UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT

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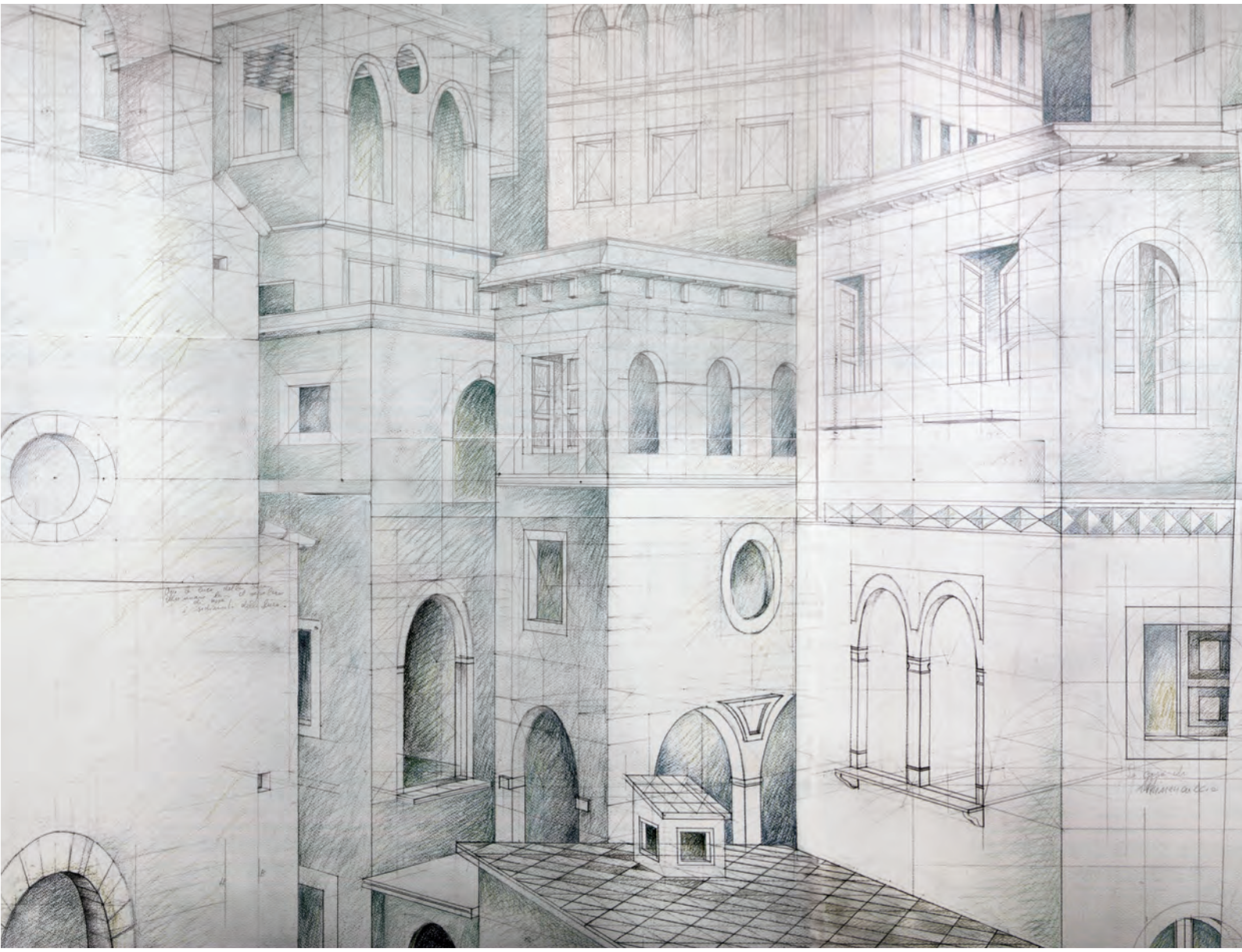
WHY GEOGRAPHICAL INDICATIONS FOR LEAST DEVELOPED COUNTRIES?



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Villaggio Terra is the result of the artistic research for the defence of the mountain territory around the village of Cancelli, in the heart of Umbria. This search was started by Maurizio Cancelli more than thirty years ago.

The installation Villaggio Terra for the United Nations Conference on Trade and Development (UNCTAD) is meant to represent a commitment to the protection of rural communities around the world and the development of their products.

Emphasizing the earth and its resources and potentialities means recognizing local communities and their right to exist in the places where they were born, with their own distinctiveness and diversity.

The installation Villaggio Terra is a white parallelepiped, an essential shape, constructed with primary materials and frameworks shaped on a base of oil and lime. The architectural perspective, calculated from different viewpoints on the same horizon, is an essential expression of a humanistic vision of the global village of the future, which is both archaic and modern, achieving harmony between the earth and technology.

At the gates of the village are sticks – devices for the people in touch with the earth – painted with the geometric shapes and colours of unnumbered cultural identities and ethnic groups, representing one complete human heritage.

Outside, a small herd grazes; a representation of human beings' relations with animals and of biophilia, a fundamental didactic and behavioural element.

Inside is earth from Cancelli, representing all the soils, plants, insects, stones, flavours and smells of the world, which the village of Cancelli donates to UNCTAD.

In order to live, we have to emphasize the universal right to enjoy Villaggio Terra and its outcomes, to accept the whole of it as a part of ourselves. This is the only chance for normal living, even before intelligent.

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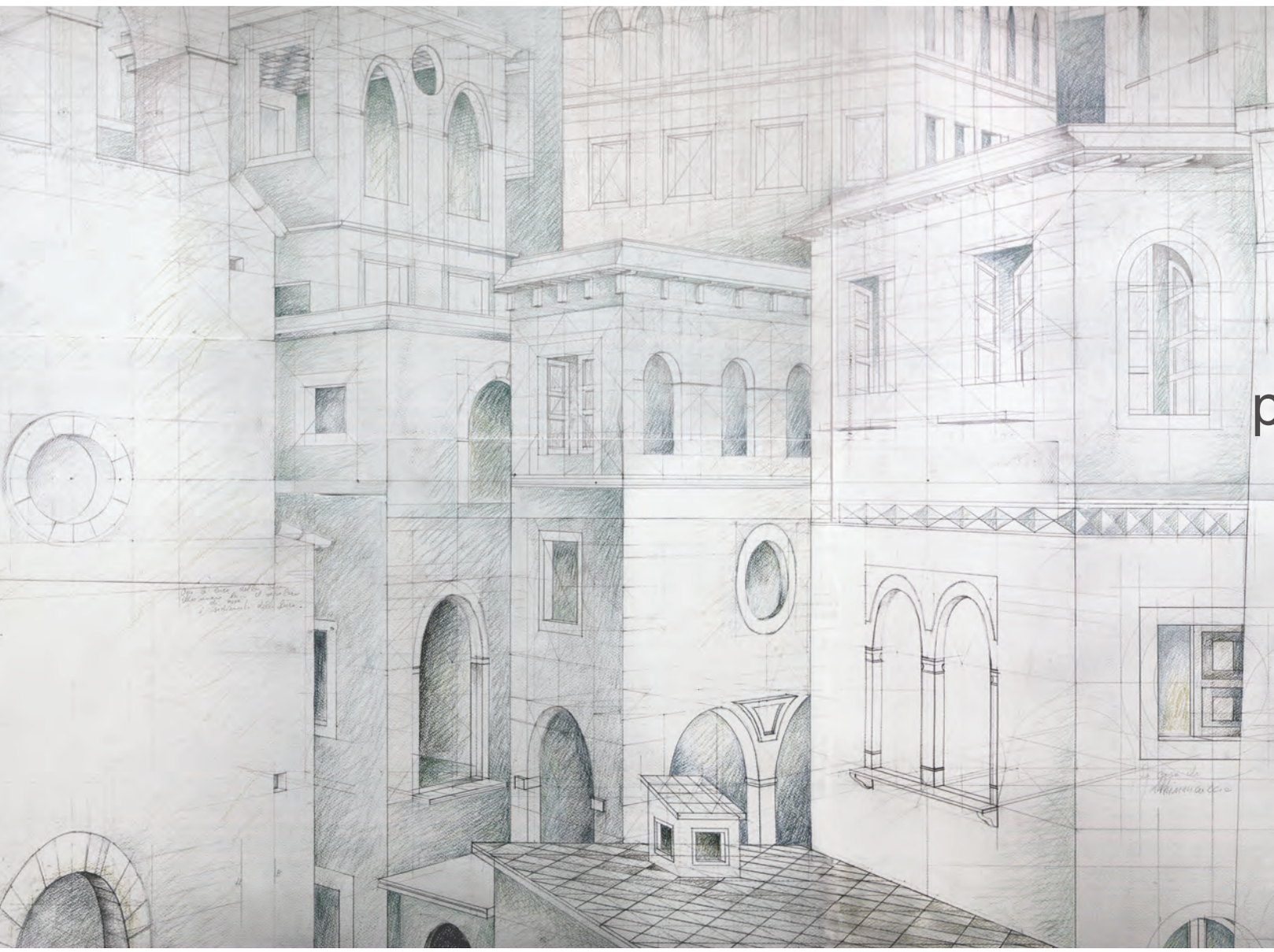

UNITED NATIONS
New York and Geneva, 2016

Note

The designations employed and the presentation of the material do not imply the expression of any opinion on the part of the United Nations concerning the legal status of any country, territory, city or area, or of authorities or concerning the delimitation of its frontiers or boundaries.

This publication has not been formally edited.

References to dollars are United States dollars.

Foreword

The case studies contained in this publication are based on documents and field missions carried out by teams of international and local experts from 2013 to 2015.

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Acknowledgements

This study is the result of activities carried out under the UNCTAD project TAAK on market access and trade laws funded by the Italian Government and the Development Account project entitled "Strengthening the capacity of rural communities in least developed countries to utilize the market access opportunities provided by duty-free quota-free and enhancing value added of their traditional products".

This study was drafted by Xiomara F. Quiñones Ruiz under the direct supervision of Stefano Inama, Chief, Enhanced Integrated Section and Technical Cooperation Section on the basis of the activities and reports of the above-mentioned projects.

Citation

UNCTAD, 2015. *Why Geographical Indications for Least Developed Countries (LDCs)?*

Introduction

Since 2010 UNCTAD is supporting selected LDCs rural communities in their efforts to promote traditional products through Geographical Indications (GIs). GIs are a trade-related intellectual property right under the WTO TRIPS Agreement. The link between the territory and the uniqueness of the product is the distinctive developmental nature of GIs with respect to other forms of TRIPs.

Evidence from the market and literature shows that the promotion and protection of products under GIs may results in higher economics gains, fostering quality production and equitable distribution of profits for LDC rural communities. GIs encourage the preservation of biodiversity, traditional know-how and natural resources. Leveraging on biological and cultural diversification, the implementation of GIs may represent a unique opportunity to bring together the various players along the value chain supply, including producers, government authorities and researchers.

The 70th Anniversary of the United Nations in Geneva provided the opportunity to showcase UNCTAD's technical assistance on GIs as a legal instrument for trade development that could assist the rural communities in branding their products in a cultural and commercial rebirth of their territory.

The artwork "Villaggio Terra" ("Village Earth") by the Italian artist Maurizio Cancelli represented in the cover of this publication enlivened the GIs concept and its potential to achieve sustainable development goals. "Villaggio Terra" is the result of the artistic research for the defense of the mountain territory around the village of Cancelli in Italy and represents the close relationship between the village, its economy and the territory where the producers' community lives and works. This is captured in a new humanistic vision: the village symbolizes the combined action of individuals towards local, global growth and harmony drawing upon the wealth of traditional savoir-faire rooted in the uniqueness of each terroir. Mr. Cancelli artwork in the form of canvas represents how a rediscovery of the cultural and economic values of these territories can achieve their "rebirth" trough the promotion of their products. Consisting in a cube installation, the Village is the "agora", the square space where diversity blends into creative synergy. Entering the installation from two opposite side entrances of the square, the visitor experiences the different points of observation upon which geometric perspective are being drawn. Externally, drawings are inspired to typical villages of the Umbria region idealized so as to represent any village in the world.

The art installation was presented by Mr Laourou Eloi, Ambassador of the Republic of Benin and coordinator of the WTO LDC group in 2016, at the Palais des Nations in October 2015, at the presence of the artist and several UNCTAD officials and the public during the 70 anniversary of the United Nations.

Mr Laourou welcomed the valuable initiative and emphasized the importance of geographical indications for least developed countries (LDCs), in a letter ex post:

La CNUCED et l'œuvre artistique de Monsieur CANCELLI « Village Terrestre »: promotion des produits traditionnels des communautés rurales

par l'utilisation des indicateurs géographiques

Le Village Terrestre

L'œuvre artistique de Monsieur **Maurizio CANCELLI** représente la relation étroite entre le village, son économie et le territoire. Elle rend compte d'une nouvelle vision humaniste : le village symbolise l'action conjointe des individus vers une croissance locale et globale en harmonie avec le savoir-faire traditionnel ancré dans l'unicité de chaque terroir.

Projeté dans l'économie mondiale, le Village terrestre illustre sa dimension humaine des chaînes de valeur globales dans lesquelles chacune des étapes se construit sur la base des capacités distinctes et des caractéristiques spécifiques de chaque participant où les individus ont la possibilité de produire et vivre de leur revenu dans leur village, sur leur territoire, dans un environnement international équitable.

Le dessin géométrique de cette œuvre d'art met en lumière le fait important que les perspectives, aussi divergentes soient-elles, mènent toutes au même résultat : la centralité du village et de son territoire où les valeurs communes et codes permettent aux êtres humains de construire et façonner leur propre avenir.

Les motifs architecturaux marqués montrent les défis humains, la solide expérience accumulée pour y faire face, ainsi que le rêve et l'espoir pour demain.

En accord avec la tradition humaniste, les agneaux et les brebis qui caractérisent le style nature du Village symbolisent toute personne contribuant en silence à la construction et la préservation de la planète.

Le travail de la CNUCED se concentre sur les questions liées au commerce et au développement, à travers une approche inclusive, visant à réduction de la pauvreté et des inégalités. Depuis 2010, la CNUCED soutient les communautés rurales de certains PMAs dans

leurs efforts de promotion des produits traditionnels par l'utilisation des indications géographiques (IGs).

On citera les exemples de l'ananas « *pain de sucre* » du Bénin, ainsi que du miel d'Ethiopie, de l'oignon et du *clichi* du Niger, du café de la République de Guinée, et de la Tanzanie, du Thé du Rwanda, des épices et de la soie du Cambodge, etc.

Les IGs constituent un droit de propriété intellectuelle dans le domaine du commerce, conformément aux dispositions de l'Accord de l'OMC sur les ADPIC[1]. Par rapport à d'autres formes de propriété intellectuelle touchant au commerce, les IGs se distinguent par la protection du lien étroit entre le territoire et le caractère unique des produits.

Les études et les faits suggèrent que les IGs constituent un outil économiquement pertinent pouvant s'accompagner d'un impact significatif sur la réduction de la pauvreté, en fournissant aux producteurs des communautés rurales des PMAs, un moyen efficace de promouvoir leurs produits traditionnels.

Une assistance technique accrue a été fournie par la CNUCED pour l'introduction de l'utilisation des IGs dans certains PMAs, dans le cadre d'un projet du Compte de Développement des Nations Unies, ainsi que par des ressources financières allouées par des donateurs bilatéraux, notamment le Gouvernement italien. Nous voudrions remercier ces partenaires pour leur accompagnement bien apprécié. Une publication sur les renseignements et meilleures pratiques en matière d'IGs dans les PMAs est en cours de finalisation afin de permettre à la CNUCED de partager l'expérience accumulée dans ce domaine, à ce jour.

Nous apprécions l'appui technique du Secrétariat de la CNUCED et la disponibilité de l'équipe d'Experts qui travaille sur cette question importante, qui illustre le rôle stratégique du commerce pour la promotion du développement durable.

MISSION PERMANENTE DE LA RÉPUBLIQUE DU BÉNIN – NATIONS UNIES - GENÈVE

Eloi LAOUROU
Ambassadeur,
Représentant Permanent Adjoint de la République du Bénin
auprès de l'Office des Nations Unies
et les autres Organisations Internationales basées à Genève

[1] Accord sur les Aspects de Droits de Propriété Intellectuelle qui touchent au Commerce.

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ACRONYMS

ADECAM	Association pour la défense du café Ziama-Macenta
AFD	Agence française de développement
ARIPO	African Regional Intellectual Property Organization
CIRAD	La recherche agronomique pour le développement (Agricultural Research for Development)
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CNROP	Centre national de recherche océanographique et des pêches (National Centre for Marine Research and Fisheries)
CWG	Coffee working group
DTIS	Diagnostic Trade Integration Study
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FCBL	Food Corporation of Bhutan Ltd.
FOFIFA	Centre national de la recherche appliquée au développement rural (Ministry of Agriculture, the National Research Centre)
FPA	Fisheries Partnership Agreement
GAP	Good Agricultural Practices
GIs	geographical indications
GIZ	Gesellschaft für Internationale Zusammenarbeit (German Agency for International Cooperation)
HACCP	hazard analysis critical control point
INAO	Institut National de l'Origine et de la Qualité (the National Institute of origin and quality)
INIP	Instituto Nacional de Inspecção do Pescado
IPRs	Intellectual Property Rights
IRAG	Institut de Recherche Agronomique de Guinée
IRAM	Institut de Recherches et d'Applications des Méthodes de développement (Institute for research and application of development methods)
JCFC	Jhai Coffee Farmers' Cooperative
KPPA	Kampot Pepper Promotion Association

LCA	Lao Coffee Association
LDCs	Least Developed Countries
MGE	Maison guinéenne de l'entrepreneur
NCLC	National Council of Lao Coffee
NGO	Non-Governmental Organization
OAPI	Organisation Africaine de la Proprieté Intellectuelle
OMAPI	L'Office malgache de la propriété industrielle (Malagasy Office of Intellectual Property)
PADEC	Programme d'appui au développement économique de la Casamance (Programme for the Economic Development of Casamance)
PAMPIG	Projet d'appui à la mise en place d'IG (Project to Support the Place of Development of Geographical Indications)
PDO	Protected Designation of Origin
PGI	Protected Geographical Indication
RNRRC	Renewable Natural Resources Research Centre
SPS	Sanitary and phytosanitary
TMs	Trademarks
TRIPS	Trade-Related Aspects of Intellectual Property Rights
UNCTAD	United Nations Conference on Trade and Development
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNIDO	United Nations Industrial Development Organization
USAID	United States Agency for International Development
WETA	Wenchi Ecotourism Association
WIPO	World Intellectual Property Organization
WOKO	Coopérative agricole de commercialisation et approvisionnement
WTO	World Trade Organization

1 Why Geographical Indications for Least Developed Countries (LDCs)?

Limited product diversification and fluctuating market value of traditional products are issues that have been affecting trade flows of Least Developed Countries (LDCs) for decades. In spite of limited product and export diversification, mainly consisting of raw and low value added products (primarily commodities), a valuable array of traditional products and preparations is available in selected LDCs having potential to graduate to products of excellence which can compete globally. However, bringing small local producers upfront in the global value system does not necessarily carry them beyond subsistence. Competition in global markets is fierce, and many LDCs feel the need to develop quality names for the use of food, for instance through the protection geographical indications (GIs), to secure higher returns from sales.

United Nations Conference on Trade and Development (UNCTAD), following its mandate,[2] is currently building capacity based on best practices to be adopted at national level to preserve and protect traditional products by implementing GIs and complying with sanitary and phytosanitary (SPS) requirements, such as hazard analysis critical control point (HACCP)[3] systems and the EurepGAP[4] protocols. Likewise, UNCTAD promotes the introduction of initiatives and trade policies in development plans of LDCs aimed at preserving and enhancing the commercial and ethical value of their traditional products to maintain biodiversity and to successfully introduce pro-poor policies.

Literature shows that the protection of products (under GIs) results in higher economic gains, fostering of quality production growth and better distribution of profits (Areté, 2013; Teuber, 2010). GI protection has wider positive benefits on local communities. In particular, GIs encourage the preservation of biodiversity, local know-how and natural resources. Agricultural products and foodstuffs are embedded in plant, forest or animal ecosystems. There are many different practices and forms of knowledge, revealing, as if that were necessary, the inventive capacity of societies (Bérard and Marchenay, 2006). Food products

[2] UNCTAD was established as a permanent intergovernmental body with the mandate to maximize the trade, investment and development opportunities of developing countries and to assist them in their efforts to integrate into the world economy on an equitable basis.

[3] HACCP is a systematic preventive approach to food safety and pharmaceutical safety that addresses physical, chemical and biological hazards as a means of prevention rather than finished product inspection.

[4] EurepGAP is a common standard for farm management practice created in the late 1990s by several European supermarket chains and their major suppliers. GAP is an acronym for Good Agricultural Practices.

are based on complex systems capable of maintaining various forms of biodiversity, ranging from a landscape to a microbial ecosystem, including plant varieties and local animal breeds (Bérard and Marchenay, 2006). This situation is present in developed and developing nations; however, a differentiation has to be made among developing countries, as the situation of LDCs is rather precarious in terms of institutional transparency, capacities and infrastructure.

Food or handicraft products coming from such environmental endowments should be produced by local communities in a manner that allow LDCs to achieve the Sustainable Development Goals and to benefit from growing international trade. GIs as intellectual property rights (IPRs) can provide an adequate protection for accomplishing these goals in the current context of internationalization (Mengistie, 2012; Sautier et al., 2011). Biological and cultural diversities are fundamental for revalorizing traditional food or handicrafts products having the potential to benefit rural communities, and in that way supporting them to cope with current challenges (e.g. food security). While traditional knowledge of indigenous and local communities has been recognized as being essential for understanding biological and cultural diversities attention should be paid when they access and use biological and cultural diversities to ensure fair and equitable benefits and to contribute to sustainable development (Coombe et al., 2014; Marie-Vivien and Chabrol, 2014). Indeed, GIs can be considered as an opportunity to accomplish the following tasks:

- Protection of local species that serve as raw material (e.g. ingredients) for potential GI products.
- Joint elaboration of Code of Practice/Book of Specifications/Product Specifications aimed at enhancing product quality but also at the design rules to build local awareness about environmental protection in these areas.
- Support of collective management (e.g. of the forest).
- Boost of local cohesion among potential GI users and consumers.

The term "geographical indication" was first used by the Agreement on Trade-Related Aspects of Intellectual Property Right (TRIPS)[5] of the World Trade Organization (WTO), which came into force in 1995. Article 22(1)1 of the Agreement defines GIs as "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

[5] The TRIPS Agreement is an international agreement administered by the WTO that sets down minimum standards for many forms of intellectual property regulation.

essentially attributable to its geographical origin". Although the purpose of GIs was not to protect biodiversity but rather the reputation of a product (Barjolle et al., 2011a; Sylvander et al., 2006), specific local biological or genetic resources, high degrees of biodiversity, provision of ecosystems, specific landscape functions or good agricultural practices can be major factors explaining such reputation (Bérard and Marchenay, 1995; Coombe et al., 2014; Marie-Vivien and Chabrol, 2014). The registration of GIs would protect biodiversity in the sense that a particular variety or ecosystem, distinct from neighbouring ones, would be maintained. For example, the specificity of a GI product can be closely linked to the use of unique and locally adapted genetic resources, and its governance might include the sustainable management of local landraces or breeds (Champredonde and Muchnik, 2012; Lambert-Derkimba et al., 2011; Marie-Vivien and Chabrol, 2014).

But how can farmers from LDCs access and protect GIs? Diverse GI types bear the opportunity to protect products whose specific quality is linked to a geographical origin:

- Protected GIs can be regarded as a type of collective formal certification.
- In some countries, trademarks (TMs) can also be considered as a kind of legally protected GI in which companies usually own the rights (for instance in the United States of America or in Australia, but also in many developing nations such as Sri Lanka, Ethiopia or Kenya, where usually the State is the title holder) (Table 1).
- Some countries also use rather a general country-of-origin labelling (Anders and Caswell, 2008) as well as a branding strategy. Nevertheless, they do not constitute GIs as defined by the TRIPS Agreement. Some territories develop territorial brands as well, like almost every region in the European Union (Kneafsey et al., 2013) for promoting a basket of products and services (Mollard and Pequeur, 2007).

Table 1. Legal schemes for protecting geographical indications

	Based on TRIPS Agreement			*Private protection in the absence of specific GI legislation*
Description	*Appellation of origin*	*Current European Union legal scheme* *Protected Designation of Origin (PDO)*	*Protected Geographical Indication (PGI)*	*Marks (e.g. trademarks, collective marks)*
Legal context	Lisbon Agreement (1958), amended 28 September 1999	2081/92, amended 5 October 2006 (510/2006) and 21 November 2012 (1151/2012)		Private/public protection through TMs (typically private or State-owned); private/public protection through certification marks (open according to established rules), collective marks (closed groups)
Type of products protected	Beverages and related products; food products and related products and non-food products	Agricultural products and foodstuffs		All commercial products
Region of origin markets	28 countries, located in Africa, Asia, Eastern & Western Europe, Latin America, the Caribbean and the Middle East	European Union member States; third countries can apply for accessing European GI markets		As to the target jurisdiction for protection
Concept	Geographical name of a country, region, or locality, which serves to designate a product originating therein	Name of a region, a specific place or, in exceptional cases, a country, used to describe an agricultural product or a foodstuff		Organizational origin of a product from certain entrepreneur(s) or groups; marks may or may not guarantee that the product will have consistent quality; geographical origin may be indicated
Product quality linked to region	Quality and characteristics of the product that are exclusive or essential to geographical environment, including natural and human factors		Specific quality, reputation or other product characteristics attributable to geographical origin	Not necessarily narrowed to a specific geographic area
Production and processing practices	Production, processing and preparation take place in defined geographical area of origin		Production and/or processing and/or preparation of the product take place in defined geographical area	Not necessarily specified
Collective application and implementation	Yes			Not necessarily, depending on the type of mark
Rights to origin name	Legitimate right to origin; registration confers right to all regional actors complying with standards; cannot be transferred and or sold outside of region			Not needed; first in time, first in right principle; rights can be sold to anyone
Type of intellectual property right	Collective			Private or collective depending on type of mark; marks and GIs may coexist; TMs usually unsuitable for protecting geographical names; will depend on national legislations (e.g. United States)
Examples	Banano de Costa Rica Café Chiapas (Mexico) Cognac (France) Tequila (Mexico) Habanos (Cuba) Mango Ataulfo del Soconusco, Chiapas (Mexico) Pisco (Peru)	Café Valdesia (Dominican Republic), applied for PDO in 2014;[a] Camarão da Costa Negra (Brazil), applied for PDO in 2012[a]	Argane (Morocco), applied in 2011;[a] Kafae Doi Tung PGI (Thailand), 2015; Darjeeling PGI, 2011; Café de Colombia, PGI, 2007; Kampot pepper (Cambodia), published in 2015[a]	Café de Colombia: Certification mark Café de Colombia first registered in United States in 1981; community TM 100% Café de Colombia registered in European Union in 2001; TM Juan Valdez 100% Café de Colombia registered in European Union in 2005

[a] Not registered yet

Source: Adapted from Barham and Sylvander, 2011; Giovannucci et al., 2009; INTA, 2013; Quiñones Ruiz et al., 2015; WIPO, s.a.

The categories mentioned above are distinctive signs that allow consumers to differentiate between goods and services relying on potentially associated quality signals (Rangnekar, 2004). Whereas TMs are usually characterized by the first in time, first in right principle and the right to transfer and/or sell the right to anyone, wherever located (Giovannucci et al., 2009; INTA, 2013), protected GIs are not tradable and are only accessible for GI producers and/or processors located in the origin region (Babcock and Clemens, 2004; Barham, 2003, TRIPS Agreement) (Table 2).

Protected GIs are IPRs, and under sui generis systems GIs are usually considered collective rights for producers and/or processors in the defined geographical area who respect the conditions established in the Code of Practice (being certified by accredited certification bodies, as in the European Union). Sui generis means that a special regime is established, through law and by-laws related to GIs, implying the set-up of an examination procedure and the legal inscription in an official public register. The registration of a GI for a product through a sui generis regime is therefore a way to protect and claim identity, promote organization and add value (Hughes, 2009; Sautier et al., 2011). GI protection is infinite without the need for renewal as long as inspections are passed or the IPR is not voluntarily renounced (Giovannucci et al., 2009). Protected GIs can carry a reputational element essentially attributable to physical and human elements in the area of production (Bramley, 2011; Rangnekar, 2004; Sylvander et al., 2006).

Table 2. Main differences between trademarks and the protection of geographical indications

	Trademarks	Protection of GIs*
Rights	– First in time, first in right – Trademarks can be sold[a]	– Producer groups can apply for GI protection[b] – GIs cannot be sold or delocalized
Ownership	– Companies are usually the owners[c]	– Consortia, inter-professional organizations, associations or alike can be title holders – GIs should not be managed by individuals or firms but by collectives (however, there are cases in which single firms pursue individual GI application)
Specific & detailed product compliance	– Not necessarily	– It depends on the specific GI regulation; for instance according to the GI EU regulation producers shall comply with the Product Specification.
Development objectives	– Not necessarily achieved	– According to Article 4, a scheme for Protected Designations of Origin and Protected Geographical Indications is established to support producers of products linked to a geographical area by: (a) securing fair returns for the qualities of their products; (b) ensuring uniform protection of the names as an intellectual property right in the territory of the Union; (c) providing clear information on the value-adding attributes of the product to consumers. Thus, the GI protection has the potential to promote identity and empowerment of producers, and rural development; hence, GIs might be a promising way for developing countries, including least developed countries.

* Following the EC Council Regulation 1151/2012 where collective action is desirable

[a] However, not in the case of a certification trademark whose regulation requires a defined geographical source for the goods concerned.

[b] A representative of a group of producers can apply for a GI as well for a trademark

[c] Not in the case of a certification trademark, whose owner must not be a TM user.

Evidence from European GI cases shows mixed results regarding environmental protection. For instance, product specifications or codes of practice of particular French GIs request the use of traditional varieties or breeds: "Petit épeautre de Haute-Provence" (*Triticum monococcum*), and sweet onion from Cévennes, Tarbes bean (*Haricot tarbais*). But at the same time, many specifications for products processed from pork meat do not mention specific breeds of pork.

In the context of LDCs, evidence shows how GIs can directly contribute to environmental conservation. For instance, according to the Agence française de développement (AFD), the use of a specific local biological resource in Tunisia is promoted for the production of Kebili dates. Additionally, producers of Oku honey in Cameroon preserve local natural resources when making honey in the nationally protected forest of Kilum-Ijim near Mount Oku. On the contrary, excessive intensification when the protected GI becomes a success may lead to great losses in biological biodiversity (Bowen and Zapata, 2009).

The rationale behind GIs is to valorize traditional specialty products. Nevertheless, if GIs are to contribute to policy objectives such as poverty alleviation and biodiversity conservation, they have to evolve and develop accordingly – not only as an IPR for the use of geographical names in trade, but also as an innovative axis to valorize environmental rich settings, animal welfare or cultural heritage by integrating regional value chains in the context of rural development, and growing suburban and urban populations in developing countries (Barjolle et al., 2011b; Marie-Vivien and Chabrol, 2014). Policy recommendations at the national level should include – where possible – that local and traditional varieties shall be valorized, e.g. by restricting the protected GI to traditional or rare varieties, land races and breeds or the prohibition of genetically modified organisms.

It is difficult that the GI protection considers all attributes of a product, namely: reputation, tradition, biodiversity, taste and quality (Marie-Vivien and Chabrol, 2014). Hence, expectations about GIs should not be exaggerated. GIs can be developed through adaptive governance and co-learning of diverse supply chain actors in developing and developed countries in rural areas. In the best case scenario, the GI implementation should lead to the promotion of local (e.g. rural, suburban and urban) and external market alliances (e.g. to overcome gatekeepers in international supply chains who can prevent consumers from learning about the product origin) (Quiñones Ruiz et al., 2015) and to the inclusion of relevant provisions on environmental rules in the code of practice (Marie-Vivien and Chabrol, 2014).

2 The importance of collective action and quality building

One of the outcomes of implementing GIs is the opportunity to bring together diverse players along the supply chain, government authorities, and research. Establishing a collective organization is the first step for installing institutions (rules of the game) framed by local players in conjunction with development organizations, local government or experts. The establishment of collective organizations and institutions is essential to achieve the Sustainable Development Goals.

There are multiple tiers of collective action that can be identified with regard to the GI protection. Collective action results when at least two individuals (e.g. farmers, processors) cooperate for mutual benefit after establishing rules and reaching consensus on specific issues, however, without losing their independence (Paus and Reviron, 2010). GIs as collectively established and managed IPRs are also comparable to collective goods (Thieding and Sylvander 2000; Winfree and McCluskey, 2005), but also to club goods, given that compliance with standards and geographical boundaries are clear exclusion factors preventing potential users from benefiting from the GI scheme (Benavente, 2010).

Following Ostrom's (1990) understanding of collective action needed for managing common-pool resources such as forests or other common resources (e.g. management of pasture or lakes), protected GIs should also be viewed as natural or human systems that generate limited benefits, challenged by over-exploitation and free-riding (Quiñones Ruiz et al., 2015) and thus are menaced by the "tragedy of the commons" (Hardin, 1968)[6]. Collective efforts are needed to build up and sustain product quality rules, considerable monitoring and sanctioning to maintain GI reputation and to effectively exclude illegitimate users. Collective action has been identified as a key for success (Barjolle and Jeanneaux, 2013; Barjolle and Sylvander, 2002). Therefore, the achievement of collective action and organizations in the implementation of GIs can be considered as an incentive to promote development from below (bottom-up approach) which is urgently needed by developing countries, especially LDCs, to cope with poor formal and informal institutions and the lack of self-empowerment[7].

[6] The tragedy of the commons explains a situation in which individuals act independently and rationally according to their self-interests and behave contrary to the best interests of the whole group by depleting some common resources (Hardin, 1968).

[7] Elinor Ostrom won the Nobel Prize in 2009. She challenged the conventional dichotomy between private and state owned resources and demonstrated that local communities, too, had the potential to organize themselves and to create their own rules and visions to sustainably manage their common resources (e.g. forests, lakes, knowledge). She and colleagues studied many cases around the globe and learned that if local communities invested in transparent rules, followed by

While the TRIPS Agreement does not consider collective management as a prerequisite for successful GIs, the European Union GI regulatory scheme (EU Council Regulation 1151/2012) specifically comments on the role of producer groups that are composed by firms (e.g. farmers, and processors) active in the supply chain within the demarcated area. Only firms that are located in the demarcated GI area and who collectively agree on and comply with the code of practice are allowed to benefit from the GI reputation. Additionally, firms need to coordinate their actions (Barjolle and Jeanneaux, 2013; Vandecandelaere et al., 2009) to ensure that they do not over-produce and flood the market with GI products due to the limited number of aware consumers willing to pay a price premium for GI products (Quiñones Ruiz et al., 2015). This implies that GI protection alone does not guarantee that consumers will immediately buy GI labelled products and pay more for them. Many marketing efforts are needed to make the uniqueness of the product visible if it is not recognized by consumers, as the case of some LDCs' products that might not be necessarily known by final purchasers (when exports are intended).

The very fundament of GIs lays on the existence of a given quality, reputation or any other characteristic attributable to its geographical origin, which gives rise to its uniqueness. The establishment of such unique characteristics is already the result of a process which involved multiple individuals such farmers/producers as well as history, culture, know-how (human factors) and natural resources within a territory (Biénabe et al., 2013). The process of defining the code of practice and registering the collective heritage requires collective agreement and organization. Therefore, collective reputation does not merely exist; it requires collective action for promoting and enhancing it (Biénabe et al., 2013). Furthermore, strong and effective collective organizations (e.g. interprofessional organizations, associations and federations) are crucial for successful GI implementation (Barjolle and Sylvander, 2002; Paus and Reviron, 2010; Reviron and Chappuis, 2011). For instance, Italy is known for the establishment of interprofessional organizations such as consortiums for the management of protected GIs. The National Institute of Origin and Quality (INAO) in France is recognized as the State organization in charge for regulating agricultural products with appellation of origin.

At the same time, the collective nature of GIs also bears potential challenges (Josling, 2006). Opportunistic behaviors, free-riding and the prisoner's dilemma are well-observed phenomena of common-pool resource systems and are characteristic for the tragedy of the

monitoring and effective sanctioning, they would rarely need intervention from outside (Ostrom, 1990; Poteete et al., 2010).

commons (Hardin, 1968). In the context of GIs, such actions may erode trust relationships between GI right holders (Paus and Reviron, 2010; Torre, 2006) and may also jeopardize and dilute the collective reputation negatively, having an impact on economic outcome (Benavente, 2010). Very weak cooperation or overly-centralized management might not be effective for running collective organizations (Reviron and Chappuis, 2011). On the other hand, group processes in general imply major transaction costs and bear risks such as unsolvable conflicts or dealing with dominant personalities (Enengel et. al., 2014; Paus and Reviron, 2010; Reviron and Chappuis, 2011).

To cope with the above-mentioned collective action problems, it is necessary to carefully design transparent institutions (rules of the game) overseen by mediators/facilitators (e.g., government authorities, research centers, consultants and facilitators) along the GI process (Quiñones Ruiz et al., 2016). Conflicts arise along GI registration, implementation and management, since multiple agents are engaged in the establishment of a GI while simultaneously competing with each other.

Numerous studies, especially within the European Union, suggest that strategic alliances positively affect production and sales activities (Reviron and Chappuis, 2011). Potential participants escape pure competition, which is replaced by "co-opetition", or cooperative competition (Brandenburger and Nalebuff, 1996). There are many advantages for collective GI management linked to cooperation and collective production, such as visibility of the product (economies of scale), reduced transaction costs for information gathering and risk-sharing, increased productivity induced by co-learning, co-creation, and exchange of experiences, inclusion, and trust.

GI protection encourages producers to define and safeguard common quality standards, while highlighting the geographical origin of a product. Thus, GI labels become a signal of high quality (Desquilbet and Monier-Dilhan, 2012) for consumers who would not be able to assess the products' quality in the absence of the label (Marette and Crespi, 2003; Zago and Pick, 2004). Farmers and/or processors who belong to the local GI production system face a competitive market of low quality products and strategically choose the high-quality level of the GI product to differentiate their products (Menapace and Moschini, 2012; Mérel and Sexton, 2012). Thus, quality is key for GI implementation. Quality standards are defined by farmers and/or processors in mutual decision processes (Galtier et. al., 2013; Paus and

Reviron, 2010; Reviron and Chappuis, 2011; Vandecandelaere et al., 2009), which result in considerable efforts at the meso-level (Sidali and Scaramuzzi, 2014).

Building or upgrading quality standards is necessary due to changing consumer demand, new production technologies or local environmental change (Allaire, 2010). Quality building concerns diverse factors such as the number of actors involved, their heterogeneity, the vertical structure of the supply chain and horizontal relationships, the history and reputation of the product, regulatory frameworks, external public support, and internal organization and communication structures. Whether GI firms are able to build quality standards and how much effort they need to invest into this collective process will be largely affected by formal and informal institutions shaping the interaction of firms (Desquilbet and Monier-Dilhan, 2012; Jena and Grote, 2010; Sanz Cañada and Macías Vázquez, 2005). The benefits of collective action concerning the GI protection relate to the savings of transaction costs, which counterbalance all costs for building up the agreement for quality standards and certification mechanisms (Barjolle and Chappuis, 2000; Barjolle and Jeanneaux, 2013).

The role of collective action in the GI implementation as a trade policy option for LDCs can be summarized as follows:

- Collective action is the essence for self-organization and for designing joint formal and informal institutions;
- Organization and self-organization require efforts to reach agreements (e.g., code of practice that define GI product characteristics and quality, geographical demarcation), as diverse types of groups with diverging interests are involved; however these costs and efforts can be counteracted when goals for the GI implementation are reached;
- Collective action is further needed after registration, as intensive marketing and promotion is required.

3 Challenges for least developed countries

The GI concept of a product–quality–origin nexus is well-established in European culture (specifically in Mediterranean Europe: Italy, France, Greece and Spain) through specialized organizations, and strong informal and formal rules. In contrast to the European vision and history of GIs, protection of products linked to a specific quality and origin does not have a long history in LDCs.

However, the protection of GIs has been widely used for some decades in developing countries (e.g. Café de Colombia, Darjeeling tea from India, Gobi Desert camel wool from Mongolia or tequila from Mexico); therefore, it is no longer a European issue and GIs are becoming a tool utilized also by developing countries. LDCs have the opportunity to protect their high-quality (agricultural, handicrafts) products based on geographical origin, such as Kampot pepper from Cambodia or Ziama-Macenta *robusta* coffee from Guinea, which in many cases are located in rich environmental settings. The implementation of GIs in developing countries, and even more in LDCs, is challenged by weak institutional structures (Quiñones Ruiz et al., 2015; Wongprawmas et al., 2012; Zhao et al., 2014).

While many LDCs commercialize origin products (e.g. by taking into account heritage-based reputation) without GI recognition some LDCs have already made GI registrations (e.g. Ziama-Macenta *robusta* coffee registered as GI in Guinea; Kampot pepper GI registered in Cambodia and as PGI in the European Union). As many other trade policy initiatives, LDCs face considerable challenges when implementing GIs because of still precarious institutions and regulatory frameworks. National GI frameworks might not exist or if available, they are incomplete.

Many LDCs do not possess the conformity assessment and enforcement mechanisms for GI protection and monitoring. It is also necessary to carefully examine potential exclusions of and rivalry between players involved in the GI process (e.g. due to collective action challenges). LDCs can actually benefit from a GI strategy, depending on a range of diverse and complex factors and cultural context. These factors (e.g. level of transparency of the institutions in place, consideration of plurality due to the diversity of ethnic groups belonging to a geographical area) should be considered before starting a GI registration process. The GI protection is only the first step in the successful development of a GI (Bramley and Biénabe, 2013).

Despite the obstacles faced by developing countries, especially LDCs, GIs can be considered as a means to gain a certain value and to obtain rewards for high food quality linked to the geographical origin, local biodiversity and endogenous knowledge or skills. In the context of market liberalization, the emergence of GIs gives national States a certain scope to manage IPRs and therefore to build up or strengthen current quality conformity assessments and traceability mechanisms. Additionally, although GI implementations have recently started, they have the potential to solve long-lasting tensions in the power distribution along supply chains

between raw material producers based in the South and international, powerful buyers located in the North (Quiñones Ruiz et al., 2015).

It is clear that strong institutions are essential for building GIs, whether in formal (e.g. GI legislation, code or practice, producer or inter-sectoral organizations) or informal rules (e.g. conventions of collaboration; respect of local, fair and traditional practices without any specifications or controls). These institutions will shape the evolution of GI processes (e.g. voluntary or involuntary exclusion of producers: artisanal and/or specialized, "co-opetition" among GI users). The State and its semi-public authorities (e.g. research centers) play a crucial role as they can support the registration process with formal structures, knowledge, impartial facilitation or mediation.

Regardless of the success of the GI registration, producers should design commercial strategies to consider GIs as a business tool. Thus, producers should engage in business-to-business relationships and/or strategic alliances to bring their goods to local, regional or international buyers; otherwise legal protection (GI registration merely on paper) will be insufficient to ensure the long-term success of quality marketing (Bramley and Biénabe, 2013).

4 Aim and methodology

Development aid for LDCs has been introduced to support regional branding of goods for food products or handicrafts. To cope with poverty, United Nations agencies (e.g. FAO, UNCTAD, UNIDO) have started to include GIs as development tool. This study specifically aims to show the results of experiences gained from UNCTAD projects on regional branding. In particular, it intends to present current (early) experiences of LDCs at the moment of considering GIs for a branding strategy. A number of LDCs have requested UNCTAD to examine the option of using GIs as a tool to enhance trade and to reduce poverty but also to consider environmental aspects. UNCTAD and national governments involved along GI projects selected specific case studies with GI potential concerning the suitability of goods to cope with poverty alleviation in rural areas. Their choice was motivated by the results of previous work carried out by UNCTAD. All case studies are based in rich environmental settings (e.g. protected forest, natural reserves, glacial valleys, mangroves and high fertile soils) (Table 3).

Table 3. Selected countries, products and environmental settings

Case study no.	LDCs (requesting technical assistance on regional branding [e.g. GIs])	Potential GI products of relevance for selected LDCs	Environmental settings
1	Bhutan	Bhutanese red rice	Glacial valleys
2	Cambodia	Kampot duriam (fruit)	Fertile soils
3	Cambodia	Kampot pepper	Drained soils
4	Ethiopia	Harenna wild coffee	Protected forest
5	Ethiopia	Wenchi volcanic honey	Forest surrounding a crater lake
6	Ethiopia	Wukro honey	Forest
7	Guinea	Ziama-Macenta *robusta* coffee	Protected forest
8	Lao People's Democratic Republic	Coffee from Bolaven Plateau	Dense forests
9	Madagascar	Pink rice from Amparafaravola	Presence of a tectonic lake
10	Mauritania	Imraguen women's mullet bottarga	Natural reserve
12	Mozambique	White prawn from Mozambique	Mangrove ecosystems
12	Mozambique	Tete goat meat	Forest with abundant fruit trees
13	Senegal	Fruits from Lower-Casamance	Naturally grown fruits, high soil fertility

Apart from Kampot pepper from Cambodia and Café Ziama-Macenta from Guinea, none of these products have so far obtained a GI registration. Thus, in order to understand the aspects or characteristics needed to justify a GI protection the analytical framework illustrates the product description and the territorial link, institutions in place, the regulatory framework, the insertion into the diagnostic trade integration study (DTIS), and the GI potential (Table 4). In

addition to some material provided by UNCTAD, other supporting data were collected for the cases in Cambodia[8] and the Lao People's Democratic Republic,[9] while the case of Guinea is based on research studies. All other cases are sourced from UNCTAD reports, feasibility studies and publications. In addition, UNCTAD, as one of the agencies of the Enhanced Integrated Framework, a multi-agency/donor programme aimed at mainstreaming trade issues in the development plans of LDCs, attempts to implement GI projects to help reach the Sustainable Development Goals.

Table 4. Overview of the analytical focus and justification

Selection criteria	*Justification*
1. Product description and territorial link	displays the uniqueness of the product, the territorial link and the environmental setting
2. Institutions in place	indicates how the sector functions, the players involved and the presence or non-existence of associations or interprofessional organizations, and the role of government with regard to the productive sector (agriculture, fisheries)
3. Regulatory framework	shows whether the country has GI legislation or not and the corresponding authority or entity in charge
4. Insertion into the diagnostic trade integration study (DTIS)/action matrices	presents the degree of attention of national government plans in relation to the use of IPRs and a branding strategy
5. GI potential	illustrates the potential of the related products

After a case-by-case presentation, a cross-case comparison is made in order to appreciate the issues at stake (e.g. the role of the environmental setting, the institutional and organizational set-up, the scope of legislation) in the selected countries. Moreover, since there is little systematic reflection of GI potential for LDCs, the cross-case/cross-country comparison will provide useful insights when considering the implementation of GIs.

[8] European Commission, DOOR Database: Agriculture and rural development.

[9] Programme on the Establishment of Geographical Indications in Laos [the Lao People's Democratic Republic] – Feasibility Study on Bolavens Coffees, from the Ministry of Agriculture and Forestry of the Lao People's Democratic Republic, in cooperation with the AFD.

4.1 Case studies

4.1.1 Bhutanese red rice

Product description and territorial link. Bhutanese red rice dates back to the eighth century before Christ and is produced at 2,400 meters altitude in the fertile soil of Paro, Thimphu, Punakha, Lhuntsi, Wangdue, Trongsa, Samtse, and Sarpang valleys irrigated with 1,000 year-old glacier water rich in trace minerals. Bhutanese red rice has been grown in traditional terraces. The typical rice variety cultivated in higher altitudes is *Bja map* (red) and *Bja Kaap* (white) which has become unique since it is not grown anywhere else in the world, although similar varieties are available in some other countries. Bhutanese red rice is also called Himalayan red rice.

According to data published by Himalayan-red-rice.com, this rice "has a strong, nutty flavor and a firm texture, and has more bran than brown rice. The short grain varieties of Himalayan red rice cook quickly, just 20 minutes or so, like white rice". High-altitude areas where red rice is grown (above 1,800 m) make up about 20 per cent of the total rice area (5,000 ha) and contribute about 30 per cent to the total rice production of Bhutan. According to the report of the Economic Impact Assessment of the Rice Research Programme in Bhutan, "the distinguishing features of Bhutanese red rice cultivation are cold tolerant, of tall stature, long growth duration, japonica types. Medium-short red grains, preferred for eating, yields 4–5 t ha under optimum management levels. Not responsive to higher levels of fertilizer".

Institutions in place. Communities producing red rice are geographically widely dispersed. There are no distinctive associations or groups growing red rice of a particular category. Farmers individually produce red rice mainly for their own consumption but a surplus is sold in the local market. Only recently, few private companies have started exporting red rice to Europe and the United States.

As part of the initiatives for rice production and food self-sufficiency, the Regional Agricultural Marketing and Cooperative Office started contracting with rice producers and buying the entire production. The Government of Bhutan through the Food Corporation of Bhutan Ltd. (FCBL) purchases local red and white rice and sells it to consumers. The new initiatives encourage producers, as they are provided with a ready market for their goods. The cooperative office is also actively involved in rice research with the goal of producing and improving varieties of red and white rice. Various studies have been conducted on pest control, variety improvement and productivity.

As part of national governmental initiatives to develop rice in Bhutan, the Rice Development Centre aims to organize research on rice and mediates with regional and international research institutes for the exchange of information, expertise, and genetic materials. The main centre for conducting current research on japonica rice is the Renewable Natural Resources Research Centre (RNRRC) in Yusipang at an altitude of 2,300 m. Other RNRRCs also carry out rice research pertinent to their regions having sub-centres that are strategically located to cover all rice agro-ecologies.

Regulatory framework. Bhutan is a member of the World Intellectual Property Organization (WIPO) and a signatory of the Paris Convention for the Protection of Industrial Property. Bhutan is also a party to the Madrid Agreement on International Registration of Marks and the Madrid Protocol. Bhutan is no member of the WTO. Although there is no specific GI law, GIs can be protected through the Industrial Property Act as collective TMs. The government authority responsible for registration is the Registry of Industrial Property adhered to the Ministry of Trade and Industry of the Royal Government of Bhutan.

Insertion into the diagnostic trade integration study (DTIS)/action matrices. The DTIS Action Matrix drawn up by the Bhutanese Ministry of Economic Affairs in 2012 with the assistance of UNDP, includes as national objective the improvement of the intellectual property framework by establishing an intellectual property policy, which, among other objectives, implies the passing of specific GI legislation and the setting of consultative services for regional branding (e.g. GIs and other IPRs). Workshops and advisory missions as well as Branding strategy has been carried out by UNCTAD highlighting the importance of the protection of GIs (e.g. this included the drafting and the subsmission to enabling rule of law to protect and promote GI products nationally and internationally) .The Government of Bhutan is actually considering possible follow up activities with UNCTAD.

GI potential. The inital study on the GI of red rice in Bhutan delivered by UNCTAD, on behalf of the Bhutanese Government, identified the potential of Bhutanese red rice for GI registration and implementation due to its uniqueness. Currently, this rice is marketed by Chharu Tshongdel with Lotus Food to markets in the United States and Europe. Chharu Tshongdel registered a TM for Bhutanese red rice in the United States in 2014 after application in 2007. Bhutanese red rice has also potential for other western markets. The limited quantity of red rice exported from Bhutan has fetched premium prices. Benefits go back to rice growers as they can sell their produce after self-consumption. Red rice is available in

numerous varieties. Farmers and producers use different types of rice for different purposes such as beaten rice, puffed rice and for producing local wine for ritualistic purposes.

Red rice is mostly grown naturally, as the use of external inputs is minimal or insignificant. There are opportunities to expand red rice cultivation organically, and exports would bring higher premiums. Red rice growers might organize themselves through cooperatives/producer groups to jointly establish the rules for rice quality management (cultivation, harvest, pest management) and to develop marketing strategies with the support of relevant government entities and/or international cooperation agencies.

Moreover, in the inventory of promising Bhutanese products – including lemongrass, yak cheese, buckwheat, turmeric, incense, just to name a few – limited supply capacity can turn into an advantage when specialized market segments/niches are being targeted to justify premium prices. Partnering visits would be instrumental for both public and private Bhutanese players to learn from best practices and to consolidate networking with leading Research and Development institutes engaged in the promotion of local products.

4.1.2 Kampot durian, Cambodia

Product description and territorial link. In Cambodia, the provinces of Kampot and Kampong Cham are the main places for growing durian owing to prevailing climactic and soil conditions. Kampot durian is well-known and is among the most popular fruits in Cambodia due to its natural smell and flavor. Kampot durian production is strictly connected with territories in the Kampot province which are associated with high fertility.

Kampot durian, considered to be the "King of fruits" in Southeast Asia, is demanded on the local market and has been exported for many years. A local variety is the *Auka,* whose tree normally reaches 5 m and may live about 100 years. The taste and texture of Kampot durian is well recognized in Cambodia, Thailand and Viet Nam, where it is exported because of its high quality.

Institutions in place. In 2013, approximately 1,256 families cultivated durian trees in the Kampot district. Farmers are not organized through associations or producer groups, and according to the 2014 Feasibility Study, are not enthusiastic about organizing. Currently, there are no extension services that organize durian growers. In 2013, the cultivation area covered about 987 ha, gathering about 121,401 trees and producing more than 7 tons/ha.

National authorities are willing to expand the GI denomination to promote inclusive and sustainable development, leveraging the economic contribution of the local producing communities. Precondition would be the capacity – in terms of both institutional and human capacity-building – to manage the GI system according to international standards and regulatory requirements. To quote the Cambodian staff at the Ministry of Commerce:

> The provision of GI registration will make the most of this potential for the benefit of rural communities and producers in this context of globalization. It will also help prevent usurpation and imitations, which can arise where a good reputation is involved. It is therefore absolutely essential that Cambodian producers take advantage of this opportunity, given the number and quality of products available in Cambodian rural communities.

Regulatory framework. Cambodia is a member of the WTO and a signatory of the Paris Convention. The Cambodian law, "Prakas on the Procedures for the Registration and Protection of Marks of Goods which include a Geographical Indication", Ministry of Commerce, No. 105 MOC / SM 2009, was established following a project funded by the AFD and thus includes many European principles. GIs are managed by the Department of Intellectual Property, under the Ministry of Commerce. Cambodia's GI law pursues the following objective: "the purpose of protecting the intellectual property rights of the producers, operators, and consumers of Geographical Indication products, and to preserve and strengthen the knowledge, traditional know-how and national identity in order to create jobs in rural areas, to develop communities, to reduce poverty, and to attract tourists".

Insertion into the DTIS/action matrices. According to the DTIS for Cambodia from the Enhanced Integrated Framework for trade-related assistance for LDCs, the national GI law follows the European approach and therefore includes a certified quality management structure, not only for the topographical origin, but also for growing/production methods (use of fertilizer and pesticide inputs) and post-harvest processing. However, according to the Cambodia Trade Integration Strategy 2014–2018, although the enforcement of IPRs is important for Cambodia, stronger IPR protection is needed to offer opportunities for Cambodia to develop certain export products that may be subject to IPR protection and, as a result, to be endowed with a unique Cambodian competitive advantage. The establishment of a commercial court system is needed to deal with commercial disputes, including those related to IPRs.

GI potential. Following its accession to the WTO and with the support of AFD, Cambodia has started down the path to protecting GIs. The Intellectual Property Department aims to safeguard as many potential products as possible, beginning with widely known goods of considerable economic weight but also bearing in mind the motivation of players in the value chains concerned. Products such as Kampot durian, Battambang rice, Siem Reap *prahok* (fermented fish paste), Battambang oranges, Kampot fish sauce, and others are some Cambodian products considered as good fit for the GI protection (recognized quality and reputation, in connection with the geographical origin).

After successful national GI registrations of Kampot pepper and palm sugar in 2010, which have served as role models and paved the way for other potential GIs, the Ministry of Commerce requested UNCTAD to carry out a feasibility study to identify prospective GIs in the regions of Banteay Meanchey, Battambang and Kampot, where some 22 products have been identified.

Indeed, study results show that Kampot durian is traded in national and regional markets in Thailand and Viet Nam. Traders come to Cambodia to buy durian and then sell it as national product in their countries. However, it is necessary to promote the creation of producer groups among farmers to join efforts and to take over production, marketing and commercial activities. Such follow up activities are currently being considered under the Cambodia Medium term plan with UNCTAD.

4.1.3 Kampot pepper, Cambodia

Product description and territorial link. According to the Code of Practice (Product Specification) submitted through the application of Kampot pepper as PGI in the European Union, Kampot pepper refers to the berries of two varieties of the species *Piper nigrum L*., specifically, the Kamchay and the Lampong (or Belantoeung), known locally as small-leaf and big-leaf varieties. The berries are grown in districts from southern Cambodia (Kampong Trach, Dan Tong, Toeuk Chhou, Chhouk and Kampot City, all of them in the province of Kampot; and Kep City and Damnak Chang Aeur, in the province of Kep). There are four different types of Kampot pepper, depending on the time of harvesting and type of processing:

- Green pepper, the unripe fruit of the pepper plant, is harvested when still young.

- Black pepper is harvested when the berries start to turn from green to yellow and is dried afterwards.
- Red pepper is the dried product of fully ripe berries.
- White pepper is produced from red or ripe berries and is subsequently soaked. The characteristic of the product lies in its strong, but not burning, pungency. The taste is not aggressive but develops progressively in the mouth. Beside the spicy character, its aromatic intensity lends Kampot pepper its particular quality. The grains of pepper show ideal physical conditions in terms of size and density.

The specificity of the product is related to unique locational conditions and production methods. Good drained soil and high average rainfalls are needed for the production of high quality pepper. The climate of the provinces of Kampot and Kep is characterized by heavy, regular rainfalls; the wet season lasts longer than the dry season. Therefore, not only the average rainfall is high in the defined area (more than 2,000 mm annually), but also well distributed throughout the year, which has a direct influence on the quality of the product, specifically on its aroma and its balanced pungency. Moreover, owing to the topography of the area, most of the plantation plots are located on hills (elevated land) or at the foot of mountains; thus, the drainage capacity of the soil is greater. Producer families have been using traditional methods inherited from their ancestors.

According to the product specifications, pepper production in Cambodia has been mentioned in documents as old as the reports of the Chinese explorer Tchéou Ta Kouan from the thirteenth century. However, at the end of the nineteenth century the Kampot province witnessed a real "pepper fever" with the arrival of the French colonists. At the beginning of the twentieth century pepper production in Kampot intensified, reaching up to 8,000 tons per year, stabilizing in the middle of the twentieth century at around 3,000 tons per year. By that time, the name of Kampot had become strongly associated with pepper, and the product was well-known especially in France and the rest of Europe. Kampot pepper was highly appreciated for its exceptional quality, particularly among the chefs' community in France.

Institutions in place. The production of Kampot pepper stopped abruptly during the Khmer Rouge regime and the civil war at the end of the twentieth century. With the relative calm restored in the country after the elections of 1998, the production of this spice resumed in the area, and production picked up quickly.

Producer families from Kampot and Kep returned to their ancestral land. Coming from several generations of pepper producers, they naturally cleared the land that had been abandoned and started cultivating pepper again using traditional methods.

An interprofessional GI management organization, namely the Kampot Pepper Promotion Association (KPPA), was created during the establishment of a GI for Kampot pepper. The members of the organization are mostly farmers, as well as other operators in the commodity chains such as intermediaries, packagers, traders and exporters. KPPA's goals are to promote and defend Kampot pepper and to preserve producers' know-how and product quality serving the interests of farmers, other players in the value chains and consumers.

The interprofessional association drew up the GI specifications, set up an appropriate control and certification system, and submitted the GI application to register Kampot pepper at the Intellectual Property Department. In April 2010, Kampot pepper was registered as a GI in Cambodia; it was the first local product to obtain such a status. KPPA is in charge of taking the necessary measures to protect the territorial brand in Cambodia and abroad.

Specifically, KPPA's main functions are as follows:

- Decision-making with regard to membership.
- Collecting and managing of due and service fees in compliance with the decisions made by its General Assembly.
- Distributing the Code of Practice/Book of Specifications among members and supporting them in complying with the specifications and appropriately using traceability tools.
- Conducting internal control and acting as liaison with the certification body.
- Managing data on membership and production volumes under the GI and promoting the GI.
- Taking the necessary anti-fraud measures and acting as a liaison with the institutions in charge of providing such protection.

Regulatory framework. See 4.1.2

Insertion into the DTIS/action matrices. See 4.1.2

GI potential. According to the data collected by Open Development Cambodia[10], the demand for Kampot pepper has risen since 2011. For instance, according to an article from the *Phnom Penh Post*, "Kampot pepper production almost doubled during 2015's harvest season compared to 2014. Production increased thanks to the expansion of the area under cultivation and better preparation of farmers". According to Ngoun Lay, president of the KPPA: "We expected only 50 tons for this harvest season, but the pepper yield was higher than we expected […] We are happy about this increase because our pepper production is meeting demand, while we retain 10 tons of reserves". Lay said that farmers who experienced droughts last year stored enough water to maintain and expand their pepper plantations during the harvest in 2015. He said that some 25 ha of pepper plantations of the 110 ha under cultivation had been harvested in 2015. "Currently, there are more and more investors interested in investing with us, and now we have up to 241 families joining us" he said.

In the southern province of Kampot pepper farms are spread over six districts. The overseas markets are based in the European Union, Japan, the Republic of Korea, Taiwan Province of China and the United States. Kampot pepper farmer Si Nouch said his half-hectare farm produced about 400 kg of pepper in 2015, and that pepper was in great demand. "I will increase my production in 2016 to meet market demand," said Nouch. "It was because of the hot weather that I could not produce a high yield." After GI registration, international demand and price for diverse types of Kampot pepper had risen (Figure 1).

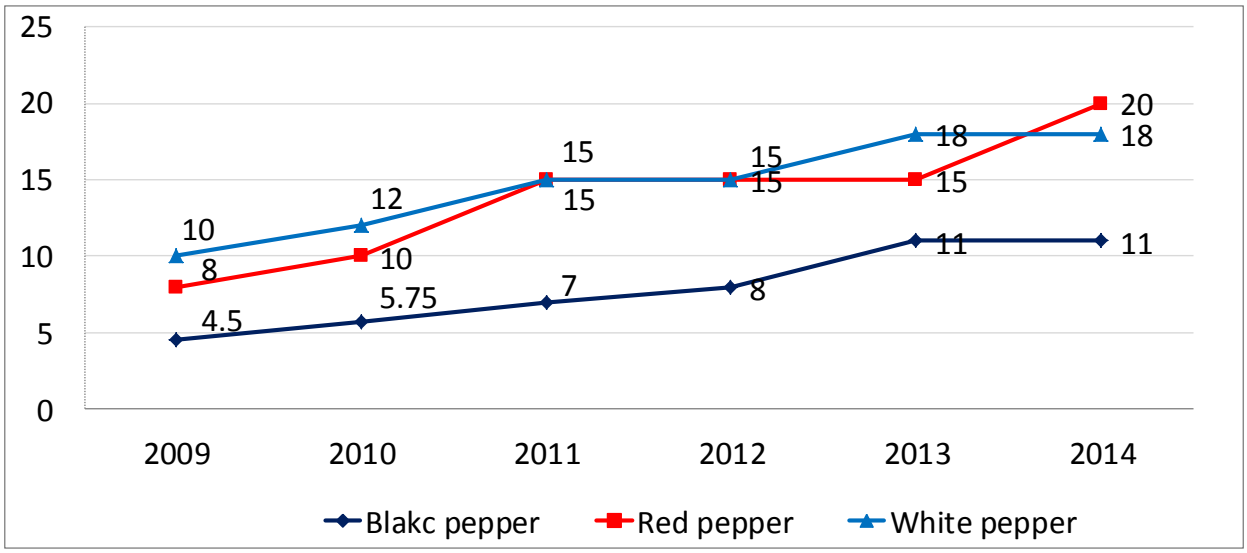

Figure 1. Price trends for different types of Kampot pepper

Source: KPPA, 2014.

[10] Open Development Cambodia is an open-data website. The open data movement is based on the premise that data collected for public interest should be publicly available without restriction.

4.1.4 Harenna wild coffee, Ethiopia

Product description and territorial link. Harenna wild coffee grows naturally in the Harenna Forest under the shades of tall trees and between altitudes of 1,300 to 1,800 m in the Bale Mountains of Ethiopia. Harenna Forest, one of the biggest forests in Ethiopia, is located approximately 350 km south of the capital Addis Ababa. However, the coffee in the Harenna Forest was probably introduced from Sidamo province. It is said that coffee was brought in by the legendary 'Shaa de Liya'. The coffee plant seems to have spread within the lowermost portion of the forest.

The Harenna Forest or most precisely, the bushy undergrowth, only contains the *Coffea arabica, Typica* variety in a wild state (wild coffee). This coffee is not planted, but grows spontaneously. The wild nature of the Harenna Forest is extensively preserved. It is a hotspot rich in ecosystems and biodiversity, and is known for a diversity of mammals, birds, amphibians and a variety of plants and many other species. Wild coffee has a unique natural quality. After the harvest, coffee beans do not need to be washed and are dried in the sun. Harenna wild coffee has a high-intensity aroma with hints of citrus, flowers and herbs, and a medium body with a pleasant aftertaste of vanilla.

Institutions in place. Many families and communities produce Harenna wild coffee. Communities are located in different towns along the forest. In Dello Menna, Oromia regional state, circa 570 km away from Addis Ababa, about 60–70 per cent of the roughly 14,000 families (i.e. 8,400–9,800 households) produce or harvest wild coffee.

There are approximately 12 associations for families who harvest wild coffee, but not all households are members of these associations. Some of the organized coffee-producing communities (associations) in Dello Menna are the Magnete Coffee Producers Cooperative, the Habubi Coffee Producers Cooperative and the Qanqicho Coffee Producers Cooperative. These three cooperatives are legally registered. Members of the Oromia Coffee Farmers' Cooperative Union comprise 143 households.

The production of Harenna wild coffee is the main source of income for farmers in the three associations. They use this income to cover ordinary living costs, such as food, educational materials for their children, and health care. Coffee harvesting is not the only economic activity. Many households also cultivate sesame and raise cattle, goats and honey bees to provide supplemental income.

The three associations legally produce about 3,500 tons of Harenna wild coffee per year and supply it to the Ethiopian Commodity Exchange through the Oromia Farmers' Cooperative Union. Nonetheless, current wild coffee production or harvest by member households of the three associations at stake is very limited – only about 95 tons per year.

At present, Harenna wild coffee from the associations of the three communities is directly distributed: farmers provide the raw material to community cooperatives, and the Oromia Farmers' Cooperative Union sells it directly to Italian importers.

Regulatory framework. Ethiopia is a member of the WIPO but not a WTO member. The Ethiopian Intellectual Property Office drafted a proclamation and a GI regulation in 2012; nonetheless the GI law has not yet been enacted. The Ethiopian Intellectual Property Office is the principal national body mandated to implement laws and regulations on IPRs in Ethiopia. The IPR law in Ethiopia currently focus on registering and protecting TMs, copyrights and neighbouring rights, inventions and industrial design, genetic resources and community knowledge, research and conservation of cultural heritage, and plant breeders' rights.

Insertion into the DTIS/action matrices. According to the 2015 DTIS for Ethiopia, the existing intellectual property system still needs to be streamlined with WTO frameworks to protect IPRs. For instance, there is a need for sensitization, capacity-building and training on the quality and conformity assessment for relevant public entities such as the ministries of Industry, Agriculture, and Health; other public entities; and research institutes.
Thus, Ethiopia's specific objective is to identify needs for technical assistance in the area of GIs. UNCTAD has conducted technical missions to Ethiopia to assess the status of GI legislation and practices in the country.The development of a GI legislation is featuring in the DTIS action matrix of Ethiopia

GI potential. Ethiopia is origin of *arabica* coffee and the only country in the world where coffee plants still grow wild. Unlike Harrar, Sidamo or Yirgacheffe, which are protected TMs, Harenna wild coffee is not properly recognized within Ethiopia or abroad as a unique wild coffee, despite of its natural quality and biodiversity implications. There is a latent risk of free-riding. Few efforts have been made to promote Harenna wild coffee at home and abroad, except for those by the Slow Food Foundation. The Foundation has provided training support to improve harvesting and initial processing techniques and to promote Harenna wild coffee in local and international markets. There is an urgent need for advertising, establishing a brand, creating public awareness and expanding market linkages.

IPRs should be combined with other strategies to enable the communication and valorization of the unique characteristics of Ethiopian coffee (or any other selected product). These integrated strategies include accessing new markets (aggressive international marketing, business partnerships), adding value (improving material and immaterial quality, increasing the share and quality of roasted coffee), ensuring investment aid, capacity-building of private and public stakeholders, assertive policies and mechanisms aimed to enhance the Ethiopian coffee culture and to support smallholders (e.g. access to extension services, credits). Independent of TMs and the potential of implementing GIs for coffee, the private and public sector in Ethiopia should continue improving traceability systems among the coffee producing regions in Ethiopia.

4.1.5 Wenchi volcanic honey, Ethiopia

Product description and territorial link. The honey produced in Wenchi comes mainly from the forest around the Wenchi Crater Lake; hence it is called Wenchi volcanic honey. The bees drink the water from the lake which may have a unique contribution to the honey they produce. The Wenchi area has been a traditional honey producing region for a long time, and the practice has been passed onto generations as tradition and inheritance. In addition, forestation has also been a tradition over generations. Hence, Wenchi volcanic honey is of traditional importance. In fact, a person that does not keep bees and produces honey is not regarded as an important person. Traditionally, almost every household in the Wenchi area keeps bees. Due to the natural vegetation, the topography and the volcanic Crater Lake, Wenchi volcanic honey has a unique taste and quality with a very fine texture and an intense aroma. According to the chairman of the Wenchi Ecotourism Association (WETA), the factors that make Wenchi volcanic honey unique and aromatic are location (Wenchi is located 3,000 m above sea level) and biodiversity (*Egynia abyssinica* (Kosso), *Erica arborea* (Hasta), basil (from September to January) and strawberries (from January to May)). The producing community of Wenchi volcanic honey is located in the Oromia regional state of Ethiopia, about 150 km from Addis Ababa.

Institutions in place. The community is organized under the association WETA which boasts 300 members and is organized in groups of people who are engaged in nine different service provision or activity areas. These include the tourist guide service group, the horse renting

group, the boat renting group, the honey producer group, handicraft producers and supplier group, the environmental conservation group, the fishing group, the women's group and the cultural group. WETA started in 2002 through support from the German Agency for International Cooperation (GIZ). The honey producer and supplier group is composed of 40 beekeeping households.

The honey producer group aims to conserve the forest of the region and to produce and supply honey for the world market. Honey from Wenchi has neither been certified as organic nor as a geographically unique product. However, through support from the Slow Food Foundation, labelling under the name of Wenchi has been designed and used to identify the honey produced by the beekeepers group of WETA. Recently, there was an attempt by a Chinese cooperation agency to support the design and reproduction of a new labelling for Wenchi volcanic honey. The beekeepers group had no experience in exporting honey directly to buyers abroad. Most of the honey harvested (more than 80 per cent) is sold to tourists who visit the Wenchi Crater Lake. One kg of Wenchi volcanic honey sells for 160 Ethiopian birr (approximately $7.40). In 2014, a total of 1,300 kg of honey were sold; this would indicate an estimated annual turnover of about 208,000 Ethiopian birr at160 birr per kg.

Regulatory framework. See 4.1.4

Insertion into the DTIS/action matrices. See 4.1.4

GI potential. The Wenchi area has a strong potential for honey production. Given the conducive environment of the region, local and regional authorities, and the community itself should continue to protect the natural vegetation from deforestation. Given the reluctance in using modern beehives, it is important to create awareness in the Wenchi community about the benefit of modern beehives for increasing production and for improving honey quality.

While encouraging the utilization of modern beehives, it is imperative to create an aggregation of individual beekeeping households in the region to consolidate production, quality and supply of Wenchi volcanic honey. In this regard, WETA encourages the expansion of the honey producer group and the creation of a 40-member association group in the different sites at the Wenchi Crater Lake.

4.1.6 Wukro honey, Ethiopia

Product description and territorial link. Wukro is a town located about 45 km north of Mekele in the regional state of Tigray. Wukro honey has a unique quality, taste and reputation in the country, partly due to the variety of bushes and trees grown specifically in the region. Under normal circumstances, honey is mainly harvested between October and November. If there is no drought some honey may possibly be collected between May and June. However, there is no specific certification in place that identifies Wukro honey as being unique or as having organic characteristics attributable to the location.

Institutions in place. Many households in Wukro produce honey. Beekeeping is an activity that provides an additional source of income for the Wukro community in general and for the Selam Beekeepers Association in particular. Some honey producers in the Wukro community are members of the association.

The association was established in 1997 and has 16 active members having a chairman, a vice chairman, a sales person and casher, a secretary and auditors. It is a registered association with a certificate and recognition from local and regional state authorities. The principal roles of the association are as follows: collecting and selling honey on behalf of its members, marketing of Wukro honey, liaising with local and regional government authorities, supporting institutions to carry out their duties toward its members and serving as a focal point to facilitate capacity-building. The association owns 700 modern beehives, 150 of which were lost between March and April 2014 due to missing monitoring of the food provision for the bees. The association had over 60 members. However, this number dropped to 16 in 2014. In order to improve the production of honey and its quality and to enhance the supply of Wukro honey, it is important to strengthen the association by attracting other beekeepers in the region. Alternatively, it is crucial to aggregate individual beekeeping households in the region in an effort to improve production, quality and supply of Wukro honey.

Honey sales have always accounted for a minor part of subsistence income. Presently, a big chunk of income earned from honey goes to self-finance logistics and transportation of the bees during winter, including paying rent for honey storage space. The association produces honey in various places in Wukro whereas the main production locations are Agula and Belessa. According to some members of the association, honeys produced in these two places are somehow different; the honey from Agula is very white while the one from Belessa is not as white.

The beekeepers of the association are not reliant on honey production and marketing activities. Member farmers or beekeepers engage in their own subsistence farming, growing cereals and legumes and keeping livestock.

The lack of sufficient rain, coupled with the cost for transporting bees in search of a favourable place for feeding, are critical challenges affecting the continuous production and harvesting of honey in the region. Currently, sustainable production and harvesting of honey in Wukro is at stake. Some beekeepers of the region may not continue to keep bees because of higher production costs. One association member highlighted the critical challenge of moving the bees by indicating the incomparability of associated efforts in time and labour as well as the returns from the beekeeping business. Moreover, the most important flowers and bushes used by bees for making white honey are minimally available and scattered.

Therefore, if Wukro honey is to be produced sustainably, the relevant government authorities need to make a more concerted effort to transform the production location by planting trees, multiplying and propagating relevant bushes and flowers that make the honey unique on larger scale and in a sustainable manner, and by developing water reservoirs or wells to facilitate the bees' access to water.

Specific actions must be taken to ensure the forestation of honey-producing areas such as Agula and Belessa. In this regard, the role and leadership of local and regional agricultural institutions is very important. Recently, local authorities have taken steps to plant trees; nevertheless, the seedlings have yet to grow. Ensuring food provision for the bees requires a huge investment in environmental development and a transformation of the area.

Additionally, having to obtain permission from local and regional authorities to use the open space in various locations to relocate the bees is no sustainable arrangement. A lasting solution is therefore to secure land or areas that are suitable for beekeeping.

Regulatory framework: See 4.1.4

Insertion into the DTIS/action matrices: See section 4.1.4

GI potential. Overall, there is a need for thorough research and intervention in the region to improve honey production and quality, to facilitate collective processes and to solve local problems affecting beekeeping activities.

Members of the association have indicated that in some cases adulterated honey has been sold under the name of Wukro honey. This practice, if not monitored and controlled, would greatly undermine the popularity of Wukro honey, affect consumer loyalty to the honey and reduce the income of beekeepers in Wukro and of the association. Ultimately it would destroy honey production in the region. The labelling for Wukro white honey was designed and developed with support of the Slow Food Foundation. Most of the honey produced is sold domestically; a limited amount was once exported to Italy through a domestic exporter. However, the association has not yet engaged in direct exports of honey. Honey is sold in plastic containers and in labelled glass jars. It is distributed by the association to consumers and traders.

As indicated, no steps have been taken to obtain proper certification for Wukro honey such as organic certification or registration for protection through relevant IPRs. Consequently, in order to capitalize on the unique characteristics of Wukro honey and to protect it from adulteration and misappropriation, it is important to establish adequate mechanisms.

4.1.7 Ziama-Macenta robusta coffee, Guinea

Product description and territorial link. The GI area is located close to the forest perimeter of Ziama Mountains. The Ziama mountain range contributes significantly to the microclimate, which differs considerably from the ones in other parts of the Guinée Forestière Province and is characterized by high cloudiness linked to persistent rain and cloud cover, and high altitude, resulting in low temperatures.

The defined area for the already registered Ziama-Macenta (*robusta*) coffee GI is located in Macenta prefecture and covers an area of 360,200 ha, including the Ziama Forest Reserve – the potential exploitable and cultivable land is 220,700 ha (in addition to the forest reserve). The environmental factor that mainly contributes to the territorial link is the high number of rainy days (260–280 days) spread over nine months with a total annual rainfall of 2,000–3,000 mm/year. Other features of the GI area are the presence of dense primary and secondary forests, located between altitudes of 500 m and 1,000 m; a geological substrate with diverse lateritic soils, alluvial-skeletal, resting on a granite bedrock with some dolorite intrusions. Inhabitants in Macenta have built expertise in agroforestry, coffee sales and quality management practices.

Institutions in place. The Ziama-Macenta coffee GI was recognized by the Organisation Africaine de la Propriété Intellectuelle (OAPI) in June 2014. The GI was granted for green coffee. The Coopérative agricole de commercialisation et approvisionnement (WOKO cooperative) is currently exporting GI coffee following the GI product specifications (or code of practice), and traceability is carried out from the production zone (farmer groups) to exports (jute bags with a GI seal). Currently, only first- and second-party controls are ensured. An internal control system is guaranteed by the GI interprofessional Association pour la défense du café Ziama-Macenta (ADECAM).

In order to export at better and more stable prices, the Fair Trade certification served to establish the organizational basis for the creation of a small cooperative, which guarantees minimum prices enabling investments in the long term. The price premium gives farmers a reward for additional efforts (e.g. traceability, working conditions, activities in the cooperative). Fair Trade certification is needed to access pre-funding, which smallholder cooperatives need to collect coffee.

Ziama-Macenta coffee complies with both public (GI) and private (Fair Trade) specifications; public support for setting up the GI was necessary to access private certification. In Macenta, ADECAM supports all local players concerning GI specifications. The WOKO cooperative is the major player that directly exports to Europe, but new cooperatives are emerging to also benefit from GI coffee. ADECAM facilitates transfer of expertise between the two existing cooperatives (WOKO and DIANI cooperatives) (another cooperative will probably be created in the near future), fosters coordination, promotes cooperation to increase the reputation of the GI on the coffee market, facilities export procedures for cooperative members and provides local and national services for exporting certified GI coffee.

The Institute for research and application of development methods (IRAM); the Maison guinéenne de l'entrepreneur (MGE), a local non-governmental organization (NGO); and the Institut de Recherche Agronomique de Guinée (IRAG) have worked together to promote the recognition of the Ziama-Macenta GI and the marketing of the product, with the support of the AFD/OAPI project and technical assistance from Agricultural Research for Development (CIRAD).

Regulatory framework. Guinea is a member of the WIPO, a signatory of the Paris Convention for the Protection of Industrial Property and a WTO Member. Guinea is also a member of the

Bangui Agreement on Intellectual Property. The scope of Guinean sui generis protection concerns all agricultural goods and handicraft, but no services.

Insertion into the DTIS/action matrices. According to the 2003 DTIS for Guinea, the national government already aimed to implement a national policy for the promotion of quality to improve the performance of export sectors. Thus, the government is actively promoting the Guinea label, notably for agricultural products and fisheries.

GI potential. Coffee is a major cash crop for Guinea. It is a source of income for thousands of small-scale farmers. Guinean coffee is not well established on the international coffee market having low standard quality. This is due to the fact that better quality coffee is not rewarded by Guinean traders: the current value chain organization in fact mostly focuses on lower quality coffee (green coffee cherries harvested unripe to receive quick cash, improperly dried, unclean), which is exported to African countries (mainly Algeria, Morocco and Senegal).

From the economic point of view, the promotion of Ziama-Macenta coffee quality has been successful, allowing a price premium of 13 per cent compared with the Guinean coffee market price for the first exported container (18 t) in 2013, and 22 per cent for the second container in 2015 (IRAM). Ziama-Macenta coffee is not yet well-known by consumers, but appreciated by coffee traders and roasters. Demand is exceeding the cooperatives' capacities; thus, access to pre-funding is the main constraint for cooperatives to be able to collect coffee. There are plans to put the GI coffee on supermarket shelves in 2017 with a major French Fair Trade and organic brand. Despite these positive results, the impact is not yet significant at farmer level. Small export volumes without a pre-funding mechanism are converted into high transaction costs; the reward at farmer level is still limited, but should increase with export capacity. Better prices for the GI, Fair Trade and organic premiums, minimum prices and access to pre-funding are strong pillars to ensure the long-term development of cooperatives, and GI development and implementation.

From the territorial point of view, the long-term local dynamic has been rewarded. For many years, some producers in Macenta have tried to keep a high level of quality without being able to export. With support of researchers, quality and the influence of the Ziama Mountains as well as local know-how have been validated by the recognition of the Café Ziama-Macenta GI. The GI promotes good agricultural practices, including protection of the environment around the Ziama Mountains.

The GI recognition had a positive impact in terms of local reputation. Guinean people are proud of having one of their products recognized as a GI, which is also acknowledged and studied by international researchers. A direct consequence has been the strong support of local authorities, namely by facilitating export procedures, public funding (research and national projects), and by promoting the development of a local GI coffee market. In Macenta, several general assemblies have been organized to raise awareness, to facilitate coffee export, to negotiate prices, to explain the GI strategy and to discuss local development issues. In particular, key priorities are local job creation, infrastructure and ecotourism development, direct sale of Ziama-Macenta coffee, and promotion of other local products and handicrafts.

Additionally, potential environmental spill-over effects due to the GI recognition of Ziama-Macenta *robusta* coffee may be reached. According to the United Nations Educational, Scientific and Cultural Organization (UNESCO), "Ziama Forest is a refuge for several rare, vulnerable and threatened species. It is home to 22 species of mammals protected under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). In addition, the forest is one of the most important habitats for endemic species of the large upper Guinean forest block, between Sierra Leone, Liberia and Côte d'Ivoire". A strong inter-professional organization such as ADECAM has the potential to work with farmers in the zone, and therefore the organization could be used to raise awareness among the local population regarding the importance of forests, and to facilitate dialogue and exchange between local authorities and the population.

4.1.8 Coffee from the Bolaven Plateau, Lao People's Democratic Republic

Product description and territorial link. According to a feasibility study made by AFD on behalf of the Lao People's Democratic Republic in 2007, *arabica* coffee *var. typica* was introduced around 1920 by the French. *Arabica* coffee is produced in the uplands of the Bolaven Plateau (above 900–1000 m of altitude). This area has a basaltic underground with red and black soils. It has the same relief as the plateau with a slightly undulating surface and some high points like Phou Thevada, an old volcano near Paksong. The natural vegetation is composed of dense primary forest, clear secondary forest, hydromorphic grassland and *Imperata savannah*. Coffee is present on red soil, i.e. ferralitic soil resulting from ferratilization of basaltic mother rock. These deep soils retain water and maintain the coffee plant in good condition during the dry season. All agro-climatic conditions in the Bolaven Plateau enable the

best quality for *arabica* coffee, which is characterized by a light, acid, aromatic, and fruity flavour. This coffee is normally a grown-shade coffee with organic fertilizing. Some climate changes caused by global warming have been observed, however, the main phenomenon has been massive local deforestation. *Arabica* coffee produced since the 1920s has rapidly gained a good reputation for its quality and is commercialized in specialty niche markets. The reputation of the original *arabica typica* coffee is recognized in France. Coffee importers state that this coffee is known to the French as the "champagne" of coffee.

Institutions in place. From 1945 to 1975, the Bolaven Plateau witnessed turmoil in the history of the Lao People's Democratic Republic. Due to the increasing confrontation, many colonists-planters left the country. The disorganization of agricultural services and trade difficulties, linked to the lack of security, led farmers to choose food crops. In the early 1950s, coffee leaf rust threatened *arabica* coffee. *Robusta* coffee, introduced by Pakse urban investors, rapidly supplanted the original *typica* coffee, as it is resistant to coffee leaf rust, required less labour and was processed by using a drying method.

After the war, the reoccupation of the plateau was boosted by a government collectivization process. The Government of the Lao People's Democratic Republic reorganized villages by transforming them into production cooperatives (1981–1984) and then into commercialization units (1981–1993). From 1990 on, the government boosted coffee production by carrying out two projects that promoted *arabica* plantations using an intensive model based on "dwarf variety – high density – cyclical pruning". This system was rapidly and unanimously adopted by producers without any variation.

As a result of the collectivization in the 1980s, producers are now more or less organized, as they realized the need for self-organization. Small and medium-sized farmers represent about 80 per cent of total coffee producers. In 2014, there were about 123 farmer/producer groups in 7 districts in the southern provinces, which accounts for about 40,000 families. Some of these groups are: the Jhai Coffee Farmers' Cooperative (JCFC), which has about 500 members and exports high-quality *typica* coffee directly to the United States. The Ban Katouat and Ban Vang Gnao producer groups export washed, high-quality *arabica* directly to Japan, and also roast and sell quality coffees on the national market. They are assisted by Oxfam Australia. The Bolaven Plateau Coffee Producers Cooperative founded in 2007 provides technical assistance to its members for all aspects of coffee production and supports all activities related to coffee marketing and promotion. In 2007 they were awarded the Lao Best Coffee Exporter prize (organic and Fair Trade certified coffee).

The Lao Coffee Association (LCA) brings together roasters and exporters. In 2014, it numbered about 39 traders/exporters, 6 roasters, and 5 farmer/producer groups. It is under the supervision of the Ministry of Commerce and Industry. The LCA aims to improve coffee trade under all forms. It is very active and is recognized at the national and international levels.

Under the impetus of the Ministry of Agriculture and Forestry, a coffee working group (CWG) was created in 2006 to work towards the establishment of the National Council of Lao Coffee (NCLC) in 2007, which is in charge of the coffee policy. NCLC is envisaged as the inter-professional organization for setting up and managing the GI. The government expects to increase the production of *arabica* in the next years.

Regulatory framework. The Lao People's Democratic Republic is a member of the WIPO and a signatory of the Paris Convention for the Protection of Industrial Property. GIs have been part of Law No. 01/NA on Intellectual Property since 2011. The country joined the WTO in February 2013 after requesting accession in 2004.

Insertion into the DTIS/action matrices. According to a 2006 study, the Lao People's Democratic Republic aims to develop niche markets and products based on rich biodiversity settings; thus, there are unique opportunities for registering products related to geographical origin, such as Bolaven coffee, and for securing the rights to traditional knowledge and inputs in non-timber forest products, such as herbal/pharmaceutical remedies. The Lao People's Democratic Republic requests regulatory assistance for the regional development of the export potential.

GI potential. Private and public coffee stakeholders support the GI process for Bolavens coffee. It seems that there is already an agreement to designate the GI as coffee from the Bolaven Plateau. Previous alternative names were café du Laos (Lao coffee) for international recognition, as well as the name Bolavens, which was little known abroad. Some proposed Paksong coffee, but it would have reduced the production area to only one district.

The national Lao Coffee Development Strategy promotes the development of a GI. The overall pillars for coffee expansion are as follows:

- Developing production (surfaces and productivity).
- Improving quality.
- Promoting Lao quality coffee in domestic and international markets.
- Securing producers' land rights, zoning and land-use planning.

- Improving the business environment for competitiveness and cost reduction.
- Strengthening the institutional and organizational capacity, for which there is an opportunity to benefit from development cooperation and aid.

4.1.9 Pink rice from Amparafaravola, Madagascar

Description of product and territorial link. There are three main rice varieties, namely, pink rice (*Vary dista*), red rice (*Vary malady*) and white rice (*Rojofotsy*) in Amparafaravola. While *Vary dista* is pink at a degree of intermediate polishing, resulting in a differentiated quality appreciated by consumers, *Malady vary* is a milled rice. They are of medium translucency and not chalky, giving a sweet and fatty taste. The presence and accumulation of trace elements in the pericarp is favoured by the continuous practice of only organic fertilization. *Rojofotsy* rice stays tender after cooling, while *Vary dista* and *Malady* are more consistent. It is now known that mineral elements (Cu, Zn, Fe) enter into the composition of many enzymes and contribute to the improvement of the metabolic pathways necessary for health. The taste of these traditional varieties, slightly sweet and fat, is highly valued by rural communities in Amparafaravola. The fact that the name which shall potentially protect the above-mentioned varieties has not yet been chosen, is a current issue.

The growing area covers approximately 2,000 ha on the western edge of Lake Alaotra, which is located north-east of Antananarivo in the Sihanaka Basin. Lake Alaotra is considered a lake of tectonic origin; however, it is threatened by the sediments that accelerate the process of filling and raising the water level (Moreau, 1977). The area is formed by the perimeter of Imamba consisting of easily irrigated plains water projects implemented in the 1960s. The mountains and the basins surrounding the lake are used to store rain water in Vohidiala Dam and dump them in the Ivakaka channel for irrigation. Lake Alaotra is experiencing climate change. The lake climate, despite the geographical position, is classified as tropical or semi-humid tropical, such as in the Central Highlands.

In Amparafaravola, cultural identity is observed in rice production. This procedure begins with traditional seed production and ends with storage. The variety appears to be heterogeneous due to a so-called visual mass selection. Nevertheless, seeds still have a high germination capacity (80–100 per cent), and there are good physiological and sanitary conditions. The three varieties were well chosen for their adaptation to local conditions in Amparafaravola (taste appreciated by local consumers).

The main rice diseases (blast and browning of paddy) are controlled by the application of natural insecticides made by the rice growers themselves. The rice is harvested by hand, using a sickle. After cutting, the sheaves are collected and placed with the tassel grindstone disposed inside. The harvest can last a month, depending on weather conditions (sunshine, humidity).

Institutions in place. Koloharena Cooperative, also known as Volamiarina Cooperative, has a wider mandate in promoting environmental protection and sustainable agriculture, including the promotion of organic products and ecosystems. The cooperative is made up of 25 farmers associations, grouping more than 2,000 farmers. The Code of Practice or Book of Specifications for the rice from Amparafaravola was established with support from UNCTAD.

The production of pink rice is highly labor intensive. Pink rice is being organically certified. As a result, the demand for labor is even higher for preparing the terrain, for packaging and for conditioning the milled rice before shipping. Organic products are certified by Ecocert. Nonetheless, the yield of pink rice is not high, with only about 4–5 tons of paddy per ha and milling yields of 52 per cent. The farm gate price for pink rice may double that of other rice types sold on the domestic market. Farmers still complain about low profitability.

The cooperative is aware about the demand on the international market and expects to triple exports to reach 200 tons in the immediate future. Exports could further increase if there a clear and favorable export policy were established. Regarding the GI, the cooperative welcomes the initiative and hopes to benefit from it. It insists on being involved in the selection of consultants, monitoring, and the design of specifications. The Rice Observatory monitors rice prices, but its scope of activities remains limited. Partially funded by the State, it does not receive sufficient political attention to convey its findings.

The cooperative has continued to produce and maintain the quality of *Vary dista*. In September 2015, however, a government decree authorized Lafaz Company based in California (United States) to import organic *Vary dista* rice (up to 330 t) without involving the cooperative. Members of the rural community were not involved or consulted by the government when the decree was enacted. They believe this decision was made without considering the representatives of the community and without going through the legal channels of organic certification (after four successive years of organic cultivation).

The cooperative used the Book of Specifications to finalize the registration of *Vary dista* as a TM at national level at OMAPI (Malagasy Office of Intellectual Property) in 2015. For this, they registered the brand with a logo and the name *Vary Dista* Koloharena Ivolamiarina. The specification was requested by OMAPI in order to file an application for registration.

The community has requested UNCTAD to intervene in Madagascar to clarify the situation on GIs. As an agricultural country, Madagascar offers many possibilities in terms of GIs. An important question raised by the rural community Amparafaravola is: What are the ways and mechanisms for *Vary Dista* Koloharena Ivolamiarina to access the European market?

Regulatory framework. Madagascar is a member of the WIPO, a signatory of the Paris Convention for the Protection of Industrial Property and a WTO member. Madagascar possesses a TM regime only. No sui generis GI law is available. The OMAPI is in charge of the application. The scope of protection concerns all goods and services.

Insertion into the DTIS/action matrices. According to the DTIS study for Madagascar (2003), high priority should be granted to regional economic cooperation beyond trade preferences, for example, in matters related to customs, or to compliance with the WTO accession. Therefore, the country needs to support actions enhancing institutions to meet WTO obligations, in such areas as standards and intellectual property.

GI potential. UNCTAD, in coordination with the FAO representation in Madagascar, has assisted the rural community in drafting the first Book of Specifications for the protection of pink rice. This action was coordinated with the Ministry of Agriculture, the National Research Centre (FOFIFA), OMAPI and the Exporters Association (Koloharena Cooperative). Similar work could be done for other export products such as spices (pepper) and essential oils (geranium, niauoli). After a workshop held in Amparafaravola in 2014, the community was sensitized about the need for legal protection and the national importance of IPRs.

With the arrival of the American company Lotus Food in Madagascar in 2006, the organic rice market was opened in the region of Amparafaravola. Pink rice from a light pericarp laundering was proposed for export to California. The first export was made with milled rice. Pink rice is known for its export success. For five consecutive years, exports increased from 15.5 tons in 2009 to 40 tons in 2013. The potential cultivation area that can be certified organic is about 800 ha, representing a likely exportable quantity of 1,600 tons of organic

rice. The three varieties are expected to contribute to poverty reduction because of their quality and diversity.

4.1.10 Imraguen women's mullet bottarga, Mauritania

Product description and territorial link. Mauritania has an exceptional littoral ecosystem and mudflats that allow the proliferation of aquatic plants, which combined with the confluence of currents by upwelling from the depths and favor the reproduction of marine species throughout the year. Under this scenario one finds the Imraguen women's mullet bottarga.

The Imraguen are nomad fishers who move their small villages of makeshift huts to follow the movements of large shoals of golden mullet and croaker along Arguin Bank on the northern coast of Mauritania. The Imraguen depend on fishing for their sustenance. Arguin Bank has been a natural reserve since the 1970s. It is unique due to its deep water rich in minerals that come to the surface and is an ideal breeding ground, where rather sustainable and less profitable traditional fishing methods are practised. Only the Imraguen are allowed to fish in the Bank with their non-motorized sail boats.

Traditional fishing is carried out by about 12 men, who get into the water holding a long net that surrounds the shoal of mullet, and closing it around them. In the past, one man from the village would act as a lookout from the shore, and dolphins would help the fishermen drive the mullet towards the coast.

Institutions in place. The Imraguen's survival is tied to mullet fishing: mullet is a staple food in the fishers' diet and their villages follow the fish stocks. Slow Food and a local NGO supported the creation of a women's cooperative of the Imraguen in Nouadhibou, the second largest city in Mauritania. Slow Food, with the collaboration of producers of bottarga in Orbetello, is supporting the Imraguen women to improve product quality and marketing. In 2008, a Slow Food project provided capacity-building to conform to EU standards, training, provided support for commercialization and strengthened the local production chain through the evaluation of all phases of fishing and the local production of salt.

According to the tradition, men practice net fishing, while women have always been involved in producing roe, tishtar (small pieces of dried and crumbled mullet) and mullet oil, using a particular technique passed on from mother to daughter. Traditional knowledge connected to the transformation of mullet is being lost, resulting in the disappearance of a significant element of the Imraguen's cultural identity. To prevent this, the NGO Mauritanie 2000 committed to

improving existing transformation techniques in this sector, without affecting the sociocultural reality of this population.

Moreover, the Government of Mauritania is committed to fisheries, including artisanal fisheries. Artisanal fishing takes place around the main hubs of Nouadhibou, the villages of the Imraguen, Nouakchott and the seasonal warehouses located in the south of Cap Timiris. The operations start at Nouadhibou and take place in the zone of Cap Blanc with pirogues or motorboats. In Mauritania, the catch usually is sold to fish wholesale dealers and processing enterprises, but a small part supplies local market. Almost all Mauritanian production is exported as pelagic or demersal, frozen or fresh, salted, dried or smoked fish. The Ministry of Fisheries is in charge of hygienic-sanitary control and of the implementation of SPS rules for the fishing sector. The National Centre for Marine Research and Fisheries (CNROP) has organized a series of assessments of fisheries resources for estimating the corresponding allowable fishing effort (capacity).

Regulatory framework. Mauritania is a member of the WIPO and a signatory of the Paris Convention for the Protection of Industrial Property. Mauritania is a WTO member and a member of the Bangui Agreement on Intellectual Property, which governs the protection of IPRs in 16 countries of Western and Central Africa. The scope of application of the GI law is more extensive than the scope of the European Union system, as it concerns all kinds of agricultural and handicraft products; services are not included. Applications must be made directly to the OAPI office in Yaoundé.

Insertion into the DTIS/action matrices. According to the 2001 study, Mauritania still requires regulation on the protection of IPRs or on the fight against unfair competition. In 2012, the European Union and Mauritania initiated a two-year fisheries partnership agreement (FPA). An UNCTAD report states that as a result of a previous mission to Mauritania requested by the government, a diagnostic study on the production process of mullet by the Imraguen women shows potential for GI registration. Therefore, the GI would promote the exploitation of traditional rural products such as mullet, as well as the capacity to improve quality standards in the commercialization of fish products, especially the SPS normative reference for accessing regional and international markets.

GI potential. In Mauritania, traditional fishing without using boats and the sustainable non-polluting method are threatened by the pressure of industrial fishing boats entering the waters of the Arguin Bank illegally. The waters of Mauritania are among the few left in the world that

are still thriving with fish. Fishing fleets from Western countries often obtain fishing rights, employ local fishermen and then freeze the catch to be sent elsewhere for processing, mainly to North Africa and Europe. Thus, the use of GIs for fisheries could be a way to protect the product and the livelihood of local fishermen, as well as artisanal and traditional fishing in the area of the Imraguen.

4.1.11 White prawn from Mozambique

Product description and territorial link. The well-known white prawn from Mozambique has peculiar organoleptic features, characterized by a distinctive flavor appreciated by consumers. The taste and the unique texture are due to the fact that the prawns eat and grow in their natural habitat. With regard to organoleptic characteristics, the meat of the white prawn from Mozambique is compact and lean. The flavor is typical for marine prawns having a soft smell of fresh seaweed. The texture is firm; it is difficult to take the meat out of the shell, and it has a higher yield of edible parts in comparison with freshwater prawns. There is a close link between the geographical area and the mangrove ecosystem in which white prawn is fished along the coast, over a length of 1,200 km that covers an area of 400,000 ha. Of these, approximately 126,000 ha are geographically concentrated between Pebane and the Save River and between Quelimane and the Mocambo Bay.

The extensive areas of mangroves associated with river estuaries are considered ecologically important areas to be very productive due to the high amounts of nutrients that characterize these zones. They have large natural nurseries for species typical to these environments such as fish, mollusks and crustaceans.

The white prawn from Mozambique (*P. indicus*) is fished in a geographical area with unique ecological conditions for the growth of post-larvae and juvenile prawns. This environment provides ideal conditions for the protection of the prawn and holds large amounts of nutritious food.

The white prawn from Mozambique is also drawn into this geographical fishing area because of a large river network discharging into the Indian Ocean, especially the two main rivers, Zambezi and Save, in the Sofala Bank region. They form the only deltaic coasts of the country. Thus, the white prawn from Mozambique has a differentiated quality, an acknowledged reputation and is widely accepted in both domestic and international markets, and is preferred by consumers who distinguish its unique characteristics.

Institutions in place. Marine products, particularly prawns, are Mozambique's largest export products. The white prawn from Mozambique is fished out through coastal artisanal fisheries, semi-industrial and industrial fleets. The Instituto Nacional de Inspecção do Pescado (INIP) is a public institution under the Ministry of Fisheries endowed with administrative autonomy. INIP is responsible for issuing health licenses to ships and land-based fish-handling facilities, health certificates to fisheries and aquaculture products. It is also in charge of making laboratory tests to fisheries and aquaculture products.

Fishing is practiced by different population segments using vessels with some degree of specialization and conventional fishing gear. According to the national traceability system in 2011, there were 38 artisanal vessels with a sanitary license for shrimp fishing, including 76 fishermen who provide the raw materials to processing inland establishments.

Semi-industrial shrimp fishing is practiced in Sofala Bank (Angoche and Southern Beira) at the mouth of the Limpopo and Maputo Bay. Semi-industrial fishing vessels can operate along the coast in the maritime waters up to a distance of 48 km. According to INIP in 2011, about 36 licences were authorized to semi-industrial vessels, distributed by the shrimp fisheries of the Southern Border (13), Foz do Limpopo (3) and Bay of Maputo (20), involving about 350 fishermen.

Industrial shrimp fishery operates only in Sofala Bank between Machese the Angoche (on an area estimated at 18,680 km^2) without any clearance limit in relation to the shoreline; nonetheless, fishing is banned within 4.8 km from the coastline and at depths below 10 m. Industrial fishing vessels are based in three ports only: Maputo, Beira and Quelimane. Their goods are mainly exported, after being processed and packaged at sea.

Regulatory framework. Mozambique is a member of the WIPO, a member of the Paris Convention, a signatory of the Madrid Agreement and a WTO member. Decree 21/2009 approved the Regulation of Appellations of Origin and Geographical Indications. The scope of application of the law is more extensive than the scope of the EU system (applicable to all agricultural and industrial goods). The Industrial Property Institute is responsible for the registration of GIs. Mozambique is a member of the African Regional Intellectual Property Organization (ARIPO).

Insertion into the DTIS/action matrices. The Mozambique DTIS action matrix of 2004 clearly single out the development of GIs as an element of the National Export Strategy.

GI potential. The GI concept in Mozambique is very new; however, there is shared consensus among the parties involved on the need to accompany and facilitate the first GI registration of white prawn from Mozambique (*camarão branco de Moçambique*) at the national and international levels. This goes in line with the national goal of exploiting the GI of other agriculture goods and fisheries. It is estimated that the fishing sector contributes approximately 3 per cent to Gross Domestic Product. In 2012, national fish production was about 208,000 tons, 89 per cent of which originated from artisanal fishing, 10 per cent from semi-industrial and industrial fishing and 0.3 per cent from aquaculture. Artisanal catches accounted for 89 per cent, industrial and semi-industrial for 11 per cent and aquaculture for only 0.4 per cent of total production.

UNCTAD and the Industrial Property Institute produced a Book of Specifications for the GI registration of white prawn. However, the book could not be validated by the diverse stakeholders during specific workshop activities. Insufficient coordination among the different government entities involved and the lack of organized associations of artisanal fishermen were quoted as reasons for not reaching an agreement. The Government of Mozambique has begun discussions to initiate the draft of a project proposal based on the current trend in large markets such as the European Union, where traceability is a key element that adds value. This is being reflected in current legislation, which captures and echoes consumer protection and environmental sustainability concerns. The potential organization of producers (artisanal, semi-industrial and industrial) is also being studied. The proposal should take into consideration other rewarding experiences, such as the Nuoc-mam fish sauce from Phu Quoc, Viet Nam.

The development of the fishing sector in Mozambique enjoys international assistance implemented through 16 projects, valued at approximately $105 million. Thus, there is an opportunity to integrate the GI project with current projects promoted in the country.

4.1.12 Tete goat meat, Mozambique

Product description and territorial link. Goats belong to the species *Capra aegagrus* or *Capra hircus*. They are reared in extensive systems, according to traditional practices in the area; feeding takes place on natural pastures, hay, standing stubble and straw. The sweet flavor and juicy taste of Tete goat meat comes from grazing in natural pastures in the semi-arid region but also from the consumption of *massaniqueira*, *massanica* and *malambe*

(baobab fruit), mainly in the dry season, which is the longest in the region, from April to November. The fruits and leaves of *massaniqueira* and baobab are commonly consumed by goats and cattle. Goats are reared in the Tete province and in adjacent areas with similar soil and climate conditions. The main provenance of goats sold in Tete City is the southern region of the Tete province (Cahora Bassa [Chitima], Changara [Marara], Mágoe, Chiuta, Moatize).

Agroclimatic conditions are prominently arid and semi-arid, with very hot and rainy summers and cool dry winters. The spontaneous vegetation and natural pastures mainly consist of xerophytic flora (e.g. *Combretum spp, Colophospermum mopane, Adansonia digitata* (baobab)*, Heteropogon contortus , Aristida spp*. and *Acacia spp*) during the dry season.

Institutions in place. The Directorate of Industry and Trade of the Department of Industry in Tete, in collaboration with the National Institute for Standardization and Quality, the Institute for Industrial Property and the Institute for Promotion of Small and Medium-sized Enterprises are currently carrying out assessment studies/actions aimed to support the establishment of a processing industry for meat (goat and beef), milk and *malambe*.

Smallholder farmers normally sell their animals at their locations to intermediate sellers. Intermediators buy goats in Marara and Missawa (Changara), Chitima (Cahora Bassa) and Mucumbura (Mágoe). At fairs in Tete City, animals are re-sold by intermediaries. Once brought to the markets, animals are kept for 24 hours at the municipal abattoir (the only one functioning) and are then slaughtered and inspected by the veterinarian. Meat is transported to other provinces mainly by air, a license is issued by the Provincial Veterinary Services and the respective taxes are charged. The Veterinary Services are widely sensitizing the society regarding the importance of food safety (meat for human consumption) and public health.

Smallholder farmers are normally not organized, and it appears that they are not interested in creating associations; hence, substantial work should be undertaken by the Provincial Directorate of Industry and Trade, together with the Provincial Directorate of Agriculture, Provincial Veterinary Services to sensitize farmers about the role that associations play for GI registration.

The veterinary laboratory uses the fluctuation method called “Willi’s Method” and the sedimentation method for diagnosing gastrointestinal parasites of bovines and goats, cestodes and trematodes, respectively. The laboratory has diagnostic capacity for brucellosis; however, the test is not performed due to lack of reagents; therefore, no samples are collected at the abattoir to test brucellosis. Normally goat meat samples are not collected at the abattoir, since

there is no laboratory in Tete that could test the chemical composition and perform microbiological analyses. Goats are generally not treated against parasites.

Regulatory framework. See 4.1.11

Insertion into the DTIS/action matrices. See 4.1.11

GI potential. A GI can be useful not only for exports of Tete goat meat to foreign markets but also to supply supermarkets in other domestic provinces. Locally, for instance in Tete City, a GI registration will imply quality improvement from goat rearing and processing to commercialization. A potential price increase can support local rural communities that currently consume cheaper goat meat sold in informal markets, but other markets for Tete goat meat might be available in other provinces and countries as well. Additionally, in Tete City, there is a well-organized municipal slaughterhouse that is willing to be a stakeholder under the potential GI registration.

4.1.13 Fruits from Lower-Casamance, Senegal

Product description and territorial link. Through an initial feasibilty project implemented by UNCTAD, the Government of Senegal aimed at improving the economic conditions of women's groups that engage in the processing and marketing of fruit products throughout the value chain in Lower-Casamance. This region was selected because of soil and climate advantages as well as the abundant natural availability of fruits, which are then processed in juices, syrups, marmalades or dried fruits. One of the envisaged results of the project is to draw up product specifications, including the link between the geographical area and the cultivation and processing of fruits. In particular, the mapping in the region will identify and describe the quantity, quality and location of the raw material, the prevailing natural conditions (e.g. soil, climate, and seasonality) and the location of women's groups. Bigger groups are located in villages in the regions of Ziguinchor, Bignona and Oussouye.

Institutions in place. All fruit-processing activities are carried out by about 25 women's groups that devote themselves to this work and are registered as economic interest groups. On average, groups consist of 10 to 25 women who produce between 5 and 15 products that have fruits as a raw material. Since the beginning of the Programme for the Economic Development of Casamance (PADEC in French) in 2011, financed by the Canadian International Development Agency, several groups have received support to establish or upgrade their

buildings and processing equipment to strengthen their production capacities and thus to guarantee SPS and plant-health measures.

As a rule, in every group a representative is in charge of procuring the goods according to their range of raw materials (fruits) supplied by local farmers or sold at local markets. Until now there has been no scarcity of raw materials during harvest periods. Nevertheless, there is no infrastructure for fruit preservation (e.g. cold storage rooms) in the region.

Regulatory framework. Senegal is a member of the WIPO, a signatory of the Paris Convention for the Protection of Industrial Property and a WTO member. Senegal is a member of the Bangui Agreement on Intellectual Property under the umbrella of the OAPI. The scope of application of the GI law is more extensive than the EU system (agricultural and handicraft goods, but no services). Applications are directly made at the OAPI office in Yaoundé.

Insertion into the DTIS/action matrices. As of 2003, the country aims to continue efforts to build awareness of and private operator capacities related to quality and food safety management. Instead of placing quality control responsibilities with the government, efforts should be made to develop capacities and institutional arrangements to enable the export perishables industry to monitor and regulate itself. This would include supporting the development of an industry 'Code of Practice' (embracing environmental, social, business ethics and other standards), supporting a programme to develop and apply a "Qualité de Senegal" label for fresh produce, and enabling the industry to appoint a third-party organization to oversee pesticide residue monitoring and to certify products to meet the quality and other standards associated with the "Qualité de Senegal" label. The DTIS of 2013 specifically includes the development of GIs as a priority action.

GI potential. To date Senegal has no registered GIs. As recommended by OAPI, Senegal is in the process of setting up a committee for GIs whose tasks will include the following: identification of potential GI products, verification of compliance with established product specifications whose rules are defined by professional groups, validation of applications for registration and transmission of applications for registration to OAPI.

In addition, OAPI, with support of AFD, initiated a programme for the identification, selection and promotion of some products having specificity for special niche markets. Thus, through the Project to Support the Place of Development of Geographical Indications

(PAMPIG), products such as shea butter, Kédougou and cymbium (yett in Wolof) of Fadjouth have been proposed.

According to the Government of Senegal, exports of fresh fruits and vegetables to the EU have been growing. Exports of those commodities rose from about 10,000 tons in 2000 to over 50,000 tons in 2012. Regarding SPS regulations, the State of Senegal requested and received in 2007, the approval of the European Commission to carry out compliance checks in relation to fruits and vegetables according to the European Commission Regulation 430/2006. The competent authorities, in charge of issuing conformity certificates for fruit and fresh vegetables from Senegal, should install a system for inspections.

With regard to the fruit region in Casamance, after years of instability, there is an opportunity for Lower-Casamance to become a major supplier of fruit products in regional and international markets. To achieve this objective, the draft project proposal aims to improve the livelihoods of women's groups, but also to support Senegal to become less dependent on imports of fruit-based products.

4.2 Cross-case/cross-country comparison

All territories where potential GIs are located belong to rich environmental settings (e.g. protected forest, natural reserves, crater lakes). Some of them benefit from traditional knowledge and cultural heritage (e.g. the Imraguen women's mullet bottarga, traditional rearing of goats in Tete). Moreover, the production of rice in Bhutan and Madagascar, durian in Cambodia and honey and coffee in Ethiopia use processes that respect natural resources, although products do not have any organic certification.

Nevertheless, there are some threats in such territories. For instance, deforestation is a menace in the Bolaven Plateau in the Lao People's Democratic Republic where *arabica* coffee is cultivated. Illegal (industrial) fishers are entering the protected area of the Imraguen where the mullet is found. On the other hand, the already registered Kampot pepper GI shows that there is an increase in production due to growth in demand; however, it would be crucial to examine to what extent increased production would affect natural resources in this area (e.g. risk of intensification of land use, extended use of chemical inputs). Protected GIs cannot only be regarded as IPRs managed by producers and commercial strategies, but also as a potential collective tool to protect rich environmental settings in which rural

communities in LDCs are located. The GI protection offers an opportunity to manage agricultural resources.

Another crucial point is the degree of collective action materialized by producer groups. Although Cambodia has a GI regulation and producer organizations for GIs (Kampot pepper), durian producers are not organized. Bhutan does not have any associations related to red rice producers. It is also relevant to identify organizational structures already in place before implementing GIs, as it might be more challenging to create new collective organizations for GI registration and implementation. History, the diversity of ethnic groups and culture might play a crucial role and should not be disregarded when attempting to establish any type of association or interprofessional organization. Tradition shows that producer groups are basically created by women in the Mauritanian and Senegalese cases. Wenchi volcanic honey farmers and Harenna wild coffee growers are examples where producer groups seem to be well-organized. In the case of honey producers, the association involves nine different service provisions (e.g., honey production, ecotourism, environmental services). Organizational capacity in forms of (functioning) working groups, associations or any sort of collectives is a key for implementing GIs in LDCs. Additionally, by creating these gatherings, the role of women and youth is crucial, as these are neglected groups, generally landless, and their inclusion would support the development process and empowerment in rural areas.

Likewise, it is very important to keep an eye on how collective organizations are/were established (self-organized by producers, established by NGOs or by local authorities) in order to address and manage the rules of the game (institutions) regarding the elaboration of product quality, environmental considerations/rules contained in a Code of Practice/Book of Specifications, but also to detect possible voluntary or involuntary exclusions and rivalry/competition among potential GI users. Competent government authorities, research centers and/or development organizations (e.g. FAO, UNCTAD, UNIDO) might play a relevant role as facilitators or mediators.

It is well-known that LDCs face (formal) institutional shortages and transparency difficulties. Specifically regarding the GI regulatory frameworks, three countries (Cambodia, Guinea, and Mozambique) have GI legislations; which can be explained by the historical relationship with France and the involvement of AFD. This might imply, although not necessarily, the relevance of external support, specially provided by countries with GI knowledge and tradition (e.g. France for the Lao People's Democratic Republic). Ethiopia has already

drafted a GI legislation; however, it has not yet been enacted. The Ethiopian experience is based on TM registrations of Harrar, Sidamo or Yirgacheffe coffees around the world.

A substantive point to acknowledge in the still new GI legislations in developing countries, including LDCs, is the inclusion of a wider range of products (e.g. handicrafts. At least, all countries should have at least a TM regime, meaning that there are some legal foundations with regard to the protection of IPRs. Nonetheless, GI legislation is a first step, but other actions are needed to make GI protection successful and sustainable (Table 5).

Table 5. Cross-case/cross-country comparison

Potential good to be protected	*Environmental setting (e.g. protected forest, natural reserves)*	*Assessment on link between product and territory (formal quality building)*	*Existence of producer groups (collective organizations)*	*Availability of GI legislation*	*Need for technical assistance*
Bhutanese red rice (Bhutan)	Rice grown in glacial valleys; local varieties used; traditional rice terraces; producers tend to grow organically (without certification)	Preliminary assessment	No	To be drafted	Request made to UNCTAD
Kampot durian (Cambodia)	High level of soil fertility related to durian taste; producers tend to grow organically	Short feasibility study	No	Yes	Request made to UNCTAD; French assistance provided
Kampot pepper (already registered) (Cambodia)	Drained soil, high average rainfall	Code of Practice (GI already registered in Cambodia and registered in the EU in 2016)	Yes	Yes	Not applicable
Harenna wild coffee (Ethiopia)	Wild coffee beans collected in protected forest	Informal assessment	Yes	Drafted but not enacted	Under the DTIS carried out by UNCTAD; Slow Food also involved
Wenchi volcanic honey (Ethiopia)	Forest around Crater Lake	Informal assessment	Yes	Drafted but not enacted	Request made to UNCTAD; support received from Slow Food, USAID
Wurko honey (Ethiopia)	Forest	Informal assessment	Yes	Drafted but not enacted	Request made to UNCTAD; support received from Slow Food, VOCA/USAID and GIZ
Ziama-Macenta *robusta* coffee (Guinea)	Protected forest	Code of Specifications (GI already registered in Guinea)	Yes	Yes	Not applicable
Coffee from Bolaven Plateau (Lao People's Democratic Republic)	Natural vegetation (dense forest); deforestation is an issue	Preliminary assessment	Yes	To be drafted	Request made to UNCTAD; French assistance provided
Pink rice from Ampara-faravola (Madagascar)	Rice production close to tectonic lake, menaced due to the high level of sediments; organic production	Preliminary assessment	Yes	To be drafted	Request made to UNCTAD
Imraguen women's mullet bottarga	Fishing in natural reserve; deep waters rich in minerals; traditional	Preliminary assessment	Yes	To be drafted	Request made to UNCTAD; Slow Food

(Mauritania)	fishing without motor boats				also involved
White prawn (Mozambique)	Fishing in mangrove ecosystems associated with river estuaries	Drafted Code of Practice	Not specified	To be drafted	Request made to UNCTAD
Tete goat meat (Mozambique)	Forest, abundant fruit trees	Drafted Code of Practice	No	To be drafted	Request made to UNCTAD
Fruits from Lower-Casamance (Senegal)	Natural availability of fruits; fertile soil	No assessment, studies to be carried out upon funding	Yes	To be drafted	Request made to UNCTAD

5 Lessons learned and considerations for least developed countries when implementing geographical indications

It is legitimate for developing countries, including LDCs, to consider GIs as an alternative to valorize and market their products embedded in rich environmental settings; or by protecting well-known geographically based products already recognized by consumers in the market (Yeung and Kerr, 2011). The cases of Bhutanese red rice, Harenna wild coffee, Wenchi volcanic honey, Pink rice from Madagascar and mullet bottarga from Mauritania show environmentally friendly production processes. Thus, producers in LDCs should be supported by long-term policies and programs aimed to promote collective action, traceability, monitoring and business development.

It is necessary to examine the environmental impact after GI implementation due to a possible growth in demand. For example, following questions should be constantly posed and monitored: could a demand growth offset existing environmental gains? To what extent could GI registration create more awareness about environmental protection rules? Are GIs understood as systems based on terroir,[11] or are GIs conceived to be mere commercial strategies?

Thus, some of the core lessons from already implemented cases and considerations that LDCs should bear in mind at the moment of GI registration are as follows:

Role of transparent formal and informal institutions. Institutions allow for and shape the interaction of supply chain firms along GI registration processes. Weak institutional frameworks have been pointed out as hindering developing countries, including LDCs,

[11] Casabianca et al. (2005) define terroir as "a delimited geographical space, where a human community has constructed over the course of history a collective intellectual or tacit production know-how, based on a system of interactions between a physical and biological milieu, and a set of human factors, in which the socio-technical trajectories put into play reveal an originality, confer a typicality and engender a reputation for a product originated in the demarcated area".

accessing and benefiting from GIs. Consequently, formal and informal institutions are crucial for implementing GIs in LDCs. Governments and related organizations should be in a position to offer farmers, producers and processors a conducive environment for such endeavor. Formal institutions (e.g., GI legislation and traceability mechanisms) and informal institutions (e.g., local customs or social norms on collaboration/ cooperation, inclusion) are crucially needed for LDCs to consider GIs as a development tool. Additionally, besides the availability of GI legislation, knowledge staff is needed to interpret and apply the law (Chabrol et al., 2015).

Importance of collective action and its organizations. Organizational capacity is a key issue that is observed in the building and protection of GIs, according to the regulatory framework used (formal institutions). The importance of collective action for farmers to jointly market their products in order to enhance their livelihoods is well-known and studied (Carver and Wilson, 1916; Markelova et al., 2009; Narrod et al., 2009; Wolf, 1944). It is also acknowledged that farmers are able to cope with the commodity trap when they organize, cooperate, and differentiate their products as well as when they add value along the supply chain (Gordon et al., 1999; Kolk, 2014). For instance, by accessing value added agrifood markets, such as organic and Fair Trade markets (Bacon, 2005; Fan and Chan-Kang, 2005; Geiger-Oneto and Arnould, 2011; Muradian and Pelupessy, 2005; Raynolds et al., 2007; Rénard, 2003), and more recently GIs in developing and transition economies (Biénabe and Marie-Vivien, 2015; Bramley and Biénabe, 2013; Hughes, 2009; Neilson, 2007; Quiñones Ruiz et al., 2015; Quiñones Ruiz et al., 2016; Rangnekar, 2011; Teuber, 2010; Wongprawmas et al., 2012; Zhao et al., 2014). In contrast to already established rules for organic or Fair Trade usually designed in the North, GIs offer the possibility to empower producers in LDCs to organize and define the rules and quality standards by themselves and thus potentially shift power relationships along international supply chains (Quiñones Ruiz et al., 2015).

Need for financial support and capacity-building. The implementation of GIs may be costly (Table 6). Financial resources and time efforts necessary for protecting GIs (e.g., under the EU scheme) are considerable (e.g. for supporting the collective organization of producers and processors, setting up a Code of Practice, establishing marketing and surveillance mechanisms to oversee possible court cases) and should be carefully gauged. There is no value in having GIs registered only on paper, without being able to effectively market them or without adequate enforcement mechanisms put in place. Further, the role of the government and semi-public organizations (e.g. competent authorities, national research centers, NGOs and donors) should

not be underestimated. Thus, formal and informal institutions, knowledge, transparency, leadership and the capacity of financial support are vital determinants throughout GI processes. Due to the latent challenges faced by LDCs, these countries are likely to request development aid and/or development cooperation and GI expertise. Nevertheless, the independence and self-organization of local producers and processors should be the long-term target. The cases of Ziama-Macenta coffee and Kampot pepper show how the combination of national/local leadership, vision, institutions and external support have played a pivotal role in the implementation of a GI and its functioning. In spite of the fact that some leading donors regard GIs as a potential viable instrument for rural development the amount of Aid for trade funds supporting GIs is negligible.

Non-economic benefits. The motivation behind the protection of GIs should not merely be an economic one. Although there are known European cases in which price premiums are obtained (e.g. top-quality wines, cheese, prosciutto) (Areté, 2013), there is still insufficient cutting-edge evidence to acknowledge economic benefits as a result of GIs (e.g. translated into increased farmer's profits due to GI implementation) in the developing world due to the still recent progress in the GI registration (Barjolle et al., 2009, Quiñones Ruiz et al., 2015). Immaterial benefits that can be observed as a result of collective protection through GIs are: recognition of products as patrimony and cultural identity (Bérard and Marchenay, 1995) and as a potential tool to protect goods rooted in rich environmental settings (Marie-Vivien and Chabrol, 2014); enhancement of organizational skills among farmers, community self-esteem, capabilities and knowledge acquired by involved actors (Belletti and Marescotti, 2006; Broude, 2005); improved vertical and horizontal integration, higher or better accepted quality standards (Coulet, 2012; Penker and Klemen, 2010; Vandecandelaere et al., 2009); and indirect rural development, such as landscape stewardship, tourism development and rural employment effects (Barjolle, 2016; Belletti and Marescotti, 2011). The protection of GIs offers an alternative for producers in LDCs to market their products with the possibility of going beyond product and process quality.

Role of local and external markets. GI products should not only be considered for external markets (exports), but as an alternative for local consumers to taste origin-related products following certain quality standards. Joint efforts of United Nations agencies (e.g. FAO, UNCTAD and UNIDO) should support LDCs requesting technical assistance for the implementation of GIs (e.g., designing GI legislation, supporting business to business and

partnerships within and outside the country of origin), bearing in mind the need for substantial financial resources to materialize such an attempt.

Table 6. Key aspects to bear in mind when pursuing the implementation of geographical indications

Issues at stake	*Scope*	
	Ex ante registration	
GI legislation and scope of protection	– According to international legislation (e.g. TRIPS Agreement), (minimum) protection can be achieved by demonstrating reputation. – To increase protection level, robust national GI legislation should be in place.	Main responsibilities borne by GI operators and users, however government support could be desirable (e.g. INAO in France), authorities, research centers, consultants (e.g. GI lawyers),
Establishing a GI profile (including Code of Practice/ Product Specifications)	– According to international agreements (e.g. TRIPS), reputation is sufficient to bear a protection against misuse; however, a sui generis registration might imply more efforts (e.g. link between territory and product demonstrated). – Usually under sui generis law a Code of Practice has to be drawn up (as requested by the EU scheme).	
Establishment of producer groups, inter-professional organizations, federations, consortiums	– The establishment of groups (e.g. inter-professional organizations) depends on the requirements of national or regional regulations. – It is important to examine the voluntary and/or involuntary exclusions of producers and processors and rivalry along the GI implementation and management.	
	Ex post registration	
GI management	– An inter-professional organization or the like should guarantee representativeness among GI operators and design dissemination, promotion and marketing campaigns. – According to the regulatory frameworks conformity assessment and monitoring might be needed: the greater the success of a GI and the bigger the market shares, the greater the incentive for potential competitors to free-ride. – The financial issue is a challenge; a GI and its collective structure need financial means (e.g., fees to be paid by members of the interprofessional organization; support by the government and/or development aid in case of LDCs).	
Market conditions	– As there is no common international GI regulatory framework, after national GI registration, protection is also needed in target market countries (e.g. via trademarks in the United States). – If the GI was not implemented for a product already well-known and appreciated by consumers (abroad), considerably higher marketing efforts will be needed. – The extent of increased sales (market share) and/or of the price premium will depend on how successful the product can be differentiated from competing goods and on how consumer demand can be met in qualitative and quantitative terms. – Producers should keep an eye on the development of environmental conditions as production and demand increase (are there environmental rules in place to mitigate the environmental externalities, e.g. extended land use, use of chemical inputs?). – GI producers should be able to add value along the supply chain (are producers mere suppliers of raw materials (e.g. green coffee vs. roasted coffee)?). – Producers cannot be sure that intermediaries or gatekeepers will communicate the product origin to consumers (as in the case of blended coffee).	
Non-monetary benefits	– GI processes have the potential to result in positive non-monetary benefits: development of territorial/rural dynamism, social cohesion, trust; contribution to the preservation of traditional knowledge (gender), biodiversity and cultural heritage, especially in the context of LDCs.	

Note: Collective action is desirable when implementing GIs following the EU regulatory framework.

Source: Adapted from Aubard, 2012; Barjolle et al., 2011a, b; Belletti and Marescotti, 2011; Belletti et al., 2015; Bérard and Marchenay, 1995; Bramley and Biénabe, 2013; Giovannucci et al., 2009; Mancini, 2013; McBride, 2010; Quiñones Ruiz et al., 2014, 2015, 2016; Yeung and Kerr, 2011.

GIs as an alternative for decommodification. Experience shows that LDCs should consider GIs as a feasible intellectual property tool to fight misuse and as decommodification strategy – for instance in the case of coffee–. However, GIs are not the only alternative (e.g. collective

marks, certification marks, and other certification schemes). Additionally, according to the GI regulatory framework in place, protection might be unfeasible in some cases when the link between territory and product quality is weak or if traceability mechanisms are poor. Producers should realize that one thing is to protect a certain agricultural product through GIs in the own/origin country, and quite another is to safeguard the same product in the export market country.

GIs as an opportunity for building environmentally friendly rules and valorization. It is advisable for LDCs to consider both good agricultural and environmental practices when embarking on a GI strategy. By establishing a Code of Practice/Book of Specifications, producers have the potential to include environmental rules when starting the implementation of GIs. There is not yet substantive evidence about the role of environmental protection in the registration of GIs, since GIs were not originally designed for such aim. Furthermore, there are no benefits for the protection of natural assets when the processed or final good is protected but not the raw material (e.g. protection of tequila and not of agave; protection of the processed fish). An issue at stake for governments is to gauge whether GIs should also be considered as a way to promote environmental protection and poverty alleviation, as a mandatory component of national legal and policy frameworks on GIs, or if the environmental/protection component should simply be taken into consideration by all stakeholders, particularly authorities in charge of registration and monitoring of GIs (Barjolle et al., 2011b; Marie-Vivien and Chabrol, 2014).

Many LDCs are rich in biodiversity and should quickly safeguard their natural assets – independently of implementing GIs or not – due to the threats they already face. Then, for conceiving GIs as a holistic and virtuous mechanism as an opportunity to take care of natural resources and biodiversity, special attention should be given when drawing up the code of practice to establish principles of good, friendly and greener agricultural and processing practices.

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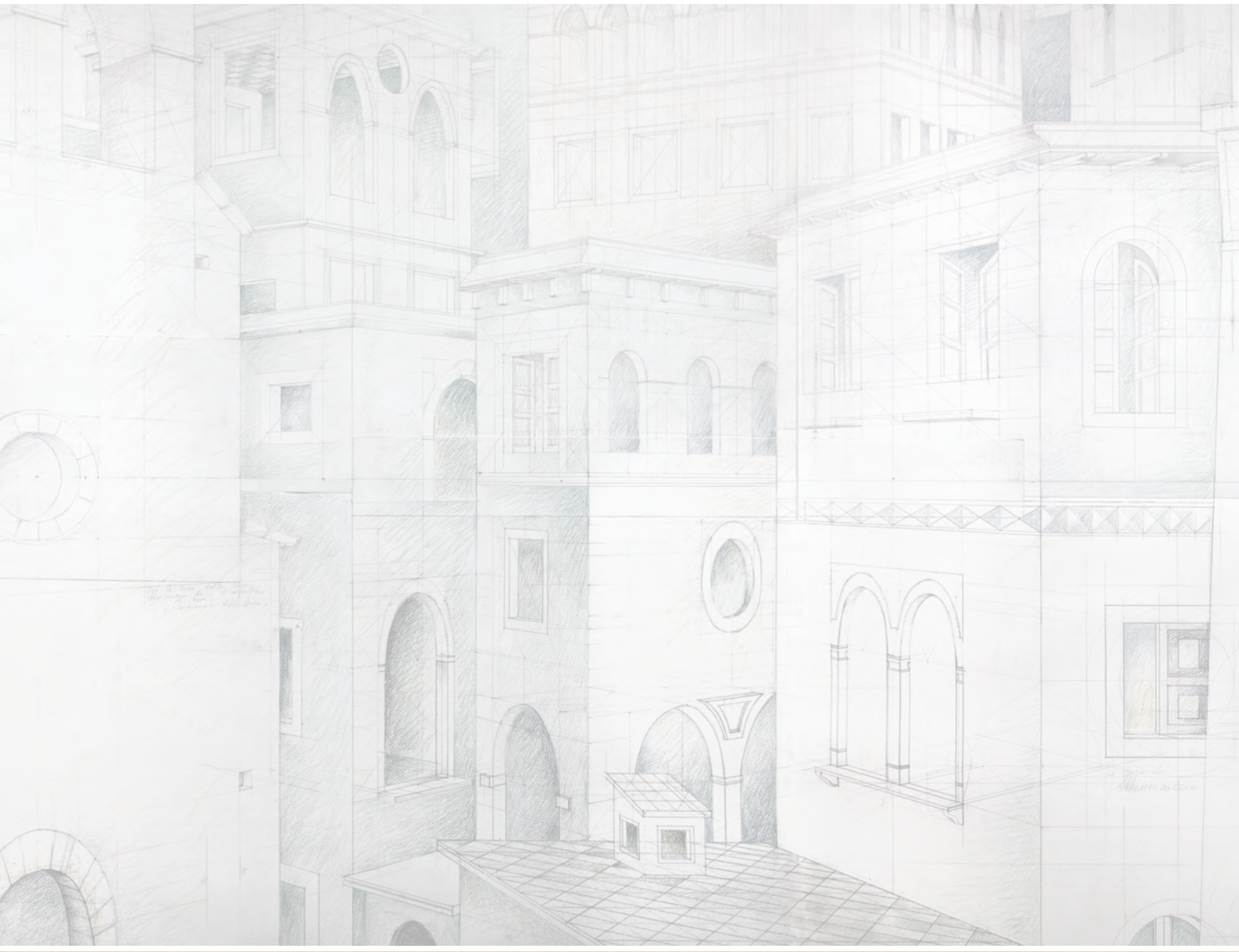

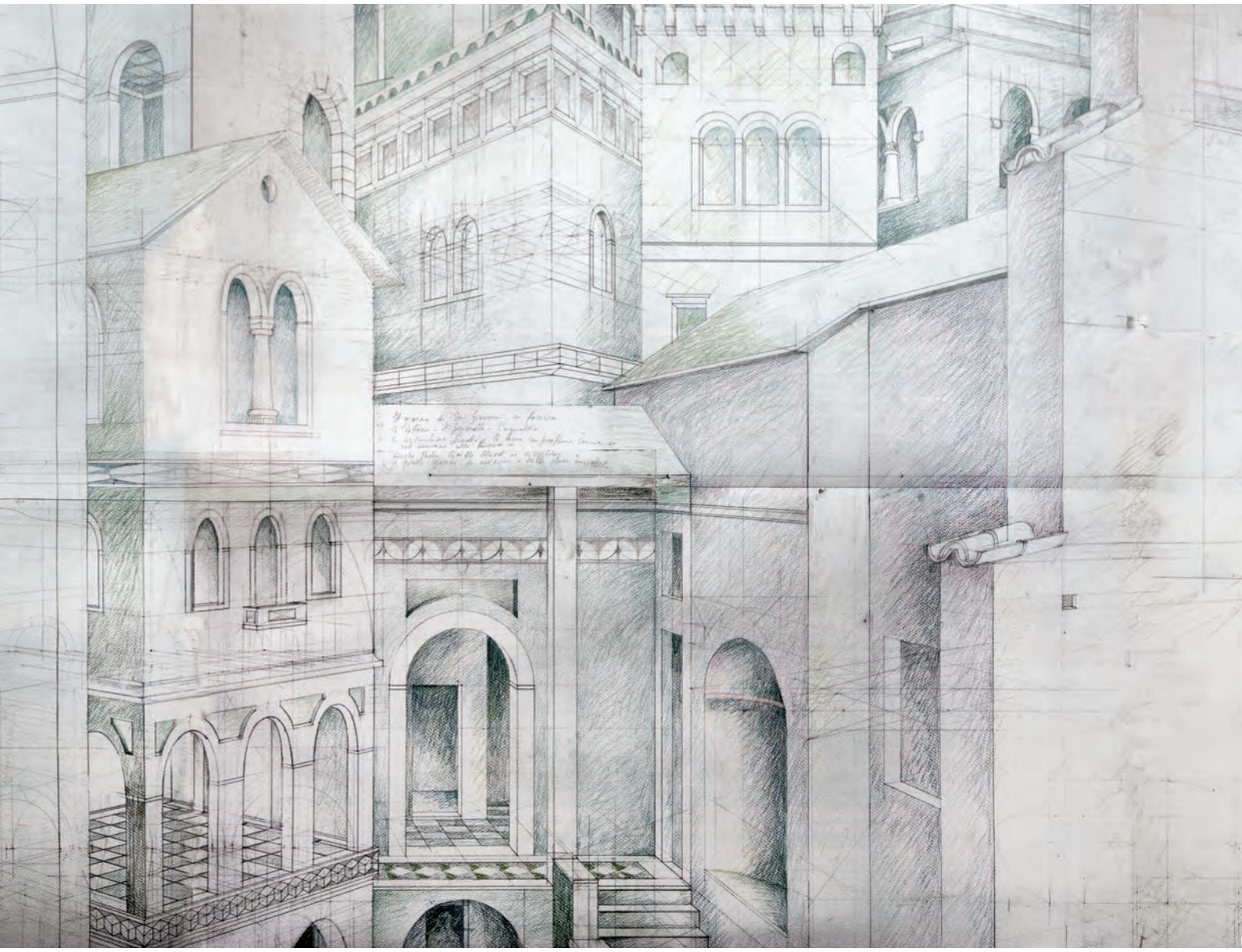

Printed at United Nations, Geneva – 1618193 **(E)** – August 2016 – 492 – **UNCTAD/ALDC/2015/4**