasant organizations, civil society and academics, as well as developing country governments. Without minimizing the strategic importance of the issue, a negative consequence of prioritizing the patent debate has been that of neglecting the positive potential of collective forms of intellectual property in promoting the sustainable use of biological and genetic resources related to TK.

Recently, in global IPR and biodiversity negotiations, although in academic literature since the 90s (Bérard and Marchenay 1994 in Chouvin *et al.* 2004; Stephenson 1999), GIs have been identified as a potential tool to enhance local control over resources and promote the conservation of natural and cultural diversity (Addor & Grazioli 2002). GIs cannot protect sacred forms of knowledge (such as the sacred use of halucigenic plants and preventing the patenting of their active components), which are highly relevant, but they can protect specific forms of TK - in particular practices associated with food production, which are also of economic importance. Posey (1999) identified nine categories of “*traditional resources/indigenous intellectual property*” that could be protected by peoples or communities. At least five of these could make use of GIs as part of their protection strategy: knowledge on current and previous use of plant and animal species; knowledge on preparation, processing and storage of useful species; formulations involving more than one ingredient; planting methods, management practices and selection criteria; and ecosystem conservation practices.

On the other hand, because TK is the very basis of most products that are eligible as GIs, they may provide a certain protection and promote recognition in a pragmatic way by valuing the products that derive from a livelihood that possesses a resource and the TK to use it. GI registration makes the knowledge and practice publicly available. This is a form of preventive protection. The opportunities for using TK to support product development should be capitalized in an inclusive and respectful manner towards the holders of such knowledge. It is also important to keep in mind that not all knowledge or practices need to be codified or published - only those that define the minimum character of the product(s).

GI governance may provide this space but special regard should be given to traditional governance structures. In addition, when a product is sold outside its cultural context, there is knowledge that needs to be assimilated or developed (e.g. shelf life of the transformed product). Thus, GI development requires TK but also innovation to confront the challenges of differentiated marketing. GI governance implementation should not impose arbitrary formal homogeneity criteria through restrictive quality regulations that exclude diversity from the productive system, or products from commercialization.

Recommendation 5. Respectful and creative use of TK in product development.

Support innovation in the design of GI governing bodies that includes space for a respectful relation with traditional governance structures when natural resources from communal lands or TK is involved in the value chain of the GI.

Actions for development cooperation

Promote the creative use of TK in GI product development while providing resources for the timely and careful acknowledgement of governance over such knowledge.

GI regulation should give particular attention to indigenous languages in decrees, regulations and registries when the TK of indigenous peoples is involved.

Respect and recognize horizontal governance over biological resources and knowledge in order to empower small farmers in projects that support vertical integration.

Actions for development-oriented research

On the relationship between GI governance, which is inherently regional, and collective governance over resources or knowledge at the local and community level.

Assess the extent to which publication of product description and GI recognition decrees may be useful as preventive protection for TK, in particular food production related practices.

8.6 Hunger and poverty alleviation

Production systems that are market oriented (e.g. cash crops or livestock) are certainly a key component of poverty alleviation strategies in rural areas. GIs can contribute to their economic success by providing a clear means of differentiation in the market. Economic growth will certainly contribute to combatting poverty in peasant communities but it must be kept in mind that creating value does not necessarily mean that there will be adequate or fair distribution of wealth along the value chain. In fact, adding value to local crops and breeds may imply excluding part of the communities from accessing resources previously available, because quality controls and additional processing increase the price and value of raw materials and products.

A paradox of current changes in food habits is that unhealthy, carbohydrate-rich diets are becoming more popular in developing countries, while diverse diets that are traditional in rural communities are being revalued as 'healthy' in developed countries. Thus, besides addressing food availability in both the rural and urban environments of developing countries, diversity and the intake of fresh leafy vegetables should be given priority (Frison 2005). Food availability, in both quantity and quality, for peasants and rural populations - but also for lower and middle classes in suburban and urban areas of developing countries - needs to be carefully considered as part of the markets for GI products. The exclusion of poor consumers from the value-added, quality-controlled high end niche markets would be an unacceptable consequence of GI implementation in developing countries.

Another contradiction between developing "quality" products and aiming at hunger alleviation is that quality control systems tend to provoke enormous losses of raw materials that do not conform to product specifications (e.g. in Quinoa and in Calasparra rice there are reports of up to 40% post harvest losses due to quality control systems). Compliance with quality criteria should be relatively flexible in form, and mechanisms for the distribution and commercialization of non-compliant products should be envisaged.

These pitfalls when developing quality systems in poor developing countries can be overcome by differentiating production chains and distribution channels, as well as grading qualities for different markets. Local markets should remain informal while increasing basic labeling in commercialization (e.g. indicating the origin of fresh produce sold in local markets). Regional markets can receive the same product well-labeled but without the transaction cost of certification. Both national and export markets should receive similar treatment so as to avoid discrimination between them. Such differentiated production and commercialization strategies are common in developed countries (e.g. wines in France) and should be applied also in developing countries to avoid economic exclusion processes.

Recommendation 6. Differentiating markets to avoid economic exclusions.

Differentiation of various production and commercialization chains (at least local, regional and national/exports) is the only means by which GI implementation in developing countries may avoid economic exclusion processes.

Actions for development cooperation

Support developing countries in designing adequate differentiation strategies to avoid limiting access to GI foodstuff for local and regional consumers (e.g. differentiated presentations, quality grading, labeling and taxing schemes).

Promote basic schemes for the implementation of basic labeling and use of signs and indications of origin for produce in local markets and food stores.

Actions for development-oriented research

On the impacts of formality/informality in local and regional markets on local and regional consumers' access to non-expensive, high-quality and diverse diets; including the specificities of GI formalization.

8.7 Small-scale farmers in the market

When the registering of a GI becomes a possibility for a small group of producers, it means that there is an existing or potential market for the product and a structure that is oriented towards commercialization. The main challenge for social and collective undertakings is to acquire professional management capabilities to meet formal demands they have never confronted previously. For example, consumers are now used to certain ways of perceiving safety, and product presentation is one of the most important of these. To face such market demands, and even capitalize from them, producers need to respond with an homogenization in form - sizes, packaging or labeling - (Lien 1997), while defending and using to their benefit the diversity of content.

Understanding their different markets is one of the most important challenges for small producers. Migration processes to developed countries create a situation in which physically distant markets may be culturally close (and with increasing purchasing power), while cultural change in urban consumers may create situations in which physically closer markets may be culturally distant. Thus, markets should be understood not only in terms of distance, scale or regulation but also in terms of cultural approaches, because an essential condition for origin-labeled products to be successful is that they be well-perceived and even culturally close to consumers.

Recommendation 7. Commercialization in different markets.

GI implementation in developing countries commonly arises from awareness of unfair competition in high end markets (national or export) but local, regional and national markets should be explicitly recognized and promoted.

Actions for development cooperation

Design support measures to increase the capacity of social organizations to possess the means for complying with basic packaging and labeling requirements.

Develop creative partnerships between producer organization, public and private bodies oriented to educating consumers on issues relating to GI products.

Support training of producers and their organization into marketing capabilities through bottom up capacity building and respectful alliances with formal institutions.

Actions for development-oriented research

Support market studies that consider local, regional, national and export scales as well as cultural aspects.

Make use of market information to differentiate value chains from harvest to product development, transformation, labeling and commercialization channels.

8.8 The value chain approach and geographical indications

Value chains are as much a tool for analysis as they are a practical manner in which to inform organizational processes towards GI protection, because they uncover the dynamic flow of economic, organizational and coercive activities between producers within different sectors. In practice, value chain analysis can be very helpful in selecting the type of protection sought for a product (an AO, a PGI, a TSG, or other) so it is advisable to describe the value chain in detail before deciding differentiation strategies based on geographical identity or otherwise.

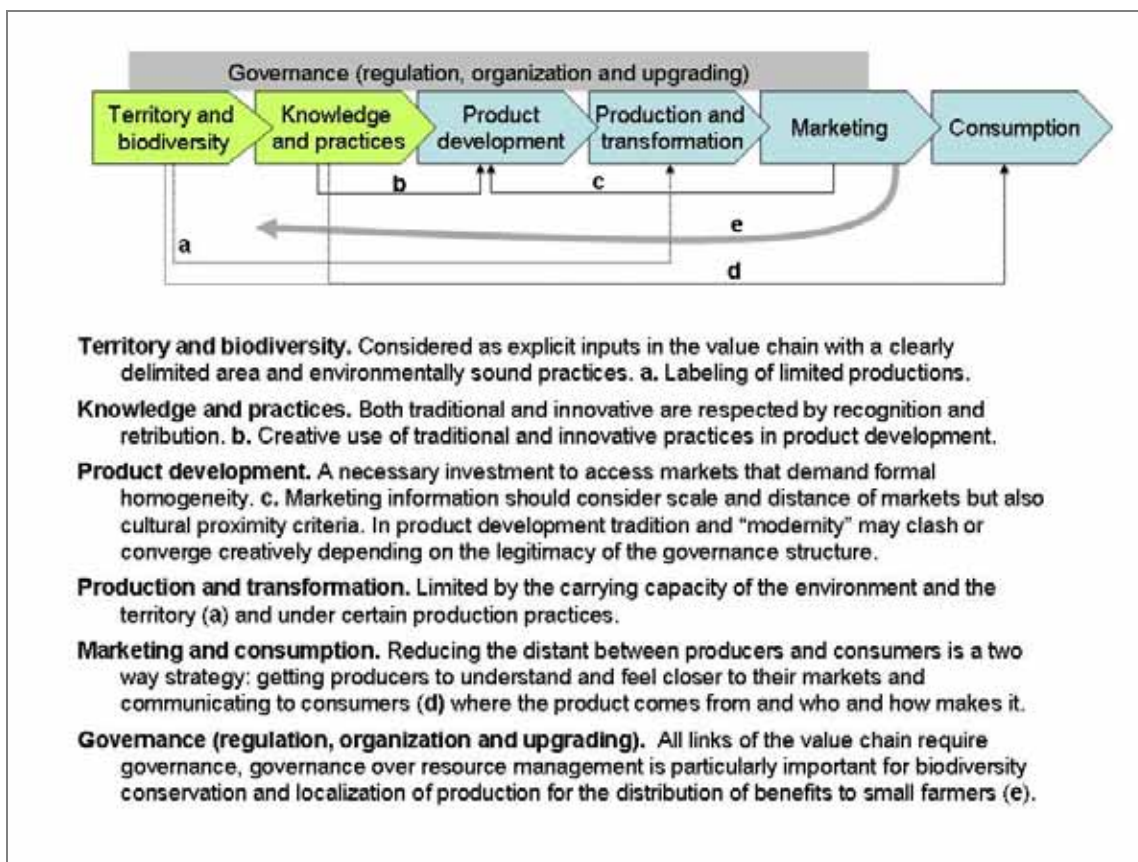


Figure 6. An idealized GI value chain that recognizes natural and cultural inputs.

Recommendation 8. GI value chain analysis

The use of value chain analysis in GI development should consider adaptations to the tool itself to include the emergent properties of GI inputs and governance over the resources and knowledge involved.

Actions for development cooperation

Support studies for a clear understanding and socio economic description of the value chain to decide if protection is needed, and if so, which type.

Promote value chain analysis as a planning device for GI governing bodies; including background documentation and producer census to increase precision and avoid arbitrary exclusions from GI protection.

Support development of practical guidelines on GI implementation adapted to national needs and capacities.

Actions for development oriented research

Support an interdisciplinary research group to develop an adaptation of value chain analysis to GI production systems that include territorial, biodiversity, TK and collective governance within the value chains.

Deepen understanding of power relations within actual or potential GI value chains.

The "crucial points" in the operative chains (those that significantly compromise the final outcome of the whole process), will usually concentrate more power (Narotsky 1997). Thus, the empowerment of small farmers in their own value chain involves sharing

knowledge that is valuable in each link of the chain but may belong to different actors and cultural spheres. If value added chains are to contribute to sustainable rural livelihoods, the economic benefits have to be shared along the chain. Without shared knowledge it is impossible to enhance distribution of power within the value chain. In Figure 4, a GI value chain is proposed which includes aspects inherent to GI differentiation that are not commonly considered in value chain analysis.

Cooperation and coordination within the value chain are the most important factors for the success of a GI (Thiedig and Sylvander 2000) and this conclusion justifies that governance be given the importance it deserves in GI development. A quality sign on a label or a product is the practical means by which a consumer can recognize an organized value chain, develop trust in a certain origin-labelled product and choose it constantly.

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