

Quality linked to geographical origin and geographical indications:

lessons learned from
six case studies in Asia



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Edited by

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FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
REGIONAL OFFICE FOR ASIA AND THE PACIFIC
Bangkok, 2010

Foreword

FAO's Quality&Origin Programme focuses on agricultural and food products that are distinguishable from one another on the basis of certain characteristics, qualities or reputations resulting essentially from their geographical origin or traditional know-how. This differentiation can be attributed to the unique local features of the products, their history or their distinctive character linked to natural or human factors such as soil, climate, local know-how and cultural traditions.

These products of origin-linked quality constitute an important part of the world's food diversity, offering consumers a wider choice, while contributing to food security. They offer rural inhabitants opportunities for income diversification, provided that local and international marketing chains are developed, in which the various actors can benefit from the added value intrinsic to the products themselves.

Asian countries all demonstrate a rich food culture that has been elaborated over time, with agricultural and food systems developing alongside human civilizations in the region's various agro-ecological zones, so that the link between food quality and origin seems a perfectly natural concept to most Asian consumers. Countries in Asia have adopted such regulatory tools as geographical indications (GIs) in order to protect the intellectual property rights of the producers of these traditional products that are linked to a geographical origin. Many such Asian origin-linked products have already developed an international reputation for quality linked to their origin.

The objective of this publication of case studies is to share information on the current status of rural development and food quality linked to geographical origin in Asia, noting that countries in the region have chosen a variety of institutional options to manage this specific quality scheme. We also hope that the experiences described and the lessons learned from this publication will be used to foster new partnerships between food chain stakeholders and will help policy makers develop sustainable agrifood marketing chains for products linked to geographical origin and traditional know-how. The lessons from this publication will also help FAO develop future programmes, which will, we hope, become a catalytic instrument for regional technical cooperation in this emerging field.



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Acknowledgments

The editors would like to thank the authors of each case study who made a valuable work and were very available to address our questions and remarks: Surip Mawardi, Ts. Enkh-Amgalan, Guihong Wang, Prak Sereyvath, Tarit Kumar Datta, and Sing Ching Tongdee. A special thank you is also due to Florence Tartanac for her support and Leslie Wearne, who provided a very valuable language editing work.

Pictures Credit

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- Darjeeling tea in India: Tarit Kumar Datta
- The Nakornchaisri pummelos in Thailand: Sing Ching Tongdee, Emilie Vandecandelaere

List of acronyms and abbreviations

ADI	Agriculture Development International Inc. (Cambodia)
AFD	French Development Agency (Agence Française de Développement)
AQSIQ	General Administration of Quality Supervision, Inspection and Quarantine (China)
CEDAC	Cambodian Centre for Study and Development in Agriculture
CESDE	CEDAC Enterprise for Social Development (Cambodia)
CGIP	Community of Geographical Indication Protection (Indonesia)
CIRAD	International Cooperation Centre on Agrarian Research for Development (Centre de coopération internationale en recherche agronomique pour le développement, Montpellier)
CNY	Yuan Renminbi (Chinese currency) – 1 US\$ = 6,6 CNY
CV.	Cultivar
DATE	Development and Appropriate Technology (a Cambodian NGO)
EC	European Commission
ETH	Swiss Federal Institute of Technology, Zurich
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
GDP	gross domestic product
GI	Geographical Indication
GRET	Technical Research and Exchange Group (Groupe de Recherche et d'Échanges Technologiques, Paris)
GTZ	German Agency for Technical Cooperation (Deutsche Gesellschaft für Technische Zusammenarbeit)
ICCRI	Indonesian Coffee and Cocoa Research Institute, Ministry of Agriculture
IDR	Indonesian Rupiah (US\$1 = IDR 10 500)
INAO	French National Origin and Quality Institute (Institut National de l'Origine et de la Qualité)
KSPA	Kampong Speu Palm Sugar Promotion Association
MOA	Ministry of Agriculture
NGO	non-governmental organization
PGI	protected geographical indication
PGI project	Pilot Project for the Protection of Geographical Indications (in Cambodia)
PRASAC	Rehabilitation and Support Programme to the Agriculture Sector in Cambodia (Programme de Rehabilitation et d'Appui au Secteur Agricole du Cambodge)
SAIC	State Administration for Industry and Commerce (China)
SDC	Swiss Agency for Development and Cooperation
TRIPs	Trade-Related Aspects of Intellectual Property Rights
WIPO	World Intellectual Property Organization
WTO	World Trade Organization

Introduction

Background and rationale

Some agricultural and food products are distinguished from one another by certain characteristics, qualities or reputations resulting essentially from their geographical origin. This differentiation can be attributed to the unique local features of the product, its history or its distinctive character linked to such natural or human factors as soil, climate, local know-how and traditions. These characteristics are generally already recognized to some extent by consumers at local, national or even international levels.

At the international level, since 1995 the World Trade Organization (WTO) has administered the Trade-Related Aspects of Intellectual Property Rights (TRIPs) Agreement, which defines a framework for geographical indications¹ (GIs), in particular in its Articles 22 to 24.

WTO members thus have a mandatory responsibility to provide legal instruments to protect GIs as intellectual property rights. This can be done in many ways, and the various countries have developed their own legal frameworks to enforce these rights. In addition, GI protection can be administered by the Paris Convention for the Protection of Industrial Property and the Lisbon Agreement for the Protection of Appellations of Origin and their International Registration.

In this context, most developing countries have recently set up a legal and institutional framework for GIs and have started registration and protection of these new schemes, which may provide consumers with important quality labels and also represent a tool for rural development. Indeed, lessons learned from some older experiences in Europe, for example, highlight the instrument that GIs can be for rural development. Thanks to their link to their production areas, GI products can help to preserve natural resources, maintain traditions, strengthen the organization of local stakeholders and prevent delocalization and rural exodus. Protection of reputation allows for added value. Protection of GI products can also contribute to the preservation of food diversity, while offering consumers a wider choice. However, these hoped-for positive impacts are not automatic, but depend on how the GI system is implemented and managed. The contribution of the GI process to sustainable development will notably depend on how local resources are used, as described in the code of practice, and how local stakeholders develop interactions along the value chain in order to agree on and manage the GI system in relation to the market.

That is why it is important to share different experiences regarding GI implementation throughout the world, for a variety of products and in different contexts, so as to learn from the positive aspects and constraints of each experience. For this purpose, FAO organized a series of regional seminars and case studies in various regions of the world in order to collect information on member countries' experiences and share well-documented examples and lessons with a view to developing profitable and sustainable GIs.

¹ Article 22.1 of the TRIPs Agreement defines GIs as "indications which identify a good as originating in the territory of a Member, or a region or a locality in that territory, where a given quality, reputation or other characteristic of the good is essentially attributable to its geographical origin."

Origin-based products in Asia

Asian countries all demonstrate a very rich food culture that has been elaborated over time, with agricultural and food systems developing alongside human civilizations in the region's various agro-ecological zones, so that the link between food quality and origin seems a perfectly natural concept to most Asian consumers. Many Asian agricultural products have even developed an international reputation for quality linked to their origin: Darjeeling tea from India, Boloven coffee from the Lao People's Democratic Republic, Longjing tea from China, Phu Quoc fish sauce from Viet Nam, Kobe beef from Japan, Korean ginseng etc. It is also interesting to note that Asian countries have a broad understanding of the GI concept, including not only agricultural and agrifood products but also products from the industrial and handicrafts sectors – Thai silk, pashmina from Kashmir, Gobi camel wool from Mongolia, Bor Sang bamboo umbrellas from Thailand etc. – reflecting the long and deep tradition of localized foods, products and know-how in Asian countries.

Mindful of the risk of counterfeiting that many of these products could suffer, and in accordance with international trade agreements, many governments in the Asian region have taken steps to equip themselves with a legal framework in order to protect their agrifood products that are linked to a geographical origin. The legal protection varies from country to country: while many base protection on trademark laws, leaving responsibility for control and enforcement to the private sector and the courts, a growing number of countries in the region have made use of the provisions of the Trade-Related Aspects of Intellectual Property Rights Agreement to register GIs in their country, hoping that the protection will be enforced internationally in future. India and China have been early adopters, with numerous food and non-food products registered as GIs. The member countries of the Association of Southeast Asian Nations (ASEAN) have also been very active in developing legal frameworks for GIs in their countries, while also registering new products as GIs, in particular through a cooperation programme with the European Commission on intellectual property rights.²

The Regional Seminar on Rural Development and Agricultural and Food Quality Linked to Geographical Origin in Asia: Lessons and Perspectives (Bangkok, 8–11 June 2009), organized by FAO, the Department of Intellectual Property of the Thai Ministry of Commerce and the European Commission delegation to Thailand, confirmed the importance of these issues in Asia. Indeed, the expert consultation meeting, benefiting from the experience of government representatives and local experts (from NGOs and development agencies), revealed the number of national and local projects in Asian countries to support the development of GIs, together with the motivations of stakeholders and especially producers to use this tool to protect product reputation, structure the value chain and increase the value of products. It also highlighted the need for technical support both at institutional and value-chain level, due to the innovative aspects and complexity of GI systems.

² The website of the European Commission–ASEAN Intellectual Property Rights Cooperation Programme (ECAP) presents all the registration texts regarding GIs in ASEAN countries, in English translation: http://www.ecap-project.org/asean_ip_legislation_international_treaties.html

Objective and target of the present publication

This publication aims at disseminating information on experience in six countries in Asia in connection with the recent implementation of GI systems, highlighting advantages, constraints and success factors in establishing origin- and tradition-linked quality signs. It targets a wide audience of producers, exporters, industry associations, practitioners, researchers and rural development operators, as well as policy-makers, public actors, donors and the general development community.

General presentation of the case studies

The case studies were conducted³ by six national experts in food marketing or rural development:

- Kintamani Bali coffee in Indonesia
- Kampong Speu palm sugar in Cambodia
- Jinhua ham in China
- Uvs sea buckthorn fruit in Mongolia
- Darjeeling tea in India
- Nakornchaisri pummelos in Thailand

The focus of these case studies was to describe and understand how a GI system is set up in a variety of contexts. The main questions asked of the national experts concerned the steps to be taken in order to protect, promote and add value to a selected product, the promoters of the process, the stakeholders involved, the various motivations and interactions among them, the first impacts of the GI process that could be observed at the time of the study on social, economic and environmental aspects, and then, on this basis, what could be recommended to reinforce positive effects.

Analysis of the strengths and weaknesses of each GI implementation process allows identification of success factors that should be fostered and obstacles that should be avoided. All these data have been described and analysed in the following case studies, providing an interesting sample of experience from which we can learn lessons for the future development of specific quality frameworks.

The six case studies have been chosen in order to address a wide range of situations, but focusing on agricultural food products:

- various country situations and institutional frameworks;
- different types of product:
 - vegetable and animal products;
 - fresh and processed products;
 - internationally famous products or those with a strong local or regional reputation;
 - products with various target markets: the export market (in Europe, the United States or Asia) or local, domestic markets;
- various implementation and management processes: Did they benefit from external and public support? Where did the initiatives come from? And what were the objectives?

³ The pummelo case study was carried out in 2007 and funded through FAO project MTF/RAS/212/FRA, while the other five case studies were commissioned in 2009 as inputs for the technical programme of the regional seminar and funded through FAO project GCP/INT/022/FRA and FAO Regular Programme Entity 2MA04 Major Output 7 on ensuring product quality and safety in agro-industries.

Table 1: Summary of the case studies

Product	Country	Legislative protection	Territory	Markets	Main issues
<i>Kintamani Bali coffee</i>	Indonesia	GI in December 2008	3 districts on the island of Bali (volcanic Plateau and hills above 900 metres)	<ul style="list-style-type: none"> - Domestic market - Export market 	<ul style="list-style-type: none"> - Large-scale external support, leading to a strong organization of the supply chain thanks to a participatory process - Economic impact seems good, but long-term assessment will still be needed
<i>Kampong Speu palm sugar</i>	Cambodia	GI in April 2010	2 districts in Kampong Speu Province and 1 district in Kandal Province	<ul style="list-style-type: none"> - Local and national markets - Development of export markets 	<ul style="list-style-type: none"> - Large-scale external support, leading to organization of the supply chain thanks to a participatory process - Work on overall quality improvement - Economic impact seems good, but depends on market response, requiring long-term assessment
<i>Jinhua ham</i>	China	<ul style="list-style-type: none"> - Certification mark in 2008 - GI in 2009 	Jinhua and Quzhou regions in Zhejiang Province	<ul style="list-style-type: none"> - National reputation - Export to the Chinese community abroad (in Asia) 	<ul style="list-style-type: none"> - Overlapping of various legal means of protection (certification mark and GI) - Protection of a specific breed of pig
<i>Uvs sea buckthorn fruit</i>	Mongolia	GI in 2007	Uvs Province (northwest Mongolia)	<ul style="list-style-type: none"> - Local and national markets, thanks to a national reputation - Export to Japan and Korea 	<ul style="list-style-type: none"> - Product with a good potential and high market demand - Individual initiative of one processor, leading to current difficulties over rallying the other stakeholders around a common project - Lack of external support
<i>Darjeeling tea</i>	India	<ul style="list-style-type: none"> - Certification trade mark in 1999 - GI in 2004 	Hilly area of Sadar, Kalimpong and Kurseong subdivisions (around the city of Darjeeling) in West Bengal	<ul style="list-style-type: none"> - International reputation - Major export market: Europe, United States, Asia etc. (70% of production) 	<ul style="list-style-type: none"> - Product internationally well-known - Main objectives were protection against counterfeiting, and value addition on export markets - Process initially led by the public authorities, but today shared by all stakeholders now aware of its benefits
<i>Nakornchaisri pummelos</i>	Thailand	GI in September 2004	3 districts – Nakornchaisri, Samphram and Puttamonton – in the low-lying swampy plain near rivers and the coast	<ul style="list-style-type: none"> - Domestic market - Export to China and Hong Kong 	<ul style="list-style-type: none"> - GI registered early by an institutional stakeholder in order to protect the indication - Conflict of interest between producers and traders, leading to a situation in which the GI tool is not being used to its full potential

Methodology and concepts

The methodology followed in all the case studies was based on four main components:

- review of the information currently available (bibliographical research);
- interview of the stakeholders involved in the supply chain of the origin-based product: producers, processors, traders, public bodies etc.;
- discussion with focus groups to gather information at the organizational level, when such organizations exist in the supply chain;
- analysis of constraints, advantages, success factors and impact of the GI process on sustainable development.

The case study on Nakornchaisri pummelos focuses on the impact of GI registration on farming practices, while the first five case studies presented are built on a common structure and address the following topics:

- the institutional context;
- the geographical zone and its specific resources;
- the product and its code of practice;
- the stakeholders and the GI process that has been implemented;
- marketing issues;
- analysis of the impact of the GI process, lessons learned and recommendations.

Issues related to these topics are described below.

Institutional context

There are various ways of protecting GIs at national or regional levels. They are protected at the national level in accordance with national laws and under a wide range of concepts. In 1935, France was the first country to enact legislation to protect a GI – for its wine industry – and this was followed by legislation for other food products. In 1992, the European Union enacted directive 2081/92 to protect GIs in relation to edible and non-edible farm produce, an approach that was eventually implemented in other countries in North Africa, South America, Asia etc. However, specific laws for the protection of GIs (a *sui generis* system) are fairly recent in most countries. In other cases, provisions in competition laws, consumer protection laws or laws on trademarks or collective certification marks are used. Two main approaches may thus be distinguished at the national level:

- *the public law approach*: in this case, the public authorities enact legislation dedicated to the specific protection of GIs (a *sui generis* system); this approach generally consists of an official recognition of GIs by the granting of a public seal of quality, often with a common official logo;
- *the private law approach*: this approach involves the use of laws against unfair competition and counterfeiting, and trademark laws, where protection is based on private actions.

The type of institutional and legislative framework greatly affects the way the GI is implemented locally and the possible impact on economic, social and environmental aspects. This part of the case studies therefore aims at providing information on the type of legislation, the institutions involved, the role played by public authorities and the type of registration.

Geographical zone and its specific resources

Apart from a basic description of the geographical area, this part of each case study aims at identifying the local resources that are responsible for the specific quality of the product, and thus the link between quality and geographical origin. These local resources are both natural (climatic conditions, soil characteristics, local plant varieties or breeds etc.) and human (local skills, historical practices, traditional knowledge involved in producing and processing the product). The unique combination of these resources endows the product with its specific quality and engenders its reputation. The first step for local actors is to become aware of this potential by identifying the links between product quality and local environment.

The product and its code of practice or specifications

Definition of the product is one of the most important steps in the GI process and is carried out through elaboration of the code of practice (also known as the specifications or book of requirements in the Asian context). This document lays down the rules for use of the GI, rules with which local producers wishing to use the GI have to comply. In this part of each case study, the origin-based product and its specifications are described. Analysis reveals the existence or absence of common rules for GI production subscribed to by producers when they accept the code of practice.

The stakeholders and the GI process

The success of the GI process is linked to the capacity of the actors in the value chain to work together to manage the GI collective reputation and promotion. This part of each case study describes the roles and motivations of the various stakeholders and the organization of the value chain in relation to the GI project and its various stages. External support from public authorities or other facilitators (research institutes, development experts etc.) also plays an important role in supporting the process. Such outsiders may be at the origin of the GI process, in which case the producer's empowerment is a challenge to be taken into consideration.

Marketing issues

Marketing of a GI product is a key factor for its economic sustainability. GI market potential should feasibly be translated into sales that generate sufficient income to support the entire GI initiative. Marketing issues, such as the actual market situation and the market reached by the GI, should be carefully considered from the beginning of the GI process.

An important related aspect of marketing is labelling and the guarantee system, in other words, how the specific quality is guaranteed and how consumers are informed. Inasmuch as the GI reputation is shared by all those using the GI to market the product, there must be a local guarantee system to ensure that they all comply with the requirements set out in the code of practice, thus ensuring that consumers are not deceived and honest producers do not suffer from unfair competition. The challenge consists in implementing an efficient, credible and financially accessible guarantee system.

Impact, lessons learned and recommendations

This part of each case study synthesizes the lessons learned from the study and uses the available data to analyse the impact of the process with regard to sustainable rural development. The various types of impact considered concern:

- *economic sustainability*, which is achieved when the value created by means of remunerated activities is fairly distributed along the value chain among the various actors involved in the production process, and when this leads to an improvement in the producers' livelihoods;
- *environmental sustainability*, which is achieved when the GI process and particularly the rules of the code of practice ensure the preservation or even the enhancement of natural resources, by guaranteeing the balance between extraction and development over time, while maintaining or increasing biodiversity;
- *sociocultural sustainability*, which promotes tradition and cultural heritage, reinforcing a sense of local identity, self-esteem and respect for traditional ways of living that are endangered by the rural exodus, poverty, and a lack of information and market access.

Impact can be unclear – and in some cases absent or even negative – at the start of the process. On the basis of their overall analysis, the case studies end with some recommendations for the future.

I. Kintamani Bali Arabica coffee, Indonesia

by

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Abstract:

The Indonesian Government is interested in supporting GI development in order to improve product competitiveness on the basis of quality and legal protection. To this end, a pilot project was carried out with local stakeholders, focusing on Arabica coffee in Bali's Kintamani highlands, a product with a reputation and quality that have been recognized since the early nineteenth century.

Implementation of a GI system required the involvement of a wide range of stakeholders – local producers' organizations, research bodies (the Indonesian Coffee and Cocoa Research Institute and the French International Cooperation Centre on Agrarian Research for Development), local and central government offices, and the private sector (coffee exporters and local roasters). The coffee farmers wanted to obtain legal protection for the name of their product by using the GI system, and they therefore established a GI organization, the Community of Geographical Indication Protection, based on pre-existing traditional farmers' organizations, to represent the local coffee community and manage GI protection. Establishment of this organization was an important step towards the management of preparation, registration, monitoring and marketing activities, while also helping to avoid social conflict.

On 5 December 2008, the Community of Geographical Indication Protection obtained a certificate from the Directorate General for Intellectual Property Rights for the protection of "Kopi Arabika Kintamani Bali", the first product protected by the GI system in Indonesia. The government will use the successful and promising establishment of GI protection for Kintamani Bali Arabica coffee as a model in developing various GI products from other areas of Indonesia.

Introduction

Product differentiation is an important tool in attracting consumers in the global market, which is marked by very stiff competition. Like trademarks, geographical indications (GIs) play an important role in providing consumers with an image and information that a product offers a certain value, either in quality or some other characteristics that increase its competitiveness (WIPO, 2003).

Indonesia is a very large country, consisting of thousands of islands, and the geographical, social and traditional conditions vary widely. As a consequence, the country produces many products with specific local characteristics and market reputations, such as Toraja coffee from southern Sulawesi, Muntok white pepper from Bangka Island, Java kapok from central and eastern Java, Moluccas tuna fish from the Molluca Islands, Deli tobacco from northern Sumatra, Bali vanilla from Bali, Banda nutmeg from Banda Island and Alabio salted duck egg from southern Kalimantan. These products have the potential to obtain protection from a GI system.

Shortly after ratifying the Trade-Related Aspects of Intellectual Property Rights (TRIPs) Agreement of the World Trade Organization (WTO), Indonesia established its Law 15 of 2001 regarding trademarks, in which GI protection is mentioned in Chapter 56. Since this is a new system in Indonesia, a pilot project was carried out focusing on Arabica coffee in the Kintamani highlands of Bali in order to study implementation aspects of GI protection. Bali coffee was selected for the pilot project because of its reputation for quality, which has been recognized since the early nineteenth century. The taste profile of coffee is considered to be similar to that of wine, inasmuch as its flavour and its quality are highly influenced by locality or *terroir*, consisting basically of natural factors (soil and climate) and traditional knowledge.

Coffee is an important commodity for Indonesia, not only as a source of income for millions of farming households but also as a source of foreign exchange. In 2006, the country produced Arabica and Robusta coffee totalling about 680 000 tonnes (Directorate General for Estate Crops, 2007). Most Arabica coffee from the country goes to the speciality sector, under such origin-linked names as Gayo coffee from Aceh (northern Sumatra), Mandheling coffee and Lintong coffee from northern Sumatra, Java Preanger coffee from western Java, Java Jampit coffee and Java Pancoer coffee from eastern Java, Kalosi coffee from southern Sulawesi, Kintamani Bali coffee from Bali, Flores Bajawa coffee from Flores Island (Sunda Lesser) and Java *kopi luwak*. These coffees usually obtain premium prices – even very high prices in the case of Java Arabica kopi luwak – which makes them vulnerable to counterfeiting.

The Indonesian Government is interested in developing a GI system in order to improve product competitiveness on the basis of quality and legal protection. The establishment of a GI system in Indonesia is also expected to avoid intellectual property conflict over the use of geographical names, such as the coffee trademark conflict in Japan over the use of the name “Toraja” (Key Coffee, 2002). Toraja is the name of a highland region in central Sulawesi Island and the ethnic group inhabiting the area. Another example of such conflict over the use of a geographical name as a trademark was the use of the name “Gayo”, as

reported in the *Jakarta Post* of 11 February 2008 under the headline “Dutch Company Claims International Trade Rights over Gayo Coffee”. Gayo is the name of another highland region in Aceh (northern Sumatra) and the ethnic minority inhabiting the area.

A pilot project to implement a GI system in the Kintamani highlands was initiated by improving the quality and consistency of Bali coffee. The government launched a quality improvement programme in the area in collaboration with the private sector in 1997, but more concentrated activities have been carried out since 2002 in parallel with execution of the pilot GI project.

The pilot project has borne fruit in the shape of a certificate of GI protection for Kintamani Bali Arabica coffee issued by the Directorate General for Intellectual Property Rights of the Ministry of Law and Human Rights on 5 December 2008. “Kopi Arabika Kintamani Bali” is thus the first GI-protected product in Indonesia.

The establishment of a GI system in Indonesia was very time-consuming, requiring the involvement of a wide range of stakeholders – local producers’ organizations, research bodies (the Indonesian Coffee and Cocoa Research Institute [ICCRI] and the International Cooperation Centre on Agrarian Research for Development [CIRAD]), government (local and central), the private sector (coffee exporters and local roasters) and the French Embassy in Jakarta. The supply of information and training on quality and GI systems for the various stakeholders was a key success factor, especially at the small-farmer level. The participation of small producers is an essential element in developing a GI product from such an area.

The present study had the aim of identifying the advantages, constraints and key success factors in establishing origin- and tradition-linked signs of quality by using the Kintamani Bali GI case as a basis. The results of the study are expected to provide information regarding the establishment of GI as quality sign, for other products from various localities in Indonesia and also in other countries, particularly in the Asia and Pacific region.

1. Institutional context

Indonesia is one of the WTO members that has already ratified the TRIPs Agreement. Through its Law 7 of 1994 the country fully adopted the agreements established by the WTO and it therefore recognizes GIs as forms of intellectual property rights (Direktorat Jendral Hak Kekayaan Intelektual, 2007).

GI protection in Indonesia is regulated under Law 15 of 2001 regarding trademarks, Chapter VII of which provides for protection of GIs and sources of origin. GIs are defined as follows in Article 56 (1): “GIs shall be protected as signs indicating the place of origin of goods, which, due to geographical and environmental factors, including the factor of nature, people or a combination of the two, gives a specific characteristic and quality to the good produced there.” In order to implement the GI protection system, the law was followed up with Decree 51 of 2007, which gives details of the procedure to register a GI product from a particular area of the country, together with other aspects of GIs. Under Law 15 of 2001, a sign shall be the name of a place or region, or any mark that indicates the place of origin of the goods protected by the GI. The goods may be agricultural

products, foodstuffs, handicrafts or any other goods complying with the provision.

Indonesia produces various types of goods with specific qualities based on origin and with a reputation either domestically or internationally, such as agricultural products (coffee, tobacco, tea, pepper, nutmeg) and handicrafts (sarongs, woven cloth, batik, carving). Application of the law on the protection of GI products is expected to have a number of benefits, some of which are listed by Kampf (2003):

- registered GIs can be used in marketing strategies in both domestic and international spheres;
- registration adds value to the potential GI product and improves producers' livelihoods;
- such products can become tools to develop rural areas on the basis of the good reputation of their quality;
- registration will improve the reputation of the GI product in global trade;
- registration will ensure equal treatment regarding GI protection and can be used as a tool for promotion abroad;
- GI protection will avoid unfair competition, misrepresentation or misleading, deceptive conduct.

A foreign GI product can also be registered in Indonesia when application is made by producers or operators holding a legitimate interest or by the representatives of the foreign country in Indonesia. To be admissible for registration, a foreign GI product must have been recognized or registered under the provisions of the country of origin.

Registration of GI products is carried out by the Directorate General for Intellectual Property Rights. This directorate is supported by a Geographical Indications Expert Team made up of seven members from the Ministry of Agriculture, the Ministry of Law and Human Rights, the Ministry of Industry and the Ministry of Marine Affairs and Fisheries.

In Indonesia, coffee is a regulated trade commodity, especially if it is for export. The country currently produces about 650 000 tonnes of green coffee annually, 10 percent Arabica and 90 percent Robusta (Directorate General for Estate Crops, 2007). Various types of Arabica coffee from the country have been traded under geographical names on the basis of their reputation for quality, such as Toraja coffee from the Tana Toraja highlands of southern Sulawesi, Java Jampit coffee from the Ijen highlands of eastern Java, Gayo coffee from the Gayo highlands of Aceh and Lintong coffee from the Bukit Barisan highlands of northern Sumatra. Only Bali Kintamani Arabica coffee has so far been registered as a GI-protected product under Indonesian law, with a certificate issued on 5 December 2008 (see Figure 1).

Figure 1. Certificate of geographical indication for Kopi Arabika Kintamani Bali issued by the Directorate General for Intellectual Property Rights on behalf of the Minister of Law and Human Rights




REPUBLIK INDONESIA
DEPARTEMEN HUKUM DAN HAK ASASI MANUSIA
SERTIFIKAT INDIKASI-GEOGRAFIS

Menteri Hukum dan Hak Asasi Manusia atas nama Negara Republik Indonesia berdasarkan Undang-Undang Nomor 15 Tahun 2001 tentang Merek dan Peraturan Pemerintah No.51 Tahun 2007 tentang Indikasi-Geografis, memberikan hak Indikasi-Geografis kepada :

Nama dan Alamat Pemilik Indikasi-Geografis	: Masyarakat Perlindungan Indikasi-Geografis (MPIG) Kopi Kintamani Bali Desa Blantih, Kec. Kintamani, Kab. Bangli, Provinsi Bali
Nama dan Alamat Kuasa/Konsultan HKI	: --
Tanggal Pendaftaran Indikasi-Geografis	: 05 Desember 2008
Tanggal Penerimaan Permohonan	: 18 September 2007
Nama Negara dan Tanggal Pendaftaran/ Diakui Indikasi-Geografis (Khusus Pendaftaran Indikasi-Geografis Luar Negeri)	: --
Nama Indikasi-Geografis	: Kopi Arabika Kintamani Bali
Nama Produk Indikasi-Geografis	: Kopi Arabika (ose dan bubuk)
Nomor Indikasi-Geografis	: IDIG000000001

Perlindungan Indikasi-Geografis diberikan selama karakteristik khas dan kualitas yang menjadi dasar bagi diberikannya perlindungan atas Indikasi-Geografis tersebut masih ada (Pasal 4 PP No.51 Tahun 2007 tentang Indikasi-Geografis).

Jakarta, 05 DEC 2008

a.n. MENTERI HUKUM DAN HAK ASASI MANUSIA
 REPUBLIK INDONESIA
 DIREKTUR JENDERAL HAK KEKAYAAN INTELEKTUAL
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2. Geographical zone and specific resources

General context

Kintamani Bali Arabica coffee is produced in a narrow zone situated in Bali's northeastern highlands, which is inhabited by the Bali agha (original Bali) ethnic minority, most of whom are Hindus. This ethnic group holds fast to the *Tri Hita Karana* (three happiness causes) philosophy based on Hinduism and consisting of the three pillars of good relationships with the gods, other men and the environment (Pitana, 1994).

In the Kintamani zone, land use is categorized as residential, agricultural or forest. The agricultural area is the largest and consists of rainfed farms and rice fields. Land ownership data show that each farming household has an average of 1.43 hectares of land. A study carried out in 2001 found that 72.3 percent of farmers own plots of over 1.0 hectare, 23.7 percent own plots of 0.5 to 1.0 hectare, and 3.9 percent own plots of under 0.5 hectare.

Coffee is one of the main agricultural products of the zone and is usually grown under shade trees – mainly citrus, banana and perennial legume trees such as *Leucaena* spp., *Albizia* spp. and *Erythrina* spp. Citrus is another major cash crop for farmers, while a number of them also grow annual crops – chillies, yams, sweet potatoes and vegetables – between coffee bushes for home consumption. Most coffee growers raise cattle and other livestock to produce manure for their coffee crop and generate additional income. The leaves of legume shade trees are used as cattle feed.

Farmers have traditionally been organized into subak abians – typical Balinese farmers' organizations found in upland areas and based on the *Tri Hita Karana* philosophy. These organizations normally consist of 40 to 80 members, accounting for 40 to 160 hectares of farmland between them. Each village normally has more than one *subak abian*. Each of these organizations democratically establishes written internal regulations covering aspects of farming conduct, social relations, religious ceremonies etc., and holds a routine monthly meeting.

The traditional system mentioned above will be an advantage in developing GI in the zone, together with the reputation of Kintamani as a tourist destination in Bali, the suitability of the land for Arabica coffee and the infrastructure already found there. Competition with such other crops as tangerines, frequent cloudy weather during the coffee harvesting period and limited water availability for coffee processing will be the main constraints. Bali's reputation as a major world tourist destination and support from the local government are strong points in promoting GIs. However, the volatility of coffee prices and limited market access are significant weaknesses.

Delimitation of the production and processing zones

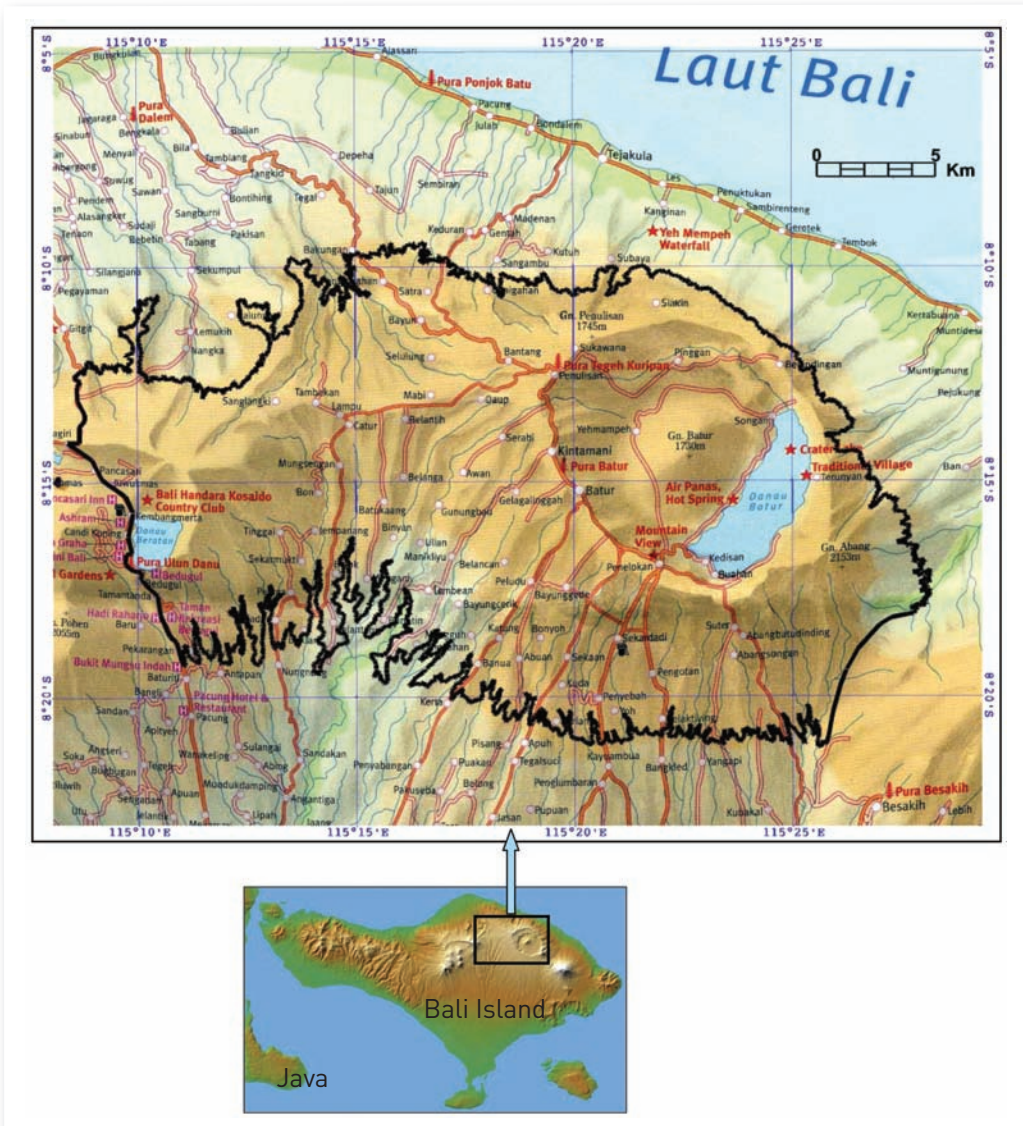
Area delimitation was a critical point in preparing GI protection for Bali Kintamani coffee and required several meetings organized by the Community of Geographical Indication Protection (CGIP) in order to avoid social conflict. It was agreed that the production area must be delimited on the basis of altitude (above 900 metres). The meetings to determine

the area were also attended by local government officers, and a map showing the delimited area was drawn up with the assistance of experts from CIRAD and ICCRI (see Figure 2).

The zone is located in the northeast of Bali between longitudes 115°5' and 115°30' east and latitudes 8°10' and 8°20' south. It is a cool mountainous area, covering a plateau and some hilly slopes. The Kintamani highlands are suitable for Arabica coffee because of rainfall, altitude, temperature, humidity and soil type. Social, traditional and agricultural practices are very similar in the various villages in the zone.

Figure 2. Map of the production area of Kopi Arabika Kintamani Bali

Source: Book of Requirements for Kintamani Bali Arabica coffee GI.



In administrative terms, the zone covers three districts – Bangli, Badung and Buleleng. Kintamani is the name of a subdistrict in Bangli District, and about 70 percent of Bali Kintamani coffee previously originated in this subdistrict. The numbers of districts, subdistricts and villages in the area delimited for the Kintamani Bali coffee GI are given in Table 1.

Table 1. Districts, subdistricts and villages involved in the delimited area for Kintamani Bali coffee GI

District	Number of subdistricts involved	Number of villages involved
Bangli	2	36
Badung	1	6
Buleleng	1	3

The infrastructure in the zone is in relatively good condition and the zone is very easily accessible from the main cities of Denpasar and Singaraja, facilitating transportation for marketing. Coffee from the zone used to be transported to Surabaya in eastern Java for export.

Local resources

- **Climate**

The Kintamani Arabica coffee zone is a highland region with topographical conditions ranging from flat to hilly and even mountainous. Valleys lie in a north-to-south direction, while coffee plantations are found on slopes. The altitude ranges from 900 to 1 500 metres above sea level, but most of the Arabica coffee is grown between 1 100 and 1 400 metres. Temperatures range from 10 °C to 15 °C at night, 23 °C to 25 °C in the morning and 23 °C to 26 °C in the day.

Average annual rainfall in the Kintamani area is 2 990 millimetres, with 139 rainy days. There are four or five dry months in May/June to September/October. Coffee farms therefore suffer a water deficit from July to November when soil water availability is not sufficient to meet the needs of coffee. However, the farmers apply organic manure routinely in order to maintain the soil water content, also using sufficient shade trees to keep the temperature down during the dry season and reduce transpiration. Relative humidity at midday is fairly high (more than 80 percent).

- **Soil**

In geological terms, the zone belongs to the Qbb formation (tuff with sediment from Mounts Buyan and Bratan and the Mount Batur volcano – quarter age). The types of soil are Entisols and Inceptisols, which generally have good physical and chemical fertility.

A soil study was carried out in 2004 by ICCRI (Mawardi *et al.*, 2004). Soil texture in the zone is loamy sand and sandy loam, although most of the main coffee-producing villages have a loamy sand texture. This area spreads from the centre to the east and southeast of the zone. Most soils tested had a pH of 7 (neutral), although a lower pH was observed in two villages (Ulian and Lembehan). On average, carbon content was high as a result of the

farmers' use of organic fertilizers. However, nitrogen and calcium content were low, and magnesium, potassium and total phosphorus content were high. Micronutrient content tests showed low levels of copper, but moderate levels of iron and zinc.

- **Biodiversity**

In terms of the zone's biodiversity, significant animal species are wild cattle, wild hens and domesticated Kintamani dogs. Bali pomelos and a particular variety of bamboo suitable for handicrafts grow well in the zone, especially at lower altitudes.

- **Coffee**

It is not easy to obtain accurate information as to when coffee was introduced to Bali, but it can be assumed that Arabica coffee has been cultivated there since the end of the eighteenth century or early in the nineteenth. Laerne (1885) reported that in 1825 Java exported 10 377 picols (1 picol = 61.5210 kilograms) of Arabica coffee originating from Bali and Palembang (Sumatra).

Arabica coffee faced a serious problem when a destructive coffee leaf rust disease started to attack plantations in Java at the end of the nineteenth century and then quickly spread to Bali. There was an ongoing shortage of Arabica coffee production during the period of Japanese colonization, because farmers were forced to convert from coffee to food crops, mainly maize, in the early 1940s.

The eruptions of Mount Batur (in 1917, 1948 and 1977) and the major eruption of Mount Agung (in 1963) also drastically reduced Arabica coffee plantations. The production of Kintamani coffee decreased to such a degree that the reputation it had acquired on the international market almost disappeared.

In 1978/79, the Department of Agriculture's Directorate General for Estate Crops and local Offices for Estate Crop Development launched a rehabilitation campaign for Arabica coffee plantations through the Project of Rehabilitation and Rejuvenation of the Export Commodity Crops. In 1987/88, the rehabilitation of Kintamani coffee was supported by PT¹ Perkebunan XXCVI (a state-owned company based in Java). As a result, the area of coffee plantations increased again to approximately 9 000 hectares.

Between the 1990s and the early 2000s, the price of coffee plunged, unlike the price of tangerines, which was very high. This situation forced farmers to reduce the area under coffee. Many farmers combined tangerines and coffee, but some of them converted totally to tangerines, so that the coffee area shrank drastically from 8 230 hectares in 2000 to 3 640 hectares in 2002.

- **Human resources**

The Balinese tend to be diligent people and keen upholders of tradition, but they are also very dynamic and open-minded regarding other cultures. They follow the *Tri Hita Karana* philosophy in daily life, seeking to achieve harmonious relations with the gods, other men and the environment. They pay close attention to environmental conservation, for example making terraces on their farms and protecting wildlife, in addition to protecting the vegetation in certain zones in order to maintain water springs.

¹ *Perseroan Terbatas* (limited company)

3. Product and market

Product qualification process

By the mid-1990s, the Office for Estate Crop Development of Bali Province had designed a programme to improve quality and thus increase the reputation of Bali coffee regarding both excellence of quality and continuity of supply. This programme was aimed primarily at ensuring the natural characteristics of good quality Arabica coffee from Bali and was launched in 1997. Farmers were requested to have the red cherries picked by a private company, PT² Tirta Harapan Bali, which offered a price for this type of cherry that allowed a better income for farmers than in the case of dry processing. PT Tirta Harapan Bali had been able to rent a processing factory, which was not active at the time. PT Tirta Harapan Bali sought to purchase red cherries from the farmers through *subak abians*³ and process them in this factory before exporting them to Japan.

In 2001, the Office for Estate Crop Development of Bali Province and ICCRI ran a quality and marketing improvement programme by introducing a wet-processing method for red cherries at *subak abian* level. First, four *subak abians* were selected to start processing red cherries with equipment supplied by the Office for Estate Crop Development of Bali Province and technical assistance provided by ICCRI. The programme to improve marketing efficiency was carried out by establishing a direct business partnership between *subak abians* and coffee exporters in order to obtain guaranteed sales and better prices for high-quality coffee by using the “mediated partnership model” (Mawardi *et al.*, 2006). A good price is an essential element in motivating farmers to adopt new technologies and has significantly attracted the *subak abians* to become involved in producing high-quality coffee. So far, 52 *subak abians* (about 80 percent) are involved in the quality programme.

The GI-protection initiative was launched shortly after the government promulgated Law 15 of 2001. ICCRI and the Office for Estate Crop Development of Bali Province worked together with CIRAD to design a project concerning GI protection in Indonesia, and Kintamani Bali coffee was selected as a pilot case. Coffee is considered similar to wine, with taste profiles that are significantly influenced by the particular zone or *terroir* where the product originated.

The farmers have been involved in various training sessions and courses: (i) motivation and group dynamics, (ii) the technology of wet processing for Arabica coffee, (iii) green coffee quality grading and cup taste evaluation, (iv) business partnership application, (v) good manufacturing practices to obtain good quality and food safety, (vi) internal monitoring system, and (vii) GI protection. ICCRI also provided intensive support and supervision during the coffee harvesting season.

At the start of the quality improvement programme, the main difficulty was to find exporter(s) who would be interested in establishing a business partnership with *subak abians*. The most significant obstacles encountered during the process were limited water availability, the extreme slowness of the sun-drying process due to heavy cloud in several

² *Perseroan Terbatas* (limited company)

³ Traditional Balinese farmers’ group or association.

cases, and competition with local collectors. Almost no stakeholders opposed the initiative.

As mentioned above, coffee farmers in Bali have traditionally been organized into *subak abians*. A GI managing group, CGIP, was established in 2007 to organize the production of Bali Kintamani GI coffee. The membership of CGIP is open only to *subak abians* or private firms, in other words organizations rather than individuals, and has been organized into a section for red cherry producers, composed of *subak abians*, a section for coffee processors, composed of *subak abians*, private processors or roasters, and an advisory board, composed of local government representatives (the Office for Estate Crop Development), support organizations (ICCRI) and the most important historical buyer (PT Indo CafCo).

The establishment of CGIP was facilitated not only by such national public institutions as the Office for Estate Crop Development, the Directorate General for Estate Crops and ICCRI, but also by such international partners as CIRAD. A number of meetings were held to elect a chairman and support staff. As a new social organization, CGIP also needed time and awareness-raising in order to become consolidated. The organization was initiated by the farmers' groups, but has been enlarged to involve other stakeholders in the coffee sector. In June 2007, it was composed of 58 *subak abians* (representing 3 218 farming families), 4 private coffee processors and 2 roasters in Denpasar, which sell Kintamani coffee. The *subak abians* are composed of farmers who are all red cherry producers. Several *subak abians* also have processing facilities and produce parchment coffee or green coffee, so that they can be represented in both the red-cherry-producer section and the coffee-processor section.

There has so far been no link with other certification systems for coffee in order to avoid confusion, since this is a pilot project focusing on GI protection in Indonesia.

Product specification and contents of the Book of Requirements (or code of practice)

As called for by Government Decree 51 of 2007, the Book of Requirements contains:

- the name of the GI that is filed for registration;
- the type of goods covered by the GI;
- a description of the specific characteristics and quality that allow objective differentiation of the product from other similar products of the same category through characteristics conferred by its origin, with a description of the geographical environment and the inherent natural and human factors that have an effect on the quality or characteristics of the product (see subsection entitled "Specific quality and product differentiation" above);
- definition of the boundaries and/or a map of the area that is protected by the GI (see Figure 2 and subsection entitled "Delimitation of the production and processing zones" above);
- a description of the history and tradition behind the use of the GI to designate goods from the area, including a description of recognition of the GI by the relevant public;
- a description of the production process, explained in such a way as to allow any producer in the zone to produce the product on the basis of the information provided in the specifications (see Figure 3 above);

- a description of the method used to monitor the product, together with measures taken to ensure its traceability (see Figure 7 below);
- the specific labelling (logo) to be used relating to the GI (see Figure 3 below).

Figure 3. Logo to be used for the Kintamani Bali Arabica Coffee GI



In 2007, CGIP drew up a document entitled *Permohonan Pendaftaran Indikasi Geografis Kopi Kintamani* (or “Request for registration of Kintamani coffee GI” – hereafter referred to as the Book of Requirements), based on experience under the pilot project. CGIP needed several meetings over the period of a year in order to agree democratically on the contents of the Book of Requirements. Some of the elements in this document regarding specific quality and product differentiation are presented below.

The GI product is Arabica coffee originating in Bali’s Kintamani zone and known as Kopi Arabika Kintamani Bali. This name has been recognized as identifying Bali coffee for a long time and has indicated a specific quality of coffee since the beginning of the nineteenth century. GI protection will concern green coffee, roasted coffee and ground coffee obtained from fully washed Kintamani Arabica.



Kopi Arabika Kintamani Bali red cherries ►

Kintamani Bali coffee is produced from Arabica coffee bushes grown in the Kintamani highlands at an altitude above 900 metres. The Kintamani zone lies on the slopes of the volcanic Mount Batur, with fertile Entisol and Inceptisol soils. It has a cool, dry climate, with abundant rainfall during the six- to seven-month rainy season. The landforms of the zone are favourable for the growing of Arabica coffee.

Several selected planting materials are used to produce Kintamani Bali coffee. The bushes are grown under shade trees, combined with other crops, and are fertilized organically. The coffee cherries are hand-picked and carefully sorted, with a minimum of 95 percent of red cherries. They are then processed by using the wet method, with a fermentation time of 12 to 36 hours, and clean parchment beans are fully sun-dried. The post-harvest processing techniques applied by Kintamani farmers reveal the quality potential of the area. These specific local characteristics, combined with agricultural and

processing practices, allow the production of coffee beans with a high quality and a specific taste.



Sorting and processing of red cherries, and sun drying

Green beans of Kintamani Bali coffee are traded in Grade I form with a maximum of 11 physical defects according to the Indonesian national standard, a maximum moisture content of 12 percent and a greyish green colour. Kintamani coffee beans are generally larger in size than the Arabica coffee beans from other places in Indonesia. On average, 84 percent of the beans are retained by size 17 or 18 screens (and 87 percent of the beans have a medium or large diameter according to the Indonesian national standard classification). This means that it is easy for Kintamani Bali coffee to comply with the speciality coffee market requirement that beans have a size equal or superior to “screen 16”.

When medium roasted, Kintamani Bali coffee is relatively homogeneous, with a sweetish ground coffee flavour and a very light spicy tone. It has a significant cup taste profile, regular acidity, a strong aroma quality and intensity, with a tangerine or lemon scent and a medium body. Kintamani Arabica coffee is usually not too bitter or astringent. This is because Kintamani farmers take great care over selective picking (only red cherries) when harvesting. In more general terms, a Kintamani cup is clean and free of significant taste defects. One of the reasons is that the farmers already implement good manufacturing practices, following the standard of operational procedures provided by ICCRI and provincial government technical experts.

Lastly, the main taste profile of Kintamani Bali coffee is: (i) a medium to high acidity, (ii) a good to very good aroma quality and intensity, (iii) a fruity taste (often lemony), (iv) a medium body without too much bitterness, (v) a very light astringency and (vi) a clean cup, free of defects. It therefore has a good cup taste potential. The profile is very similar to Java coffee, which normally provides a spicy note. However, the Kintamani Bali coffee taste profile is different from Sumatra (Mandheling) coffee, which normally has a complex aroma and flavour and a strong body (almost syrupy), in addition to very low acidity.

In order to maintain consistent good quality, CGIP has established a standard of operational procedures that must be followed by *subak abians*. A summary of the procedures and critical monitoring points is presented as a flowchart in Figure 4.

Figure 4. Summary of the required operational procedures for post-harvest processing of Kintamani Bali Arabica coffee

Source: *Book of Requirements for Kintamani Bali Arabica coffee* (simplified and modified by the author).



Type of recognition of specific quality or reputation

The reputation of Bali Arabica coffee has been recognized since the early nineteenth century. David (1996) also mentioned Bali coffee as one of the world's "geographic coffees".

After a quality improvement programme was stepped up in the 1990s, the market again started to recognize the reputation of Bali coffee. Good quality coffee resulted from the wet processing method used by a private company and was marketed under the "Bali Washed Arabica Shinzan" trademark, mainly for the Japanese market.

Kintamani Arabica coffee was previously recognized mainly for the domestic market, especially in Bali and Java, in order to distinguish it from Robusta coffee produced in other parts of Bali. When a GI protection project for Arabica coffee was set up in 2002, the farming community in Kintamani agreed to promote the geographical name "Kintamani

Bali” for their coffee, and this name has so far been recognized in speciality markets in the United States, Europe and Australia.

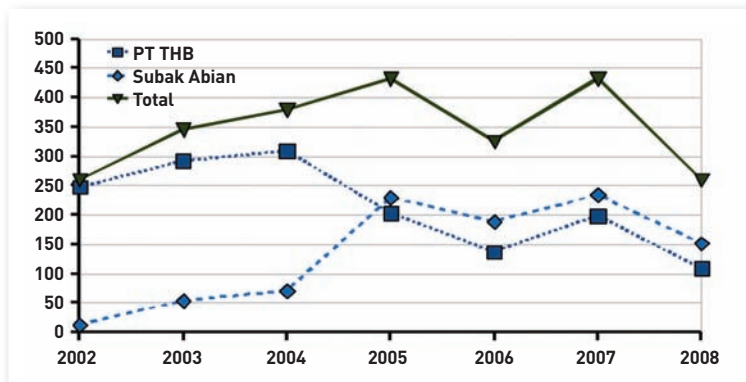
A number of domestic roasters, such as Caswell’s Coffee and PT Bhineka Jaya, have been purchasing Kintamani Bali Arabica coffee from *subak abians* and selling roasted beans or ground coffee under the “Kintamani Bali” brand. The roasters sell branded packets of “Kintamani Bali” mainly as souvenirs and for brewed coffee in special cafés.

Kintamani Bali coffee has recently become more expensive than similar coffees from other parts of Indonesia. For instance, the farmgate price of green coffee in 2008 rose to US\$3.3 per kilogram (when the NY “C”⁴ terminal equivalent was US\$2.6 per kilogram), making it too expensive for domestic consumers.

Although specific market studies for Kintamani Bali coffee have not yet been conducted, it seems that demand from overseas markets is gradually growing, inasmuch as exporters are requiring more coffee each year. Spot interviews indicate that foreign tourists purchase roasted and ground Kintamani Bali coffee because of its taste and also its uniqueness as souvenirs. The market growth of roasted and ground coffee is very slow, mainly because of its high price. Although local inhabitants would also like to consume more good-quality coffee, they sell their best coffee to obtain more cash for their households.

Changes in the production amounts of Kintamani Bali coffee are shown in Figure 4. During the past seven years, the average annual growth rate for the total production of wet-processed Arabica coffee has been 4.2 percent. *Subak abians* showed a particularly high average growth rate of 92.7 percent, while the large-scale processor PT Tirta Harapan Bali showed a negative rate of -7.2 percent.

Figure 5. Production (in tonnes) of wet-processed Arabica coffee in the Kintamani zone



Note: PT THB = PT Tirta Harapan Bali

Market

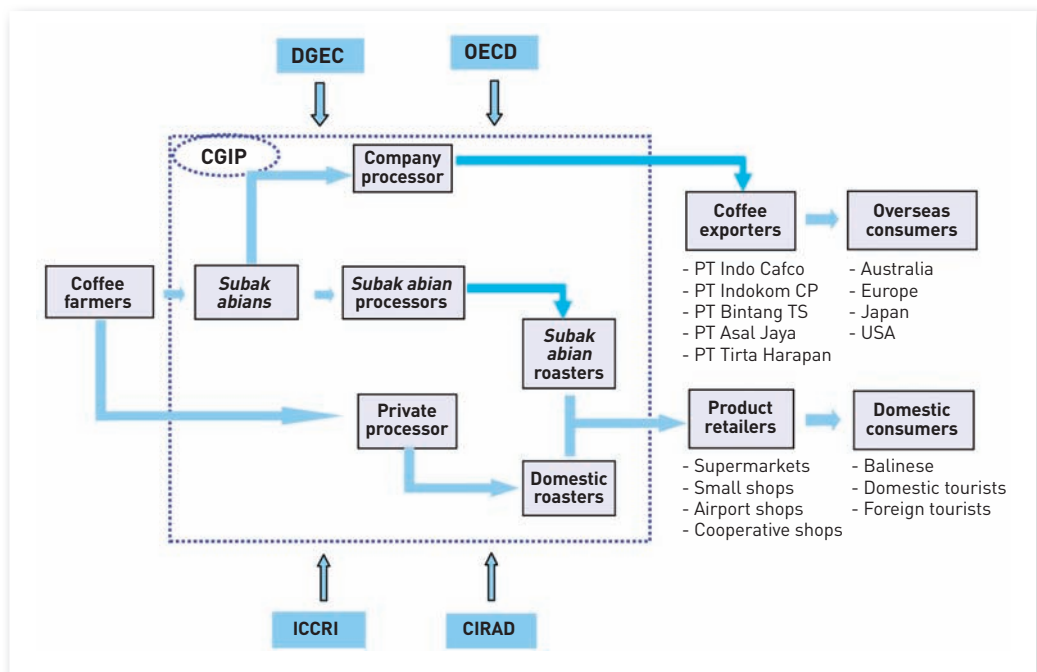
In the initial stage of the quality improvement project, only one exporter (PT Tirta Harapan Bali) was buying red cherries directly from *subak abians*, after which the cherries were

⁴ New York contract “C” (referring to the coffee future market)

wet-processed in a large factory with a capacity of 1 500 tonnes per year. The company is still working today, selling green coffee to Japan under the brand name “Bali Arabika Coffee Shinzan”, while in English it is called “Bali Arabika Coffee God Mountain”.

After quality improvement and GI application programmes had been implemented, a number of coffee exporters were interested in becoming involved. In 2008, six exporters thus purchased coffee directly from *subak abians*, namely PT Indo CafCo (Lampung, Sumatra), PT Indokom Citrapersada (Surabaya, eastern Java), PT Asal Jaya (Malang, eastern Java), PT Bitang Tunggal Sejati (Surabaya, eastern Java) and PT Kaliduren (Malang, eastern Java). Apart from these exporters, two roasters also purchased good-quality coffee from *subak abians*, namely PT Bhineka Jaya (Denpasar, Bali) and Caswell’s Coffee (Jakarta). The exporters seek to sell only to the speciality sector, where the demand is now increasing, as reported by the National Coffee Association of the United States (NCA, 2008).

Figure 6. Supply chain and stakeholders involved in establishing the GI protection system for Kintamani Bali Arabica coffee



Notes: CGIP – Community of Geographical Indication Protection for Kintamani Bali coffee
 CIRAD – International Cooperation Centre for Agrarian Research for Development
 DGEC – Directorate General for Estate Crops, Ministry of Agriculture
 ICCRI – Indonesian Coffee and Cocoa Research Institute
 OECD – Office for Estate Crop Development, Province of Bali
 PT – *Perseroan Terbatas* (limited company)

4. Stakeholders and collective organization

Types of stakeholder involved, according to roles and objectives

GI protection for Kintamani Bali coffee was a pilot project in Indonesia, starting with four *subak abians* as pilot farmers' groups in 2002. Arabica coffee growers in the Kintamani zone have an average of 1.0 to 1.5 hectares of land, most of which is traditionally owned. Farmers supply red cherries to *subak abians* for collective selling or collective processing to produce consistent good-quality coffee.

Arabica coffee farmers in the Kintamani highlands generate additional income through mixed farming, with crop diversification and animal husbandry. They grow tree crops (citrus, tangerines, timber etc.), not only to provide shade for their coffee bushes but also to generate additional income. They often also grow elephant grass on the edges of their coffee fields to feed their cattle, which then produce organic manure for the coffee bushes. They also obtain additional income from the sale of livestock.

The collective processing method of the *subak abians* has created many jobs for villagers. For instance, in 2008 the Kerta Waringin *subak abian* was the source of 2 160 workdays to wet-process 165 420 kilograms of red cherries, or the equivalent of 76.5 kilograms per workday. In 2008, *subak abians* processed a total of 905 860 kilograms of red cherries, creating the equivalent of 11 841 workdays.

PT Tirta Harapan Bali, the only company, produces Kintamani Bali coffee by collecting red cherries from *subak abians* and wet-processing them in a large factory. The company was established under Indonesian law and exports coffee directly.

According to CGIP, the objectives in establishing GI protection were to obtain and maintain good prices and market access, protect the territorial name of their good-quality coffee, develop agricultural tourism and conserve natural resources. CGIP organized meetings with all stakeholders to draw up a programme of activities and discuss common problems. During the procedure to obtain a GI protection certificate from the government, there was no negative reaction from stakeholders, because a large number of meetings were held over several years to discuss various aspects of the development of a GI.

Importance of external support

Acting through the Directorate General for Estate Crops and the Office for Estate Crop Development, the central government granted the *subak abians* equipment for the wet-processing of coffee. Local government (provincial and district) also provided equipment grants or soft loans for *subak abians*, while ICCRI and CIRAD provided technical assistance in the shape of scientific research on specific topics, training for CGIP and farmers, and support for coffee processing, quality control and the obtaining of market access.

In 2001, ICCRI and CIRAD launched a survey on the potential benefits of promoting Arabica coffee from the Kintamani highlands as a GI-protected product. This survey was followed in 2002 and 2003 by more detailed studies on farming systems, social aspects and product quality. In 2003, ICCRI and CIRAD experts then started awareness-raising activities concerning the GI system and its organization, aimed at Bali provincial government

officers, extension service specialists and interested farmers. At the same time, an intensive *subak abian*-level campaign was launched to improve coffee quality by applying good manufacturing practices regarding the fully washed process, and in this regard ICCRI played a role not only in quality control, but also in providing training and technical support.

Intensive technical training courses on the application of the GI system was provided by the French National Origin and Quality Institute (INAO), CIRAD and ICCRI in 2004 and 2005 for extension specialists in the Kintamani area, *subak abian* representatives and coffee processors. During these two years, *subak abians* and other stakeholders were encouraged and supported in establishing a GI managing group to represent the community, and CGIP thus came into being with the agreement of Kintamani coffee stakeholders. ICCRI and CIRAD provided CGIP with technical and editorial information and assistance in drafting the Book of Requirements for the Bali Kintamani Arabica coffee GI. The provincial government also assisted CGIP in applying to the Directorate General for Intellectual Property Rights for legal protection.

The government has so far been very active in developing GI protection for Kintamani Bali coffee and has empowered *subak abians* by means of grants for such items as planting material and post-harvest processing equipment, training, assistance in setting up a zone-level organization, facilitation of market access and the provision of soft loans. The government has also provided premises for CGIP offices, so that the organization can carry out its coordination functions efficiently. However, in the near future the organization must gradually take over the various functions from the government.

CGIP is expected to become an independent and self-supporting organization in the long run in order to sustain the production of GI-protected Kintamani Bali coffee. To help it develop and progress, CGIP will collect a contribution of IDR 100⁵ for every kilogram of green coffee sold.

Some essential outside contributions still needed by the community are promotion of the product to improve marketing, access to financial support during the harvesting season and improvement of human resource skills.

Structure and coordination

The traditional social structure of the *subak abians* is an effective tool in organizing farmers. It is a unique and very specifically Balinese social entity. However, since it lacks legal status, there are several obstacles to its acting as a private company or a cooperative, for example accessing banks to obtain financial support or negotiating business contracts. The establishment of a cooperative is considered a good alternative for *subak abian* members in order to develop their community-based business. A number of *subak abians* have already established cooperatives, and a secondary cooperative at zone level should be considered as a short-term tool to enable CGIP to operate on a larger scale.

The establishment of CGIP was a good way of coordinating *subak abians* and the private sector. CGIP has started to take over the various tasks, but it still needs time before it can work really efficiently. Last year (2008), CGIP played a role in negotiating coffee prices with

⁵ US\$1 = IDR 10 500

exporters. Although business contracts have not yet been made between several *subak abians* and their exporter partners, before harvesting there is a meeting between the two parties to negotiate volume, quality, price and time of delivery, and this meeting is normally facilitated by the local government.

Although the social structure in the Kintamani zone is a valuable asset in establishing an economic community-based body, limited expertise and insufficient access to microfinance are potential constraints.

Certification and control mechanisms

In order to ensure the credibility of the Kintamani Bali coffee GI, a control and traceability plan has been established, with internal or external control. The mechanism is intended to monitor and ensure (i) the fulfilment of the Book of Requirements, (ii) the origin of the product (traceability) and (iii) the quality (absence of defects) and the specific nature of the product. The *subak abians* and CGIP have established an internal monitoring system.

Internal control by the community is carried out from the coffee-growing stage up to processing and has three elements: self-control by coffee farmers, control by the *subak abian* and by CGIP.

- In self-control, each producer has to check that his or her plantation meets the stipulations of the Book of Requirements concerning such matters as shade trees, varieties (only in the case of new plantations), density and maintenance (especially fertilizer and pesticide use).
- Control by *subak abians* is carried out annually, when *subak abian* leaders have to check the conformity of their members' coffee farms and report to CGIP. Each *subak abian* can select the means used to carry out this control: the *subak abian* board may carry it out itself or may designate a special person. Depending on circumstances, a simple meeting may be enough, but specific inspection of plantations may have to be carried out.
- Control by CGIP is also carried out each year. In April, it selects five *subak abians* at random and checks that their coffee farms are in conformity with the Book of Requirements, taking two days per *subak abian* (so that the whole process takes a total of ten days).

External control will be carried out by the national Geographical Indications Expert Team of the Directorate General for Intellectual Property Rights.

Traceability will cover three stages: village level through members' registration; during harvesting and processing, particularly monitoring of the origin of red cherries; and during the sale and purchase of GI coffee.

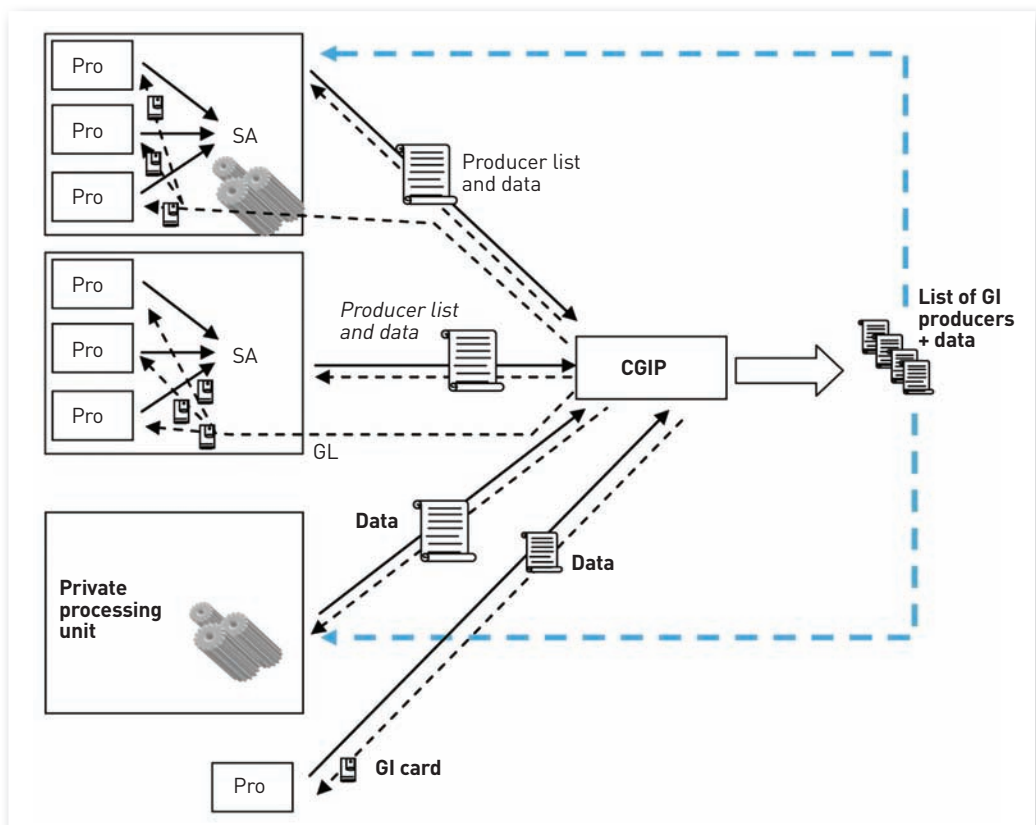
The *subak abians* belonging to CGIP have been asked to list all their coffee producer members. This list has been computerized and has allowed CGIP to give each producer a "GI card" with a membership number. Processing units should send CGIP a list of red cherry suppliers, and CGIP then checks whether the amounts of red cherries sold by each producer are in line with the size of farm and number of trees. After processing and storage,

and obtaining the GI certificate (see the information below), the processing units can sell the GI coffee. Each transaction has to be registered, then CGIP checks the transactions and the correspondence between the amounts of green coffee or coffee in parchment sold and the amounts of red cherries purchased from GI producers. The Balinese roasters registered as GI members also have to send the same kind of data (purchases of green coffee and sales of roasted and ground coffee) to CGIP in order to check the amount of coffee sold with a GI certificate. (See the diagram of traceability in Figure 7.)

The cost of certification for GI protection is paid by the provincial government (the Office for Estate Crop Development), but the cost of internal control must be paid by CGIP. The cost of external control is normally paid by the central government (the Directorate General for Intellectual Property Rights).

Figure 7. Diagram of traceability for Kintamani Bali Arabica coffee GI

Source: Book of Requirements for Kintamani Bali Arabica coffee.



Intensive internal control is a new system for small farmers in Kintamani, and a poor understanding of the system could be a major constraint. However, the traditional social structure and support from the government and the research institute, combined with the growing demand for good-quality coffee from Bali, will be strong factors forcing the community to carry out effective internal control.

Collective action

Collective action by coffee-based *subak abians* started in the late 1970s when the government launched its coffee development project. This action was followed by the picking of red cherries and their sale to a large factory in the zone in the mid-1980s.

Collective action to process coffee using the wet method at *subak abians* level was initiated in 2001, when ICCRI, working in collaboration with the Office for Estate Crop Development of Bali Province, provided training on quality improvement, followed by action to obtain a GI protection certificate. CIRAD has also facilitated a farmers' study tour to France in order to learn about GI application in that country and promote the candidature of GI-protected Kintamani Bali coffee.

Collective action to obtain added value through quality improvement has improved such aspects of social life as religious ceremonies and individual relationships, since farmers obtain more money from coffee. It has also improved networking among *subak abians* in the zone. More attention is also focused on natural water conservation to ensure enough water during the coffee processing period.

5. Impact analysis

Perception by stakeholders

Different stakeholders have different perceptions. The *subak abian* are satisfied with the GI initiative because it directly benefits them, especially in terms of better prices and increased market access. The large-scale processor (PT Tirta Harapan Bali) seems less satisfied, because of shortages in the supply of red cherries from *subak abian* to its factory. Exporters and domestic roasters are so far satisfied with the quality sign programme. Various foreign traders and roasters seem satisfied too, inasmuch as they recognize that the coffee is being processed properly and in line with hygienic procedures. No negative effects of the programme have yet been identified.

Economic impacts

The programme has had significant positive effects on rural economic development in the zone. In 2002, when the project was started, the farmgate price of dry-processed Arabica coffee was very low (about US\$0.8 per kilogram) – even lower than that of Arabica coffee from other places in Indonesia. The price increased gradually, so that by 2008 the farmgate price was about US\$3.3 per kilogram, which meant that the price of red cherries in the zone also went up. At the same time, the price of conventional coffee was US\$1.9 per kilogram. Even though the increase in price was also affected by the increase in world coffee prices, the quality sign programme provided a significant contribution. In 2008, total farmgate sales of Kintamani Bali coffee were estimated at about US\$825 000.

Of course, the quality sign programme has increased the reputation of Kintamani Bali coffee in both domestic and foreign markets. There is a steady increase in demand at present, mainly from the speciality sector in Australia and the United States.

Impact on rural development: economic and social aspects

The estimated annual increase in income resulting from the quality sign programme was about US\$800 per hectare under coffee. Farmers who took part in coffee processing as workers received about US\$250 per year (working on a part-time basis during the coffee harvest). Each *subak abian* employed between 5 and 25 people during the coffee harvest, depending on the volume of coffee cherries to be processed, and this slowed rural depopulation. A number of young people even came home from the towns to work on coffee farms and in processing. A number of women also became involved in post-harvest coffee processing, rather than performing only on-farm activities. The rules for those working collectively to process coffee at the *subak abian* were agreed during a meeting of members.

The programme has increased cooperation between *subak abians* and coffee roasters and exporters.

Such infrastructure as village roads, processing units and electricity have been provided by the provincial government in order to promote coffee villages as tourist destinations in Bali. A number of tourists are already being attracted by “coffee ecotourism”, but internal capacity-building and increased promotion are still needed.

Culture and traditions

The Balinese conduct a number of Hindu ceremonies each year to express their gratitude to the gods. The increased income resulting from coffee quality improvement has improved social life, especially in the case of religious ceremonies. The people are also proud of the quality of their product. Farmers’ representatives often receive marks of esteem from the government or private sector, in the form of participation in training courses, attendance at workshops and the receipt of prizes in farmers’ contests.

Environmental impact

The Balinese believe that a good relationship with the environment is one of several key factors in reaching happiness in their lives, which is why good agricultural practices have been a tradition in the region in order to preserve the environment. Farmers built terraces on sloping land and maintain them well. They grow permanent shade trees to provide a favourable microclimate for their coffee and a “green” source of feed for their cattle. They have traditionally preserved local biodiversity, such as wild cattle and hens. An indirect impact of the quality sign programme on local environmental preservation has been observed, inasmuch as increasing coffee prices lead farmers to grow more coffee rather than annual crops, and this will improve soil and water conservation in the long run.

Costs

The costs of GI certification of Kintamani Bali coffee are made up as follows: (i) preparation (research, training, meeting and equipment), (ii) registration (application and inspection) and (iii) control (internal and external). The estimated cost of establishing GI protection up to the end of 2008 was about US\$0.34 per kilogram of green coffee (farmgate price) and

was for the most part granted by the Government of Indonesia and the French Embassy. The main expenditure was for preparation – chiefly grants for equipment, research and the training of rural producers. The cost of maintaining GI protection in 2009 should decrease significantly to about US\$0.045 per kilogram of green coffee, mainly to build up the capacities of CGIP and for quality control. In the long term, CGIP is expected to raise funds by placing a levy on the sale of GI coffee in order to become self-supporting.

Internal strengths and weaknesses

The Kintamani highland zone has a very high potential to produce a unique quality of Arabica coffee. Human capacities have been improved with a view to obtaining and maintaining a good quality. The reputation of Bali coffee is being revived by GI certification, and market demand is gradually growing. Bali's fame as a major tourist destination will also be of help in promoting specific products from the island.

As a new organization, CGIP is not yet strong enough to conduct its business effectively, but needs further capacity-building. Water availability will also be a serious constraint for post-harvest processing in several villages. Moreover, farmers' lack of access to financial support institutions will slow down the growth rate in the production of good-quality coffee.

Context-linked opportunities and dangers

A significant market growth rate of speciality coffee in consumer countries is a major external opportunity for the development of GI-protected coffee. The demand for sustainable coffee is also growing, linked to increased awareness of environmental issues. The Government of Indonesia is keen to apply the GI protection system to products from a variety of origins.

World coffee price volatility is one of the main external threats to maintaining the quality of Kintamani Bali coffee. An improved reputation and the increased price of Kintamani Bali coffee will stimulate internal competition, with other parties seeking to cash in by producing similar products within the zone. Product counterfeiting should also be seen as a potential threat.

Success and failure factors

The establishment of GI protection for Kintamani Bali Arabica coffee was a pilot project for application of the GI system in Indonesia, driven mainly by research institutes with government support. Success factors were (i) innovation and support from research and development institutions (ICCRI and CIRAD), (ii) government (central and provincial) support, (iii) the farmers' traditions and philosophy, (iv) traditional farmers' organizations, (v) the commitment of stakeholders to speciality quality, (vi) the partnership between farmers' organizations and coffee exporters for the marketing of quality coffee, and (vii) significant price differences between conventional and speciality qualities, which provided an incentive to coffee growers.

Constraints or potential failure factors were (i) price volatility, (ii) internal competition among collectors over the collection of coffee cherries, (iii) a lack of experience in managing a traceability and control system, and (iv) CGIP's need for further capacity-building.

Support and capacity-building required by stakeholders

With a view to sustaining their business, CGIP and coffee farmers need capacity-building in a number of spheres, such as access to financial support (mainly soft loans), improvement in the traceability and monitoring system, and training in the maintenance of consistent quality and increased production. CGIP also needs capacity-building both to develop downstream industries, such as packagers of origin-roasted beans and ground coffee, and to improve marketing.

Exporters need greater access to buyers of origin-linked coffee through promotion in consumer countries. Ongoing sales by exporters will have a positive effect on sustainable partnerships with CGIP in coming years.

Domestic roasters need better access to domestic and international markets. Improved access to the tourist sector is also considered a potential aid in developing roasted and ground coffee markets.

6. Lessons learned

Good quality is a key factor in developing Arabica coffee markets. The reputation of Bali Arabica coffee has been recognized since the early nineteenth century. However, when quality fell, prices also fell steeply, even reaching lower levels than those of Robusta coffee from a neighbouring region of Bali. Efforts to improve the quality of Arabica coffee in the Kintamani area had been made since 1997 in order to revive its reputation, but more concerted efforts really started in 2002. When consistent good quality was achieved, the price rose, and Kintamani Bali is now one of the most expensive Arabica coffees in Indonesia.

Most Balinese coffee farmers have now understood that growing Arabica coffee basically means focusing on quality of taste. After receiving various types of training, they now have a better understanding of quality and they know that the excellent taste of Arabica coffee can be achieved only by applying good agricultural practices and good manufacturing practices. Various stakeholders from the coffee sector have focused their joint attention on improving the quality of Arabica coffee in Bali, achieving significant positive results. The next essential step in retaining market trust and ensuring ongoing sales is to maintain consistent excellence of quality.

The involvement of research and development institutions is very important in building the capacities of the rural community, particularly in improving knowledge, technological expertise and market access. The main role of the government has been to build up physical infrastructure, for example through the granting of equipment and facilitation of access to financial support.

Demand for high-quality Kintamani Bali coffee for the speciality market sector is increasing every year because of its reputation. The farmers wanted to obtain legal protection for their product by using the GI system and therefore established an organization (CGIP) to represent the local coffee community and manage the protection. Establishment of this organization was an important step towards management of preparation, registration, monitoring and marketing, while also helping to avoid social conflict.

GI protection is new in Indonesia. It took seven years to develop the system after promulgation of Law 15 of 2001. A pilot project to establish GI protection of Arabica coffee from the Kintamani highlands of Bali was an essential activity in obtaining practical experience in order to establish government regulations regarding GI. Government Decree 51 of 2007 regarding GIs was published, with a view to following up and enlarging on Law 15 of 2001, thus facilitating its implementation.

On 5 December 2008, CGIP obtained a certificate from the Directorate General for Intellectual Property Rights for the GI protection of Kopi Arabika Kintamani Bali, the first product protected by the GI system in Indonesia.

After obtaining GI protection, the stakeholders expect Arabica coffee grown in the Kintamani highlands to provide greater benefits in coming years. CGIP expects protection to be a tool in assuring the sustainable premium quality of Kintamani Bali Arabica coffee and improving the livelihood of coffee farmers, in addition to developing agrotourism. Higher coffee prices have encouraged farmers to grow more coffee, and the local government expects this to have positive effects on the environment, particularly in improving hydrological conditions, minimizing soil erosion, improving carbon storage and conserving biodiversity.

Coffee traders expect Bali Kintamani Arabica coffee to provide a wider choice of protected-origin coffees for end consumers in the speciality sector. Kintamani Bali coffee has a good market in Australia, where the speciality coffee sector is starting to develop, and also in the United States, which is the main speciality coffee consumer. Recent improvements in the quality and consistency of Kintamani Bali coffee has attracted a number of coffee exporters to become involved in the supply chain.

The government will use the establishment of GI protection for Kintamani Bali Arabica coffee as a model in developing GI coffee from other origins and various products from other places in Indonesia. The Bali provincial government is preparing to register other products (for example Bali vanilla, Kubu Bali cashew nuts and Amed Bali salt) for such protection. The central government will use the success in establishing GI protection for Kintamani Bali coffee as a model for other origin-linked products. In the case of coffee, the communities of Gayo (Aceh) and Bajawa (Flores Island) have taken lessons from Kintamani and are preparing to apply for GI protection for Gayo Arabica coffee and Flores Bajawa Arabica coffee.

The establishment of GI protection for Kintamani Bali coffee was demanding in terms of action, time and energy, but the involvement of a number of stakeholders allowed success to be achieved. The sharing of knowledge, experience and resources from a range of competent stakeholders was the key factor in obtaining benefits from internal strengths and external opportunities, overcoming internal weaknesses and anticipating external threats.

References

- AEKI.** 2007. *Statistik Kopi 2005–2007*. Jakarta, BPP AEKI Pusat.
- Dauids, K.** 1996. *Home coffee roasting, romance and revival*. New York, St. Martin's Griffin.
- Directorate General for Estate Crops.** 2007. *Estate Crops Statistic of Indonesia 2006 – 2008: Coffee*. Jakarta, Ministry of Agriculture.
- Direktorat Jendral Hak Kekayaan Intelektual.** 2007. *Kompilasi Peraturan Perundang-undangan Hak Kekayaan Intelektual*. Direktorat Jendral Hak Kekayaan Intelektual, Departemen Hukum dan Hak Asasi Manusia, Tangerang.
- Idris, K.** 2003. *Intellectual property, a power tool for economic growth*. WIPO Publication 888.1 (2nd ed.). Geneva.
- International Coffee Organization.** 2008. *Annual review*. London, ICO.
- International Trade Center.** 2002. *Coffee, an exporter's guide*. Geneva, ITC.
- Kampf, R.** 2003. Administration of a regional registration system for geographical indications: How to specify and to control geographical indications? *WIPO Asia and the Pacific Regional Symposium on the Protection of Geographical Indications*, New Delhi, 18–20 November 2003.
- Key Coffee Co.** 2002. *Perjalanan panjang usaha kopi di Tana Toraja* ("Long journey of coffee business in Tana Toraja" translated from Japanese into Indonesian). Rantepao, PT Toarco Jaya.
- Laerne, van Delden K.F.** 1885. *Verslag over de Koffiecultuur in Amerika, Azie en Afrika*. The Hague, Minister van Kolonien Nederland Indie, Martinus Nijhoff.
- Masyarakat Perlindungan Indikasi Geografis Kopi Kintamani Bali.** 2007. *Permohonan Pendaftaran Indikasi Geografis Kopi Kintamani* ("Book of Requirements").
- Mawardi, S., Wibawa, A., Sulistyowati & Tamtama, M.S.** 2004. *Validasi indikasi geografis kawasan perkebunan kopi arabika di Kintamani (Bali)*. Jember, Pusat Penelitian Kopi dan Kakao Indonesia.
- Mawardi, S., Avelino, J., Sallee, B., Perriot, J.J., Sautier, D., Lelong, C., Jacquet, M., Ribbeyre, F. & Keller, V.** 2005. Developing geographical indication protection in Indonesia: Bali Kintamani Arabica coffee as a preliminary case. *Seminar on Geographical Indication: A Land of Opportunities*, Hanoi, 15–16 November 2005.
- Mawardi, S., Ismayadi, C., Wibawa, A., Sulistyowati & Yusianto.** 2006. Model kemitraan bermediasi (MOTRAMED) untuk pengembangan agribisnis kopi melalui perbaikan mutu dan sistem pemasaran di tingkat kelompok tani. *Simposium Kopi 2006*, Surabaya, 2–3 October 2006.
- NCA.** 2008. Americans drinking more gourmet coffee. *Coffee and Cocoa Int.* 35(2), 30–31.

Peraturan Pemerintah Republik Indonesia Nomor 51 Tahun 2007: Tentang Indikasi-geografis (Government Decree 51 of the Republic of Indonesia, 2007, concerning geographical indications).

Pitana, I.G. 1994. Desa adat dalam arus modernisasi. In Dalam I Gde Pitana (eds.). *Dinamika masyarakat dan kebudayaan Bali*. Bali Pos, pp. 137–169.

Undang-undang Republik Indonesia Nomor 15 Tahun 2001: Tentang Merk (Law 15 of the Republic of Indonesia, 2001, concerning trademarks).

World Intellectual Property Organization. 2003. Introduction to geographical indication and existing means of protection. *WIPO Asia and the Pacific Regional Symposium on the Protection of Geographical Indications*, New Delhi, 18–20 November 2003.

II. Kampong Speu palm sugar, Cambodia

by

Prak Sereyvath

Abstract:

After its accession to WTO, the Cambodian Government prepared a draft law on the protection of GIs, intending to use the GI system as a tool to promote the country's agricultural and rural development. With a view to facilitating the registration and protection of Cambodian GI products while awaiting implementation of the law, the Ministry of Commerce has been executing pilot projects since 2007, including one focusing on Kampong Speu palm sugar, to provide assistance for the dissemination of knowledge and skills in this connection. On 18 May 2009, it issued a ministerial edict that provides a legal framework for the protection of registered GI products.

Palm sugar production has a long tradition in Kampong Speu Province. The area's sandy soil and low rainfall, combined with producer expertise, make its palm sugar particularly tasty, strong and aromatic. It is characterized by a typical palm aroma and light brown colour, features that allow its recognition on the market and among Cambodian consumers, leading to fraudulent use of the name.

A GI management organization – the Kampong Speu Palm Sugar Promotion Association – was established in 2008 with support from the Pilot Project for the Protection of Geographical Indications in Cambodia. This association, composed of producers, local collectors and private enterprises marketing palm sugar, seeks to manage the GI system, carrying out such activities as formulating a code of practice, raising awareness regarding the potential of the GI system, training farmers, organizing a control system, disseminating information and promoting the GI itself. The sustainability of this registered GI, which has been built on a solid basis, will now depend on the future market for products and on how much added value producers can obtain through quality improvement and a traceability system.

Introduction

As is true for all countries with major agricultural and gastronomic traditions, Cambodia has many traditional specialties of origin-linked quality that stand to benefit from a geographical indication (GI) system. Producer expertise has resulted in many popular food items that are resources to be optimized for the domestic and export markets, showcasing Cambodia's rich agricultural and food heritage for tourists. Kampot pepper, Kampong Speu palm sugar, Kampot durian, Battambang rice, Battambang oranges, Siem Reap *prahoc* (fermented fish paste) and sausages, Kratie pomelos and Phnom Srok silk are examples of Cambodian agricultural, food and handicraft products that are known for qualities linked to their geographical origin.

1. Institutional context

Cambodia's WTO membership agreement was formally approved during the September 2003 WTO Ministerial Conference in Cancun. The agreement was ratified by the appropriate Cambodian institution, and in October 2003 Cambodia became the 147th WTO member, after which it prepared a draft law on the protection of GIs, intending to use this tool to promote the country's agricultural and rural development. This law, drafted by the Ministry of Commerce, is moving toward approval by the national assembly, but the process may be lengthy. In the meantime, with a view to facilitating registration and protection of Cambodian GI products, on 18 May 2009 the Ministry of Commerce issued a ministerial edict that provides a legal framework for the protection of registered GI products. The edict establishes rules concerning the recognition, registration and protection of GIs for the purpose of protecting the intellectual property rights of producers and consumers, preserving and boosting traditional know-how and national identity, creating jobs in rural areas, and promoting community development, tourism and poverty reduction.

Under the edict, protection of GIs may be obtained for agricultural goods, foodstuffs, handcrafted goods and any other goods complying with the following definition of a GI: "a name, symbol or any other thing that is used to express or represent a geographical origin and can identify the goods originating from such geographical origin, where the quality, reputation or other characteristic of the goods is attributable to the geographical origin." The Department of Intellectual Property Rights of the Ministry of Commerce is the main institution involved in managing GIs in Cambodia. The draft law states that:

1. The **Geographical Indications Board** is established and headed by the Minister of Commerce and shall have the following permanent members:
 - the Secretary of State of the Ministry of Commerce in charge of Intellectual Property Rights, who shall be Chairman of the Board;
 - the Director of the Department of Intellectual Property Rights, who shall be Secretary of the Board;
 - representatives of the Ministry of Agriculture, Forestry and Fisheries;
 - representatives of the Ministry of Industry, Mines and Energy;
 Other board members may be added as necessary.

2. The Chairman of the Board may appoint any person to assist the Secretary of the Board.
3. The Geographical Indications Board is responsible for recognition of national and foreign geographical indications in the Kingdom of Cambodia and for monitoring of the goods registered.
4. The Government of the Kingdom of Cambodia shall allocate a budget in order to ensure the continuous operation of the Geographical Indications Board. The budget is separate but annexed to the budget of the Ministry of Commerce.

In operational terms, prior to the ministerial edict and approval of the protected geographical indication (PGI) law, the following steps have been taken:

- The Ministry of Commerce has established the Geographical Indications Office under the Department of Intellectual Property Rights.
- With the support of technical assistants, the GI Office is setting up operating procedures for dialogue with applicant organizations. In this way, the GI Office will acquire the expertise needed for GI management while at the same time giving GIs immediate effect (learning by doing).
- The GI Office is starting to work with the Ministry of Agriculture, Forestry and Fisheries, the Provincial Department of Agriculture, Provincial Chambers of Commerce, other provincial authorities and NGOs to establish a “GI culture” in Cambodia.
- Since 2007, the Ministry of Commerce has been executing a pilot project for the implementation of a PGI system in Cambodia with funding support from the French Development Agency (AFD) and technical assistance from the Technical Research and Exchange Group (GRET), a French NGO based in Paris, and the Cambodian Institute for Research and Rural Development. This Pilot Project for the Protection of Geographical Indications in Cambodia (hereafter referred to as the PGI Project) is providing assistance for the dissemination of knowledge and skills. A feasibility study was conducted in 2005 and other thematic studies (the production situation and market possibilities) have been conducted within the framework of the PGI Project. Such support has acted as a strong spur, making producers and operators receptive, so that they volunteer to start preparing applications for GI registration of their territorial products.¹

2. Geographical zone and specific resources

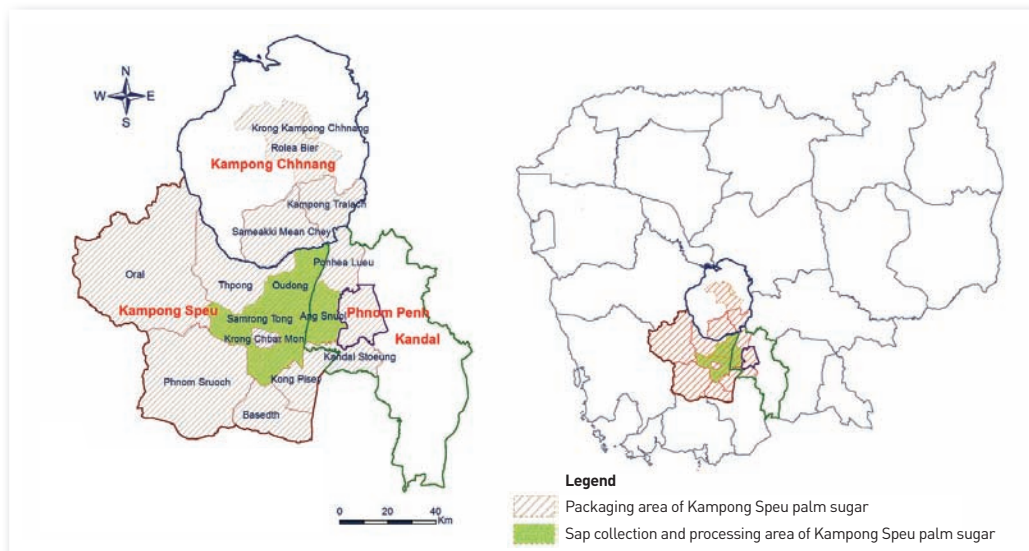
General context

The production zone (Oudong and Samrong Torng Districts of Kampong Speu Province) is located in the south of Cambodia (see the map in Figure 1), about 30 kilometres from Phnom Penh. The zone lies within Cambodia’s lowland rice-based farming system area. More than 80 percent of the inhabitants of the zone are farmers, producing rice as their main agricultural activity on household plots averaging about 1 hectare in size. The average rice yield in the zone is low (2.3 tonnes per hectare) due to poor sandy soil and low rainfall. After the rice harvest, farmer families generally grow vegetables. They also grow fruit trees and raise animals in the homestead area (on higher ground rather than the lower rice fields), allowing them to generate additional income. Farmers in the two

¹ This case study was undertaken before the registration of the GI, which was obtained in April 2010.

districts studied also have a long tradition of producing palm sap and sugar as part of the family farming system (see Table 1). Palm trees are scattered around the homestead area, on dikes between rice fields and along rural roads. Each of the villages studied has upland areas where palm trees are grown more densely. Although almost all families used to produce palm sugar, the number of producers has decreased considerably since the early 1990s because of competition from crystallized white sugar made from cane and the higher price of firewood used for cooking and evaporating palm sap.

Figure 1. Kampong Speu palm sugar production zone



Note: Palm trees that may be harvested to produce Kampong Speu palm sugar are located on the type of soil defined in point 5.1 of the specifications.

Table 1. SWOT analysis of the zone in terms of palm sugar production

Strengths	Weaknesses
<ul style="list-style-type: none"> - Soil (sandy) and climate (not too humid) produce good-quality palm sap. - The quality of Kampong Speu palm sugar is recognized by the market as linked to its production zone. - Nearness to Phnom Penh facilitates the transport of palm sugar products to the central market. - Nearness to forest areas allows producers to find non-wood forest products such as bamboo, <i>popel</i> (<i>Hopea recepei</i>) and firewood for palm sap and sugar production. - Producers in the zone have recently organized themselves for the protection of their products. 	<ul style="list-style-type: none"> - Soil and climate are good for the quality of palm sap but not for other agricultural products, which also adversely affects palm sugar production inasmuch as it limits income from other activities and hence producers' capacity to invest in palm sugar production. - Farmers' access to nearby forests is increasingly difficult, and non-wood forest products are becoming poorer.

Opportunities	Threats
<ul style="list-style-type: none"> - The recent establishment of a legal PGI framework is an opportunity for palm sugar producers in the zone to protect their products in the near future. - Kampong Speu palm sugar was selected by the PGI Project as a pilot GI product, and producers in the zone can obtain support from the project for the whole process of registering their products. 	<ul style="list-style-type: none"> - The zone is under pressure from urban expansion. Rising land prices are leading some producers to sell their land. Investors cut down palm trees to clear land for construction purposes.

Delimitation of production zone in the specifications (or code of practice)

According to the specifications or code of practice for Kampong Speu palm sugar, the production area is confined to Oudong and Samrong Torng Districts in Kampong Speu Province and Ang Snuol District in Kandal Province (see the map in Figure 1).

More specifically, to produce “Kampong Speu palm sugar”, producers must harvest the sap of palm trees growing in the three above-mentioned districts and the palm trees must grow on a particular type of sandy soil at least 80 centimetres deep, with gravel and good drainage. These criteria, together with the climatic conditions of the area, give Kampong Speu palm sugar its specific quality. Additional tests were carried out on the farms of all GI producer applicants to verify their compliance with soil criteria.

While sap collection and processing must take place in the three districts, packaging can also be carried out in the eleven bordering districts of Kampong Tralach and Sameakki Mean Chey in Kampong Chhnang Province, Oral, Thpong, Phnom Sruoch, Basedth, Kong Pisey and Krong Chbar Mon in Kampong Speu Province, Kandal Stoeung and Ponhea Lueu in Kandal Province and Dangkor in Phnom Penh Province.

Local resources

The palm sugar production area, lying in the three districts mentioned above, is marked by the presence of red-yellow podzol soil (sandy soil with good drainage capacities). All palm sugar professionals (producers and local traders) recognize that the location of trees on deep sandy soils is a key factor in the quality of the sugar. Sap appears to be more concentrated, explaining the rich aroma of Kampong Speu palm sugar. Moreover, the area is characterized by low rainfall, which contributes to the high sugar concentration in the sap.

Palm trees are a feature of Cambodian rice-field landscapes. In 1967, Delvert¹ described the Kampong Speu region (which is larger than the three production districts under consideration) as the country’s palm sugar production region, with 375 000 palm trees being exploited. Between 2003 and 2005, the total number of palm trees within the three districts of the GI production zone was 457 291 as shown in Table 2, about 261 898 of which were exploited (statistics of the district offices of agriculture). The number of palm trees is gradually decreasing with urban expansion (producers sell land and palm trees are felled), and the number of exploited trees is also decreasing because the income from palm

¹ Jean Delvert, *Le paysan cambodgien* (Paris: Mouton, 1961).

sugar production is lower than that from other jobs that producers can find (producing and selling charcoal, garment factory and construction work or driving a motor taxi).



Table 2. Number of palm trees and production volumes by GI district

District	Number of palm trees ¹			Production volume (tonnes per year)	
	Total	Exploited	Exploited by KSPA members	Total ²	by KSPA members ³
Oudong	189 539	84 524	3 267	5 916	204
Samrong Torng	172 203	121 798	251	8 525	18
Ang Snuol	95 549	55 576	0	0	0
Total	457 291	261 898	3 518	14 441	222

Notes: 1. Statistics of the Agricultural Offices of Oudong (2005), Samrong Torng and Ang Snuol (2003) and KSPA + PGI Project (2008).

2. Estimate based on an average annual yield of 70 kilograms of sugar per palm tree. In the case of Ang Snuol, almost all producers sell their palm sap to the Khmer Beer Company for palm beer production, while palm sugar production is very limited.

3. KSPA + PGI Project data (2008).

Apart from palm trees, the agricultural and natural resources of the area include a range of rice varieties, fruit and non-fruit tree species, vegetable and animal species.

3. Product specification

Specific quality

Palm sugar production has a long tradition of Kampong Speu Province. The area's sandy soil and low rainfall, combined with producer expertise, make its palm sugar particularly tasty, strong and aromatic. It is characterized by its typical palm aroma and light brown colour, features that allow its recognition on the market and among Cambodian consumers, leading to fraudulent use of the name. Although the fame of Kampong Speu palm sugar is long-standing, without a protection mechanism and legal framework, misappropriation of the name gives the product a lower quality image, which is why it is important to reinforce correct identification.

Kampong Speu palm sugar can be produced and marketed in the form of powder, paste, blocks or syrup.



Definition of the product in the specifications

The producers of Kampong Speu palm sugar collaborated in drawing up the specifications (or code of practice), which is the reference document defining the product, its specific quality, the GI area and common production rules. In this document, a choice was made to work on improving quality. Producers thus need to improve their current production practices in order to meet the following requirements.

With regard to palm tree exploitation

- The geographical production zone is delimited on the basis of its deep sandy soils (>0.8 metres), good drainage and low rainfall, and is located in Oudong and Samrong Torng Districts in Kampong Speu Province and Ang Snuol District in Kandal Province. Within this geographical area, additional checks are carried out on the farms of all GI producer applicants in order to verify compliance with soil criteria.
- After 1 January 2011, palm sugar producers must use bamboo receptacles (*bampongs*) instead of plastic containers.
- Receptacles must be cleaned between each use with cool water and boiling water.
- The use of *phnear* (made of palm leaves and used to transfer palm sap from flowers to receptacles) to filter palm sap is prohibited.
- The producer may place no more than one female palm tree flower or four male flowers in each receptacle.
- Receptacles should be collected from palm trees no more than 15 hours after they were installed, and the processing of the sap must be started no more than 2 hours after collection.
- The use of any chemical substance such as Sodium hydrosulphite to decrease the fermentation of palm sap and whiten palm sugar, for example in the *bampong* before the sap is collected or during processing of the sap, is prohibited.
- After taking the *bampong* from the palm tree, producers must put the sap directly into the pan; in other words, they may not pour the sap into a box or plastic bottle prior to processing.
- Before processing, producers must filter the palm sap by using special double strainers with a mesh of no more than 12 microns. The dimension of the strainer was studied and recommended by Confirel (a private enterprise marketing palm products from the production zone).

With regard to the processing of palm sap

- After 1 December 2009, producers must process palm sap by using improved cooking stoves, i.e. stoves equipped with chimneys, thus reducing amounts of firewood and

preventing contamination of the sugar by smoke or ash. The use of improved cooking stoves helps to obtain a clearer colour of palm sugar because there is no burning around the mouth of the wok during processing.

- The cooking place must be set up and covered with leaves or zinc roofing.
- Only wood, rice husks, dry plant matter or gas may be used as fuel.
- Palm sap may not be added during processing. In the case of paste sugar, processing takes a maximum of 3 hours, with shaking for a minimum of 15 minutes. In the case of powder sugar, processing takes a maximum of 3 hours and 15 minutes, with shaking for a minimum of 30 minutes.
- When evaporation has reached its target point, the pan is taken off the stove and crystallization starts in order to whiten the sugar: in the case of powder sugar, the shaking or crystallization is carried out with antoks (traditional tools made of wood for the purpose of crystallizing sugar) and khnos (traditional tools made of light wood or palm branches to shake boiled palm sap to make sugar); for other forms of sugar, the shaking or crystallization may be carried out with either antoks or khnos.

With regard to packaging

- Packagers may not use materials that could affect the quality of the sugar.
- Packaging must be suited to the product (no interaction).
- Packaging must allow conservation.
- Packaging must be environmentally friendly (manufacturing, recycling and local transport of materials).

With regard to hygiene

- Producers must wash their hands thoroughly with soap before processing the sugar.
- Producers must clean all other materials used.
- Producers must clean the processing premises.

Situation of producers vis-à-vis the specifications

Some of the requirements for palm tree exploitation, processing, storage and hygiene stated above have already been adopted by some producers, while the remaining producer members of the Kampong Speu Palm Sugar Promotion Association (KSPA) are being or will be trained and monitored to make sure that they comply with the rules by the deadline. The main constraint is that some producers cannot read or write, so that training must be practical. However, the advantage is that local producers have already gained some knowledge and have good practical skills regarding tree exploitation, processing and storage. The PGI Project is an opportunity for them to gain access to training, but the project will come to a close at the end of 2009.

Producers who do not undertake to meet the specifications may not become members of KSPA, although they can always apply in the future when they are able to meet the specifications. According to its statutes, the association is open to all producers producing palm sugar according to the specifications.

4. Stakeholders and organization

Actors in the supply chain

The palm sugar supply chain is illustrated in Figure 2 below.

Kampong Speu palm sugar producers are farmers who exploit palm trees grown in the GI production area to produce palm sugar. They also grow rice, which is considered their main agricultural activity, securing family food security and providing them with some cash income. However, for most palm producers, palm sap and sugar production is the most important source of cash income for the family. According to the KSPA statutes, to be eligible for membership of KSPA, a producer must exploit at least 10 palm trees. On average, each producer family exploits about 16 palm trees. So far there is no professional producer organization in the area for the palm or rice sectors. Palm sugar producers produce and sell their products separately to individual collectors and processing enterprises, who determine the price paid to producers for palm sugar and sap.

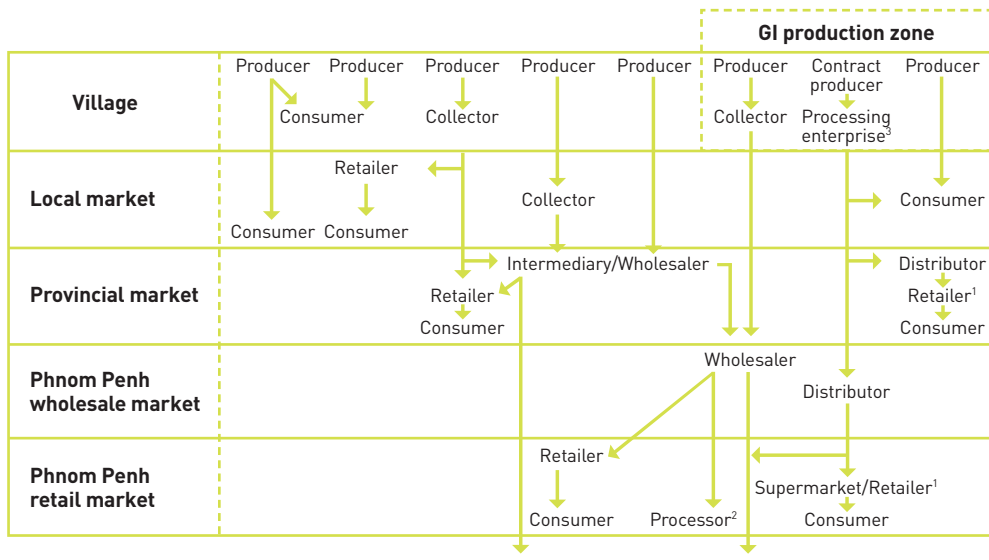
Individual collectors are mainly better-off villagers (most of them are farmers) who have access to the financial capital to purchase palm sugar and sap from producers to sell to wholesalers in Phnom Penh and retailers in the province. There are also individual collectors from outside the region who come each year to collect palm sugar and sap in the area. Both local and outside collectors play an important role in marketing palm products from the area.

Confirel, the Cambodian NGO Development and Appropriate Technology (DATE), Khmer Natural Enterprise and the CEDAC Enterprise for Social Development (CESDE) are the four national private companies collecting and marketing palm sugar and sap in the area, and Confirel is the largest processing, packaging and trading enterprise for these products. Confirel and DATE specialize in palm products and have both local and export markets, while CESDE does not specialize in palm products and currently has only a local market for such products, and Khmer Natural Enterprise specializes in the processing and marketing of palm beer and vinegar made from palm sap for the domestic market. Neither CESDE nor Khmer Natural Enterprise produces palm sugar. Due to the location of its processing facility, Khmer Natural Enterprise can collect palm sap only from producers in Ang Snuol District, which lies inside the Kampong Speu palm sugar production zone.

Prior to inception of the Kampong Speu palm sugar GI process, Confirel, Khmer Natural Enterprise and DATE had already conducted research with a view to improving the quality of processed products made from palm sap, and several discovered innovations have been applied in the production of granulated palm sugar, vinegar, palm wine and palm liquor. These processed palm products are well packaged and labelled with the company brand and trademark. However, no territorial brand name identifying the GI of Kampong Speu palm sugar is yet found on labels, since Kampong Speu palm sugar has not yet been officially registered as a GI product. With its export markets in developed countries, Confirel is the leading enterprise in Cambodia in improving the quality of palm products.

Creation of an association regarding Kampong Speu palm sugar. With support from the PGI Project, a GI management organization – the Kampong Speu Palm Sugar Promotion Association (KSPA) – was officially established through a founding general assembly of representatives, organized in Oudong District on 29 November 2008. The association’s membership is comprised of producers and local collectors (142) and private enterprises marketing palm sugar (3). A Governing Board with an Executive Committee was formed, made up of 15 members representing the various types of stakeholder in order to defend and manage the Kampong Speu palm sugar GI.

Figure 2. Current palm sugar supply chains



Notes: 1. Restaurant, drink shop, grocery shop
 2. Fish and meat processing and cooking
 3. Confirel, Khmer Natural Enterprise, DATe etc.

Process and dynamics of GI implementation

In order to improve its quality and protect Kampong Speu palm sugar as a GI product, a GI management organization, KSPA, was established. For this, the PGI Project in Cambodia organized a number of meetings, workshops and round-table discussions in various places, ranging from the village to the national level. These events were intended to introduce producers, operators and concerned government agencies to the concept and benefits of GI registration, the protection of GI products and the development of a GI legal framework in Cambodia, and also to mobilize interested palm sugar producers and operators to start the process of establishing a Kampong Speu palm sugar GI. Through an election process from village level up to the overall geographical production area level, a task force was officially formed on 30 June 2008, composed of 14 members representing producers, local government and private stakeholders. The main tasks of this group were to:

- draft association statutes;
- organize consultations regarding specifications with producers in all the target villages and to draw up draft specifications;

- draw up a draft plan of work for the association;
- participate in GI zone delimitation with experts;
- carry out an inventory of producers and exploited palm trees within the production zone.



Local meeting of palm sugar producers



KSPA General Assembly

These tasks were implemented with assistance from the PGI Project. Then, five months later, a founding general assembly was organized on 29 November 2008 to review and discuss the work of the task force. This assembly approved the statutes of KSPA and elected a Governing Board and Executive Committee to manage the association.

The next two general assemblies were held in January 2009 to discuss and approve the association's plan of work and specifications. After obtaining approval from the general assembly and with the support of the PGI Project, the KSPA Executive Committee organized training meetings with producers in all target villages in order to:

- disseminate the contents of the specifications to all producer members;
- present KSPA's plan of work and the activities to be undertaken by the Governing Board and Executive Committee;
- train producers in the quality improvement required by the specifications so that they are capable of meeting these: production, processing and storage techniques, proper use of production tools, application of hygiene standards and production of improved cooking stoves.

Official registration of Kampong Speu palm sugar is under way and is expected to be completed by the end of 2009.

Importance of external support

At the local level. GI management is completely new to the whole Cambodian context. Moreover, KSPA is a newly established GI management organization and lacks experience in both organizational management and GI management. With a view to promoting the protection of GI products in Cambodia, the PGI Project is therefore providing technical and managerial support to KSPA until the end of 2009, focusing specifically on:

- preliminary and feasibility studies;
- delimitation of the GI area;
- facilitation of meetings and dissemination of information;
- assistance in the establishment of KSPA;
- assistance in drafting the specifications;
- training for farmers regarding the specifications;

- development of a certification system;
- marketing and promotion.

At the national level. In order to create a favourable framework for PGI development in Cambodia, the Ministry of Commerce coordinated the establishment of the following bodies:

- a national committee for GI law development;
- a GI Office under the Department of Intellectual Property Rights of the ministry, with a national GI Secretariat composed of officials from the Ministry of Agriculture, Forestry and Fisheries and the GI Office;
- a national GI Board composed of the Secretary of State to the Ministry of Commerce in charge of Intellectual Property Rights, a representative of the Ministry of Agriculture, Forestry and Fisheries, a representative of the Ministry of Industry, Mines and Energy, and the Director of the Department of Intellectual Property Rights.

Under the PGI Project, the capacities of the GI Office and Secretariat are being boosted. The mandate of the secretariat is to promote, regulate and support the development of GIs in Cambodia. Starting with support for the establishment of Kampot pepper and Kampong Speu palm sugar as two pilot products, the secretariat is currently being assisted by international experts from GRET and national experts from the Cambodian Institute for Research and Rural Development. Market and marketing studies, technical research and development regarding the processing and packaging of palm sugar and the promotion strategy for Kampong Speu palm sugar are also being supported by the PGI Project in collaboration with the Cambodian Technology Institute and Agriculture Development International (ADI). These activities are essential for promotion of the Kampong Speu palm sugar GI.

5. Marketing

Markets

KSPA is still in process of obtaining registration of Kampong Speu palm sugar, so that producers currently sell their produce in bulk with no labelled packaging. Several types of market actor operate in the production area to collect palm sap and sugar from producers (see Figure 2 above). Most potential market operators for GI palm sugar are private enterprises who have experience in marketing palm products, especially Confirel, DATe, supermarkets and modern stores (about ten) in Phnom Penh, and possibly the cooperative of Kampong Speu palm sugar producers, which will be established when necessary and feasible.

Kampong Speu palm sugar is not yet marketed as a GI product. However, with the establishment of the GI management organization, the launching of the quality improvement process and increased producer and consumer awareness regarding GI products, sales of Kampong Speu palm sugar have already been better this year (see Tables 3 and 4):

- prices have been higher;
- prices have been stable over a long period (whereas there is usually a major difference between the production and post-production seasons);
- all producers have been able to sell their produce more easily and faster.

Table 3. Palm sugar prices in 2008 and 2009

	2008		2009	
	Low period ¹	High period ²	Low period	High period
Farmgate price of paste sugar (Riels ³ /kg)	1 200	1 400	1 500	2 000
Retail price of paste sugar in normal markets in Phnom Penh (Riels/kg)	2 200	3 000	3 000	3 500
Farmgate price of granulated sugar (Riels/kg)	3 000	3 000	3 000	3 000
Retail price of granulated sugar in supermarkets and modern stores in Phnom Penh (Riels/kg) ⁴	5 000-10 000	5 000-10 000	5 000-10 000	5 000-10 000

Notes: 1. March to May, especially April.

2. June to February, especially September and October.

3. US\$1 = 4 100 Cambodian Riels.

4. The minimum and maximum prices are for different categories of granulated palm sugar and different forms of packaging and labelling (different processing and trading companies).

Paste sugar is currently sold in bulk by producers and all operators from local collectors up to retail sellers, while granulated sugar is sold only in packaged and labelled form.

In order to enhance the value of the Kampong Speu palm sugar GI for future marketing, the national PGI Project has been supporting a research-and-development initiative conducted by the Cambodian Technology Institute to identify various appropriate packaging techniques for syrup, paste and tablet sugar, and also to find ways of conserving these types of sugar for longer periods. Packaging and conservation of the various forms of palm sugar are essential tools for the marketing of Kampong Speu palm sugar as a GI product, since it cannot be sold in bulk form – as is the current practice with non-GI palm sugar.

Confirel plans to purchase larger quantities of palm sugar paste and palm sap for their local and export markets in the next production season. A new foreign company (Eco Bis) is coming this year to collect palm sugar in the area for its export markets.

Table 4. Production and marketing by KSPA members and totals within the GI production zone in 2008

	Among KSPA members ¹	Total for GI production zone ²
Number of producers	142	10 000 ⁴
Number of exploited trees	3 518	261 898
Annual production (tonnes)	250–350	14 441 ³
Volume sold to processing enterprises (packaged and labelled products) (tonnes)	55–70	55–70
Volume sold to other operators (unpacked and unlabelled products) (tonnes)	195–280	the remainder

Notes: 1. 2008 data from KSPA and the PGI Project.

2. Statistics of the Agricultural Offices of Oudong (2005), Samrong Torng and Ang Snuol (2003). The number of palm trees has fallen considerably since 2003.

3. Estimate based on an average annual yield of 70 kilograms of sugar per tree, excluding non-sugar products processed from palm sap (palm beer production in Ang Snuol).

4. Estimate based on an average of 25 trees per producer.

Coordination and collective action

All the stakeholders are now collaborating within the GI management organization (KSPA) in order to carry out the following collective actions:

- quality improvement through: the development of specifications; the establishment of a quality control plan; implementation of quality control measures; and capacity-building and awareness-raising for producers and processing enterprises to enable them to meet the specifications;
- communication and promotion: with technical assistance from ADI, a promotion strategy, tools and an action plan were developed for Kampong Speu palm sugar (see Figure 3); the promotion action started in the second week of September 2009;
- registration of Kampong Speu palm sugar: the process is under way and it is expected that official registration will be obtained before the end of 2009.

Figure 3. Logos of Kampong Speu palm sugar developed jointly by ADI and the stakeholders involved





Certification and control

Quality control is important in assuring consumers of the quality and credibility of the product. With a view to improving quality, control and traceability systems were established, and the first internal monitoring measures were implemented with support from the PGI Project. An internal control committee has been set up within KSPA, while stakeholders' capacities have been boosted and the control plan is well on the way to completion.

Initial registration of producers:

- signing of an undertaking to meet the specifications and comply with the control rules;
- verification of compliance (at the plantation level).

Record keeping:

- registers of production volumes and sales by producers (see Figure 4 below);
- registers of purchases, modification of batches and sales by other operators.

Internal control carried out by KSPA:


- verification of compliance with the specifications and inspection of registers (all producers at least once a year);
- verification of compliance at packager level (sensorial analysis of samples of X percent of batches).

External control carried out by an accredited certification body:

- inspection of 10 to 30 percent of producers (based on the internal audit);
- inspection of all packagers.

In order to ensure the traceability of products during the control or inspection process, each producer has to fill out and present complete documentation in a "producer's folder", comprising a certificate of KSPA membership, certificates of delivery and a register of volumes. These forms and files were designed with support from the PGI Project, which also helped to train producers in filling out the forms.

Figure 4. Kampong Speu palm sugar producer's register of volumes (sugar powder – 2009 season)

 ឆ្នាំដំណើរការ ២០០៩ (Season 2009) កម្មវិធីគ្រប់គ្រងគុណភាពផលិតផល (SUGAR POWDER)					
កាលបរិច្ឆេទ Date	ឈ្មោះអ្នកប្រាក់ (ឬក្រុមហ៊ុន) Name of buyer (/ Company)	លេខអត្តសញ្ញាណ (លេខបញ្ជីប្រតិបត្តិការ) Code of buyer (#Registered/KSFA)	រង្វ (គ.ប) sold (kg)	លេខត្រីប័ត្រ Lot n°...	ហត្ថលេខាអ្នកប្រាក់ Signature of buyer
___/___/20__		___	___ kg	C°-___-___-___	
___/___/20__		___	___ kg	C°-___-___-___	
___/___/20__		___	___ kg	C°-___-___-___	
___/___/20__		___	___ kg	C°-___-___-___	

ផលិតករ (Producer) : P. ___-___-___
 កម្មវិធីគ្រប់គ្រងគុណភាពផលិតផល (sugar powder – season 2009)
 ទំព័រ (page) 1

The selection of an accredited external control and certification body is under way. In this connection, the long-term question of control costs and accessibility must be discussed, especially from next year when the project will end.

6. Impact analysis

Perception by stakeholders

Although Kampong Speu palm sugar is not yet registered and protected by GI law, all the stakeholders encountered during the present study expressed hope for the future. The foundation of the GI management organization, the participatory development of the specifications, the commitment of producers and processing enterprises to follow the specifications and the establishment of a control system are among key factors leading to quality improvement. Moreover, stakeholders hope that project support for the marketing and promotion of Kampong Speu palm sugar will raise consumers’ awareness of the efforts of producers and processing enterprises to improve quality and establish a quality guarantee system.

Impact on rural development: economic, environmental and social aspects

The process to establish the Kampong Speu palm sugar GI started in mid-2007, but has yet to be completed, which means that Kampong Speu palm sugar is not yet marketed and protected as a GI product. However, during the establishment process, certain positive impacts on rural development and its economic and social aspects can be observed:

- Collaboration among producers and between producers and market operators has been built up and strengthened thanks to the establishment of the GI management organization and its operation to defend and manage the Kampong Speu palm sugar

GI, thus improving social cohesion and protecting traditions and expertise. However, the poorest producers will face some difficulty in adopting the specifications due to a lack of investment capital.

- As part of the quality improvement process by KSPA members, some improved production, processing and storage requirements – such as prohibition of the use of chemicals to whiten palm sugar or the use of plastic palm sap receptacles, and promotion of the use of improved cooking stoves – are good for the environment. Moreover, the preservation and promotion of the tradition of palm tree exploitation will contribute to the protection of palm trees, the maintenance of typical landscapes and an increase in biodiversity.
- As a result of improved quality and closer collaboration among producers and market operators, the farmgate price of palm sugar is slightly higher and more stable (see Table 3 above). Moreover, producers have been able to sell their produce faster and more easily. Some private enterprises, especially Confirel, plan to purchase larger quantities of Kampong Speu palm sugar next year, which will increase cash income for palm producers' households.
- Despite various difficulties faced in the process of quality improvement, producers are more motivated and committed to exploiting palm trees as part of their households' livelihoods, thanks to awareness-raising, communication and promotion regarding the products, combined with improved market results this year. This situation will lead to a reduction in the felling of palm trees, a reduction in the seasonal migration of villagers to seek work elsewhere, and the preservation of culinary traditions.

These and other impacts, such as the promotion of tourism, can be better assessed over the forthcoming five years when Kampong Speu palm sugar is marketed and protected as a GI product.

Costs

To improve and ensure the quality and specific nature of Kampong Speu palm sugar, producers and other operators have to meet additional costs, which can be estimated as follows:

- internal control: US\$8–15 per producer per year (US\$8 if one internal inspection per year, US\$15 if two internal inspections per year); the cost will be lower if the number of KSPA members increases);
- external control: US\$10–30 per producer per year (estimate based on Confirel's costs for external control of organic palm products by an international certification body);
- production materials: US\$20–40 per producer per year (improved cooking stoves, other small tools and implements, new packaging and labelling materials).

While the minimum costs are affordable for producers, the maximum costs seem too high for them in the current situation, depending very much on the sugar price obtained each year. However, most producers expect to have access to better markets with higher prices after quality improvement and official GI recognition.

Support and capacity-building required by stakeholders

Producers need support to improve their capacities in the following spheres:

- processing and storage techniques and facilities in order to meet with improved quality and hygiene requirements;
- packaging and labelling in order to improve the presentation and explanation of products so that they obtain wider market access and added value;
- comprehension and filling out of all the documents required for control and traceability purposes.

The newly founded KSPA requires organizational and managerial support to make it more efficient and effective. It has to set up a control mechanism, a promotion strategy and a protection mechanism in order to ensure the image and increased value of Kampong Speu palm sugar. And for this purpose it requires external support until it is able to run things effectively on its own.

Processing enterprises and market operators need to develop marketing and promotion strategies in order to add value to the various forms of Kampong Speu palm sugar as GI products. Research is also needed in order to diversify the forms of palm sugar product that can be conserved for longer periods and used for a range of purposes.

7. Conclusions and recommendations

Considering the motivation and participation of palm sugar producers in the GI registration process and the results obtained to date, it can be concluded that the pilot case has been successful, although it is too early to assess the impact on producers' livelihoods. However, in terms of the GI establishment process, the pilot Kampong Speu palm sugar GI process is a good example for other potential products in Cambodia.

Although a Kampong Speu palm sugar GI organization has been established, specifications for the product have been developed and approved, application of the specifications have been reinforced with a clear control system and a product promotion strategy has been formulated, the sustainability of the GI system for Kampong Speu palm sugar will depend on the future market for the products and on how much added value producers can obtain through quality improvement and a traceability system. It will also depend on how far Kampong Speu palm sugar can be protected by a GI law, in other words, the effectiveness of the protection mechanism and the efficiency of law enforcement.

Strengths:

- collective organization of stakeholders, with a participatory approach;
- involvement of all the links in the supply chain – farmers, processors and distributors (processors and distributors are also motivated in the process);
- strong, clear support from the Cambodian Government for GI development;
- the fact that market remuneration will encourage producers.

Weaknesses:

- the fact that the pilot project benefited from considerable external support, so that it may be hard to replicate such support for future Cambodian GI processes;

- the need for further support before the organization becomes autonomous;
- costs of the certification system that are too high for producers in the current situation (i.e. with the present selling price of sugar);
- possible exclusion of small-scale farmers, because they are unable to comply with the specifications, inasmuch as they may not be able to make the initial investments required and/or fill out the monitoring and traceability documents;
- risk of over-exploitation, leading to a negative impact on natural resources, if producers do not adapt innovations regarding energy saving: the planting of fast-growing trees and the adoption of fuel-saving stoves.

Ongoing capacity-building of KSPA is required in the following spheres:

- organizational management: internal information flow, coordination and meetings, service delivery to members, conflict resolution and external relations;
- the promotion strategy and action to be adopted and undertaken by the organization;
- GI management: members' understanding and application of the specifications, a recording and monitoring system, and a protection mechanism.

External support is therefore needed, especially in order to ensure a strong pilot GI process to demonstrate the benefits of the GI concept to rural producers and local development, and thus attract other potential GI producers and operators to organize themselves to manage and protect their own products. In addition, the GI concept and its benefits should be more widely promoted among producers and consumers.

References

Brun, J.-M. 2009. Pilot project for geographical indications protection in Cambodia. Quarterly Activity Report 1-7. PGI Project.

Delvert J. 1961. *Le paysan cambodgien*, Paris, Mouton.

François, M., Prak, S. et al. 2006. *Indications géographiques au Cambodge*. Phnom Penh, GRET-CEDAC.

Mahe, J.-P. 2000. Marketing opportunities for the products of the sugar palm trees in Oudong District. Department of Forestry and Wildlife/GTZ.

Mahe, J.-P. 2000. The sugar palm tree in Cambodia: analysis and development potential. REPLIC/PRASAC.

Prak, S., Tan, C. et al. 2007. Kampong Speu palm sugar production and commodity chain. PGI Project.

Sarang, S., Heang, C. et al. 2008. Survey on market of packaged and labelled palm sugar in Cambodia. PGI Project.

III. Jinhua ham, China

by

Guihong WANG, Inra Toulouse.

Abstract:

The People's Republic of China identified the development of specific products as a potential tool for rural development, and especially for the improvement of farmers' incomes in sensitive rural areas. Three main GI protection systems currently exist. The first is under the supervision of the State Administration for Industry and Commerce and is governed by the Trademark Law. The second is managed under special regulations by the General Administration of Quality Supervision, Inspection and Quarantine Office. The third was established by the Ministry of Agriculture in 2008 and focuses mainly on raw agricultural produce. Some products may be protected under more than one GI legal system.

This latter situation is found particularly in the case of Jinhua ham, a high-quality ham famous throughout China, with a long history, a traditional processing method and a local breed of pig. Jinhua ham is currently protected under the certification mark of the State Administration for Industry and Commerce and the geographical indication of the General Administration of Quality Supervision, Inspection and Quarantine. None of the systems has a clear GI code of practice or common production rules with which producers have to comply in order to be authorized to use the GI quality sign. However, some standards are being drawn up with the support of the two public bodies mentioned above, and these provide recommendations regarding food safety and the use of the traditional breed as raw material. Although the collective organization of the stakeholders is also making progress, some improvements are still needed in order to improve the efficiency and sustainability of the GI system.

Introduction

Since its economic reform, China has opened its doors to increasing trade with the rest of the world. The country's economic level has improved considerably in the past 30 years, but rural development is still an important issue for the State, inasmuch as there are 800 million peasants living in the countryside. This is why China's agricultural policy stresses the issue of support to rural development.

The protection of "geographical indication" (GI) products has almost 100 years of history in some parts of the world, whereas China began to implement the system in the early 1990s. The initial objective was to boost rural development and protect local expertise. It is also closely linked to the laws on intellectual property – an important criterion in international trade.

Jinhua ham is a high-quality traditional ham that is famous throughout China. Based on a traditional processing method and a traditional pig breed, Jinhua ham is currently protected by two systems (certification marks and geographical indications).

1. Protection of GIs in China: institutional context and relationships with WTO and the TRIPs Agreement

Many products have acquired a strong identity based on geographical origin and a good reputation over long periods of marketing – sometimes up to 2 000 years. Many producers and traders had no brand name, but used a geographical designation instead. This method of sharing the same name results in a de facto designation of origin. Before the establishment of any basic protection for designations of origin, some companies registered the common names of these traditional products as their own brand, which was prejudicial to the interests of traditional producers and consumers and upset the balance of competition.

After China joined the World Trade Organization (WTO) in 2001, the country demonstrated its intention of meeting WTO requirements and respecting intellectual property rights. Property rights are an effective tool in economic development and are also a way of protecting and developing the agricultural economy. Considering the wealth of the Chinese agricultural heritage, the use of geographical indications as part of intellectual property could therefore play an important role in the country's rural development.

Before the reforms of the 1980s, the economic system was based on the planned market system, which made no specific reference to intellectual property protection. Since the reforms, the Chinese Government has laid more stress on the role of intellectual property. Patent rights, trademarks and copyrights have therefore been the main focus in the new regulations on intellectual property (Cao, 2007).

China joined WTO on 11 December 2001 after 15 years of negotiations. The Chinese State has enacted some new laws and regulations to meet international standards and has amended its legislation on intellectual property in order to comply with the Trade-Related Aspects of Intellectual Property Rights (TRIPs) Agreement. The Trademark Law was revised in 2001, and GI products are now registered as collective marks or certification marks.

New regulations have also boosted the repression of counterfeiting. Chinese law has deployed three types of action to combat counterfeiting and ensure respect for property rights: administrative action, civil court action and criminal law (Druez-Marie, 2003).

China currently has three main GI protection systems. The first is under the supervision of the State Administration for Industry and Commerce (SAIC) and is governed by the Trademark Law. The second is managed under special regulations by the General Administration of Quality Supervision, Inspection and Quarantine (AQSIQ) Office. The third was established by the Ministry of Agriculture (MOA) in 2008 and focuses mainly on raw agricultural produce.

Protection of GIs by SAIC through the Trademark Law

When the People's Republic of China was founded in 1949, the Chinese Government entrusted the national registration system and brand management to the Central Bureau of Private Enterprises and the Central Administration of Industry and Commerce. These bodies were merged in 1978 to form SAIC, which answers directly to the country's Council of State. SAIC is in charge of market supervision and regulation, and also of protection of the legitimate rights and interests of businesses and consumers by enforcing regulations regarding enterprise registration, competition, consumer protection, trademark protection and the combating of economic illegalities. It plays a role in the renewal, cancellation and transmission of trademarks.

SAIC is also involved in business coordination among provincial and local Administrations for Industry and Commerce, providing them with relevant guidance. It assists in the implementation of international conventions and regulations, and facilitates the international exchange of trademarks, including application of the GI protection system through the Trademark Law.

After several modifications of texts, SAIC now protects GIs through three legislative acts:

- the Trademarks Law;
- regulations implementing the Trademark Law;
- measures regarding the registration and administration of collective marks and certification marks.

The first Trademark Law was approved on 23 August 1982 and then updated in 1993. Since 1983 it has prohibited the registration of a geographical name as a trademark. Nevertheless, many recognized "terroir" products were registered as trademarks (Jinhua ham, Qingdao beer etc.), with the risk that they will eventually come to be considered generic names. At that time, China had not yet established a clear definition of GIs based on property rights, resulting in some conflicts on this specific point, as has happened in the case of Jinhua ham (SINER-GI, 2008).

Under this law, GI products are registered as certification marks. The definition of geographical signs in the Trademark Law is consistent with the definition of GIs found in the TRIPs Agreement.

To be registered as a GI in China, the law stipulates that the product should not be registered as a trademark, but as a collective mark or certification mark, a system in some ways similar to the English and American systems.

Despite the preliminary registration under the certification mark system that may be found for example in the American system, it is worth noting the similarity of the SAIC procedures and principles to those of the European Union. For example, the SAIC procedures prevent the use and sale of the certification mark outside the designated geographical area of the GI. This point is in contradiction with the logic of certification trademarks, but is in accordance with the regulations in force in the European Union. This example shows that the originality of the Chinese protection system for origin-linked quality is not only the coexistence of several modes of recognition based on various different principles of intellectual property, but also that it reflects a process of institutional “hybridization” based on the combination of this diversity of principles and procedures (Gilly and Wallet, 2005).

The use of the Trademarks Act and complementary regulations allowed SAIC to obtain some positive results in the protection of local expertise and rural development in China, and the number of registered products is growing fast. By the end of March 2009, SAIC had registered 496 products – 465 of Chinese origin and 31 of foreign origin (alcohol, cheese, wine, cloth, coffee, ham and cereals) from seven countries.¹ This often concerns fresh produce (fruits, teas, vegetables, nuts, flowers and cereals), but also traditional Chinese medicines, livestock, aquatic products, alcohol, wine, porcelain etc.

Protection of GIs by AQSIQ through GI registration

AQSIQ is a ministerial administration office under the direct supervision of the Council of State. It is in charge of national quality, metrology, entry and exit commodity inspection, entry and exit health quarantine, entry and exit animal and plant quarantine, food safety of imported and exported goods, certification and accreditation, standardization, and administrative law enforcement at both national and local levels. It functions as a law enforcement agency and has 19 departments under its authority. Those responsible for food safety are the Department of Supervision of Animal and Plant Quarantine, the Bureau of Food Safety for Imports and Exports, and the Department of Supervision of Food Production.

When China opened up to trade from abroad, fake products and the misappropriation of appellations began to appear, mainly targeting traditional products. Moreover, people were unfamiliar with the concept of intellectual property. With a view to protecting the interests of economic stakeholders and adjusting the balance of the market, since 1994 AQSIQ has stepped up exchanges with foreign countries that have experience in protecting traditional products. This was when China began to implement the GI system, taking into account the socio-economic context of an economy in transition.

In 1999, AQSIQ instituted a designation of origin system to protect the expertise and interests of all stakeholders and promote rural development. AQSIQ also popularized the GI system in provincial-level offices.

In June 2005, AQSIQ implemented a new decree (no. 78) entitled “Regulations for the protection of geographical indication products” to increase harmonization of its content with other laws in force in China. Article 2 of the decree gives a definition of GIs for the first

¹ Germany, Italy, Jamaica, Mexico, Thailand, the United Kingdom and the United States of America. (www.saic.gov.cn).

time: “GIs are special products that come from typical areas. Their quality, reputation and characteristics depend on human and natural factors. GI products are cultivated or animal products, and are manufactured in the region with traditional methods and raw materials originating fully or partially in the region.”

This definition of GI products is different from that of the Trademark Law administered by SAIC. Although based on the TRIPs Agreement, it recalls some aspects of the European Regulation on the Protection of Geographical Indications and Designations of Origin for Agricultural Products and Foodstuffs and has promoted a rapprochement between the authorities responsible for the protection of origin-linked products in Europe and China.

Under China’s Eleventh Plan 2006–2010, AQSIQ intends to bring the number of products under GI protection up to 1 500, which means that there should be an average of 150 new products registered under the AQSIQ GI system each year. In this way, AQSIQ wants to boost the recognition and reputation of the GI system and win a new market share to increase the quantity of exports.² AQSIQ therefore needs to increase its expertise in such areas as the management of digital networks, the assessment of product quality and scientific testing.

Protection under the AQSIQ system is based on a regulation-type system but carries less force than the Trademark Law proposed by SAIC. AQSIQ protects GIs according to Decree 78, while SAIC uses the Trademark Law to manage GI products. To overcome this weakness, AQSIQ is currently developing a special law for the protection of GIs and has entered into discussions to pass the law in the National People’s Assembly in 2010.

By June 2009, 932 products had obtained protected GI status from AQSIQ. The list is not restricted to agrifood products, but also applies to such products as handicrafts and traditional Chinese medicines. Some good examples are Dehua porcelain (2006, Fujian Province), Zhenjiang vinegar (2001, Jiangsu Province), Zizhou astragalus root (2008, Shanxi Province) and Puer tea (2008, Yunnan Province).

However, Decree 78 implemented by AQSIQ in 2005 made major improvements over the 1999 regulation. In the new decree, the focus is on the control of product quality and the fight against counterfeiting. GI products should now meet international standards. Precise specifications that are more detailed than was previously the case are laid down for each product. The criteria are linked to the economic needs of the country.

AQSIQ has also expanded its role in implementation of the system. Priorities of its mission are now the issues of how to increase added value and how to use the system to promote rural development. It no longer simply provides legal protection, but also enhances product quality by supporting research and improved technology. AQSIQ also helps producers to seek market opportunities. At the local level, its role therefore now goes beyond its original objective of promoting implementation of the GI system. For example, Shanxi Province has promulgated regulations for the management of GI products. Local governments are increasingly taking positions of leadership in management of the GI system.

According to the procedures in place, in order to initiate a request for protection, the government assigns a district-level office or special organization to handle all administrative

² www.aqsiq.gov.cn

matters. Some experts from the organization review the request and define the production zone. The local government (at district level or above) makes an official proposal as to the definition of the production area. The local government then makes an application for protection, including the characteristics of product quality, the links with natural and human factors, a definition of the specifications, origin and historical context, and as complete data as possible on production sales.

All application forms and other documents are provided by AQSIQ at the central level. After consideration by AQSIQ, the case must be published and undergo public enquiry for at least two months. If any contrary opinion is expressed during this two-month period, the AQSIQ office organizes a technical review meeting with a panel of experts, at which the applicant must present the case and answer the experts' questions. The panel of experts makes a report on the review. AQSIQ then issues a declaration of acceptance, and protection of the GI product in question is valid from the same day.




A new system to protect GI products by MOA

A third system to protect GI products was promulgated by MOA in 2008 in the form of the "Measure of management for agricultural products of geographical indication". This system focuses on protecting materials in accordance with the Law on Agricultural Product Quality Farming and the MOA law. The entire registration process is managed by MOA's Centre for Quality and Safety of Agricultural Products.

Based on its experience with organic products and green food products, MOA would like to develop a system capable of promoting environmental protection, sustainable production methods and the quality of agricultural raw materials. MOA is considering some similar aspects to those of European GI products, with a view to meeting the expectations of sustainable development for rural areas. Table 1 summarizes the main characteristics of the three legal systems for origin-linked food in China.

Table 1. The types of legal system for protection of traditional and origin-linked food products in China

	AQSIQ	SAIC	MOA
Role and main functions	In charge of national quality, entry/exit commodity inspection, health quarantine, animal and plant quarantine, food safety, certification and accreditation, standardization, and administrative law enforcement at the national and local levels.	In charge of market supervision and regulation, and protection of the legitimate rights and interests of businesses and consumers by enforcing regulations regarding trade competition. Gives relevant guidance to local Administrations for Industry and Commerce. Assists in the implementation of international conventions and regulations, and facilitates the international exchange of trademarks.	Regulates and controls the use of chemicals, pollutants and pesticides on farms. Is also responsible for livestock health – and is thus in charge of managing the avian influenza epidemic and preventing mad cow disease.

	AQSIQ	SAIC	MOA
GI definition	Agricultural, livestock and aquatic products coming from the defined area. Raw materials originating entirely or partially within this defined zone, and being processed in this area in compliance with the specifications.	A GI product is from a specific region, with quality, reputation and other features that are determined by natural or cultural elements of the region.	An agricultural GI product is named after a geographical area, indicating that it is produced within a particular area, and its quality and characteristics depend on natural, historical and cultural factors.
Level of protection	Decree 78, based on the Product Quality Law and the Standardization Law.	Trademark law, regulation and measures. GI protection is made compatible with the TRIPs Agreement.	Administrative measures came into effect on 1 February 2008.
Type of protection	Special system dedicated to GI products.	The GI can be registered by SAIC or the China Trademark Office as a certification mark or a collective mark.	Dedicated to raw agricultural products.
GI system logos			

2. Geographical zone and specific resources

With 9.60 million square kilometres, China is the world's fourth largest country in size, coming just behind the United States of America (with 9.62 million square kilometres). There are 1 308 million Chinese citizens, 745 million of whom live in the countryside, making up 70 million households, with an average annual per capita income of €390, and 562 million of whom are urban, making up 190 million households, with an average annual per capita income of €1 050.

In terms of agriculture, China accounts for 50 percent of the world's pigs, while 48 percent of the world's production of vegetables and 16 percent of its production of cereals (27 percent of the rice, 18 percent of the maize and 14 percent of the wheat) originate in China. On the basis of this information, China can be considered an agricultural country, and there is a very great difference in income between rural and urban areas.

General context of Zhejiang Province

Zhejiang Province is located in eastern China, neighbouring the Shanghai region. Together with Jiangsu Province, they make up what is known as the Yangzi Delta Economic Zone – a very competitive area of China. The province benefits from more than 1 840 kilometres of coastline, giving it a competitive advantage in the import and export market (see the map of China and Zhejiang Province in Figure 1 below).

Zhejiang has 11 cities. Nearly 46.29 million people live in the province and it is considered one of the more densely populated regions of China. The province is smaller in area than other provinces.³ Its topography is very varied, with almost 70.4 percent covered by mountains and hills, and 23.2 percent by plains and basins, while its rivers and lakes account for 6.4 percent. It has green cover over 60 percent of its area. It is a province with rich biodiversity, where 3 800 varieties of vegetation have been identified. In terms of GDP, in 2008 Zhejiang was ranked in fourth place in the country, with CNY 2 100 billion⁴ (a 10 percent increase over 2007). However, inasmuch as most of the production comes from intensive sectors, the added value is relatively low.

Figure 1. Map of China and Zhejiang Province



Zhejiang has a long farming tradition and is well equipped for agricultural development. The climate is subtropical, mild and humid, with an average annual temperature of 15 to 17 °C. January and July are usually the coldest and warmest months respectively. Thanks to geographical variety and climate, the conditions are environmentally suited to agriculture and fisheries. Nevertheless, the per capita cultivated area is only 0.035 hectare – half the national average. However, the abundance of the workforce is an advantage for the agricultural sector. For example, the province ranks first in the production and export of tea, and pig farming accounts for a large proportion of the agricultural sector (see Table 2). In 2006, Zhejiang sent 18 990 000 pigs to market,⁵ and 65 percent of breeders have a production capacity of over 50 pigs, which is an advantage to the ham sector and other associated products.

³ Internet site of the People's Government of Zhejiang Province: www.zjagri.gov.cn/html/main/zjagroView/2008042187407.html

⁴ http://news.xinhuanet.com/newscenter/2009-01/16/content_10669490.htm

⁵ National Bureau of Statistics of China.

Table 2. Agricultural production in Zhejiang in 2008 (National Bureau of Statistics, 2009⁶)

Meat (thousand tonnes)	1 701	Vegetables (thousand tonnes)	17 579.2
Fish and aquaculture (thousand tonnes)	5 046.4	Fruit (thousand tonnes)	7 479.2
Cereals (thousand tonnes)	7 755.5	Tea (thousand tonnes)	162.3
Vegetable oils (thousand tonnes)	476.7	Sugar (thousand tonnes)	854.5

Although the agricultural sector is fairly well developed in Zhejiang Province, there is still a significant gap in income between rural and urban populations. In 2008, the average incomes were respectively CNY 9 258 and CNY 22 727 (National Bureau of Statistics, 2009⁷). Various factors are responsible for the difference. For example, although the province has a very good agricultural basis and an abundance of products, there is a lack of technological support and neglect in implementing the results of scientific research, so that products lack sufficient added value.

In Zhejiang Province, as in China as a whole, the richness of culture and tradition means that there are many products resulting from human know-how. With the abundant workforce, these products have a price advantage in the market. However, in a market environment that is becoming increasingly international the quality of food products has become more important. There is still a difference in terms of quality and safety between local products and national and international standards, and the low quality of these local products therefore prevents direct access to outside markets. Implementation of an intensive production approach, assisted by modern management tools to help in building a multifunctional and multifaceted agricultural system, is now a priority of local government policy.

Lastly, producers lack marketing experience. In general, the region's products are traded only on the local and national markets, and there is a very low level of involvement in foreign trade. Awareness of the concept of international marketing is relatively low amongst local agrifood companies.

Delimitation of production and processing zones

The Jinhua ham production area was recognized by AQSIQ in 2002 and is divided into the two regions of Jinhua and Quzhou⁸ (see the map of Jinhua and Quzhou regions in Figure 2 below). Six districts in the Quzhou⁹ region and nine in the Jinhua region are classified as falling within the protection zone.

⁶ http://www.stats.gov.cn/tjgb/ndtjgb/dfndtjgb/t20090318_402548975.htm

⁷ http://www.stats.gov.cn/was40/gjtjj_detail.jsp?searchword=%D5%E3%BD%AD&presearchword=%D5%E3%BD%AD&channelid=4362&record=1

⁸ Quzhou was integrated into Jinhua region in 1955 and became an independent region in 1985 with the same administrative level as Jinhua. In 2001, when the Jinhua ham producers applied to the AQSIQ GI protection system, Quzhou was placed in the protection zone, while respecting its administrative status. There are therefore 15 districts that are part of the protection zone for Jinhua GI ham.

⁹ www.zjagri.gov.cn

On the other hand, SAIC did not include the Quzhou Districts in the protection zone for its Jinhua ham certification mark.

Jinhua region. Jinhua is a region of hills and rivers, located in the centre of Zhejiang Province and covering 10 941 square kilometres (10.74 percent of the province). It had 4.59 million inhabitants¹⁰ in 2007. It is an historic area, with more than 1 800 years of history and five sites that are classified as national historic monuments.

The total GDP of the Jinhua region in 2008 was CNY 168 185 billion, which represents CNY 36 538 (US\$5 261) per capita, with an almost 10.6 percent increase over 2007 – 5.2 percent for the agricultural sector, 10 percent for the industrial sector and 12.1 percent for the service sector. The prices of goods have also risen, especially the price of food (+15.1 percent in one year). According to the Jinhua Bureau of Statistics, the consumer price index in Jinhua was 115.1 in 2008, including meat and other animal products, vegetables, fish and cereals. Transport facilities have proved a real advantage in attracting major investment, bringing new technology and increasing the workforce. In comparison with the level of industrial development in neighbouring regions, the Jinhua region has some real advantages in terms of access for inputs and outputs.

Figure 2. Map of Jinhua and Quzhou regions



Agriculture is still an important sector in the economy. Distinctive local products are cereals, cotton, oilseed, medicinal plants, vegetables and fruit. It is also a region with livestock production. According to the Jinhua Bureau of Statistics, 2.12 million tonnes of meat (pork, mutton and beef) are supplied to the market, including 171 400 tonnes of pork,¹¹ some of which will be used as the raw material to produce Jinhua ham.

The region's specific climatic conditions are key factors in producing good-quality Jinhua ham. As Jinhua is located in a basin, there are four distinct seasons. The winter is cold and offers ideal conditions to start producing ham, while the heat of the summer allows the fermentation process. The average annual rainfall is 1 124 millimetres.

¹⁰ Jinhua Statistics Office.

¹¹ <http://www.jhstats.gov.cn/shownews.aspx?id=3210>

Jinhua is located in Zhejiang Province near the city of Shanghai, and the transport infrastructure allows ease of access to markets, especially in the southwest of the country.

Quzhou region. Quzhou is an ancient city with origins that may date back to 192 AD. In 2004 it was listed among the historic and cultural cities of China. It lies west of Zhejiang Province and is attached to the Jinhua region. The Quzhou region covers an area of 8 841 square kilometres, with a population of 2.45 million. In 2008, its GDP reached CNY 58 billion, meaning a per capita average of US\$3 360.

Farming plays an important role in developing the local economy, and Quzhou is also a major production area for grain and poultry in Zhejiang Province. In 2008, GDP in the primary sector (agriculture, forestry and fisheries) reached CNY 9 634 million. Local products – fruit, products containing honey, tea, mushrooms etc. – are diverse and competitive in the market, and aquatic products are now a priority for the local government with a view to economic development.

The livestock sector plays a major role in local agriculture. Nearly 220 800 tonnes of meat were produced in 2008, including 198 700 tonnes of pork. However, production is hampered by the fact that the products have little added value: the majority of them are sold directly without further processing and there is a lack of known brands on the market.

Specific resources: a local traditional breed of pig. In Jinhua region and some parts of Quzhou region, the rural population has a tradition of rearing Jinhua black two-ends pigs to increase its income. Despite the fact that the economy of Zhejiang is more developed than that of other provinces, many farmers in the mountain areas live with an annual income of less than CNY 2 000 (290 US\$) and most of them depend on livestock products as their main source of income.

3. The product

Specific quality and product differentiation

History and reputation. The tradition of making Jinhua ham goes back almost 1 200 years. According to local legend, Jinhua ham was given to soldiers who went to defend their country against foreign invaders. Because it kept better, it was used to supply the army during the war. General Zhong Ze, who was born in Jinhua, offered Emperor Zhao Gou of Southern Song some ham to taste. The emperor appreciated the delicious taste, which was very different from usual meat, inasmuch as the fragrance was preserved even after cooking. In recognition of its flavour and quality, he gave it the name “Jinhua ham”. With this seal of approval, Jinhua ham became known throughout China. Producers from Jinhua moved to other regions to spread knowledge of the preparation method, so that China came to have several types of ham, such as south ham (Jinhua ham), north ham and Xuan ham. In this way, Jinhua ham was preserved through the years as a legacy from the ancestors. In the early nineteenth century, a statue of General Zhong Ze was always installed in stores and workshops, and each winter before the workshops began production, people would pray before the statue, asking for protection and a good manufacturing season.

Jinhua ham is well known and much appreciated in China. Its colour, smell, taste and shape are features constituting its reputation. In a well prepared ham, the skin is often slightly golden and the meat is a rather dark pink with some white fat. Once cooked, the fat becomes almost transparent, with shiny points and a fragrant scent. In China, it is eaten daily and is an essential raw material in improving the taste of fine cuisine, while farmers often keep the pork legs to give their soup a richer flavour. In the traditional Jinhua processing method, the ham is shaped into the form of a bamboo sheet or a Chinese guitar, thus giving it an easily recognizable appearance.

The local population has also discovered that Jinhua ham may be used, for example, to treat frail elderly people (Gong, 1987) and women after childbirth. Some scientific analyses (Zhu, 1993) have revealed the presence of several types of amino acid at levels 30 times higher than in fresh pork. The ham is soaked in sea salt, which was a very effective way of preserving meat in olden days – and is one of the reasons the method has survived for 1 200 years and the ham known in every household in China.

Traditional product and process, and specific quality

Breeding. There is a tradition of rearing Jinhua pig breed (see Photograph below) in the Jinhua region. This breed has been reared for 1 600 years. But since the economic reform, the market has opened up and permitted the importation of various more profitable species of pig. The length of the breeding cycle of Jinhua pig is longer than for other species imported from outside, and production costs have become expensive for farmers. Fewer and fewer farmers now choose the traditional breed for their activity. In 1999, the Jinhua pig breed was classified as an endangered species by MOA.¹² Jinhua pigs are one of the 19 breeds of pig selected by MOA in 2000 for protection.

Traditionally, only the hind legs of castrated Jinhua pigs are used as the raw material for Jinhua ham. Like other slow-growing breeds, the meat of Jinhua pigs has a high fat content, giving the ham a softer texture and more flavour than ham from modern pig breeds.



Jinhua piglets (black two-ends breed)

Processing. The fresh legs must be free of injury and weigh between 4.5 and 9.5 kilograms. During the process, workers try to modify the leg to give it the shape of a piece of bamboo. They also press the remaining blood out of the leg in order to give the ham the purest possible taste of pig. Marination in salt is an important operation and depends heavily on climate: if the temperature is too low, the salt may not penetrate sufficiently, while if it is too high, the leg may not be conserved. Moisture also influences the texture of the meat and can either result in ham that is too dry or contribute to the proliferation of microbes. Producers often start processing during the winter period in Jinhua, when the temperature (0 °C to 10 °C) and humidity conditions are ideal. Depending on the weight of the fresh leg, the period of marination ranges from 25 to 35 days, during which salt is added five or six times and the legs are turned seven times.

The following step is cleaning in order to remove the salt and dirt that have stuck to the legs. The temperature of the water and the cleaning process are also dictated by tradition. After this, the legs have to be dried in the sun for a certain number of days.

The fermentation process is the stage at which the ham acquires its taste. In the fermentation room, the temperature is relatively high and the humidity of the product is low. Protein and fat change with the temperature and give the ham its special flavour. The temperature in the fermentation room is also regulated depending on the time of fermentation.



Traditional drying process



Jinhua ham traditional recipe

Processing takes at least nine months, and the weight of the finished ham has decreased by between 30 and 40 percent. Producers stack the finished products when storing them, but during storage they continue to turn them so that the flavour remains identical. This system is chosen in order to ensure that the meat is well pressed and hard. The texture of the finished ham is different from that of ham produced in western countries. Westerners prefer to eat sliced raw ham, so that the texture of the meat should be tender, whereas the Chinese like to cook the meat. This may explain why the reputation of Jinhua ham is confined to Asian countries.

Some scientific research (Bolzoni *et al.*, 1996; Sabio *et al.*, 1998; Zhu *et al.*, 1993) has been conducted to compare the taste of various hams, including Jinhua ham. The taste and quality of the products depend partly on the processing method and partly on the specific

quality of the raw material (a slow-growing breed in the case of Jinhua ham). The practical experience of Jinhua producers and an unpredictable climate directly determine the quality of their product. For example, the amount of salt used is left to the discretion of each producer.

According to research, the taste and smell of Jinhua ham are stronger than those of other dry-cured hams, since the manufacturing temperature is higher than that used for Serrano (Flores *et al.*, 1997; Xun *et al.*, 2003) and Bayonne ham (10 °C to 12 °C) and Parma ham (15 °C to 20 °C) (Sabio *et al.*, 1998). The tradition of adding salt and then drying and fermenting the meat was intended for conservation purposes. There is thus no real scientific method to be followed in preparing the ham; producers have learned their manufacturing methods as a cultural heritage. Their experience is very important in preserving the quality of their produce, which could explain the lack of scientific specifications.

Product protection process

Jinhua ham is currently protected by both GI protection systems – under SAIC’s certification mark system and under AQSIQ’s specific GI protection system – so that producers have more opportunities to protect their interests. Most of them choose a twofold registration at both AQSIQ and SAIC to be sure of the best possible cover and also to gain access to more markets for their products. This situation exists not only in the case of Jinhua ham, but is also common for other types of product.

Traditional local producers’ request for protection. In the early 1980s, in the days of a planned economy, the Zhejiang Food Company was the public company in charge of supervising every agrifood company in the province. A local company, Pujiang Food, was the owner of the “Jinhua ham” trademark registered with SAIC in 1979, at a period when there was no restriction on using a geographical name as a trademark. In 1984, following the economic reform, the Zhejiang Food Company decentralized some functions, but retained ownership of the trademark. This particular context of economic transition and reform of the agricultural system saw the birth of conflict between local Jinhua ham producers and the Zhejiang Food Company.

The Zhejiang Food Company does not directly produce ham, but outsources production to some hundreds of enterprises (not necessarily located in the traditional Jinhua ham production area and without any specifications as to raw materials), which use the name “Jinhua ham”. These companies, in accordance with trademark property law, just have to pay a fee in order to use the designation.

The designation of origin is largely misappropriated in the market. As the Zhejiang Food Company allows some hams produced outside the Jinhua area to be sold on the market with the Jinhua ham trademark, neither the origin nor the quality of the product can be guaranteed. Moreover, local producers of real Jinhua ham must also pay the user fee. They find it hard to accept this situation. In 1994, at the end of the ten-year validity period for a registered trademark, the Jinhua town council officially requested recovery of the name for local use. About 10 000 people signed a petition against the Zhejiang Food Company and organized a protest meeting with the media in front of the People’s National Assembly Council in order to regain possession of the Jinhua ham trademark.

Registration of the Jinhua ham GI with AQSIIQ. The benefits and protection provided by the AQSIIQ system were in line with the demands of local Jinhua ham producers who wished to provide consumers with a distinctive sign enabling them to distinguish their products from those under the Jinhua ham trademark. Local producers wanted to show the superior quality and local origin of their products, as against generic ham made from raw materials that may originate outside the Jinhua region.

In 2001, the Jinhua Ham Producers' Professional Association applied to AQSIIQ for an opportunity to protect their interests. The Jinhua local government collaborated with the local AQSIIQ, SAIC and MOA offices and the Jinhua Ham Producers' Professional Association to create a Management Committee Office for the Jinhua ham GI.

In 2002, Jinhua ham producers obtained protection from AQSIIQ. In line with the production criterion, 15 towns and districts in Jinhua and Quzhou were included in the GI protection area, in accordance with AQSIIQ procedures (see section 1 above).

After this official GI recognition, the producers of Jinhua ham believed they could legally use the designation of origin mark for their product. However, the conflict between the parties was not over, because two systems now coexisted for the same product: the private "Jinhua ham" trademark (SAIC) and the "Jinhua ham" GI (AQSIIQ). In 2003, the Zhejiang Food Company obtained a court order for the sealing of several enterprises in the Jinhua area for the counterfeiting and misappropriation of the name "Jinhua ham". The conflict has continued, exhausting both sides. The Jinhua local council and the Zhejiang Food Company spent more time in exchanges with SAIC in the hope of finding a solution.

Registration as a protected GI product offers wider opportunities to promote Jinhua ham on the national and international markets. By 2009, 30 companies had been authorized by AQSIIQ to use the Jinhua ham GI name and logo.

Registration as a certification mark with SAIC. SAIC implemented the designation of origin system in 1994, according to which an origin-linked quality product may be protected with a certification mark.

In 2003, the Jinhua town council joined with SAIC, AQSIIQ, MOA and the Jinhua Ham Producers' Professional Association to establish a special committee with a view to registering the Jinhua ham GI as a certification mark at SAIC under the name "Jinhua ham from Jinhua city". In 2004, the Jinhua producers filed their application. The Zhejiang Food Company, which owns the Jinhua ham trademark, objected, so that it was only in 2008 that SAIC approved the protection of Jinhua ham under the certification mark law. The Zhejiang Food Company finally accepted the decision, which solved a 20-year conflict that has damaged the reputation and quality of the product.

In 2008, the SAIC central office registered "Jinhua ham from Jinhua city" as a certification mark. In 2009, there were 39¹³ companies that had obtained permission from SAIC. The registration process is the same as that for registration of a classic brand.

Code of practice issues. None of the systems has a real GI code of practice or common production rules with which producers have to comply strictly in order to be authorized to

¹³ http://www.jhhtzmsb.com/ShowArt.aspx?News_ID=193

use the GI mark (see Table 3 below). However, a comparison of the production specifications for the certification mark “Jinhua ham from Jinhua city” with those for the “Jinhua ham GI” shows that the AQSIIQ criteria are more stringent. For example, in the new standard (GB/T 19088-2008) applied by AQSIIQ, the pigs’ legs may originate only from the Jinhua black two-ends pig breed or hybrid breeds. In the case of the SAIC certification mark, producers have the choice of producing under the same criteria as those of AQSIIQ, but they may also use legs from pigs bred in areas adjacent to the Jinhua region. In addition, AQSIIQ has also laid down some criteria with strict scientific standards.

Under the GI AQSIIQ system. In 2008, AQSIIQ and the Standardization Administration published new standards (GB/T 19088-2008), developed by AQSIIQ’s Jinhua and Quzhou offices, assisted by the Centre for the Detection of the Quality of Jinhua Ham and producers. Compared to the 2003 regulation, the aspects of quality criteria (mainly for the raw material) and product safety have been modified to meet demands in this regard; for example, some indices for substances, humidity and salt content have been changed. The new standards place more emphasis on the protection of consumer interests and combating counterfeiting.

The new standards are recommendations rather than being mandatory. Their main objectives are to improve product quality, guarantee the conservation of traditional techniques and protect consumers’ interests in the fight against counterfeiting. They clearly define the production area, manufacturing conditions (climate, production season etc.) and criteria for the selection of the raw material (breed, weight), and provide some technical parameters such as the percentage of fat on fresh legs, weight, humidity and content of additives such as salt and oil. They list the various stages and duration of the preparation process.

In respect for tradition and in order to give a clear indication to consumers, the new standards stress that the pigs’ legs used as a raw material in the GI product must come specifically from the black two-ends breed or hybrid breeds, thus ensuring the traditional product quality and respecting the interests of consumers along the whole production chain.

Quality criteria are hard to measure, relying mainly on the experience of the producers. Experts rank the quality of hams in three categories: top, first and second, according to six indices: aroma, taste, colour, ham shape, flesh texture and shape of the ham leg. Several studies have been conducted on this subject (Zhu, 1993; Du and Ahn, 2001; Xun *et al.*, 2003). Some quantitative tests are performed in laboratories to measure twelve physical parameters, such as the percentage of fat and the chemical composition of the ham. A first series of tests is made by the company itself, and the local AQSIIQ office carries out inspections at regular intervals in order to test quality and ensure the producers’ compliance with the norms.

Lastly, the standards also define the criteria for use of the GI logo, labelling, packaging, transport and storage of products.

Under the SAIC system. There is no real code of practice or common rules for production, but there is a final quality control, with evaluation by experts, who are professionals from the ham production sector with many years’ experience and are nominated by SAIC for this task. A ham-producing company must apply to the committee for authorization to use the certification mark. The Jinhua Ham from Jinhua City Committee is composed of

representatives of AQSIQ, SAIC and MOA and the Jinhua Ham Producers' Professional Association. Once the committee has received the application, it calls on its professional experts to inspect the quality of the product at the company's premises and give an opinion, a process that takes about 30 days. Once a favourable opinion has been given, the company can sign a contract with the committee, receive a certificate of approval and be authorized to use the certification mark logo.¹⁴ To ensure the quality of products, companies must renew their contracts with the committee each year.

Table 3. Jinhua ham: a comparison between the GI and certification trademark systems

Designation	Jinhua Ham (AQSIQ)	Jinhua Ham from Jinhua City (SAIC, certification mark)	Jinhua Ham (SAIC, mark)
Type of protection	GI system	Trademark Law, registered as a certification mark	Trademark Law
Managing organization	Jinhua Ham Committee and Jinhua Ham Producers' Professional Association	Jinhua Ham from Jinhua City Committee and Jinhua Ham Producers' Professional Association	Private business with patent right
Protection validity	No term of validity	10 years, registered as a GI certification mark in 2004, valid until 2014. ¹⁵ A producer's right to use the certification mark is valid for one year, renewable annually.	10 years, valid until 2013
Existence of a code of practice?	Standard norms (recommended, not mandatory) define the production area and manufacturing conditions and criteria for the selection of raw materials (breed, weight) and provide some technical parameters	None (based on Trademark Law) but the committee verifies the quality of the product before granting the right to use the certification mark.	None, National China Ham Norm (SB/T 10004-92), Company Norm (Q/zs 001-2004) ¹⁶

¹⁴ These producers often also register with AQSIQ as producers of Jinhua GI ham.

¹⁵ It should be noted that application for registration was made in 2004, but only in 2008 did SAIC officially register the certification mark.

¹⁶ The standard Jinhua ham brand is valid until 2013. Manufacturing of the standard ham respects the national China ham norm (SB/T 10004-92). This norm was created by the Zhejiang Food Company and has been in force since 1992 as a standard for the ham industry. Standard Jinhua ham must also respect the Q/zs 001-2004 norm established by the Zhejiang Food Company in 2004 and applicable only to standard Jinhua ham.

Designation	Jinhua Ham (AQSIQ)	Jinhua Ham from Jinhua City (SAIC, certification mark)	Jinhua Ham (SAIC, mark)
Production area	Defined by AQSIQ: 6 districts in the Quzhou region and 9 districts in the Jinhua region.	Only the Jinhua region (not including Quzhou Districts).	No constraints
Origin of raw material	Jinhua pigs and hybrid breeds	No breed constraints	No constraints
Production season	Winter	Winter	Whole year
Market outlets	Large supermarkets, dedicated outlets, well-known distributors, luxury hotels and restaurants, export to Asian countries	Large supermarkets, dedicated outlets, well-known distributors, luxury hotels and restaurants, export to Asian countries	Standard Jinhua ham is mainly exported to southeast Asia
Number of producers	30 enterprises were approved for production in 2009 ¹⁷	39 enterprises were approved for production in 2009 ¹⁸	Hundreds of enterprises

4. Stakeholders, supply chain and market

Historical situation

Every family in the Chinese countryside used to rear a few animals as a source of additional income and manure for their crops. In an autarkic economy in rural areas, it was one of the main activities.

However, many changes have occurred in recent decades. In 1956, the State extended the right to produce Jinhua ham to all public companies, expanding production to 20 districts outside the Jinhua region. At that time, the most modern factory had only a single lift. All the manufacturing processes were carried out manually, and the climate was an essential element in production. Given the economic system and policy constraints, the ham industry was not an auspicious sector for development.

In the 1970s, the Chinese Government started advising farmers to meet requirements regarding dimension and intensity, and to invest in technology in order to meet competition in the market and defend themselves against risks. Then in 1979, at the start of the economic reforms, the market opened up, encouraging businesses toward some private investment, without geographical limitations. The numbers of ham factories increased quickly over time.

Present situation: stakeholders in the Jinhua ham supply chain

Breeders and farmers. According to data from the Jinhua Livestock and Veterinary Bureau, in December 2009, 3 738 200 pigs were being reared in the Jinhua region. Pig production is divided between small family units and larger modern units.

¹⁷ <http://www.jhbts.gov.cn/bulinfo.jsp?id=38>

¹⁸ http://www.jhhtzmsb.com/ShowArt.aspx?News_ID=193

Small farmers. Because of a lack of funding and the current level of social development, the existence of small farmers, especially in family units, is still prevalent in China's rural areas. In Jinhua and some parts of Quzhou, the rural population has a tradition of rearing Jinhua black two-ends pigs to supplement its income. Despite the fact that the economy of Zhejiang is more developed than that of other regions, many farmers in mountainous areas live with an annual income of less than CHY 2 000 (US\$ 290) and most of them depend on livestock products and poultry as their main source of income. Very little information about farmers was collected in the field study, and this applies especially to the situation of small farmers living in remote areas with scant means of transport and little use of new technology. The advantages of small units are greater ease and flexibility in adapting to market conditions, but the disadvantage is a greater susceptibility to market fluctuations. Small farmers and businesses are now suffering from stiff competition from larger companies.

Larger breeding units. With the economic reform, people became more aware of new opportunities for profit. Livestock breeding is better organized. At the industrial level, some farmers have diversified into the production of animal products, while others continue in the traditional way, keeping breeding as a sideline. In the Jinhua region, 510 piggeries have more than 500 heads each, including 22 that produce more than 10 000 heads a year. There is a strong tendency to move from a traditional farming model to modern, more centralized methods and larger farms.

Cooperation among breeders. Professional experts are encouraging small farmers to form alliances in order to counter market competition, while large breeding companies are joining forces with small farmers to build a new type of association. Despite this trend, the new association still lacks the capacity to manage market risks.

Establishing a brand is one of the main ways for large businesses to hold a market place and create a company image. Large piggeries cooperate with small farmers and piggeries in order to reduce risks and be more competitive, creating associations with some processors in order to be able to offer products from a variety of ranges. These interest networks enable the members to protect themselves against major fluctuations in the prices of fodder and meat.

Government support. For its part, the government has made sustainable development a priority in its agricultural policy. Environmentally friendly and sustainable development of the livestock sector is increasingly discussed in national policy and promoted in the policies of local governments, and would appear to be an irreversible trend.

As Jinhua is one of the main production centres for pigs in Zhejiang Province, environmental protection is an important criterion for the region. Breeding areas have been defined, and the development of herds with an average size of 100 head has been encouraged. Farmers have received financial support to invest in means of recovering livestock waste and in implementing a prevention system against livestock epidemics. The government also encourages cooperation between the livestock sector and other sectors¹⁹ (crops, forestry, fisheries etc.) in order to collaborate on environmental protection and sustainable development and have more influence in the social and economic spheres.

¹⁹ http://www.zjahv.gov.cn/html/main/zw_jcxxView/8102.html

Ham producers and processors. As seen in Table 3, 30 companies are allowed to produce under the GI logo and 39 companies produce hams under the certification mark. It should be observed that the quantity of ham produced varies widely among the companies, from 200 to 15 000 units per year:

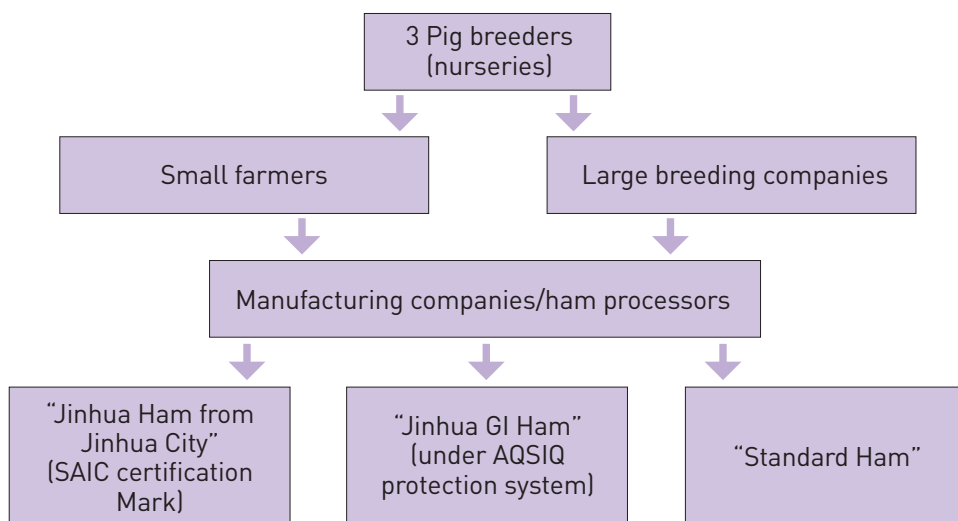
- 59 percent of companies produce between 1 000 and 2 000 pieces;
- 25 percent of companies produce between 3 000 and 5 500 pieces;
- only one company produces a total of 15 000 pieces.

Most companies have “limited liability” status.

The main difference between the GI product (AQSIC) and the certification mark product (SAIC) is in the choice of raw material: the standards of the GI system require the use of Jinhua pigs as raw material, whereas the certification mark puts no constraint on the breed of pig. Many companies produce both Jinhua GI ham and certified Jinhua ham. When they have the appropriate raw material, they can make the type of product demanded by the market (see Figure 3).

Supply chain organization and external support at various stages

Figure 3. Simplified organization of the Jinhua ham supply chain



In 2007, three breeders/nurseries²⁰ were supplying piglets to the market. These three companies, formerly with public status, are now privately owned and are either independent or are financially dependent on processors. Some local and regional animal science institutes on the one hand collaborate with agricultural universities to improve the species by adjusting to market needs, and, on the other, help farmers to seek an outlet market. Moreover, in order to ensure the supply of raw material, agrifood companies have all agreed to be involved in a mutual benefit process.

²⁰ <http://www.jhxm.gov.cn>

Some farmers have signed contracts with large ham manufacturing companies to supply raw material (Jinhua pig legs), but this does not reflect the overall situation. In addition, it appears that some companies make oral contracts with farmers, and these cannot provide a full guarantee. In the 2007 survey, it appeared that some ham producers sign production contracts with independent farmers. As an example, a fairly competitive company has managed to make contracts with 4 900 farmers, thus ensuring itself a sufficient quantity of raw material. This is of course not the case for all producers of Jinhua ham, and one of the contractors told us that small businesses cannot guarantee the quantity of production every year because of the unpredictable quantity of raw material. Small enterprises often do not have enough income to sign contracts or do not want to take the risk in a context of low market visibility. The system does not effectively manage the risk.

A collaboration committee organizes cooperation among the province government (Zhejiang), the local government (Jinhua), agricultural offices, universities and agrifood companies, and monitors the progress of work.

Processors have organized themselves into the Jinhua Ham Producers' Professional Association and assist in implementing new systems. The members of the association are, on the one hand, producers of Jinhua ham and, on the other, advisors from the main administrative offices, such as local AQSIQ, SAIC, MOA and public health offices with the task of explaining policies and regulations. The purpose of the association is to enable a greater participation of processors, so that they create alliances and keep in touch with the administration. Its main tasks are to establish norms for Jinhua ham, exchange technical information, promote products and organize quality competitions. Moreover, the association acts as a bridge between government and producers, transmitting complaints and opinions, and facilitating the implementation of regulations. It acts directly on the market by participating in control operations against counterfeiting and provides legal information to its members.

Markets

High consumer demand. Meat consumption is increasing in China. Nutrition, hygiene and flavour are the main purchasing criteria of Chinese consumers. Salted products, such as marinated or smoked traditional foods, are enjoyed at the tables of Chinese consumers. Jinhua ham is one of the best known products, thanks to its taste, tradition and cultural history. During the Qing Dynasty, Jinhua ham was sold in Japanese markets and in other countries in south Asia. In 1915, Jinhua ham won the gold medal at the Panama International Exhibition in Panama. It symbolizes a cultural heritage for the Chinese and is also a regular traditional dish for local people. Since 2008, it has been registered and protected as a non-material heritage by the Chinese State.

Jinhua ham is more expensive than other types of ham, but there are some niche markets, and thanks to its excellent reputation, consumers are ready to pay for the higher quality.

Current market. The Manager of the Livestock and Veterinary Office at the Jinhua Academy of Agricultural Sciences believes that the Jinhua pig sector has a high economic

value and that only a small part of its economic potential is currently being exploited.²¹ Anticipation of market risks, environmental problems, business management methods, the role of the farmers' association etc. remain key issues that will influence development of the Jinhua livestock sector.

Jinhua ham is currently sold in Shanghai by a few large distributors and consumed by the city's inhabitants. Another part of production is transported to Guangzhou and the Pearl River Delta area. It is mainly served in large hotels; in other words, it is intended for restaurants. Some companies have even installed commercial branches in Guangzhou. Some production is also exported to such other Asian countries as Japan, Singapore and Hong Kong, and Macao is a common destination. The main consumers in these countries are often members of the Chinese community.

Increasing numbers of companies are prompted to invest in this sector thanks to the support policy of the State and also for economic interests. Companies have developed new product lines based on Jinhua pig meat and created new ready-made meals to suit market trends. The products are mainly sold in large supermarkets. Demand is rising fast and companies are constantly finding new opportunities. Some companies have begun to focus on customers with a high purchasing power mainly living in large cities. They are opening outlets in Hangzhou, the capital of Zhejiang Province, dedicated to products made from Jinhua pigs. Some companies have installed commercial branches in Guangzhou and major coastal cities, where they have agreements with well-known restaurants and hotels.

5. Challenges

Challenges for Jinhua ham

Supply problems for Jinhua pig legs and related dangers to the specific quality of Jinhua ham. During the period of a planned economy when production was confined to public enterprises, product quality was to some extent guaranteed. When the country started its economic reforms, the market was opened up to everyone: public companies, private companies and individuals. In some seasons, there are insufficient legs of Jinhua black two-ends pigs to meet the increasing demand. Moreover, the fact that the breeding cycle of Jinhua pigs is one third longer than that of other breeds has led many local farmers to abandon the less profitable breed.

As a consequence, ham processors have some difficulty in obtaining enough legs of Jinhua pigs. Some processors have reduced their production, but find it hard to defend themselves against strong competition from industrial processors. Other processors have chosen to purchase legs from other breeds of pig to produce Jinhua ham, and it is hard for consumers to distinguish the origin of the final product. However, when they do this, these processors fail to meet the main criterion concerning the raw material as defined in the GI technical specifications of AQSIG. As a consequence, the quality of Jinhua ham is likely to suffer.

Traditional processing. In Europe, scientific research is systematically carried out to analyse the characteristics of hams and define standards. Manufacturing equipment is

²¹ http://www.jhny.gov.cn/article_show.asp?articleid=904

modern, with scientific instruments to ensure quality. However, most production in China is carried out manually (Xun *et al.*, 1993). Climate and processors' experience are key factors in processing. The disadvantages are that unpredictable climatic conditions and experience cannot guarantee the best quality, especially in terms of flavour.

Food safety issues. Problems concerning food safety are still major issues for which the government has not yet found solutions. Regulations regarding the use of additives and toxins in processed foods, the use of labels and the establishment of food quality standards are all issues that need more time for improvement.

There are several reasons for this situation: retailers take advantage of the fact that consumers do not have enough information on products and quality, producers are not fully aware of health risks, administrative offices lack the resources to regulate the market, or the cost of monitoring is too high. Although the State stresses human and financial resources to reform the market in order to combat unfair competition, it must find a way of organizing professional training regarding the implementation of policies, laws and regulations. However, the result is still largely inefficient. If the situation is analysed in greater depth, the main cause would appear to be that the institutional system is not yet complete. China has established several laws and regulations relating to food safety and product quality, but these rules still need to be harmonized and made operational.

General challenges

Management of food quality systems concerns a dozen offices, which share responsibility for control procedures. In the health field, these include AQSIQ, SAIC, the Agricultural Bureau, the Customs Office, the Trade Office and the Office for the Supervision of Food and Medicine. The tasks assigned to one office are duplicated by another, so that in some cases management is covered by several bodies, while there are grey areas for which none is apparently responsible.

- One persistent problem in China is the inaccuracy of statistics and the lack of management of databases regarding the source of GI products.
- At all administrative levels, more emphasis needs to be placed on investigating GI products and establishing a system of database management, covering geographical extent, product characteristics, production quantities, market situation and revenue.
- Many origin-linked products have so far obtained GI registration, but most of them are located in still underdeveloped regions, lack scientific management and use obsolete production methods, resulting in a low and stagnating level of production. Local offices have little awareness of the value of the GI system.
- GIs are signs of quality, product origin and intellectual property. However, government offices, other agencies and producers have only a partial understanding of the subject (Feng *et al.*, 2007). Training sessions for stakeholders on GI product management should be promoted.

- As previously noted, many public institutions in China share responsibility for organization of the market. However, there is still a lack of communication, and the many lacunae often lead to problems with unreliable quality and counterfeiting.
- Consumers have lost confidence in the quality of GI products and do not necessarily trust the GI logo. According to the field survey we conducted, consumers do not know enough regarding the value of GIs, mainly because they are confused by the number of different quality signs (organic products, green products, safety, quality etc.). Before the consumer can become aware of product quality, confidence in the safety aspects needs to be built up through better information.
- The producers' organization has a very important role to play in GI management. Producers' associations in China depend on the technical support of administrative offices (in this case AQSIQ and SAIC), and the GI system often means that these bodies require new expertise. Capacity-building at both producer and administrative levels is thus an important challenge.

6. Impact analysis and recommendations

Impact of the GI process on Jinhua ham

The Chinese State has identified the development of specific products as a potential tool in rural development, and especially in improving farmers' incomes in sensitive rural areas.

Promotion and protection of the particular characteristics of GI products through intellectual property rights allow differentiation and thus give the product added value on the market. This system is one important way for the Chinese State to assist the economic development of rural areas.

In the case of Jinhua ham, the supply chain is composed of various stakeholders: breeders, small and large-scale farmers, and ham-processing companies. The model was structured and supported by the national and local governments. The main production companies play a pilot role, carrying small farmers with them to capture the market, thus facing the competition together and sharing interests and risks.

The economic impact (price, market, suppression of infringements and income improvement) of the GI protection of Jinhua ham on farmers and processors is still to be assessed. Nevertheless, the establishment of GIs through the various institutional systems has improved value chain organization and encouraged a collective approach to management of a collective asset, reputation and code of practice.

On the other hand, application of the GI system for Jinhua ham is also a means of protecting biodiversity. In 2000, MOA identified the black two-ends or Jinhua pig as a specific breed for protection. This is now a mandatory item in Jinhua ham GI specifications.

Recommendations

Various recommendations can be made with a view to meeting the main challenges.

General recommendations

GIs have the potential to be a useful tool for the Chinese authorities in implementing a policy of rural development and increasing the income of rural inhabitants. Various types of protection for GIs exist in many countries. Looking at the situation in China, the questions are to work out which protection system would be best for each situation and how to reconcile the various legislative means made available by the different models in order to avoid overlapping and conflict.

It is not essentially a problem that there are two GI protection systems in China. Both systems are considering GIs a common heritage, but each administration has its own prerogatives, SAIC being dedicated to market regulation and AQSIQ focusing on food quality and safety.

The various rules established by the agencies (SAIC, AQSIQ) are now well developed after several years of refinement, but collaboration between them needs to be improved in order to clarify and facilitate the registration process for producers and provide consumers with clear identification signs.

The government's priority should be to harmonize relations and cooperation among all the institutions in order to avoid conflict and the waste of resources and improve the effectiveness of intellectual property protection.

GI products represent thousands of years of culture and tradition for the Chinese population. Their special characteristics give them a strong potential for competing on the market, although most of the products lack sufficient added value. Moreover, the market in China is vast and is influenced by the image of brands that are synonymous with quality for Chinese consumers. It is therefore necessary to strengthen the image of the GI logo, while noting the special characteristics of GI products, such as local expertise, and promoting the concept of terroir.

Recommendations regarding the Jinhua ham GI

Management of Jinhua ham production should not be left to the sole responsibility of SAIC and AQSIQ offices. Producers' associations should be more involved in all aspects of management (application for GI protection, market analysis, marketing and sales strategies, accounting, statistics etc.), while remaining independent of public offices.

The farming community is also an important stakeholder in this system, and its participation and role in implementing the system should be further encouraged, so that it can better protect its interests. This applies especially to small farmers, who have less influence and negotiating power. There is major potential for improvement in the role of producers' (breeders' and processors') associations to ensure the protection of all stakeholders' interests and develop market opportunities.

Environmental protection is a key factor in sustainable development. In the case of Jinhua ham, this point still appears to be somewhat neglected. The use of systems to process garbage and livestock waste should be included in the code of practice (AQSIQ), which currently focuses mainly on technical norms and the scientific aspects of ham production. Environmental factors could be taken into greater account.

A collective approach should be supported in order to share views on the outlook for Jinhua ham production among the various certification schemes, so that the various associations can work in the same direction.

References

- Ambassade de France en Chine.** 2007. *Le poids de la Chine en chiffres*. Ambassade de France en Chine, Beijing.
- Bolzoni, L., Barbieri, G. & Virgili, R.** 1996. Changes in volatile compounds of Parma ham during maturation, *Meat Science*, 43(3-4): 301-310.
- Cao, X.-M.** 2007. L'amélioration du système d'indication géographique en Chine. *Study and Research* (Chinese version).
- Dong, B.-H.** 2004. L'analyse de la reconstruction d'un modèle de système d'indications géographiques. *Colloque sur les propriétés intellectuelles du comité de China Law Society* (Chinese version).
- Druz-Marie, C.** 2003. *Rapport sur la propriété intellectuelle en Chine: les conséquences de l'entrée dans l'OMC*. CCI de Paris.
- Du, M. & Ahn, D.** 2001. Volatile substances of Chinese traditional Jinhua Ham and Cantonese sausage, *Journal of Food Science*, 66(6).
- Feng, Z.-Z., Sheng, S.-H. & Zhang, M.-F.** 2007. Stratégie analytique du développement des produits agricoles en système d'indication géographique. *World Agriculture* (Chinese version).
- Flores, M., Grimm, C.C., Toldra, F. & Spanier, A.M.** 1997. Correlations of sensory and volatile compounds of Spanish Serrano dry-cured ham as a function two processing times. *Journal of Agricultural and food Chemistry*, 45(6): 2178-2186.
- Gilly, J.-P. & Wallet, F.** 2005. Les processus d'innovation institutionnelle dans la politique des pays en France. *Revue d'économie rurale et urbaine*, 5.
- Gong, R.N.** 1987. *Jinhua ham processing technology*. Popular Science Press.
- Lindblom, C.E.** 1977. *Politics and markets: the world's political-economic systems*. New York, Basic.
- Ministry of Agriculture of China.** 2003. *Domestic animal genetic resources in China*. Ministry of Agriculture of China, Beijing.
- Rangnekar, D.** 2004. The international protection of geographical indications: the Asian experience. UNCTAD/ICTSD Regional Dialogue, *Intellectual Property Rights, Innovation and Sustainable Development*. 8–10 November, Hong Kong, SAR, People's Republic of China.
- Ren, Z.-L.** 1997. TRIPS et la législation de la propriété industrielle – une recherche de la protection des IG, *HeBei Law Science* (Chinese version).

Rigas, A., Miège, P. & Zhao, W. 2003. Regard(s) sur l'émergence d'une économie de marché en Chine. *Perspectives chinoises* (77):53-65.

Sabio, E., Vidal-Aragon, M.C., Bernalte, M.J. & Gata, J.L. 1998. Volatile compounds present in six types of dry-cured ham from south European countries. *Food chemistry*, 61(4): 493-503.

Wang, G.-H. 2005. *Les signes d'identification de la qualité et de l'origine: contexte et implications dans le marché international. L'exemple du système des indications géographiques.* Master's dissertation, University of Toulouse, Toulouse.

Wang, X.-B. 2007. Quelques problèmes dans le choix de protection du système d'indication géographique. *Electronics Intellectual Property* (Chinese version).

Xun, Y.J., Zhou, G.-H. & Xu, X.-L. 2003. Flavour comparison and formation mechanism analysis of dry-cured ham from China and west countries. *Food and fermentation industries*, 29(11).

Zhu, S.W. 1993. Jinhua ham flavour volatile research. *Food Science* 158(2):16-18.

Zhu, S.W, Yang, Z.H & Wang, X.Y. 1993. The investigation on the volatile flavour compounds of Jin-hua ham, *Food Science*, N°2, Chinese version

Websites

Administration of Quality Supervision, Inspection and Quarantine: www.aqsiq.gov.cn

China-Africa Business Council: www.cabc.org.cn

China Trademark Office: www.ctmo.gov.cn

Food and Agriculture Organization of the United Nations: www.fao.org

National Bureau of Statistics of China: www.stats.gov.cn

People's Government of Zhejiang Province: www.zjagri.gov.cn

SINER-GI: www.origin-food.org

State Administration for Industry and Commerce: www.saic.gov.cn

Canadian Trade Commissioner Service: www.infoexport.gc.ca

IV. Uvs sea buckthorn fruit, Mongolia

by

Ts. Enkh-Amgalan

Abstract:

In line with WTO's TRIPs Agreement, Mongolia developed and adopted its Law on Trademarks and Geographical Indications in 2003. Sea buckthorn (*Hippophae rhamnoides* L.) from Uvs Province is one of the pioneer products, receiving GI registration in 2007.

Sea buckthorn is a highly nutritious and versatile berry, containing vitamins C, E and beta-carotene and omega-3 fatty acids, and is traditionally processed into juice, jam or oil, while oil from the seeds is also very popular for medicinal use. Uvs Province, the home of wild sea buckthorn, is where the species was first domesticated in the country in the 1940s. The very specific natural and climatic features of the zone have built up the reputation of Uvs sea buckthorn, so that customers perceive it as a high-quality natural product. The product benefits from high market demand, leading to some counterfeiting.

A private processor of Uvs sea buckthorn is trying to develop and secure the market for its products through GI registration, in order to create legal protection of the name, while improving the quality of the product. However, inasmuch as registration of the GI has been conducted individually by this one firm, it is now hard to involve other stakeholders and build a collective process around the GI definition (a code of practice) and management (certification and marketing).

Introduction

Mongolia is a central Asian country situated between Russia and China. With a territory of 1.5 million square kilometres and a population of 2.7 million, Mongolia is one of the most sparsely populated countries in the world, with an average of 1.6 people per square kilometre. In terms of environment, it is located in the transition zone where the Siberian taiga forest, the central Asian steppe, the high Altai Mountains and the Gobi Desert converge.

The main economic activities are mineral mining and quarrying (copper, gold and coal), accounting for 27.5 percent of GDP, agriculture (mainly nomadic herding), accounting for 20.6 percent, and the manufacture of processed and semi-processed products of livestock origin. Although the share of mineral mining and quarrying in GDP and export income is high, the importance of the agricultural sector in the inhabitants' livelihoods is higher, providing employment, food and social security. Almost half the country's workforce is employed in the agricultural sector, within which nomadic livestock herding plays a major role, accounting for 80 percent of total agricultural production.

Mongolia is one of the few countries in the world that still has truly nomadic livestock herding. Pasture land covers 1.2 million square kilometres, or over 80 percent of the country's total land area. There are about 180 000 nomadic herder families today, making up one-third of the country's total population, with 42 million head of livestock (camels, horses, cattle, goats and sheep). These people's livelihood depends entirely on income from the sale of meat, milk, wool and hides.

Mongolia has many products developed on the basis of local natural and human resources. This situation may be attributed to the special features of the country, with its sparse population scattered over a vast territory and the long distances between settled areas, creating a need for self-sufficiency. Since Mongolia adopted its Law on Trademarks and Geographical Indications in 2003, 13 local items have been registered as GI products. The GI system is recognized as a potential way for agricultural producers in marginal rural areas to improve the market competitiveness of their products in a context of increasing globalization and an open trade policy.

Moreover, the presence of very stiff competition in local markets from cheap imported products is leading Mongolian enterprises intuitively to choose a marketing strategy of product differentiation, which is based on the promise of a certain unique quality. Mongolia has the comparative advantages of organic, chemical-free, eco-friendly production, combined with such social factors as image or reputation. Enterprises also choose to focus on products for which Mongolia has clear advantages in terms of production volume, availability of technology and labour skills, and a potential increase in demand and price. However, this trend is still in its very early stages.

Sea buckthorn (*Hippophae rhamnoides* L.) from Uvs Province is one of these pioneer products and received GI registration in 2007. Sea buckthorn is a highly nutritious and versatile berry, containing vitamins C, E, beta-carotene and omega-3 fatty acids, and is processed as juice, jam or oil, while oil from the seeds is also very popular for medicinal use. Uvs is the name of the province that is home to wild sea buckthorn and where the

species was first domesticated in the country in the 1940s. The intervening years have given birth to a tradition of growing and consumption, and this, combined with the natural and climatic features of the zone, has built up the reputation of Uvs sea buckthorn, so that customers now perceive it as a high-quality natural product.

Taking advantage of this reputation, a small group of producers in this remote rural area of Mongolia is trying to develop and secure the market for its products through GI registration, in order to create legal protection of the name while improving the quality of the product.

1. Institutional context

Mongolia has been a member of the World Trade Organization (WTO) since 1997 and is also a party to the Lisbon Agreement. In line with the Trade-Related Aspects of Intellectual Property (TRIPs) Agreement of WTO, Mongolia developed and adopted its Law on Trademarks and Geographical Indications in 2003.

This law is an important element in the government policy of providing support to added-value industries to create jobs and thus alleviate poverty. The GI system is appreciated for its potential to promote locally-made products. In Ulaanbaatar, Mongolia's capital, there is a growing number of upper- and middle-income residents, and also expatriates working mainly in the booming mining industry. These customers prefer locally-made food products for health and security reasons, rather than imported products that spend a considerable time on the way to shops. Increasing numbers of customers are concerned over food health, for there have been several recent incidents of food poisoning and contaminated products from mainland China. GI registration helps local producers to inform consumers as to the origin of a product and its corresponding qualities.

GI registration is also seen in Mongolia as a tool to open access for local products to foreign markets through promotion of their unique qualities. Mongolia is known as one of the few countries that has maintained its natural environment relatively intact, which gives it a competitive position for the production and supply of organic, chemical-free and ecologically clean products for the international market. The ability of the GI system to link the quality of a product to its geographical origin, embracing unique production practices, know-how, and social and natural assets, is therefore of particular interest to Mongolian producers.

On 17 November 2005, a joint resolution was issued by the Ministry of Trade and Industry, the Intellectual Property Office of Mongolia, the Ministry of Agriculture and Light Industry and the National Chamber of Commerce and Industry, containing a formal commitment to use and foster GIs as a development tool. By the end of 2008, about 15 products had received GI registration, and Uvs sea buckthorn juice and oil was one of these. The resolution lists three main lines of action. First, it promotes registration, development and advocacy of the benefits of GI registration among producers and their partners. Second, it uses GIs as a tool to develop markets and increase the access of local products to the international market. Third, it develops a timetable for the implementation of a GI system in Mongolia.

The key roles identified for the Ministry of Agriculture and Light Industry and the Ministry of Foreign Relations and Trade are to provide policy support and to promote Mongolian GI products in foreign markets.

Since it is a new initiative, the National Chamber of Commerce and Industry offers consultancy services to interested companies and individuals for the filing of GI registration applications and implementation of the GI system. With the assistance of a project of the European Commission to support the development of a GI system and a corresponding legal framework in Mongolia, the chamber opened a National Geographical Indication Centre, which has the main tasks of providing legal advice on practical GI-related issues, highlighting the importance and recognition of GI protection to local producers, introducing the activities of internationally accredited certification bodies for the quality control of GI products, and supporting the export potential of products within the framework of development of a GI system. It offers services in the following areas:

- organization of training and advice on GI issues;
- provision of legal support for GI producers in the registration of their products;
- supply of GI brochures and handbooks to local chambers of commerce;
- methodological assistance in working out the technical specifications of products;
- definition and supervision of a product monitoring system, especially as concerns external monitoring;
- collaboration with international certification bodies;
- granting of the certification logo for GI products registered in Mongolia;
- contribution to the protection of GI products;
- acting as an authoritative body with regard to enforcement, counterfeiting and seizure in GI disputes;
- promotion of GIs at national and international level.

The National Chamber of Commerce and Industry has developed and issued an official national GI logo for products from Mongolia.

The Mongolian Intellectual Property Office is in charge of accepting applications and issuing GI registration. The Law on Trademarks and Geographical Indications states that the following information and documents must be submitted with applications for GI registration:

- name, address and location of production of the applicant (private individual or legal entity);
- name of the geographical indication;
- description of the place of origin of the product;
- name of the product;
- description of the specific quality of the product and its linkage to a geographical zone, its inhabitants and their traditions;
- a statement from the local government confirming that the applicant carries out production activities in the specific geographical zone.

Applicants may apply as a group for GI registration.

It appears that the law allows a single company or an individual to register a GI in its or his name, which is at odds with the public intellectual property status of such an indication. Moreover, registration requires neither a real code of practice for production of a GI product, nor a quality control system. In this respect, only a description of the specific quality of the product and its linkage to a geographical area, its inhabitants and their traditions is necessary for registration.

Recognition of the role of sea buckthorn in local development

The local government attaches great importance to sea buckthorn planting and processing as a key source of employment and income for local inhabitants. In 2006, with the support of the Council of Uvs Province Native People and the World Bank Trust Fund, and financed by the Government of the Netherlands, the province government developed a two-phase sea buckthorn development programme. During Phase I from 2006 to 2010, the province government is seeking to encourage the local population to plant sea buckthorn by facilitating access to the relevant knowledge and skills, and also to financial and other production inputs. The aim is that at the end of Phase I each province household will have planted 10 to 15 trees as a source of income. The second phase is planned to run from 2010 to 2016 and will focus on improving value-added production.

The quality, reputation and uniqueness of Uvs sea buckthorn mean that there is growing interest among the local research community in analysing its properties. The National Sea Buckthorn Research Centre was established at the State Technical University, and carries out laboratory and consumer-based tests. The National Sea Buckthorn Council was established with the support of the Zoos Bank, mainly on the initiative of native people from Uvs Province and the research community, which hosts an annual national workshop that has become a popular forum where research, state and private communities share information and exchange knowledge.

In collaboration with the local government, the Khas Bank has developed a microcredit programme for small growers, accepting sea buckthorn trees as collateral. The local government is responsible for providing growers with relevant training and guaranteeing security of land tenure, while the Khas Bank extends loans for working capital, together with training on loan management.

Mercy Corps International has been implementing the Market Opportunities for Rural Entrepreneurs Project in Uvs Province, and sea buckthorn is one of the value chains selected for support. The focus of the project is business service development. There are two pertinent lines of action for sea buckthorn production. The first is to train local entrepreneurs and improve their skills in developing business plans, and the second is to provide collateral support to improve small enterprises' access to bank loans.

All these efforts are being translated into real action, and sea buckthorn planting has been steadily increasing in Uvs Province.

2. Geographical zone and specific resources

General context

Geography and natural environment. Uvs Province is Mongolia's most westerly province, covering an area of about 96 000 square kilometres. It is located at the junction of the Altai and Khangai mountain ranges in the basins of the Great Lakes. It is endowed with a rich diversity of plant and animal wildlife, and natural underground resources (see Figure 1). There is a different ecological zone every 200 kilometres, and it is said that all the ecological zones existing on earth, except for tropical rainforests, are found in Uvs

Province. The Great Lakes basin valley was placed on the UNESCO world natural heritage list in 2004.

Figure 1. Uvs Province



The climate is very harsh, with winter temperatures reaching $-30\text{ }^{\circ}\text{C}$ to $-50\text{ }^{\circ}\text{C}$ and summer temperatures of $30\text{ }^{\circ}\text{C}$ to $40\text{ }^{\circ}\text{C}$. Average annual rainfall ranges from 140 to 200 millimetres, and 300 to 400 millimetres in mountain areas.

A fragile economy dominated by nomadic livestock rearing. The country's western region, which consists of five provinces, has the highest percentage of people living below the poverty line (42 percent on average), i.e. on less than US\$ 1 per day. In Uvs Province 38 percent of the inhabitants fall into this group. The total population of the province is about 90 000, with 47 percent of them living in the one town (20 000 people) and the 19 villages, while the remaining 53 percent are nomadic herders living in the countryside. The ratio between men and women is fairly even – 49 to 51 percent. People of working age account for 56.7 percent of the population and unemployment affects more than 50 percent of these.

Agriculture, particularly nomadic livestock rearing, is the main economic activity of the province. Agriculture contributes 72.4 percent to GDP, industry 4.1 percent and the service sector 23.5 percent. Nomadic livestock production accounts for about 90 percent of total agricultural output. Nomadic livestock rearing is practised in its classic form, with nomadic herders moving around freely on open-access pasture land. In order to allow pastures time to regenerate, herders practise rotational grazing, moving four to eight times a year between four seasonal camps. They stay longest (three to five months) in their winter camp, and six weeks or less in the others. There are about 21 900 nomadic herders, with 2.6 million head of livestock: 60 000 camels, 80 000 horses, 130 000 cattle, 1.3 million sheep and 1.1 million goats. The province produces 24 000 tonnes of meat a year, 1 400 000 tonnes of sheep's wool, 600 000 pieces of skin and leather, and 324 tonnes of cashmere. Nomadic livestock herding provides employment and income for 70 percent of the rural population.

The poor are mainly those who lost their jobs at the start of the transition period – former employees of state farms and organizations. Many of these people live in or near settlements, and keep a few head of livestock to meet their households' basic food and

livelihood needs. The main challenge is to find employment, apart from livestock rearing, that will yield additional income, and also to promote the market sale of the small surplus of livestock products left after household consumption. These people usually have no means of transport and cannot afford the cost of moving products over a long distance to the nearest market. This causes a congestion of large herds in one area over a long period, which is leading to severe degradation of much pasture land around urban and settled areas. The second most degraded pastures are around water points. Herders have to use the same pastures repeatedly, since there is no water for animals and humans in some of the pastures they used previously. Many wells dug during the Soviet era have stopped working because of unclear ownership status, with neither herders nor government taking responsibility for upkeep. Many natural sources of water, such as rivers and springs, have dried up in recent years because of climate warming and decreasing rainfall.

Limited agricultural diversification. After nomadic livestock rearing, the second largest economic sector in the province is the growing of wheat, livestock forage and vegetables. During the 70 years of a centrally planned economy, the province's crop production developed to the point that the province was supplying wheat flour, livestock forage and hay to the other four provinces in the western region. Several thousand hectares of land were placed under cereal crops, potatoes and vegetables.

With the economic transformation to market-driven development in the early 1990s, all state-owned farms and enterprises were closed down. Only after 15 years of the new economic structure did crop production gradually start to revive, with new types of producer: small private family-based businesses, and small- and medium-scale private enterprises. In 2007, about 1 500 hectares were planted to cereals, 200 hectares to potatoes and vegetables, and 280 hectares to forage crops. Cereals, potatoes and vegetables current account for 5 percent of gross province production, but Uvs is one of the few provinces that are self-sufficient in vegetable production.

There is one meat processing company, which sells carcasses to the Ulaanbaatar market and also exports small quantities to Russia. It sells processed meat products, such as sausages and frozen dumplings, in the local market. The largest food processing company in the province was established on the basis of a former state food-processing enterprise. It is the main supplier of bakery products, soft drinks and processed dairy products to the local market, and employs about 150 people. It is also the leading producer of sea buckthorn juice and oil in the *province*. There are also about ten small processing enterprises, none of them employing more than 10 people.

The limited employment opportunities in the manufacturing sector leave local inhabitants with no options other than to keep a few animals or cultivate a small plot to ensure their livelihood. However, this is possible only for those who have appropriate skills and a community or relatives who will lend or grant them an initial stock to build on. Indeed, there are few ways of escaping poverty.

Some advantages to be built on. Although located 1 300 kilometres from the main national market in Ulaanbaatar, the province has access to Chinese and Russian markets along paved roads. The proximity of these markets also gives the local population an opportunity to obtain basic household appliances and some imported food products at cheaper prices than those transported from the Ulaanbaatar central market.

However, poorly developed infrastructure and lower economic integration hamper the region's potential for economic development. The absorption capacity of the local market of the province with its population of 90 000 is relatively low, so that local producers and businesses need access to regional, national and indeed international markets in order to achieve sustainable growth.

Society as a whole is still in a transition period and is learning to live and run businesses in a free market environment. The lack of business management and marketing skills is prevalent in the private sector.

Nevertheless, the province has many advantages and the potential to develop a thriving economy. Beside its rich mineral resources, its beautiful landscapes and diverse ethnic cultures offer opportunities for developing such new industries as tourism. It also has relatively fertile soil. However, its greatest advantage is its human capital, with a high literacy rate (95 percent), a youthful population and a relatively high proportion of people with more than elementary education.

Sea buckthorn: an asset for the local economy. The province is home to wild sea buckthorn, which grows in an area of about 29 000 square kilometres beside the basins of the Great Lakes and the cold-water rivers that flow into the lakes. The muddy soil texture and the iodine-rich water are especially suitable for planting sea buckthorn. The expertise, technology and skilled labour that have been built up during the tradition of sea buckthorn cultivation is one of the advantages of the province. There is an ever-increasing demand for sea buckthorn on the domestic market, and international buyers from Japan and the Republic of Korea are particularly interested in Uvs sea buckthorn. Because of its high quality (with a very high oil content) and the organic growing practices used, it is suitable for use in medicinal and cosmetic products.



Sea buckthorn fruit and trees

In the mid-1960s, sea buckthorn was domesticated for the first time in Uvs Province by a group of researchers. Over the years, this initiative developed into a research station where species selection and research are carried out. The largest fruit farms of that time in Mongolia planted 300 hectares and employed 600 people. The main species planted in Uvs Province are cross-breeds of local wild species and species imported from Russia. These cross-breeds have been developed to possess the high resistance to harsh climatic

conditions of local wild species and the high production yield of species from Russia.

The research station in Uvs Province is the largest sea buckthorn research and plant centre in the country. It supplies 60 000 to 70 000 sea buckthorn saplings to the local and national markets each year, and demand for saplings is growing steadily. Due to the tree's ability to resist harsh weather and its strong rooting system, it is planted in various parts of Mongolia in efforts to combat sand movement and desertification.

The local government recognizes the potential of sea buckthorn planting and processing, seeing it as a major way of reducing unemployment and poverty in the province. It set up the Sea Buckthorn Development Programme in 2007, aiming to support small growers with up to 1 hectare and increase overall plantations to 3 million hectares in the forthcoming five years. As part of the programme, the local government has developed and launched a lending programme in cooperation with the local branch of the Khas Bank, which has agreed to accept sea buckthorn trees as collateral for loans.

Delimitation of the area

Uvs sea buckthorn production corresponds to the boundaries of the specific *terroir*. Uvs province has a unique environment and climate, with a major difference between winter and summer temperatures (-50 °C to +35 °C) and encompassing the basins of the Great Lakes, salty, muddy soil and cold-water mountain rivers fed by permafrost water (see Figure 1). Since it is the home of wild sea buckthorn, the local population has traditional knowledge and skills regarding the use and processing of the species. People use it in herbal treatments in the case of such illnesses as colds, influenza, stomach ulcers and digestive disorders. Moreover, a number of simple hand-made tools have been developed over time to harvest and process sea buckthorn.

Wild sea buckthorn was first domesticated in Uvs Province and over the 40 years since then, local people have learned skills and knowledge about planting the species, while a significant processing capacity has also been built up.

Growers in Uvs Province are now the leading producers of sea buckthorn in Mongolia, accounting for about 60 percent of total production.

Since demand is high, sea buckthorn is being planted not only in the neighbouring western-region provinces, but all over Mongolia. Although wild sea buckthorn also grows in other provinces, the name and reputation of Uvs sea buckthorn is distinct, and its specific qualities and properties are acknowledged by customers.

Specific resources

As the home of wild sea buckthorn and with its tradition of planting the species, Uvs Province has become synonymous with "Uvs sea buckthorn", which customers see as a guarantee of the quality and genuineness of the product (oral communication from pharmacies and supermarkets in Ulaanbaatar).

The unique qualities of Uvs sea buckthorn, recognized by customers in the domestic market, encompass both physical and more cultural characteristics.

Specific climatic and natural conditions. The natural environment of Uvs Province is very specific in terms of both climate and soil. The zone has an extremely harsh climate, with winter temperatures reaching -30°C to -50°C , and summer temperatures ranging from 30°C to 40°C . In order to withstand the cold, harsh climate, sea buckthorn is rich in oil and mineral elements. Muddy iodine-rich soil fed by permafrost water also contributes to the unique qualities of Uvs sea buckthorn.

Local species of tree. The unique quality can also be attributed to the fact that local varieties have been developed over the years through selective cross-breeding of wild varieties with varieties from Russian Siberia. Researchers have developed special varieties that combine the hardiness of local species with the productivity of imported varieties from Russia. This was the main work of the local research station established in the mid-1970s.

Traditional expertise in processing sea buckthorn. Wild sea buckthorn has traditionally been widely used by local people as a vitamin and nutritional supplement during the region's long, cold winter months. Through long years of planting and processing it, local people developed skills and knowledge not only about the tree itself but also about its processing and conservation.



Harvesting of sea buckthorn

In addition, a hundred years of sea buckthorn production and consumption by the inhabitants of Uvs Province, combined with their distinct cultural heritage, have created a strong image for the product. Even before domestication, local people and herders used wild sea buckthorn in their daily diet and for curing a wide range of illnesses. They had "home technology" to make juice and fermented syrup, which were (and still are) used especially during celebrations of the lunar new year. The link between the fruit and the name Uvs appeals to many local customers because of their strong ties to their homeland, culture and traditions.

Issues regarding these resources

Misappropriation. The good market reputation of the product has prompted some businesses to use the name of the product fraudulently. This is one of the main reasons why a leading processor in Uvs Province, the Uvs Food Company, applied for GI registration, seeking legal protection of the name and its associated qualities.

Unsustainable resource use. The increasing demand for local and organic fruit and vegetable products, especially in urban areas, also leads people to harvest wild sea

buckthorn without due care for the trees. Combined with the effects of decreasing rainfall and advancing desertification, this is causing a decline in the number of wild sea buckthorn trees. According to the Uvs Research Station, there have also been increasing instances of disease- and insect-affected trees in recent years. Since land is publicly owned in Mongolia, people often use land resources without due care. In recent years, recognizing wild sea buckthorn as an important source of income, the local government and international development agencies working in the region have started to raise the local population's awareness regarding sustainable harvesting practices. The establishment of a community user rights system for wild sea buckthorn is one of the areas of concern.

Loss of knowledge. During the era of a centrally planned economy, a number of local sea buckthorn species were developed at the local research station, combining the best qualities of wild sea buckthorn and species from Russia. The high survival and resistance capacity of wild sea buckthorn and the high productivity of Russian species were combined to produce a unique local species. However, during the transition period, this research halted, and data and information were lost, so that these species are no longer bred purely, but are often mixed with Russian and wild species in growers' plots.

3. Product specification

Specific quality

The fruit grown in Uvs Province is the primary source of product specific quality. As stated above, the unique qualities of Uvs sea buckthorn are associated with the region's climate, soil and water. However, the processing technology adopted also contributes to the specific quality of sea buckthorn products from Uvs, as local companies are producing pure juice and oil without any additives.

Specific quality of sea buckthorn grown in Uvs Province. Although it has not been scientifically proven, consumers consider Uvs sea buckthorn, grown under extremely harsh climatic conditions and in the unique natural environment of the salty Great Lakes basins and the cold-water rivers fed by permafrost water, to be a rich source of vitamins, particularly vitamin C, and various minerals. In resistance to the cold weather, the fruit produces oil, which is found in all its parts – seeds, shells and flesh. It is understood that the vitamins and useful minerals are retained in the fruit for a long time and are found at even higher levels in the processed products.

Sea buckthorn trees usually live for 15 years, yielding 5 to 35 kilograms of fruit each year. The more mature the tree, the higher the yield: in the first harvesting year, it yields only 5 kilograms, but the amounts increase as the tree grows older. Experience shows that when planted in other areas of the country, trees do not live as long and yield lower amounts of fruit. Researchers and growers offer two possible reasons: first, it could be a result of the adaptation of local species to the extreme climate and the quality of soil and water in Uvs Province; second, it could be because the planting of sea buckthorn trees requires at least some basic technical skills on the part of growers. The trees start bearing fruit three years after planting, but need care during this time so that they grow well and are capable of bearing fruit. It is important to have a carefully positioned combination of male and female trees in a plot. The presence of skilled labourers who used to work on former state farms

and access to experts at the local research station make Uvs Province the most suitable for the growing of sea buckthorn.

Another specific property that consumers attribute to Uvs sea buckthorn is its organic quality, for it is considered completely chemical-free. In 2005, laboratory analysis in Japan confirmed that the fruit and its by-products made in Uvs Province were free of any outside chemical elements and completely natural.

High quality of products processed in Uvs Province. In 2008, the quality of Uvs-processed products was compared with products from Ulaanbaatar in a Swiss laboratory. The results showed that the content of nutritional elements in Uvs products was very consistent, whereas it was very variable in other products. Experts suggest that Ulaanbaatar-based products may be mixed with considerable amounts of outside ingredients, such as oil or flavouring products. The results of comparative analysis of four different bottled sea buckthorn oils produced in Mongolia are given in Table 1.

Table 1. Comparison of sea buckthorn oils produced in Uvs Province and those produced in the Ulaanbaatar area

Source: Mediplant Center, Lausanne, Switzerland, 2008.

	Fatty acids (%)					
	Palmitic acid	Palmitoleic acid	Stearic acid	Oleic acid	Linoleic acid	Linolenic acid
Uvs Food Company (based in Uvs Province)	33.9	41.4	0.80	3.27	10.3	0.92
Us Erdene Company (based in Uvs Province)	35.7	38.1	1.07	3.70	11.2	1.32
Food Technology Research Institute (Ulaanbaatar-based producer)	18.2	15.1	2.73	13.3	39.5	6.65
Baragshin Company (Ulaanbaatar-based producer)	9.58	1.00	3.97	17.7	60.1	7.48

In the first place, it can be seen that there is a consistency in the content of elements in sea buckthorn oil from the two Uvs producers. The profile of fatty acids is very clear, with a very high content of palmitic and palmitoleic acids, which are appreciated in the cosmetics industry for their anti-ageing effects. The content of elements in oil from the two Ulaanbaatar-based producers varies considerably, possibly in part because the products are mixed with other oils, according to experts. These results confirm in general the need to define and enforce a code of practice for processing in order to ensure quality and consistency.

Reputation. Uvs sea buckthorn is a very popular name among local customers, conveying various messages such as authenticity, quality and associated social and environmental factors. Since Uvs Province is the home of wild sea buckthorn in Mongolia and the area where it has been domesticated, the name and reputation are the result of many years of tradition and recognition by customers.

Local people often even identify themselves with sea buckthorn, and there are many anecdotal tales associating the good results of students from Uvs Province with their use of sea buckthorn since childhood. Thanks to extensive marketing campaigns in recent years, organized by the local government and private businesses from Uvs Province, Uvs sea buckthorn is well-known and is one of the most widely recognized products on the domestic market.

Uvs sea buckthorn is also well known in Japan and the Republic of Korea. In Japan, some private businesses are interested in using Uvs sea buckthorn as a raw material for organic juices and cosmetic products. Pure Uvs sea buckthorn juice was once tested on children exposed to radioactivity during the Chernobyl disaster in Russia, and the results were apparently very positive (oral communication from researchers at the Sea Buckthorn Study Centre at the National Technical University), although no documented results of this experiment could be found. Research on the detoxification effects of sea buckthorn has been continued in Japan, prompted by the fact that in one Japanese province that has a concentration of atomic power stations local inhabitants are showing a growing interest in detoxification products for everyday use. Uvs sea buckthorn is being tested for this purpose. There is ongoing research on the transplantation of sea buckthorn to Japan, tests of products, and opportunity studies on the exportation of frozen sea buckthorn for processing or the exportation of processed products.

Qualification process and dynamics of GI registration and implementation

Prompted by the growing demand, the largest sea buckthorn processing company in Uvs Province, the Uvs Food Company, applied for GI registration in 2007. The application was approved in the same year. According to L. Munkhnaran, Executive Director of the Uvs Food Company, who was interviewed in July 2007, the company had to take steps to obtain legal protection for the name and reputation of the product through GI registration, because the name was frequently being misused for similar products from other regions of Mongolia or from Russia in order to increase sales.

In the GI registration, Uvs sea buckthorn is described as sea buckthorn “growing at an altitude of 900 metres above sea level, enduring temperature oscillation ranging from -40 °C to +40 °C in muddy brown soil of the dry steppe ecological zone for 180 to 230 days”.

Although the law does not require a code of practice or a quality control and monitoring system, the Uvs Food Company voluntarily developed a code of practice and included it with its application for registration. This code of practice is based mainly on the current processing practices of the company itself. However, small companies use mainly artisanal processing methods and are not as mechanized as the Uvs Food Company, so they may not be able to comply with the code.

The GI registration of Uvs sea buckthorn by the Uvs Food Company alone has caused a dispute among other local processors and growers, who claim that the name “Uvs sea buckthorn” is a public intellectual property and can be used by all local producers and processors in the province. All sea buckthorn growers and processors in the province therefore continue to use the name in oral marketing or have it printed as part of their own logos, albeit without any official GI sign.

This situation worries the Uvs Food Company, for it fears that if the other companies allow quality to slide, it may damage the reputation of all products from the province, including their own. The company therefore started intensive discussions with the two smaller processors, trying to persuade them to follow a common code of practice and ensure quality monitoring. However, the small-scale processors were unwilling to cooperate, since they were not involved in the registration process and there is no obligatory quality control system.

Code of practice

According to oral communications from members of the Uvs Food Company management group (because of business secrecy, the code of practice is not made public), there are three key issues in the code of practice:

- the product must be free of chemicals and produced organically;
- there must be a high level of traceability in the processing chain from raw material to end product;
- the sea buckthorn used must come from Uvs Province.

Two observations can be made regarding this code of practice:

- it is wider and more comprehensive than requested: GI registration concerns only the fruit, but the Uvs Food Company's code of practice also includes elements concerning the processing of juice and oil;
- the code of practice of a GI product should be public and accessible to consumers or other producers who may wish to produce the GI product.

The processing technology is reviewed each year depending on the weather conditions – sun, rainfall, length of winter and the harvesting season. With regard to environmental concerns, the code states that no elements harmful to the environment may be used. However, it contains no requirements pertaining to planting practices or care of trees.

Each company pursues its own processing technology. It seems that in small processing companies the processing technology or code is not consistent, but combines manual processing with the use of simple hand-made equipment and machinery. For example, cleaning is carried out manually and pressing is carried out with a simple hand tool, while juice and oil extraction are more mechanized. Neither of the small processing companies has a written code of practice. The Uvs Food Company has its own code of practice, and since it uses more advanced technology, it is able to control the consistency of its products.

After GI registration, the Uvs Food Company approached the other two processors with a request to agree on a common code of practice in order to ensure and maintain the quality of Uvs products, but discussions are still under way. Even if market demand for these products is high, small companies are reluctant to invest, or find it troublesome, whereas the Uvs Food Company is concerned about long-term reputation and the maintaining of competitiveness. There are increasing numbers of producers of sea buckthorn in regions other than Uvs, and according to the Executive Director of the Uvs Food Company, product differentiation and quality are key elements for competitiveness.

The two small processors also explain that it is hard to comply with the production code, inasmuch as they use manual techniques and simple processing equipment, while the Uvs Food Company uses industrial equipment, some of which is produced in the Republic of Korea.

4. Stakeholders and collective organization

Types of stakeholder involved and organization of the supply chain

There are three main actors in the Uvs sea buckthorn value chain: sapling growers, tree growers and processors. Some growers combine sapling production with tree planting.

Sapling growers. Some growers combine tree-planting with sapling growing because market demand is expanding all over Mongolia. Sea buckthorn trees are widely used in environmental protection initiatives by the government, in international projects to stop sand movement and reduce the desertification process and in rehabilitation work by mining companies.

Farmers/Growers. The number of sea buckthorn growers is increasing each year, so that in 2008 there were 32 in Uvs Province. Growers are mainly small private entrepreneurs who run their activity as a family business. Full-time employees are usually family members, but part-time labour is hired locally at harvest time. The 32 producers plant sea buckthorn on plots of 0.1 to 10 hectares. Local residents, mainly herders, also harvest wild sea buckthorn. According to informal sources, between 200 and 300 tonnes of wild sea buckthorn are sold in the local market each year. As the harvesting season continues until mid-October or even early December, local growers and wild sea buckthorn sellers find it easy to transport the frozen product to Ulaanbaatar and regional markets, selling it for a higher price. Larger producers usually rent a truck, while smaller producers often club together to rent a truck or carry up to 50 kilograms of fruit in a bag on a public transport minibus.

Processors. There are currently three local processing companies producing bottled sea buckthorn oil and juice. The largest is the Uvs Food Company and then there are two smaller companies, the Us Erdene Company and the Tenggis Invest Company, which were initially established as family businesses and later expanded into real companies.

Table 2. Capacity of the three local processing companies

	Uvs Food Company	Us Erdene Company	Tenggis Invest Company
Processing capacity (tonnes of fruit)	500 tonnes/year	50 tonnes/year	15 tonnes/year
Own planting of sea buckthorn trees	100 ha, but only 50 ha in production	17 ha	4 ha
Anticipated harvest for autumn 2009	120 tonnes	50 tonnes	6 tonnes
Storage capacity	Have their own cold storage facilities and are able to keep the fruit frozen in good condition and can therefore produce juice and oil throughout the year		-

In addition, the local vocational training college has its own 0.5-hectare planting area and small processing unit, which are used to train students, while the products are sold in the market.

In addition to harvesting their own plantations, the processing companies also purchase fruit from local producers.

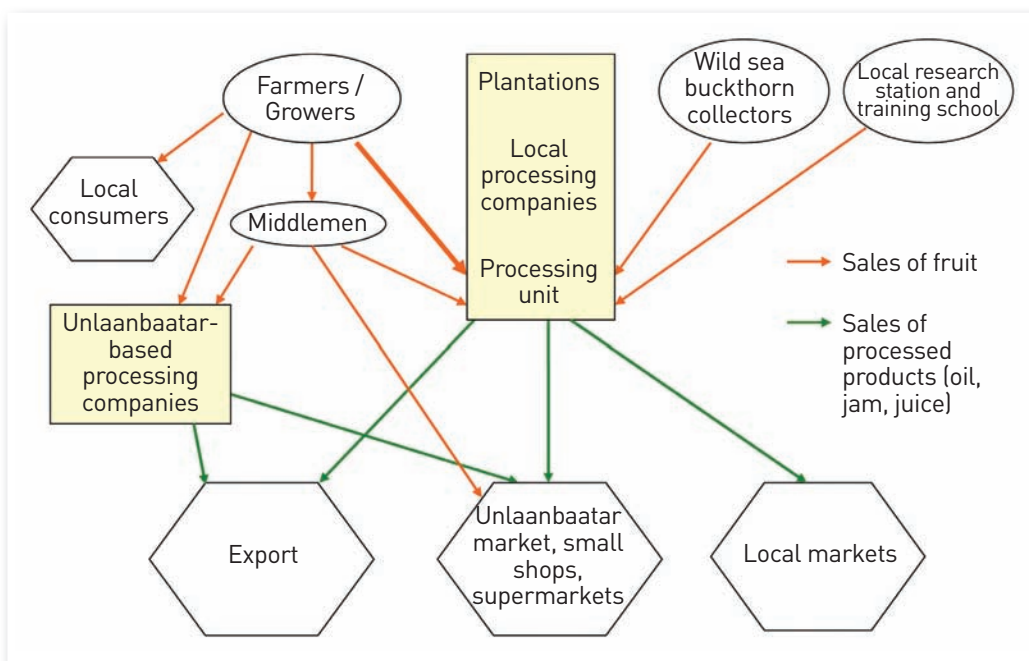
The Uvs Erdene Company has its own shop in the province's main town, where it sells products directly to consumers, as well as selling to regional and Ulaanbaatar markets.

The Uvs Food Company has its own shop in Ulaanbaatar, where it sells products to end consumers.

Organization of the supply chain. The Uvs sea buckthorn supply chain is organized as a spot market (see Figure 2). Processing companies do not have contracts with growers, who usually bring the fruit to them. Then, after a quality check and some bargaining as to price, the companies pay in cash. The two small processing companies do not buy much from the market, since they use their own fruit. The Uvs Food Company is the largest buyer and since it always has cash, growers often sell their fruit to it. The company sets the trend in market prices each year. It has other business branches and is the monopoly producer of bakery, juice and alcohol products in the province, producing one of the best brands of vodka in Mongolia, which is also a "specific" product because of the water used. As the largest producer, it spends considerable money and effort on the marketing of Uvs sea buckthorn, which also benefits all the other producers.

There is little cooperation and coordination among small growers, apart from the sharing of transportation costs when they deliver products to distant markets such as Ulaanbaatar.

Figure 2. Sea buckthorn supply chain in Uvs Province



Role of outside support and facilitation

Technical and scientific support. The selection and correct planting of saplings are important issues and represent a challenge that growers often face. If a mistake is made, it takes three years of time and investment to realize this.



Saplings in an open field (left) and in a green house (right)

Mercy Corps' 2008 assessment reveals that sapling production is being carried out in an unprofessional manner and that low-quality saplings are being supplied to the market. It identified the following problem areas:

- most sapling growers lack an official permit;
- saplings are grown in technologically unsuitable conditions, and saplings are sold on the market with no guarantee that they will grow;
- sapling growers lack the knowledge and skills to care for saplings;
- most sapling growers do not maintain mother plants to use green branches to grow saplings, but instead use currently fruit-bearing trees;
- some sapling growers are fraudulently selling saplings of similar-looking plants to sea buckthorn on the market.

Before the 1990s, researchers at the local research station developed domesticated species by combining the best qualities of wild sea buckthorn and species from Russia, but this knowledge and information have somehow been lost. All species are now grown mixed together in the research institute's plot. As species differ in terms of productivity and other capacities, greater knowledge would help local producers to make better decisions concerning the species to select and the care to give their trees.

Since the specific quality of Uvs sea buckthorn is also associated with trees and species, it is important for the government and other agencies working in the province to increase awareness and establish official certification for sapling growers. There is a need for the government to develop official regulations for the issuing of permits to sapling growers, provided that they meet certain technical conditions and demonstrate the necessary skills and knowledge.

The next common issue of concern is that although there are several research initiatives analysing the specific quality of Uvs sea buckthorn, none of them is solid and broad enough. Uvs producers are keen to carry out such research and learn about the full scientific background.

An assessment of sustainable planting and harvesting technology is also needed. From the beginning, opportunities have to be sought and taken advantage of in order to enjoy lasting benefits from the lucrative comparative advantages of the region. In particular, sea buckthorn plantations require large amounts of water and most growers are currently digging wells or using river water by building channels. Water use is fairly inefficient at present, and various technologies such as drip irrigation need to be introduced and tested in order to improve efficiency.

Financial support. Access to financial resources is a challenge for many small growers, who are often unemployed or poor and who try to supplement family income by planting a small plot of sea buckthorn. Most suitable plots with access to water and good soil have already been taken by larger enterprises. Small growers usually establish a small plot near their family home. First-time preparation of the soil, which includes the removal of bushes, the erection of fencing to protect from animals and the purchase of saplings, represents a considerable investment. Moreover, during the three years before the first sales, the trees have to be cared for, watered and weeded, for which money is also required. Access to long-term loans or some other source of finance is therefore very important.

In brief, sea buckthorn plantations have a great future in the province and may contribute significantly to creating employment and income opportunities for local inhabitants.

Collective organization and action

There is very little cooperation between local processors and no common agreed code of practice. The Executive Director of the Uvs Food Company says that in the short term this should not be a problem since there are not many competitors. However, as sea buckthorn is being planted and produced in more and more provinces, the competitiveness of Uvs sea buckthorn may decline unless local processors consider maintaining its specific quality and properties.

In 2003, before registration of the Uvs sea buckthorn GI, Uvs producers and growers established the Uvs Sea Buckthorn Producers' Association on the suggestion of a Japanese businessman interested in purchasing sea buckthorn from Uvs for use in cosmetics in Japan. The intention was to facilitate cooperation between the two sides. However, since the export project collapsed, the members lost interest in participating in an association.

The leading processing company, the Uvs Food Company, registered the Uvs sea buckthorn GI in 2007, acting very fast in order to protect the name of the product in the market. Since the end of 2008, the Uvs Food Company has been using the GI sign on its products. This has led to discussions in the local government and among other processors and growers. However, small processors are not participating actively in discussions, as

the market for the product is expanding at present and demand is high. The local research station has been involved in the application process, as the specific quality of the product is linked to the fruit.

Since the Uvs sea buckthorn GI is at an early stage, it is hard to make any predictions as to how the collective organization will evolve. The incentive to join the association and give it the authority to coordinate action among producers is slight, unless the local government or international development projects in the region act as facilitators and boost the role of the association.

The Uvs Sea Buckthorn Producers' Association could take on the role of independent certification body, provided that it developed human and technical capacities with the support of local government or international development projects in the region.

5. Marketing

Markets

No real market study has been carried out on the demand for sea buckthorn in domestic markets. This could be because there is high year-round demand. As the growing season is short in Mongolia, people can use fresh vegetables for only four or five months of the year, and sea buckthorn is a very important complement to their diet in winter months. For herders and other people in rural areas, sea buckthorn is an important source of vitamins and minerals, which they obtain either by eating the fruit or by making juice or syrup.

There are all types of customer for sea buckthorn products. People with lower incomes purchase fruit and make juice or jam at home, which is cheaper. Upper- and middle-income customers not only purchase fruit, but also tend to use ready-made sea buckthorn juice or jam for everyday consumption. Sea buckthorn oil is used mainly for medicinal purposes and is known to be helpful especially in treating early-stage stomach ulcers. More people buy it when they are sick, but some wealthy customers use it for everyday consumption. When people use sea buckthorn oil for medicinal purposes, they prefer the Uvs product because they trust its quality.

There is a growing market for sea buckthorn in Mongolia, for two apparent reasons. One is that there is a growing demand for safe, locally-made food products. During the transition period, vegetable production has declined significantly, and sea buckthorn, which is rich in vitamins and minerals, is widely used as a substitute for vegetables. In the winter months, the Ulaanbaatar market is filled with imported vegetables of unknown and often poor quality. People prefer to purchase sea buckthorn or other locally-grown fruit to complement their usually heavy meat diet.

Because of growing demand, sea buckthorn is increasingly being planted in other parts of Mongolia. However, the reputation of Uvs sea buckthorn and consumers' trust in its quality keep the demand for its products high.

Sea buckthorn is sold in three different forms in Uvs Province: raw berries, juice and oil. Prices vary on the basis of quality, location and specific sales point (see Table 3). Raw berries are sold in local villages and in the provincial and Ulaanbaatar markets. Most berries are

sold directly to processors under verbal contracts with producers, in the province's urban centres or through middlemen who bring berries to processors for sale. Local markets are a major outlet for both processed and raw products. School lunch programmes in district and province urban centres are direct markets for processors (see Figure 2).

On the international stage, there is an interest from Japanese experts and companies in Uvs sea buckthorn oil. This is the third year that the Uvs Erdene Company has been selling oil to a Japanese cosmetics company, evidence that the first sales were well received. This year's purchases have been much larger than in previous years, and the Uvs Erdene Company was in fact unable to meet the full demand of the Japanese firm, so that it has recently been informed that the Japanese are expanding their potential suppliers (Mercy Corps, 2008).

Table 3. Uvs sea buckthorn products and prices

		Uvs Erdene Company	Tenggis Invest Company	Uvs Food Company
Product and price	Fruit	US\$ 3 per kg		
	Bottled syrup (700 ml)	US\$ 3.5		
	Bottled oil (50 ml)	US\$ 13		US\$ 13
	Bottled oil (100 ml)	US\$ 25	US\$ 23	US\$ 23
	Bottled pure juice (700 ml)	US\$ 3		
	Jam (1 000 ml)	US\$ 3		
	Bottled concentrated juice (500 ml)		US\$ 2.8	
	Bottled concentrated juice (350 ml)		US\$ 2.2	US\$ 3
Production	Oil	5 800 litre	2 000 litre	6 000 litre
	Syrup	7 700 litre		
	Pure juice	5 500 litre		
	Jam	120 kg		
	Concentrated juice		3 000 litre	8 000 litre
Capacity		500 kg/day	30 000 kg/year	700-1 000 kg/day

Collaboration of local stakeholders in marketing

Uvs Province has a small population, with only 90 000 people in all. Wild sea buckthorn grows in five districts in the province. Each district has a population of about 5 000. Distances between districts are on average 300 to 400 kilometres, and more than 200 kilometres from the province centre to all the districts except two. In addition to long distances, the high cost of fuel and poor road conditions make it hard for rural residents to travel and transport goods to market. These circumstances lead the local community to club together in access to market and in transportation. There is a strong traditional social network among local people, who usually cooperate by sharing transportation costs and marketing products in bulk.

Sea buckthorn growers are mainly concentrated around the province capital of Ulaangom. Despite the Uvs Sea Buckthorn Producers' Association, which was mentioned above and is no longer active, there is no existing informal cooperation or coordination initiative or organization. However, there are informal and social ties among growers, who exchange information and learn from one another.

Since sea buckthorn is the image product of the province, it is often included in various types of public marketing event and campaign, helping to raise the reputation of the product. Processors participate actively in local, regional and national trade fairs jointly or individually.

Training is usually provided by the local research station. The largest advantage of the province is the presence of the best known experts in Mongolia. Retired researchers offer their services together with young researchers and are highly respected figures in the local community for their knowledge and experience.

The sea buckthorn harvest is the busiest season, when many unemployed and low-income people obtain work. The GI registration should promote a cooperative spirit in line with the strong identification of local people with sea buckthorn. It has the potential to create an active platform among stakeholders for discussion and negotiation for the common good. So far, however, it has been the individual effort of the Uvs Food Company.

The promotion of collective action should be supported with appropriate legal and policy instruments. The current Law on Trademarks and Geographical Indications does not encourage collective action, inasmuch as it allows an individual or a single company to obtain a GI registration. The actual GI is registered on the basis of an explanatory note showing that the unique quality of the product is linked to a specific geographical region or local population. The law does not require a common code of practice or a quality control system for a GI-registered product.

Certification and monitoring mechanisms

The key problem is that there is no independent certification agency or body to monitor and certify the qualities connected to the GI. Since the province-level public inspection agency lacked the capacity, the Uvs Food Company took the initiative, establishing a quality control laboratory within the company. However, it has no legal power to force small processors to have their products inspected at its laboratory in order to bear the GI sign.

Although the Uvs Food Company holds the legal GI sign and the right to use it, other processors and growers also use the Uvs sea buckthorn GI sign on their products. Third-party intervention and facilitation (perhaps by the government) may be needed in order to encourage all Uvs sea buckthorn GI producers to adopt a common code of practice and an effective quality control system.

The Uvs Food Company, one of the few in the country to do so, recently introduced the international ISO standard.

All companies now periodically (four times a year) undergo inspection from the State Hygiene and Inspection Office at province level and follow national standards.

Since there is no independent quality certification body or laboratory to ensure that the quality connected with the GI sign is in conformity, consumers do not have a guarantee of quality. Their only guarantee is the Uvs Food Company's long-term strategy of maintaining the quality and reputation of the product in order to retain its market.

6. Impact analysis

Perception by stakeholders

Legal protection of the name has been established through GI registration. The Uvs Food Company is concerned that cooperation between processors and growers is not progressing as hoped. Support from the local government or the National Geographical Indication Centre is needed in this endeavour.

The managers of the Uvs Food Company realize that to create long-term competitiveness and a solid market position, investments in quality and marketing need to be designed jointly. They are also afraid that small processors may let quality slide, which may affect the reputation of the product.

There is a high market demand for the product, so that small companies see little reason to invest. The two small processors also explain that it is hard to conform to a production code because they use manual methods and simple processing equipment, while the Uvs Food Company uses more industrial equipment. They claim that the name "Uvs sea buckthorn" is a public intellectual property and should be used by all producers and processors in the province. They therefore continue to use the name in oral marketing or have it printed on their logos, but without the official GI sign, a situation leading to confusion.

Impact on rural development: economic and social aspects

Sea buckthorn production is the second largest source of employment and income (after nomadic livestock rearing) in Uvs Province. Uvs sea buckthorn oil is sold on the domestic market at prices at least double those of similar products. GI registration, the introduction of strict monitoring measures, and coordination among local producers, processors and other stakeholders are expected to maintain this premium price.

In 2008, there were about 300 people with full-time jobs growing and processing sea buckthorn. Apart from full-time employment, the sector also creates short-term employment at harvest time for about 1 000 people. As a result of increasing sea buckthorn planting and production, associated services, such as shops, petty trade, transport, consultancy and training, are also expanding. The sea buckthorn programme designed by the local government aims at increasing sea buckthorn production by planting up to 5 000 hectares in the forthcoming ten years.

It is estimated that Uvs Province producers and processors together supply about 130 tonnes of sea buckthorn products to the local market. According to sources in Mercy Corps Mongolia, 15 percent of this is sold as fruit and the remainder is processed into oil, juice and jam.

In Mongolia, provinces are dependent on central budget subsidies, since there is little industry or value-added production for taxation and income at the local level. There are

only a few provinces with large mining sites that are starting to become independent, generating enough income to support public services and even establish a private-sector development fund. Uvs Province is one of the few provinces that is successfully building up a local value-added industry based on sea buckthorn.

In Uvs Province, 42 percent of the population lives with an income below the poverty line and unemployment affects almost half the 90 000 population. Before the 1990s, when sea buckthorn production was booming, 300 hectares were planted and 600 people were employed in its production. Its quality and reputation gave it a nation-wide reputation and it was even exported to Russia.

The basis that was created during that time still exists: the land, skilled and experienced labour, research results and knowledge. If the process is carefully managed, there is an opportunity to exceed previous attainments in the new free-market development context.

As in many other locations in Mongolia, pasture land degradation is a major issue in Uvs Province. One of the key reasons is the increased numbers of livestock and herders. Many of those who lost their jobs during the transition period have turned to herding and are generating income from it. One way to reduce pressure on pasture land is to reduce the number of herder households by creating alternative employment opportunities. It is anticipated that increasing sea buckthorn production will create such an alternative for some new herders.

Culture and traditions

Traditional recipes and ways of preparing sea buckthorn juice, oil and other products have largely been neglected. Today, with the increasing diversity of consumers, many products could be revived. For instance, the Us Erdene Company has been testing technology to make sea buckthorn yoghurt and soft curd.

The revival in sea buckthorn production is eliciting considerable encouragement and enthusiasm from the local community. Mongolia's relatively small population is scattered, and settlements are usually a long way apart. Community networking and solidarity are therefore integral parts of survival strategies. People from western Mongolia, especially Uvs Province, tend to keep up contacts and to support one another. Those who have left still feel strongly attached to their roots. And sea buckthorn is one of the things that helps the local community to identify with its home region.

Environmental impact

Historically – and also today – sea buckthorn has been used for its soil and water conservation properties. It grows well in light sandy soils with a pH between 5.3 and 8.3, conditions that are often unsuitable for other crops. It is also one of the few nitrogen-fixing plants able to grow in these conditions. It is drought-resistant, making it ideal for conditions in western Mongolia.

If the sea buckthorn forest expands, there will be several positive effects for the region's environment, such as protection from wind erosion, sand movement and desertification.

Sea buckthorn trees require large quantities of water, especially during their first three years, i.e. before they start bearing fruit. Producers with land alongside rivers currently dig channels and lead water into their fields, a method that wastes a huge amount of water and also contributes to water erosion of the soil. A careful assessment is well overdue, and standards and rules must be enforced for good water management practices.

Although a GI code of practice could be a means of introducing and maintaining environmental standards, the present initial draft does not include any strong environmental indicators.

Internal strengths and weaknesses

There is a strong sense among producers and processors of belonging to the region and community. In the case of any market reduction, a joint long-term perspective is likely to bring together producers, processors and other stakeholders to work together for the common good.

As mentioned above, the local government has recently designed a programme to encourage all citizens to plant sea buckthorn in order to increase their income. This may be successful, but it may in fact hamper both coordination among producers and processors and also quality monitoring.

The main weakness is that collective action concerning a GI system has not been developed. Agreement has not yet been reached among local producers and processors on a common code of practice for items (oil and juice) produced from GI-registered fruit.

Context-linked opportunities and dangers

Local producers' and processors' experience and skills in sea buckthorn production is the largest advantage. The existence of the local research station is also a major asset.

A potential danger is that a shortage of cash could lead many producers and small processors to focus more on short-term gain than on quality. If this goes on for very long, such assets as localized tree species could be compromised, while the misuse of wild trees or soil and water resources may damage production sustainability.

There is a growing threat of counterfeiting, both locally and outside the country in China. However, as the unique quality of Uvs sea buckthorn is bound up with the climate and environment of the region, such counterfeiting is not easy.

Success and failure factors

Since the Uvs sea buckthorn GI is in an early stage of implementation, the success and failure factors refer to the future.

Based on the findings of the present study and personal experience, the following factors need to be considered with a view to successful implementation of the GI system.

- Uvs producers and processors should agree on and adopt a common production code to guarantee the quality and reputation of the product.

- Local producers and processors should adopt an appropriate quality control and monitoring system.
- All stakeholders should cooperate under a long-term marketing strategy in order to improve and maintain the competitiveness of Uvs sea buckthorn products.

These first three points could be promoted and facilitated by the local government or the National Geographical Indication Centre, while international aid and development projects may also provide expertise.

- Uvs producers and processors should maintain organic, chemical-free production.
- The local government needs to implement a policy promoting the development of specialized sapling nurseries and adopt a quality certification system so that growers are supplied with quality material.
- The local government should develop rules and regulations supporting the GI system.
- Local producers and local government need to pool their efforts and cooperate to open up new markets internationally, because the domestic market is limited.

The following factors may limit the potential for sea buckthorn production and implementation of the GI system:

- the increasing number of quality failures or instances of misrepresentation on the market;
- the failure of local producers, processors and other stakeholders to cooperate under the GI sign;
- unsustainable production practices detrimental to such natural resources as water, soil and wild trees.

Support and capacity-building required by stakeholders

- Training in hygiene and sanitation practices must be provided at production and processing levels.
- The local research station requires capacity-building in order to improve its service to local producers.
- Capacity-building at the local vocational college is needed, so that it can continue to train technicians and skilled labourers.
- Local organization of collective value-chain action regarding the GI system: the creation of an Uvs sea buckthorn producers' association (including farmers/growers and all processors) now seems necessary in order to manage the GI collectively.

7. Conclusions and recommendations

Conclusions

- Mongolia's Law on Trademarks and Geographical Indications contains some loopholes that allow an individual or a single company to register a GI, which contradicts the status of a GI as a public intellectual property.
- The fact that no common code of practice or quality control system for GI production is required may negatively affect implementation of the GI system in a real sense in Mongolia, reduce the positive impact on rural development and lower consumer trust in GI products.

- Although the Law on Trademarks and Geographical Indications has been in force since 2003, local producers are insufficiently aware of the benefits and implementation of GI registration.
- Since a GI is a public intellectual property and if successfully used can benefit the entire business community of the local area and provide positive social and environmental benefits, the government needs to assume a certain responsibility regarding such issues as independent certification, public marketing and awareness-raising to ensure successful implementation.
- Uvs sea buckthorn GI registration was obtained almost entirely on the initiative of the Uvs Food Company, which has invested considerable financial and intellectual resources. As the law is not strictly enough enforced, other producers and processors are using the name without following the code of practice, but simply benefiting from the awareness raised through GI registration and the marketing campaign organized by the Uvs Food Company. This situation discourages the company from pursuing the process.
- However, since GI registration and implementation are driven by the economic interests of the Uvs Food Company, it has a strong incentive to obtain the cooperation of other producers and processors in following a common code of practice and ensuring quality standards. Without the support of local government and law enforcement bodies, this may turn out to be extremely time- and resource-consuming for the company.
- GI registration is a suitable marketing and organizational tool to help Mongolian products in general gain access to international markets. The competitive advantage of Mongolian producers rests mainly on high quality and differentiation for niche markets. Inasmuch as geographical indications link the technical quality of the product to social and environmental elements, they can be a very powerful tool.

Recommendations

- First of all, Mongolia's Law on Trademarks and Geographical Indications should be reviewed to include and reflect the key requirements for GI production, i.e. a common code of practice and a quality control system.
- The law should also be reviewed to reflect the public intellectual property right status of GIs and spell out the possibility of a private individual or single company registering a GI in its own name.
- Local government agencies and key professions require awareness-raising on GI registration, its implementation and the role of the government.
- The issue of main importance for local producers and processors is that of finding a way of agreeing on a common code of practice and introducing appropriate inspection and monitoring mechanisms. The facilitation and intervention of a third party (local government or the National Geographical Indication Centre) can play an important role in mediating a compromise and finding a common strategy.
- The role of the government is particularly important in negotiating the inclusion of sustainable production issues in the common code of practice and designing an appropriate quality control system.
- After producers and processors agree on a common code of practice, they may approach the local government or international aid and development projects in the region to assist in establishing an independent quality control system.

- The role of producers/growers needs to be boosted, inasmuch as they play a critical role in the chain and the uniqueness of the product comes from the raw material, i.e. the fruit.
- Each and every link in the production chain has to be codified and standards have to be agreed upon and enforced.
- The unique qualities and properties of Uvs sea buckthorn have not been scientifically researched and proven, and this is an area where local and national government should provide support.
- The capacity of the local research station needs to be boosted so that it can fully assume its role of providing extension and research services for local producers.
- Capacity-building in the local vocational college is important inasmuch as it is the key institution where local labour and technical specialists are trained, and also provides technical training for local producers in such subjects as hygiene and sanitation practices.

References

Avdai, Ch. 2005. "Current situation of seabuckthorn research, production of Mongolia and its future perspective." *Seabuckthorn-2005*. Ulaanbaatar. pp. 6-13.

Badgaa, D. & Jamiyansuren, Ya. 2006. *Mongolian standards for sea buckthorn oil. MNS 0783:88*. Official edition. National Centre for Standards and Metrology developed by the Chemical Institute of the Academy of Sciences. Approved by the Ministry of Agriculture and Food Production by Decree 346 of the Head of the State Standards Agency of the Council of Ministers, 16 December 1988, effective from 1 January 1989. Ulaanbaatar.

Enkh-Amgalan, Ts. (SDC, Mongolia). October 2006. *Summary of the findings on the areas of interventions of donor projects in the value addition sector and related to it issues in Mongolia*. (Courtesy of SDC.)

Enkh-Amgalan, Ts. (SDC, Mongolia) & Reviron, S. (ETH, Switzerland). 2007. *Geographic Indications Presentation*. Ulaanbaatar.

Laagan, B. 1976. *Growing seabuckthorn in Mongolia*. Barnaul. p. 35.

Tsendsuren, Sh. & Alгаа, B. 2006a. *Mongolian standards for sea buckthorn fruit juice. MNS 0664:88*. Official edition. National Centre for Standards and Metrology developed by Pharmaceutical Factory under State Medicinal Supply and Production Agency. Approved by Decree 212 of the State Standards Agency, effective from 1 September 1988. Ulaanbaatar.

Tsendsuren, Sh. & Alгаа, B. 2006b. *Mongolian standards for multi-vitamin sea buckthorn syrup. MNS 4873-99*. Official edition. National Centre for Standards and Metrology developed by Pharmaceutical Factory under State Medicinal Supply and Production Agency. Approved by Decree 64 of the Council of the National Centre for Standards and Metrology, 25 November 1999, effective from 1 December 1999. Ulaanbaatar.

Tsogt-Ochir, V. 2007. *Enterprise Mongolia Project: together with entrepreneurs*. Annual report. January-December 2007. www.enterprisemongolia.mn

Uvs Food Company. 2007. *Seabuckthorn plantation and processing plant project proposal for ADB loan* (edited version courtesy of the Uvs Food Company). Ulaanbaatar.

Sea buckthorn programme in Uvs. 2005. Approved by Resolution 3/5 of Province Citizen Representatives Hural on 22 December 2005. Ulaangom, Mongolia.

Mongolian Brand-Seabuckthorn National Conference Agenda. 2007. Co-organized by the National Chamber of Commerce and Industry and the Zoos Bank in Ulaanbaatar, Mongolia. 26 September 2007. (Pamphlet and some presentation information obtained during information gathering.)

V. Darjeeling tea, India

by

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Abstract:

India enacted its Geographical Indication of Goods (Registration and Protection) Act in 1999 in compliance with Article 24 of the TRIPs Agreement in order to protect indications connected with geographical origin. More than 100 products are currently registered under the act, including Darjeeling tea, which was the country's first GI product.

The quality, reputation and characteristics of Darjeeling tea are essentially attributable to its geographical origin. As a result of a favourable geo-agro-climatic situation, specific soil characteristics, plantation conditions, traditional human practices and a skilled local workforce, it possesses a specific flavour and a very high quality, distinguishing it from tea grown elsewhere in the world. Darjeeling tea is grown in the region of the Darjeeling hills in 87 gardens at various elevations up to 2 000 metres. The GI production area has been clearly defined by the Tea Board of India.

Darjeeling tea benefits from a world-wide reputation and has no problem over market access. The entire production is sold every year, mainly for export. The main objective of all the actors in the supply chain, including the Tea Board of India and the Government of India, is to protect the name "Darjeeling", which has been misused in various ways in various countries. The name, reputation and logo of this tea are now protected by various legal tools (certification mark, collective mark, geographical indication etc.), depending on the institutional context of each country. Despite these efforts, misappropriation of the name is still harming its market potential. Collective action, with greater involvement of all supply chain stakeholders, is advisable in order to increase the positive economic and social impact of GI registration at the local level.

Introduction

Darjeeling is a small district in the extreme north of India's West Bengal State in the Himalayan foothills. Darjeeling tea is famous and popular throughout the world for its high quality, with a reputation based on its aroma, brightness and taste – all attributable to its geographical origin and impossible to replicate. In 2004, Darjeeling tea became the first product in India to be registered under the Geographical Indications of Goods (Registration and Protection) Act of 1999 (hereafter referred to as the GI Act).

1. Institutional context

India is one of the founder members of the World Trade Organization (WTO) and one of the signatories of the General Agreement on Tariffs and Trade (GATT) negotiations (Uruguay round), of which the Trade-Related Aspects of Intellectual Property Rights (TRIPs) Agreement is a part. Section 3 of the TRIPs Agreement contains three articles concerning geographical indications (GIs): Article 22 provides for the protection of GIs and Article 23 for additional protection for GIs for wines and spirits, while Article 24 is concerned with international negotiations and exceptions – all articles of immense importance to India in this context. India joined with various other countries in calling for the same protection for other products as that envisaged for wines and spirits in the TRIPs Agreement.

India enacted its GI Act in 1999 and formulated its Geographical Indications of Goods (Registration and Protection) Rules in 2002 for the protection of goods in the domestic market. The act came into force in September 2003.

The main objective of the Indian Government is to develop the production of GI products, leading to increased trade through the creation of new markets for these products. The second objective is to provide a legal framework to protect both products and consumers from fake, false or reproduction products, thereby ensuring fair competition and promoting rural development.

In India, the Ministry of Commerce and Industry, the Ministry of Agriculture and Patent and Regional Centres are in charge of GIs. The legal framework applies mainly to agricultural products, processed products, and wines and spirits. Protection is primarily provided by provisions in the 1999 Trademarks Act and the 1999 GI Act. The tools of identification and protection are a collective or certified trademark with geographical indication, appellation or designation of origin, a protected geographical indication, a general quality sign linked to particular area(s), and a sign relating to a general quality linked to a specific country or region of production.

The GI Act stipulates that an application for GI registration should contain:

- a statement as to how the GI serves to designate the goods as originating from the area in question;
- the class of goods to which the GI shall apply;
- a map of the area in which the goods originate or are manufactured;
- particulars regarding the appearance of the GI logo, whether it is comprised of words or figurative elements or both;
- a statement of such particulars by the producers of the concerned goods.

More than 100 products have so far been registered in India under the GI Act, but Darjeeling tea was the first. The Tea Board of India is the owner of the Darjeeling tea registered quality sign, while the producers, processors, traders, blenders, packers, brokers, exporters etc. in the supply chain are its users. The Tea Board has prepared and now enforces specific rules and regulations concerning use of the quality sign and its labelling by stakeholders.

2. Geographical zone and specific resources

General context

Location

Darjeeling is a small town in the Himalayan foothills, lying at an altitude of 2 130 metres above sea level and known as the Queen of the Hills. It is located in Darjeeling District in the extreme north of West Bengal State in the east of India. The district extends from tropical plains at about 91 metres above sea level to an altitude of 3 658 metres on the Sandakfu-Phalut ridge.

The strategic location of Darjeeling is very important, bordering Sikkim to the north, Bhutan to the east and Nepal to the west, thus forming an international and inter-state border area.

Population

According to the most recent census (2001), the population of the district was 1.6 million, with 33 percent living in the three hill towns of Darjeeling, Kurseong (1 482 metres above sea level) and Kalimpong (1 249 metres above sea level). Darjeeling town has an additional average floating tourist population of 20 500 to 30 000. The population density of the town is 10 173 per square kilometre. The literacy rate in the district is 81 percent for men and 64 percent for women.

Economy and agriculture

The two main economic activities in the region, generating the most employment and revenue, are tea manufacturing and tourism. However, tourism is confined to several tourism spots and is seasonal (from April to June and from September to October): tourists prefer to avoid the area in the rainy season because of frequent landslides. The economic benefits of tourism reach only a small proportion of the population.

Tea is thus more important than tourism. It is the main crop in the region and is grown over a vast area of hilly land, covering 17 542 hectares divided into 87 estates. After the first 3 commercial tea estates were established at Tukvar in 1852, the area under tea expanded gradually to 39 estates in 1866, 56 in 1870 and 113 in 1874. Today there are 87 tea plantations in and around Darjeeling town, producing superfine Darjeeling tea. The average yield is very low – 400 to 450 kilograms per hectare, compared with the national average of 1 800 kilograms per hectare. (Between 20 000 and 21 000 two-leaves-and-one-bud shoots weigh 1 kilogram.)



◀ *Two leaves – one bud of Darjeeling Tea*

The tea estates are located on hilly terrain at various altitudes, covering hundreds of hectares. The tea-growing zone has reached saturation point and there is little scope for further expansion. Other cash crops grown in non-tea hilly areas include potatoes, oranges, cardamom, ginger, maize and various vegetables. Small quantities of certain medicinal plants are also grown, while

floriculture is expanding in some non-tea areas. Farming on terraced slopes is a major source of livelihood for rural inhabitants, supplying neighbouring towns with fruit and vegetables.

Ownership patterns

All the tea estates are permanently owned by the West Bengal State Government, which leases the land to the growers on a fixed-rent basis for a minimum of 30 years and a maximum of 99 years, renewable after expiry of the lease. These leases can be transferred or sold.

Workers and social welfare

Traditional tea cultivation on steep, hilly terrain has brought economic betterment and well-being through improvement in the local inhabitants' employment situation. The majority of employees on Darjeeling's tea estates are women. An average of more than 700 people are employed permanently on each estate, receiving half their pay in cash (Rs 62.50 per day per worker) and half in kind, in the form of free accommodation (bedroom, kitchen and toilet with free water supply), subsidized cereal rations (Rs 0.47 per kilogram of rice or wheat), free made tea and free medical benefits for all members of their families. In addition, producers build and maintain primary school buildings for free education, provide free crèche facilities with free milk for workers' babies and children, pay festival and other allowances, and supply umbrellas, blankets and shoes in various seasons, firewood for daily use and lime for whitewashing houses each year. Some estates also provide small farmers in the estate area with farm implements to grow such crops as ginger, cardamom, turmeric and oranges, and hives to promote beekeeping. An infants' nutrition programme has also been introduced by building cowsheds and providing workers with cows free of charge. Sports and inter-village cultural competitions are organized to promote cultural activities, especially among young people and children. Religious sites such as old temples, monasteries and churches are renovated for the convenience of local devotees.

Almost 60 to 70 percent of the estates' total expenditure is accounted for by workers' wages and welfare measures. Fringe benefits are provided under the provisions of the Indian Plantation Labour Act, while wages, bonuses and annual increments are determined by collective bargaining through tripartite meetings each year within the framework of the same act.

Delimitation of the zone

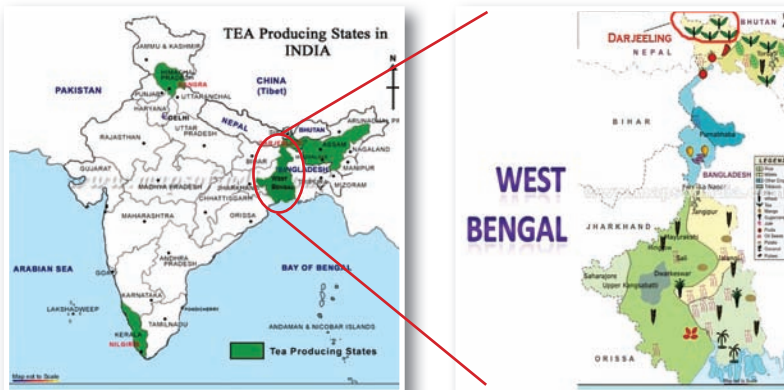
Administrative boundaries

The entire tea-growing zone – 17 542 hectares spread over 87 tea estates – is under the administrative jurisdiction of Darjeeling District. The estates are located in three subdivisions of the district – Sadar, Kurseong and Kalimpong – under the provincial administration of the West Bengal State Government.

The Tea Board of India defines Darjeeling tea as follows:

Tea which has been cultivated, grown, produced, manufactured and processed in tea gardens:

- in the hilly areas of Sadar Subdivision,
- only in the hilly areas of Kalimpong Subdivision comprising Samabeong Tea Estate, Ambiook Tea Estate, Mission Hill Tea Estate, and Kumai Tea Estate and Kurseong Subdivision excluding the areas in jurisdiction list 20, 21, 23, 24, 29, 31, and 33 comprising Subtighuri Subdivision of New Chumta Tea Estate, Simulbari and Marionbari Tea Estate of Kurseong Police station,
- in Kurseong Subdivision of Darjeeling District.



Geographical boundaries

The demarcated area is the hilly part of Darjeeling District.

The Tea Board of India has identified 87 tea estates and demarcated their boundaries.



Darjeeling notified tea estates.



Darjeeling delimited tea zone

Each estate in the delimited tea zone has its own factory, as required under the definition of Darjeeling tea provided by the Tea Board:

Tea which has been cultivated, grown, produced, manufactured and processed in tea gardens in the hilly areas ... of the district of Darjeeling in the State of West Bengal, India.

Tea which has been processed and manufactured in a factory located in the aforesaid area, which, when brewed, has a distinctive, naturally occurring aroma and taste with light tea liquor and the infused leaf of which has a distinctive fragrance.

Leaves from the few tea estates that do not have their own factories are processed on neighbouring estates. The leaves have to be delivered to the factory for weighing and withering immediately after picking, because the tender two-leaves-and-one-bud shoots are easily perishable. Otherwise the quality of the picked leaves may deteriorate, affecting the final quality of the made tea. The factory must therefore be located in the production area, either on the estate or nearby. For obvious reasons, the production and processing zones must therefore be identical.

Specific resources

A suitable zone for quality tea production

The Darjeeling tea zone benefits from suitable terrain and environmental conditions for the cultivation of tea, where it has been grown continuously since 1835. The tea estates are all located in seven valleys at altitudes ranging from 200 metres to more than 2 000 metres above sea level. The gradient of the slopes is very steep – 60° to 70°. The very high rainfall spread over various months is a boon for tea cultivation. Rainfall, humidity, evaporation rate, wind speed, hours of sunshine, mist, cloud and fog are also important factors in developing the unique quality of Darjeeling tea.

In terms of soil, the average carbon level of soil in Indian tea-growing areas other than Darjeeling is less than 1 percent, while it is much higher in the Darjeeling area.

The physical characteristics of the tea estates are summarized in Table 1.

Table 1: Physical characteristics of Darjeeling tea estates

Altitude	200 metres to more than 2 000 metres above sea level
Latitude	26°31' to 27°13' north
Longitude	87°59' to 88°53' east
Rainfall	Average annual rainfall ranging from 1 700 to 2 500 millimetres
Humidity	Very high, with fog, mist and occasional snow
Soil	Rich and loamy: in the uplands it is usually red, gritty and residual, i.e. derived from the weathering of underlying rocks and rich in organic matter from the surrounding forest cover
Slope	Gradient of 60° to 70°: these steep slopes provide natural drainage for the generous rainfall received in the seasonal monsoons
Temperature	1 °C to 11 °C with a maximum of 20 °C
Sunshine	Average of 2 to 4 hours per day
Tea-growing areas	Seven valleys, facing the Himalayas



◀ Tea estate in Darjeeling area

History and culture

Darjeeling started as a hill station 175 years ago in 1835 and was a tea distribution centre with only 20 families in 1839. Seeds of *Camellia sinensis* var. *sinensis* were brought from Kumeon, and as a result of successful cultivation in the area, nurseries were established by the British Government in 1847. The number of tea estates and the size of the area under tea gradually increased over the years.

The name Darjeeling is believed to be derived from two Tibetan words, *dorje* meaning “thunderbolt” and *ling* meaning “place” or “land”, which, in combination, mean “the thunderbolt land”.¹

A specific tea variety

One of the specific features of Darjeeling tea is that the bushes grown here belong to the small-leaved Chinese variety, *Camellia sinensis* var. *sinensis*, and not to the large-leaved Assam variety, *Camellia sinensis* var. *assamica*. This Chinese hybrid is found almost nowhere in the world outside China and Japan, except for Darjeeling and the Caucasus. It is easily identifiable because of its smaller leaves. Its roots are more than 1 metre long, which is helpful for soil conservation, and it can withstand a cold climate.



Tea bush



Tea flower

Traditional know-how

Tea has now been cultivated in the area for a long time, so that there are skilled people, know-how and traditions. Jobs on tea estates are handed down within families, so that such work becomes a traditional family profession.

More than 70 percent of the workers are women, engaged mainly in tea picking, which is highly specialized work and requires a great deal of care. The women workers consider tea bushes extremely sensitive and perform the job very efficiently. The technique is a

¹ Legend has it that the thunderbolt of Lord Indra (King of Heaven in Hindu mythology) fell at the place where the Observatory Hill now stands. The name, however, could bear some reference to climatic elements, inasmuch as higher areas and hilltops are very often covered with cloud, mist and fog, with frequent thunderstorms.

traditional skill handed down from generation to generation. The picking of two-leaves-and-one-bud shoots has to be followed here, unlike other tea-growing areas in India.



Women picking Darjeeling tea

Concept of terroir

The concept of *terroir* is applicable to Darjeeling. *Terroir* – a delimited geographical area with specific soil and climatic conditions, combined with the traditional production practices and know-how of local inhabitants – differentiates Darjeeling’s hilly areas from other tea-growing areas in India and elsewhere in the world. Altitude, intermittent cloud and sunshine, soil characteristics, temperature, rainfall, fog, mist, moisture and wind, combined with the human factors (know-how and culture) and the use of Chinese hybrid tea bushes: all these factors contribute to make Darjeeling tea a unique and inimitable product.

The quality, reputation and characteristics of Darjeeling tea are essentially attributable to its geographical origin. It possesses a flavour and quality that distinguish it from tea grown anywhere else in the world, giving it the stature of a fine wine and winning it the patronage and recognition of discerning consumers worldwide for more than a century. Any member of the trade or public ordering or purchasing Darjeeling tea expects the tea to have been cultivated, grown and produced in a well-defined hilly region in Darjeeling District and to have the special characteristics associated with such tea (Tea Board of India).

Constraints and other issues in the zone

High production costs

The slopes of Darjeeling’s tea estates are so steep that ploughing can be done only manually, thereby increasing production costs. The hilly terrain also increases input costs: higher procurement costs for workers’ rations, maintenance of supply lines, higher fuel costs, frequent power cuts, high costs for transporting the picked leaves from the plantation to the factory, then for transporting the made tea from the processing site in the hills to warehouses in Kolkata.

The low yields of Darjeeling tea compared to yields in other parts of India is another important factor contributing to high costs. The average Darjeeling yield per hectare is very low – 400 to 450 kilograms, compared with the national average of 1 800 kilograms.

Moreover, during the unproductive four months of winter from November to February, the idle workforce is still paid, which is a heavy burden on estate owners.

Taking all these factors into account, production costs at estate level (according to estate sources) amount to Rs 200 to 225 per kilogram. In addition, Rs 100 to 125 per kilogram is spent on administrative costs, including the payment of various taxes.

Lack of infrastructure

Poor infrastructure, such as roads and bridges, results in a loss of workdays and a deterioration in the quality of the tea. The transportation of goods is highly time-consuming and costly because of the poor condition of the narrow roads due to lack of maintenance. Furthermore, weight restrictions on traffic on the hilly roads – for example, vehicles with loads of more than 5 tons are not allowed to use the hilly roads of the Darjeeling area – represent another impediment to the cost-effectiveness of the tea industry.

Climate change

The vagaries of nature caused by global warming may in due course bring sustained monsoons and heavier rainfall, leading to considerable losses for the estates. Rainfall has already become irregular and the distribution pattern has also changed, but with no reduction in quantity; indeed, rainfall has increased and is now concentrated in six to seven instead of eleven months. As a result, irrigation water is not available throughout the year and even drinking water has become scarce. The erratic rainfall pattern causes frequent landslides in the hilly terrain, causing huge damage and heavy losses to the estates. When a landslide occurs in a particular area, workers are wary of working there during heavy rains for fear of further landslides, so that a great deal of valuable picking time is lost in the process.

Lack of land for expansion, or a reduction in land for tea cultivation

Additional land is rarely available for expansion or the establishment of new plantations, inasmuch as available land beyond tea estates is forest cover. Restrictions on the expansion of the area under tea are mainly a result of topographical factors, irrigation problems, lack of an economy of large-scale production and a prohibition on forest clearing. Moreover, during agitation for a separate state, when many tea estates were closed for indefinite periods, some plantation workers took advantage of the situation, unlawfully and forcibly occupying a portion of land on each estate. If this forcibly occupied land is liberated, it could significantly increase the tea area. However, no initiative is being taken in this regard. Moreover, natural disasters and frequent landslides are seriously affecting tea estates, causing a shrinkage in area.

Environmental issues

The steepness of the slopes has made the area very prone to environmental hazards in the form of regular soil erosion and occasional landslides. Soil fertility is reduced as a result of the erosion of topsoil, while the massive use of chemical fertilizers and pesticides in the past has reduced topsoil quality and fertility, further affecting the overall natural and environmental condition of the area.

Moreover, the population growth rate is very high, and Darjeeling and the surrounding area face deforestation as a result of the increasing demand for fuelwood and timber to

build houses. Deforestation has led to desertification, causing serious environmental problems, which are further aggravated by the air pollution caused by increasing vehicular traffic.

3. The product and its specific quality

Product specific quality

The specific quality of Darjeeling tea is linked particularly to the first two levels of production – the fields and the processing unit. The main factors affecting the specific quality are thus:

- genetic features of tea bushes of the Chinese variety *Camellia sinensis* var. *sinensis*;
- environmental factors: altitude, gradient, climatic conditions and soil composition: owing to the specific natural conditions described above, the metabolic (photosynthetic) rate of Darjeeling tea bushes is much lower than that of any other tea bushes grown elsewhere; this stunts the growth of the leaves and increases the concentration of the natural chemical elements that are mainly responsible for the specific quality of Darjeeling tea (Tea Board of India);
- agronomic factors: farm management, tea picking technique (two-leaves-and-one-bud shoots), application of various types of fertilizer and pesticide (organic and/or chemical);
- factory practices: processing conditions, techniques and machinery at all levels from withering to tasting, sorting and grading;
- marketing factors: packaging for the prevention of moisture absorption, storage in good conditions, transporting with proper covering and due care etc.

The other actors in the supply chain (traders, auctioneers, exporters, blenders and packers) affect the specific quality of the product to a lesser degree (mainly through the quality of storage and transportation facilities).



◀ *Made tea leaves*

Taste and appearance

The specific qualities of Darjeeling tea lie in its physical appearance and taste, giving the following characteristics:

- *stylishness*: a neat, well twisted, even sized, wiry leaf appearance;
- *tippy appearance*: the unopened buds on the tea bush are turned into silvery particles called tips, which give the made tea an attractive appearance;
- *bloom*: a silken sheen on the tea – greyish green in the spring flush, purplish brown in summer and blackish brown in the autumn flush;
- *brightness*: a lively colour with a hue varying from delicate lime green in the spring flush to bright copper purple in the second flush and pale brown in autumn;
- *nose point*: the fragrance exuded by the infused leaf – the aroma or bouquet – can be evocative of certain flowers or fruit, or have a muscatel character;
- *evenness*: uniformity of colour and size of the infused leaf.

The specific qualities of the infused tea are:

- *colour*: varying from pale lemon to rich amber according to the season; cups are said to have varying degrees of visual brightness, depth and body;
- *flavour*: a fragrance and a complex, pleasing taste and aftertaste with attributes of aroma, bouquet and point;
- *taste*: mellow, smooth, round, delicate, mature, sweet, lively, dry, brisk etc.



◀ Various colours of liquor

For made tea, quality identification and assessment are carried out through an organoleptic procedure of tasting – a subjective but highly expert job. Tea and wine are indeed the only two products for which the quality is judged through organoleptic evaluation.

Reputation

Darjeeling tea is a unique product of international fame, sometimes known as the champagne of teas. Its excellent reputation is associated with its world-famous aroma and unique cup characteristics. The Tea Board of India defines Darjeeling tea as follows:

Tea produced in the said [Darjeeling hilly] region has the distinctive and naturally occurring organoleptic characteristics of taste, aroma and mouth feel which have won the patronage and recognition of discerning consumers all over the world.
(*Geographical Indication Journal*, 1, July 2004)

It is a unique product and has been famous throughout the world for more than a century. There is therefore no need to reinforce its reputation, although the marketing strategy does require periodic updating in order to retain consumers' loyalty through appropriate market promotion.

Local stakeholders have been very conscious of the reputation, specific qualities and uniqueness of Darjeeling tea from the early days and have thus optimized their product.

Consumer perception

At least 70 percent of the Darjeeling tea produced is exported to international markets (see Table 4 below), so that most of its consumers are overseas. No market studies for Darjeeling tea have so far been carried out either within the country among domestic consumers or abroad among overseas consumers.

However, in the course of the present study, a pilot market study was undertaken among a small group of consumers of Darjeeling tea in and around the city of Kolkata² in order to measure the importance of reputation to consumers.

The survey found that Darjeeling tea is much appreciated on the domestic market. Historically, it has had a very positive image because of its excellent quality, reputation and characteristics. Its consumers belong to a higher segment of society in terms of social

² pilot study on consumer behaviour was conducted in July-August 2009 in Kolkata and surrounding areas. The samples encompassed both male and female respondents belonging to various sectors of society, age groups, professions and localities.

status, culture and financial resources. The majority of consumers use “fannings”, “brokens” and “mixed tea”, and few use pure leaves. Most buyers purchase tea in loose form and have no problem over paying higher prices for Darjeeling tea.

Tea is drunk between one and four times a day. Consumers derive major satisfaction from the cup qualities of Darjeeling tea: 32 percent of domestic consumers have a very high appreciation of Darjeeling tea, 56 percent a high appreciation and 12 percent a moderate appreciation. Domestic consumers at present pay prices 25 to 300 percent higher than for Assam or Dooars tea, and 92 percent of consumers are ready to pay higher prices for Darjeeling tea to satisfy their preference.

It is interesting to note that most consumers are unfamiliar with the GI logo or the GI process and are convinced only by the name Darjeeling, the retail shop and the seller. Most have trust in the seller or shop where they regularly purchase Darjeeling tea. None of them bothers, however, to verify the GI logo when buying loose or packaged tea from known shops. They simply purchase it in good faith and on the basis of the image of the shop and seller.

Product specifications: requirements for GI registration

Description of the sign obtained

Darjeeling tea is a very high-quality product and has become the flag-bearer of Indian tea abroad. In order to identify its extraordinary qualities, it has been linked to a quality sign by creating a logo that indicates and confirms its origin and quality, and protects it from the manipulation, contamination and misrepresentation practised by many dishonest traders worldwide.



Some classic instances of misuse/abuse of the Darjeeling logo and name

Source: Darjeeling Tea Association

The Darjeeling logo and the name Darjeeling have been registered twice by the Tea Board of India under the GI Act – as certification mark and as GI. The aim is to prevent misuse of the name Darjeeling for tea that is sold worldwide, thereby protecting consumers by ensuring that they receive the genuine product (100 percent Darjeeling tea) and enabling the commercial benefit of the brand to reach the whole supply chain, including plantation workers. The Tea Board of India and the Darjeeling Planters' Association developed this logo a long time ago.

The Logo is described by the Tea Board of India as -a stylized representation of an Indian woman holding tea leaves in a roundel. The woman design element has a stylized circular ear ring and a nose stud. The word mark “Darjeeling” skirts the left portion of the roundel. All these elements blend together to constitute the Darjeeling logo [TBI].



GI requirements

Darjeeling tea stakeholders have to meet the following requirements in order to be legitimate users of the Darjeeling tea GI:

- Each stakeholder in the supply chain must be licensed by the Tea Board of India through a mandatory contract. On the basis of this contract, the Tea Board can take action against any infringement of regulations.
- Each producer must have a certificate of origin from the Tea Board. In order to obtain this certificate, he or she must comply with all the required criteria – production zone, quality of final product, competence, processing method as described in the standard operating procedures etc. The certificate of origin is delivered only after verification of compliance with all the requirements. (More details in this regard are given in the subsection “Certification and control devices” below.)
- Each producer must have his or her own growing unit (estate or garden) within the defined region of Darjeeling, along with a processing unit within the same region (close to the plantation).
- The product must be manufactured in accordance with provisions laid down in the Prevention of Food Adulteration Act. It must satisfy the required quality and safety tests, which are important components in obtaining the certificate of origin. The hazard analysis and critical control points (HACCP) certification process ensures the safety of the product, while ISO 22000 is concerned with hygienic factory conditions.
- No tea of any origin other than the delimited Darjeeling tea zone may be sold under the name Darjeeling and no blend of Darjeeling tea with tea of non-Darjeeling origin is permissible.
- The tea produced and sold must undergo an organoleptic evaluation process by expert tea tasters who are competent to evaluate it on behalf of the proprietor of the GI, i.e. the Tea Board of India.
- Exporters of Darjeeling tea must collect the certificate of origin from the Tea Board of India.

Standard operating procedures

Basic rules of production for the entire Darjeeling tea zone are laid down in the standard operating procedures, which are subscribed to by all Darjeeling tea producers and manufacturers. These rules concern cultivation (good agricultural practices) and processing (good manufacturing practices) and are intended to ensure and maintain the quality of Darjeeling made tea.

The manual of standard operating procedures includes all the procedures that are implemented and monitored in order to produce a guaranteed quality of Darjeeling tea. It is the basis for the control points regarding production and processing. Observation of all these practices ensures that traditions and specific features, including food safety and quality, are maintained. Every worker is actively involved and aware of the standard operating procedures of orthodox³ Darjeeling tea, so that preventive or corrective action can be taken whenever any deviation is noted.

³ Orthodox tea refers to either hand-processed tea or tea that is rolled with machinery in a manner that mimics hand-rolling. Most specialty tea and all whole-leaf tea are made with orthodox production methods. The opposite of orthodox tea is CTC tea (crush, tear, curl), which is machine-processed in a way that chops the leaves into uniformly-sized bits that are typically used for low-grade teabags. Orthodox tea is generally known for being more nuanced and complex than CTC tea.

The following paragraphs present a synthesis of the main steps in the production and manufacture of Darjeeling tea, as found in the standard operating procedures manual.

Transportation. After picking, the leaves are taken to the estate factory by van, jeep or tractor-trolley, or (on a very few estates) along ropewalks. Green leaf transportation is a very important factor in the quality and aroma of the tea. If there is any delay in transporting the leaves from the picking or weighing point, some portion of the flavour is lost. The fresher the leaves, the higher the quality and aroma will be, so that the transportation time from garden to factory should be as short as possible.



◀ Ropeway

Once the green leaves reach the factory, they undergo various processes for conversion into “made tea” according to the “orthodox manufacturing art” of processing as evolved through traditional practice over time.

Withering. In this phase, the green leaves are spread evenly in wooden troughs, where they are withered to remove 60 to 65 percent of their moisture, either by atmospheric cold air or by artificial dry air created by heating the natural air with a coal-fire heater and blowing it over the leaves in a regulated manner for a period of 14 to 18 hours.

Leaves on withering troughs ▶

Rolling. Next, the withered leaves are taken for weighing and then loaded into cast-iron rollers for mechanical processing. The purpose of rolling is twofold: first, physical – to twist the leaf to obtain the desired grade; and, second, chemical – to rupture the cells in order to speed up fermentation so that enzymes can act as catalysts in achieving the most prized flavour and colour. This process takes between 20 and 65 minutes depending on the quality of the leaves, the season, atmospheric conditions etc. The control point here is that the leaves should not be over-heated; otherwise the quality of the tea will deteriorate. The heat is measured by feeling it with the hand.



Sifting. In this process, properly unrolled leaves are sorted through sifters for a second roll lasting for another 15 to 20 minutes, mainly for the second leaf of the shoot, which is a little larger and coarser.

Fermentation. When rolling is over, the twisted and ruptured leaves are spread on long concrete platforms or the floor in a cool, humid room in very thin layers for a length of time ranging from less than 1 to a maximum of 4 hours, depending on various climatic and physical factors, in order to achieve the required quality. The purpose is to extract the flavour from the ruptured leaves. This phase, also called oxidation, is the natural process whereby a unique flavour, aroma and colour are developed. It is the most critical point in

the manufacture of tea, inasmuch as various characteristics of Darjeeling tea depend on this particular phase. During the process, flavour, aroma and other characteristics are achieved. In hot weather, the fermenting time decreases, whereas in cold, moist weather it increases. During this stage, the leaves are constantly checked by sniffing in order to avoid under- or over-fermentation. If under-fermented, the colour will be brownish and the tea will be brittle. If over-fermented, the colour will be black, the sheen will be lost and the leaves will become flat without any specific quality. Another very important point is that no outside smell should enter the factory in order to protect the original aroma of the tea.

Fermentation of Darjeeling Tea ►

Drying. When the desired smell is achieved in the fermentation stage, the leaves are sent for drying. The drying process starts in order to stop enzymatic mellowing by pushing the leaves through dryers and reducing the moisture by 2 to 3 percent. The dryer temperature is kept at 110 °C to 115 °C and run-through time is roughly 23 minutes, differing from dryer to dryer depending on the altitude and the estate. The control point here is that the difference between the drying inlet and outlet temperatures should be 32 °C.



Sorting. Dried leaves are sorted into grades with the help of sifters with various sized meshes. Leaf size and volume are very important in grading. A larger leaf corresponds to a higher grade.

Storing. After sorting and grading, tea has to be stored in bins for a certain period. However, tea is hygroscopic and may absorb moisture during such storage. Before final packaging, moisture therefore has to be reduced to the right level through a process known as gapping. This is carried out with a special dryer with a low inlet temperature known as a dehumidifier. Tea is then finally packed for dispatch from the factory.

Packing. After grading, the sorted tea is packed into specially designed moisture-repellent foil-lined packages. A moisture meter is used to test the moisture level of made tea before packing. The standard required minimum moisture level in made tea is 3 percent. A higher level will cause a loss of quality and aroma, while a lower level will impart the capacity to retain aroma and quality for longer. There are therefore two requirements here: speedy transportation of made tea from estate factory to warehouse, and packaging material developed in such a way as to be moisture-repellent (innovation required) or at least to prevent moisture from penetrating the pack and affecting the tea. Moreover, there is the possibility of grade-breakage due to over- or under-packing in paper sacks, and this can lead to a loss in cup quality, colour etc.

Dispatching. Tea packages are then dispatched from factory to warehouse in Matador vans or small trucks in the hilly region as far as Siliguri, from where they are transported to Kolkata in large trucks. Improper loading and faulty covering may cause breakage or moisture damage, leading to a decline in cup quality. It is therefore vital to avoid over- or under-loading and to ensure that waterproof material is used to cover the load.

Food safety aspects

The processing of tea in all Darjeeling factories is subject to various sanitary and hygienic certification systems, ensuring that the tea is certified and guaranteed as safe for consumption in accordance with the provisions of the Prevention of Food Adulteration Act. The production norms of the Sanitizing Standard Operating System are observed on the tea estates for the production of tea under good hygienic and sanitary conditions. The HACCP certification process (compulsory for Darjeeling tea) ensures that the product is safe for consumption – a necessary criterion for all food processing. ISO 22000 (with compulsory observation) certifies hygienic factory conditions under the quality assurance scheme.

Links with other quality schemes and labels

Darjeeling tea packages may also bear other labels, such as “certified organic tea”, “fair-trade certified tea” or “environmentally friendly tea”.

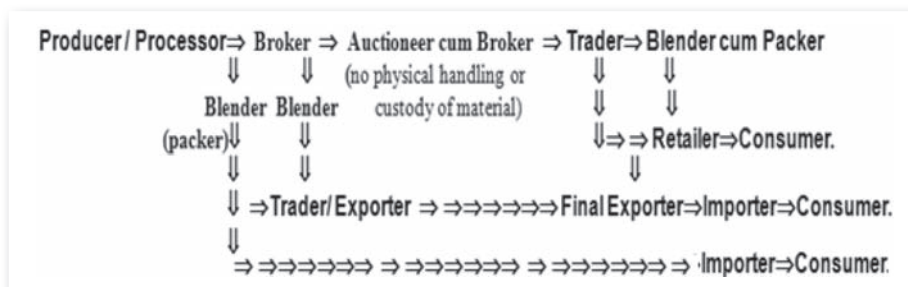
However, such labels are added as extra “feathers”, enabling the product to fetch a higher price and meet customers’ preferences. Darjeeling tea is linked to other quality assurance schemes, which are mutually complementary.

There are various accreditation agencies that certify Darjeeling tea to be organic, fair trade etc. They charge high certification fees after a lengthy process of investigation, verification and auditing at the estate level. Fair trade is certified by the Ethical Tea Sourcing Partnership, while environmental and ecofriendly aspects are certified by the Green Forest Alliance and organic tea is certified by various international agencies accredited by the Tea Board of India. However, all these types of certification are voluntary.

In Darjeeling, 35 percent of the estates have already received organic certification and 15 to 20 percent, perhaps more, are in the process of doing so. Moreover, on the remaining conventional estates, the use of chemicals, both fertilizers and pesticides, has been significantly reduced in accordance with good agricultural practices.

4. Stakeholders and the qualification process

The supply chain, from production to marketing – from primary producer to ultimate wholesale buyer, final exporter and first overseas handler – is illustrated in the diagram below.



As can be seen, there are three main distribution channels for orthodox Darjeeling tea from primary producer to consumer.

Actors in the supply chain and collective organization

Producers

There are 87 estates of sizes ranging from 23.20 to 506 hectares according to a Tea Board of India source, and from 113 to 580 hectares according to the producers. The total area under tea is 19 500 hectares on the 87 estates, so that the average estate size is 224.14 hectares. The average production of each estate is approximately 136 300 kilograms of made tea according to the Tea Board of India.

Each estate is equipped with a processing unit or factory where green leaves undergo various stages of processing to prepare “made tea”. There are various categories of worker from leaf-pickers to factory workers. The current workforce in the industry exceeds 55 000 people employed on the 87 estates on a regular basis, while a further 15 000 are employed on a casual basis for nine months during the tea picking season (from March to November) (see http://darjeelingnews.net/tea_facts.html). Table 2 gives a more detailed picture from 1991 to 2009 in this regard.

Table 2: Estimated average number of permanent workers on Darjeeling tea estates from 1991 to 2009

Year	Number of workers	Share in % wrt 1999	% fewer or more than 1999
1993	46 568	91.41	- 8.59
1994	58 814	115.40	+ 15.40
1995	58 887	115.55	+ 15.55
1996	53 740	105.45	+ 5.45
1997	49 783	97.67	- 2.33
1998	50 289	98.67	- 1.33
1999	50 964	100.00	0.00
2000	51 515	101.08	+ 1.08
2001	51 938	101.91	+ 1.91
2002	52 671	103.35	+ 3.35
2003	52 547	103.11	+ 3.11
2004	53 363	104.71	+ 4.71
2005	53 412	104.80	+ 4.80
2006	53 492	104.96	+ 4.96
2007	54 202	106.35	+ 6.35
2008	55 000	107.92	+ 7.92
2009	61 397	120.47	+20.47

Source: Tea Board of India up to 2008; estimated for 2009 on the basis of the Report of the Committee on the Competitiveness of Indian Tea [Government of India, 2009]

There are three categories of producer and enterprise that lease tea estates within the defined tea zone in Darjeeling District:

- proprietors-cum-partnership houses (registered under the Company Law and controlled and managed by the individual owner or partners, directly involved with micro-level management);

- public-sector undertakings (controlled and managed by the government under the Department of Public Enterprise, with no role in micro-level management being played by the head of the company);
- corporate (registered as private corporations under the Company Law, controlled and managed by a board of directors, with officers deputed for micro-level management, and the chairman or managing director playing a role at policy level only).

Processors

Producers are often also processors, with cultivation and processing carried out by the same producer. There is a processing unit or factory on 72 of the 87 estates, while the remaining 15 have their leaves processed by arrangement with a neighbouring estate within the specified Darjeeling tea zone.

They can also purchase leaves from other estates located within the delimited Darjeeling tea zone, processing them in their own unit. However, the processing unit is not independent of the estate. The manager of a tea estate is the person who supervises tea cultivation on the estate and also tea processing in the processing unit under the name of the estate.

The other important function of processors is disposal of tea produced on the estate, using three distinct sales channels:

- direct export under forward contracts through personal contact;
- private sale from estate to third-party exporters for export and to domestic dealers;
- auction sale (confined to organizational tasks).

Collective organization

The Tea Board of India, under the Ministry of Commerce and Industry, is very much involved in various activities for the development and prosperity of Darjeeling tea. It was established in 1954 under the Tea Act of 1953, long before the quality process started.

Collective action was undertaken by producers through formation of the Darjeeling Planters' Association long ago to support development and benefit tea producers. This organization was then renamed the Darjeeling Tea Association (DTA), which is the collective organization of the supply chain stakeholders and is thus primarily an association of producers, processors, traders and exporters. The association has an elected executive council headed by a chairman. The secretary or principal officer looks after all matters pertaining to Darjeeling tea, including the execution of day-to-day work and regular contacts with the Tea Board of India. DTA has its head office in Kolkata and its only branch office in Darjeeling.

One major function of the Darjeeling branch office is to collect daily data from member estates on the quantity of leaves picked, processed and dispatched, and then pass this information on to the Kolkata office, which in turn delivers it to the Tea Board of India. On this basis, the Tea Board issues a certificate of origin to exporters and importers.

Efforts are being made to bring the few non-member producers under DTA's umbrella in order to strengthen any relatively weak points of the organization, such as estate-level collection of more accurate data by some specialized body. This would help to prevent the infiltration into the Darjeeling tea zone of leaves or made tea from any other area inside or outside the country. Member estates are prohibited from purchasing Nepal leaves or made tea.

DTA informs members of any developments concerning Darjeeling tea, such as legal provisions, agricultural operations, research findings, training courses, seminars, government grants, the market situation, GI prospects, matters pertaining to the Tea Board and developments on any specific estate. The association updates members on a regular basis by email and post, providing information on any of the above aspects.

DTA also actively participates, together with the State Labour Department and the Workers' Union, in tripartite meetings and negotiations to fix workers' wages, bonuses and gratuities. The association also intervenes in the case of any problem that arises between workers and the local estate management on any matter, trying to resolve it effectively.

DTA and the Tea Board work together for the collective generic promotion of Darjeeling tea.

Objectives of the actors regarding GI registration

The basic objective of all the stakeholders in the supply chain is to share in the benefits of the quality sign. On this purpose, they have to comply with certain trade restrictions, especially the prohibition on blending non-Darjeeling tea with Darjeeling tea under the GI. Initially this has been considered a trade risk by the few traders and blenders in the Darjeeling tea supply chain who followed this practice before the regulations came into force. However, all the producers and the majority of the traders, brokers and exporters in the supply chain feel that the restrictions imposed by the Tea Board will protect Darjeeling tea on the domestic and international markets, and thereby protect their present and future interests.

The major objectives of the various actors in the supply chain are summarized below.

Primary objectives

- The first objective of all local stakeholders is that of protecting the name Darjeeling from misuse in various countries in various ways. Misappropriation of the name is a major problem. More than 20 years ago, Darjeeling tea producers claimed that ... an estimated 40 to 50 million kilograms of tea is sold worldwide as 'Darjeeling tea' to credulous customers, when the actual exports of genuine Darjeeling tea from India are no more than 8 or 9 million kilograms! ... However, the output of Darjeeling tea has declined steadily over the past three decades, and the vacuum on the world market has been exploited by unscrupulous blenders in the West. They have happily passed off Kenyan or Sri Lankan tea as Darjeeling tea (Dasgupta, 1987).
- A major objective of traders, exporters, blenders, packers etc. is that of improving market access.
- An objective of all the stakeholders in the supply chain has been that of differentiating Darjeeling tea from other teas in order to increase its added value.
- An objective of producer-exporters and trader-exporters is that of escaping the adverse effects of fluctuations in the international market in order to achieve a strong, stable position on both domestic and international markets.
- An objective of both producers and the Government of India is now that of supporting a collective dynamic in favour of rural development. GI registration will protect the

product in the market, so that all the actors in the supply chain, especially producers, expect prices on the domestic and international markets to rise, since consumers will be receiving a genuine product. A significant share of the increased price will come to producers, while the government will receive increased revenue. The increases may bring about rural development in three ways: a sizeable amount from the producers' extra sales income will be spent directly on workers' welfare by undertaking suitable projects; a portion of this extra income could be spent by producers to pay workers in cash, in the form of enhanced wages, bonuses etc., thus increasing their purchasing power and their families' well-being; and the extra revenue the government earns from the increased price may allow it to spend more money for civic development of the estates and adjacent rural areas.

- An objective of producer-processors and the Tea Board (i.e. the Government of India) is that of maintaining the local population by providing employment and such other opportunities as civic, educational and medical facilities within the locality. It should be mentioned here that 70 percent of the total population of 1.6 million are directly or indirectly associated with the tea industry in various capacities.
- An objective of the Tea Board, producers and processors is that of facilitating the respect of various norms, such as those regarding labelling, sanitary standards, traceability and combating fraud.

Secondary objectives

- An objective of producers and processors in general is that of preserving biodiversity on the estates and in the general locality by protecting various animal species and endangered plant species, enhancing soil fermentation etc. There is a high international demand for organic products, for which purchasers pay a higher price, although national purchasers are less aware in this connection. In the Darjeeling delimited zone, 55 or 60 percent of estates have already converted to organic and biodynamic certified production or are in the process of doing so, while others are on the verge of starting the process. This conversion to organic and biodynamic production will preserve the biodiversity of the area. GI registration will thus have an indirect impact in terms of preserving and protecting biodiversity in Darjeeling, although the GI production rules do not intervene directly in the matter.
- An objective of all the actors in the supply chain is that of preventing biopiracy.
- An objective of producers, processors, the Tea Board and exporters has become that of preserving the traditional know-how of Darjeeling tea manufacturing.
- An objective of local workers, producers and the government is that of preserving the local cultural heritage.

History of the registration process

The process of promoting origin-linked quality came from producers and processors of Darjeeling tea through their collective organization (DTA), working jointly with the Tea Board of India. A core group was formed for registration and protection of the logo, including the name Darjeeling.

The Tea Board's attempt to protect Darjeeling tea dates back to 1986, several years before registration of Darjeeling tea in 2004 under the GI Act. However, the logo and the name were developed even earlier, in 1983, by the Darjeeling Planters' Association.

The board took the first steps to protect genuine Darjeeling tea from fakes within the country more than 20 years ago and was successful in obtaining "home protection" by registering the Darjeeling logo and name first as a certified trademark in 1986 under the Indian Trade and Certification Marks Act of 1958, and then as an artistic work under the Copyright Act of 1957. The Trade and Certification Marks Act was later replaced by the Trademarks Act of 1999. The Darjeeling logo and the name Darjeeling have therefore been registered as a certified trademark under the new act. Lastly, the logo and the name were registered as a GI mark under the GI Act of 1999.

The Tea Board has provided active support and cooperation to DTA in endeavouring to obtain legal protection in India and other countries. The Darjeeling logo has been legally accepted as a certified trademark in many countries, but Darjeeling tea has so far been recognized for protection as a GI product in very few countries. Applications have been filed with all the necessary documents in many countries, including those of the European Union, but they are still pending. Delays in granting protection are preventing eligible stakeholders from enjoying the benefits of GI registration.

In the initial stage, the stakeholders and their organization (DTA) had to depend on the Tea Board for the establishment and protection of the quality sign (through various procedures and mechanisms under the provisions of applicable laws and regulations). However, in the long run the Tea Board would prefer gradually to hand over responsibility to DTA. Producers are to have autonomy regarding production, inasmuch as they can decide everything in their own way. However, for the establishment and protection of the quality sign and for any kind of subsidy, they are to depend on the Tea Board. A large sum of money was involved in registration of the quality sign under the GI Act in India, and DTA did not have sufficient funds to pay for it, but had to depend on the Tea Board – and the situation is similar for registration of the quality sign in other countries.

Support of stakeholders external to the supply chain

External support is considered immensely important to the stakeholders in the supply chain for improvement of the Darjeeling tea industry through the establishment of a quality sign. Such support may come from the public sector, for example the Tea Board of India, a development agency or a research institution.

Administrative support

The Tea Board provides administrative guidance and advice as required, and also makes physical contributions when required through the introduction and implementation of various schemes in this connection.

Financial assistance

Financial assistance in the form of term loans or subsidies is required for many purposes: replanting, rejuvenation, creation of irrigation facilities and drainage systems, purchase of vehicles, factory modernization, capacity augmentation, value addition, purchase of

cleaning machines for made tea, conversion to organic production, fees of certifying agencies etc. The Tea Board provides limited subsidies to stakeholders on various accounts.

Integration into a network

Support in this connection is considered important from the viewpoint of monitoring. Integration of all the stakeholders into a network is important for the industry as a whole for establishment of the quality sign and ensuring that it functions more effectively. Some kind of network integration is carried out by DTA, but international networking will also be required after global recognition of the GI. The services of the Organization for an International Geographical Indications Network (oriGIn) may be useful in establishing such links.

Research and training

Research on various aspects of tea cultivation, processing, packaging and marketing, including protection of the quality sign, are required by the stakeholders with a view to product and market development. The Tea Research Association and the Darjeeling Tea Research and Development Centre play important roles in this connection, undertaking scientific and technical research so as to provide producers with solid results.

Training is also provided in order to update the knowledge of staff and managers at estate level, through the joint organization – by DTA and the Darjeeling Tea Research and Development Centre – of seminars and training programmes.

In the training courses, field workers and staff of all levels are provided with training on such subjects as:

- working in harmony with nature (preserving biodiversity and the ecosystem);
- enhancing individual and group efficiency within the traditional cultivation system (estate operation);
- producing the best possible quality under the traditional manufacturing system (factory operation).

Training is carried out regularly by the Tea Board of India and DTA in collaboration with the Tea Research Association through the organization of workshops, training programmes, seminars and refresher courses on new technologies and quality development in order to meet the quality requirements of the world market. The Tea Research Association also publishes a quarterly bulletin covering every aspect of tea production and management, and the practices to be followed in the ensuing quarter. The bulletin is distributed to estate managers well in advance of each quarter to provide statistical and other relevant information regarding necessary action.

Such action is needed in order to obtain the best results from staff of every level – administrative, field, specialized etc. – through the adoption of new techniques and methods that have been developed through intensive research by the Tea Research Association, of which Darjeeling producers are members. Each member must pay an annual subscription, plus a pro rata contribution (approximately Rs 0.088 per kilogram) to fund research.

Material contributions

Material support is required for the establishment of new factories, machinery, factory certification, conversion to organic production etc. The Tea Board always takes the initiative in this respect, acting on behalf of the Ministry of Commerce and Industry. Contributions

are also received from the country's banking sector and such national and international development agencies as the National Bank for Agriculture and Rural Development and the International Development Agency.

Problems and weaknesses in the qualification process

Initial difficulties

The Tea Board of India had to face various obstacles and difficulties regarding the registration process for the Darjeeling tea quality sign.

In the initial stage, when attempts were made to register a certified trademark under the Trade and Certification Marks Act of 1958 and the Trademarks Act of 1999, and again under the GI Act of 1999, the traders, packers, blenders and exporters were all reluctant to follow the regulations for trading in Darjeeling tea. The main reasons for their opposition were the prohibitions on passing off non-Darjeeling tea as Darjeeling tea, or on blending or mixing non-Darjeeling tea with Darjeeling tea, the requirement for a licence from the Tea Board etc. Even some of the large companies joined in the opposition. However, the resistance was cleared up through prolonged discussions and meetings with the reluctant stakeholders to explain the effectiveness of the system and the benefits they would derive from it. The larger companies that initially opposed the move now see it as beneficial to them and have therefore supported the registration process in their own interests.

Exclusion of certain producers

Producers and processors in the Darjeeling zone have very similar levels of mechanization, technical innovation etc., so that all the 87 estate-owners are able to follow the rules laid down in the standard operating procedures and comply with the requirements for obtaining a certificate of origin from the Tea Board. They are thus all part of the action programme within the Darjeeling tea zone.

Some international buyers have been included – together with producers, traders, brokers, auctioneers and exporters – in the action programme regarding the Darjeeling tea quality sign.

A few traders engaged in the retail trade in Darjeeling tea have not yet been brought into line with the GI Act. They are not members of DTA and are still reluctant to comply with all the GI requirements.

5. Effective protection of the GI

GI registration to prevent misappropriation of the name

Collective action launched by DTA and the Tea Board of India is aimed specifically at protecting Darjeeling tea (see the subsection "History of the registration process" above). In the 1980s, the Tea Board was appraised of the seriousness of this problem. In order to protect consumers' interests in general and also to fetch a higher and fairer price for producers of world-reputed Darjeeling tea, it therefore decided to launch a massive awareness campaign in the United Kingdom. This campaign ran uninterruptedly for three years, with advertisements and popularization of a generic logo for Darjeeling tea by appointing the world-famous advertising agency Saatchi and Saatchi in 1988. At that time, GIs were not a generally familiar concept.

In the more than two decades since then, the GI concept has been introduced, the GI Law has been enacted, GI rules and regulations have been formulated, and Darjeeling tea has been registered as a GI product. Nevertheless, the problem of misuse and misbranding still exists. Mere registration of the quality sign under the appropriate law or act in a given country does not end the story. After registration, the quality sign has to be protected from piracy worldwide in accordance with the provisions of the law or act. It is a very hard task to operate as a watchdog all over the world, monitoring the conflicting marks that are found and taking appropriate action against misuse of the Darjeeling name and quality sign anywhere in the world. It also requires major expenditure and DTA is incapable of bearing such a load, so that it depends on the Tea Board. More than 100 cases of misuse have been identified, 75 percent of which have been settled through negotiation and 25 percent through a court sentence, all in favour of Darjeeling tea, while only one case is still pending settlement.

The costs involved in registering and protecting the quality sign are very high, which is why the Tea Board of India and not collective action on the part of the industry has been responsible for registration of Darjeeling tea under the GI Act in India. The Tea Board also pays the fees of the supervisory agency and the costs of any necessary legal action. The Government of India then compensates the board as part of its market promotion endeavours. The external support received from the Tea Board for the legal protection of the quality sign has been very important, and the board has to stay vigilant because misappropriation is frequent. It is still required to play a very significant role in this aspect of the quality sign process in order to obtain the greatest benefits for stakeholders and promote rural development.

Certification and control devices

The effectiveness of protection also lies in the control and certification system, which ensures that the Darjeeling tea GI is used only by legitimate stakeholders who comply with GI requirements. The control and certification system also provides guarantees to consumers regarding the origin and quality of Darjeeling tea.

Darjeeling certification practices

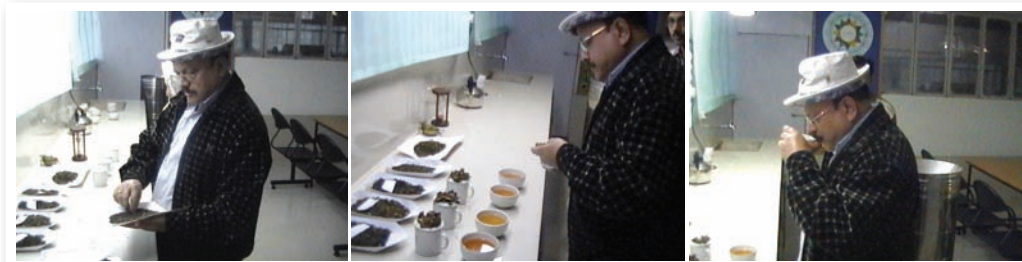
Certification is carried out in two ways – either by a public body (the Tea Board), or by a third party or accredited agency:

- The genuineness and origin of Darjeeling tea is certified by the Tea Board through the issuance of a certificate of origin, which acts as a guarantee that the tea is cultivated and processed within the delimited geographical zone of Darjeeling.
- Other certificates regarding quality, food safety, organic or ecofriendly production etc. are issued by third-party agencies accredited (in the case of organic production) by the Tea Board by virtue of the authority vested in it by the Ministry of Commerce and Industry in 2001.

However, there is no third-party certification for the Darjeeling tea GI. The Tea Board works in collaboration with DTA to exercise direct control over the GI regulations formulated by the board. The stakeholders in the supply chain have to comply with the regulations and conditions in order to obtain a certificate of origin from the board:

- Tea must grow on one of the 87 tea estates identified by the Tea Board within the delimited Darjeeling tea zone.

- All tea estates must be registered with the Tea Board.
- Tea estates must follow the single set of agricultural practices (laid down in the standard operating procedures) that has been developed and used for more than 150 years to sustain the growth of shoots and maintain the bush heights required for traditional picking by hand.
- Each estate must have a processing unit or factory within the estate and picked green leaves must be processed in this factory. Tea estates lacking their own factory must have their leaves processed in the nearby factory of another estate within the delimited Darjeeling tea zone.
- The tea leaves must be processed by the traditional rolling method, in which human effort and traditional knowledge are involved at every stage, as laid down in the standard operating procedures.
- No estate shall purchase picked green leaves from any estate outside the delimited Darjeeling tea zone. The estates may, however, purchase leaves from any of the 87 estates located within the delimited zone.
- The drying, sorting, grading and packing of tea must take place only in estate factories within the notified tea estates.
- No tea grown outside the delimited Darjeeling tea zone shall qualify or be treated as Darjeeling tea. Darjeeling tea must not be blended with any other tea and no tea grown outside the Darjeeling tea zone shall be processed in any factory within the zone.
- When the tea is tested by expert tasters from the Tea Board, it has the distinctive and naturally occurring taste, aroma and mouth-feel typical of tea cultivated, grown and manufactured in the delimited Darjeeling zone.
- All sellers of Darjeeling tea must be registered with the Tea Board of India.
- All producers must submit daily reports to the Tea Board of India through DTA, listing all production figures (estate invoices), picking and manufacturing figures (field and factory records), figures for green leaves purchased or transferred and all sales information apart from auction sales (private sales records).



The various stages of organoleptic tasting of Darjeeling tea on a tea estate.

Certification and control costs

The Tea Board of India charges no additional fee for issuing the certificate of origin for Darjeeling tea. Producers and other actors in the supply chain simply have to be registered with the Tea Board against payment of a fixed amount (Rs 15 000 – approximately US\$325). The registration must then be renewed each year by paying a small amount (Rs 500 – approximately US\$10.75). The certificate of origin is the only guarantee required by buyers regarding the origin of Darjeeling tea. Since a certificate is very inexpensive, there is no

reason for free-riding and it is not worth any Darjeeling tea producer's while to try selling tea without one.

However, for the other certification systems (regarding food safety and such voluntary standards as organic production and fair trade), the costs appear to be a major problem, since they are high for all such labels or standards. The main drawback of the system is that there is no worldwide standardized food safety and food quality certification. A number of different norms are therefore maintained in order to cater to different countries, entailing inspection, examination and certification by a variety of agencies, which charge very high certification fees. Different countries have different preferences regarding certifying agencies. Each estate thus has to obtain several certificates from several agencies for the same purpose, incurring major expenditure.

6. Markets

There is currently no problem of market access for Darjeeling tea. All the tea produced each year has a ready market, which means that its position is strong and stable.

Overview of Darjeeling tea production

In the delimited zone, tea is cultivated on 87 estates on 17 542 hectares of hilly terrain out of a total grant area of 34 800 hectares. The provisional estimate for production of made tea in 2008 was 11 586 000 kilograms. Yearly figures since 1991 are given in Table 3 below.

According to DTA, the average annual production of Darjeeling tea is 10 million kilograms.

Table 3: Tea estates, area, production and average yield of Darjeeling tea, 1991–2008

Year	Number of tea estates	Area under production (ha)	Total production (thousand kg)	Average yield (kg per ha)
1991	102	20 085	13 932	694
1992	102	19 309	12 355	640
1993	102	19 324	13 026	674
1994	88	19 280	11 092	575
1995	83	18 932	11 298	597
1996	80	17 551	10 614	605
1997	80	17 760	10 054	566
1998	85	17 830	10 253	575
1999	85	17 604	8 653	492
2000	85	17 228	9 281	539
2001	85	17 453	9 841	564
2002	85	17 463	9 180	526
2003	85	17 580	9 582	545
2004	85	17 522	10 065	574
2005	85	17 539	11 312	645
2006	85	17 542	10 854	619
2007	85	17 818	10 007	562
2008	85	17 818	11 586	650

Source: Tea Board of India

Growth

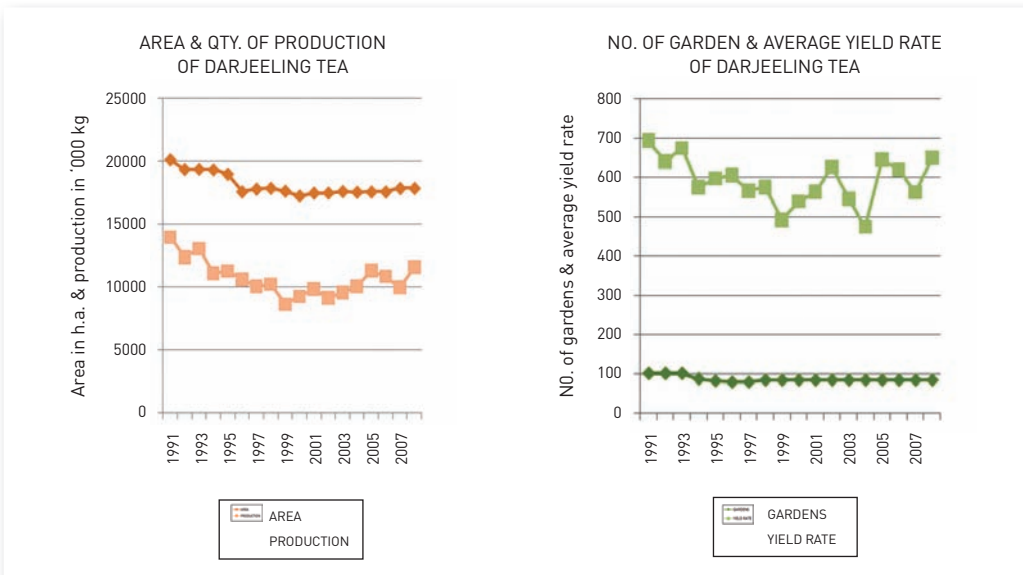
The growth of tea estates, area, production and yields over the past 20 years is shown in the graphs below.

- As can be seen, the number of tea estates in the delimited Darjeeling tea zone fluctuated in the early and mid-1990s but has been stable since 1998.
- The tea zone also shows mixed trends, declining from 1991 to 1996, then fluctuating until 2008, but showing a slow rising trend.

The Tea Board estimates that the area under tea has declined by nearly 3 000 hectares and production by 3 million kilograms over the past ten years. The reasons for reductions from 1991 levels are identified as poor labour management, entrepreneurial indifference, injudicious use of funds, lack of technical know-how etc. (*Status paper on tea*). The situation was aggravated by a prolonged, violent political campaign in the 1980s, in which many tea estates were closed and workers took advantage of the situation to occupy some tea land by force. The same type of political movement has been relaunched recently, again causing serious production and revenue loss to producers, satisfaction loss to purchasers and utility loss to consumers. If this situation continues for very long, it could pose a serious threat to implementation of the GI process.

On the other hand, the quantity of production and yields declined steadily from 1991 to 1999, but increased from 2000 to 2008. The stability of estates and the increase in area, production and average yields since 1999 are indicators of the good health of the Darjeeling tea sector. The reason for the positive growth may be attributed to GI implementation.

Figure 1: Evolution of the area, quantity of production, number of estates and average yield rate of Darjeeling tea (between 1991 and 2008).



Types of market, current and aspired to

The main problem with Darjeeling tea is that it is still sold as a commodity and not a product. As a commodity, it is sold in bulk in large packs directly or at auction. Darjeeling tea has been classified as a speciality tea because of its inherent high value, so that it has found outlets in gourmet shops, especially in western countries. To obtain the best possible price, it needs to be sold in smaller packets.

The sale of Darjeeling tea in smaller packets and its promotion in western countries require large-scale expenditure, but the non-availability of the necessary funds has been a major constraint to successful marketing with a view to obtaining the best possible price. Moreover, there is still a problem in establishing consumers' preference for estate-packed packets of Darjeeling tea.

Local market

A high-quality, high-value product such as Darjeeling tea is not consumed by consumers in local rural markets within the country for many reasons. First, Darjeeling tea liquor is very light in colour, and rural inhabitants tend to prefer a hard black tea liquor, such as Assam black tea, after a hard day's work. Second, rural inhabitants' income is too low for them to afford the high price of Darjeeling tea. Third, Assam black tea and other teas are available in the local rural markets of West Bengal, so that there is no problem in obtaining people's preferred brand at a low price in rural areas. Local markets are thus not the proper outlets for such a sophisticated product as Darjeeling tea, and no effort is therefore made to develop local markets for Darjeeling tea on behalf of the producers, traders, public body (the Tea Board) or collective body (DTA). However, the workers, officers and managers of the estate and factory are given made tea (a fixed quantity per head) for their own consumption.

Domestic market

The profile of domestic consumers indicates that most of them reside in the metropolitan city of Kolkata. At the national level, metro-cities are therefore considered potential markets for Darjeeling tea, depending on various criteria – on the one hand, the consumers' economic condition, cultural background, taste preference, habit and social status, and, on the other, easy availability in retail outlets. Efforts are thus being made to develop metro-markets for Darjeeling tea.

International market

Darjeeling tea production is mainly export-oriented, with 70 percent being exported (see Table 4 below) to 43 countries. Efforts are being made to develop markets in many countries where Darjeeling tea is not yet being sold, and also to explore new markets in countries where it is already being sold. To this end, the Tea Board of India and DTA are organizing product exposure at trade fairs, exhibitions, seminars etc.

Table 4: Quantity of Darjeeling tea produced and exported from 2004 to 2008

Year	Total production (kg)	Quantity exported (kg)						Total no. of countries
		Pure		Blended		Total share		
		(kg)	(%)	(kg)	(%)	Quantity	(%)	
2004	10 065 000	3 767 194	37.13	3 278 306	32.57	7 045 500	70.00	35
2005	9 634 364	4 144 382	43.00	2 599 603	27.98	6 743 985	70.00	40
2006	9 770 929	4 340 416	44.42	2 499 234	25.58	6 839 650	70.00	39
2007	8 813 113	4 445 349	50.44	1 723 830	19.56	6 169 179	70.00	40
2008	9 487 793	3 814 371	40.20	2 840 316	29.94	6 654 687	70.14	43
Total	47 771 199	20 511 712	42.94	12 941 289	27.10	33 453 001	70.04	

Source: DTA

In 2005, the Government of India declared the Darjeeling tea-growing zone an agri-export zone. The number of export destination of Darjeeling tea rose from 35 countries in 2004 to 43 countries in 2008 after GI registration, including France, Germany, Iran, Japan, the Netherlands, the United Arab Emirates, the United Kingdom and the United States. In 2008, exports were being made to 12 new destinations – Armenia, Bulgaria, Croatia, the Czech Republic, Estonia, Greece, Kazakhstan, Latvia, the Russian Federation, the Seychelles, Ukraine and countries of the former Yugoslav Republic – although exports to Finland, Kuwait, Malaysia and Mauritius had stopped.

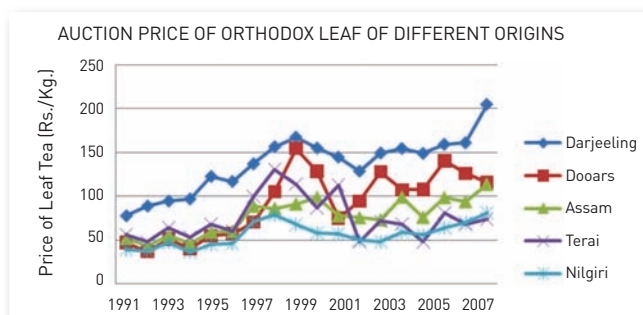
Once Darjeeling tea has been established and recognized as a GI product on the international market, customers' satisfaction and acceptance of the authentic "origin" of Darjeeling tea will be enhanced in increasing numbers of countries, so that the international market will expand. This expansion will put pressure on producers to increase production and improve quality through greater investment in production, processing units, research and development etc.

Competition

The trade faces domestic competition from Assam and international competition from Nepal, Sri Lanka, China, Kenya, Indonesia and Vietnam.

Price

The auction price of Darjeeling leaf tea saw a steady upward movement between 1991 and 1999, then a downward movement between 2000 and 2002, but again increased significantly over the years to 2009.

Figure 2: Auction price of orthodox leaf tea of various origins in India

Distribution and trade

There are two modes of disposal of Darjeeling tea or two ways of physical access to domestic and international markets: auction (in bulk in Kolkata); and private sale directly from the estate to the merchant exporter or direct export by the producer to the customer.

Auction sale

A sizeable quantity is sold through auctions held every Monday in Kolkata by J. Thomas & Co., attended by brokers and traders. As can be seen from Table 5, an average of half of total production is sold through auction. The table gives details of auction sales from 1991 to 2008.

Table 5: Share of direct sale and auction sale of Darjeeling tea since 1991 (before and after GI registration)

Year	Auction sale		Direct sale	
	Quantity (Tonnes)	Share (%)	Quantity (Tonnes)	Share (%)
1991	6 139	44.06	7 793	55.94
1992	7 616	61.64	4 739	38.36
1993	6 365	48.86	6 661	51.14
1994	6 604	59.54	4 488	40.46
1995	5 537	49.00	5 761	51.00
1996	6 084	56.98	4 530	43.02
1997	5 879	58.47	4 175	41.53
1998	5 135	50.08	5 118	49.92
1999	5 260	60.79	3 393	39.21
2000	5 206	56.09	4 075	43.91
2001	4 651	47.26	5 190	52.74
2002	5 244	57.12	3 936	42.88
2003	5 295	55.26	4 287	44.74
2004	5 543	55.07	4 522	44.93
2005	5 527	48.86	5 785	51.14
2006	6 108	56.27	4 746	43.73
2007	5 461	54.57	4 546	45.43
2008	5 401	46.61	6 185	53.39

Direct sale

Many producers prefer to sell directly to large buyers on domestic and international markets by establishing a personal relationship with them. The buyers come to the estate to observe the cultivation and manufacturing processes, verifying hygienic and other aspects, and checking production, manufacturing and hygiene certificates. If they are fully satisfied, they make contracts to purchase tea. Bulk quantities are sold directly, as can be seen from Table 5. Many producers nowadays prefer to sell directly, avoiding auction on both domestic and international markets, but this requires their involvement and investment in marketing activities, such as exhibition on supermarket shelves, demonstrations and even the linking of marketing to tourism and overseas communities.

Advantages and disadvantages of direct and auction sales

Advantages and disadvantages of direct sale. The sale of Darjeeling tea through direct contact with both domestic and international buyers, bypassing auctions, is known in tea circles as the “unique selling proposition”. The main advantage here is that the name Darjeeling arouses interest among buyers. Each tea estate has individual tea buyers familiar with it. The fame and image of the estates are associated with the buyer’s perception, which is what makes the direct sale method successful. The strengths of the direct marketing system are that the mark-up is minimized, the level of buyer confidence is higher and a larger proportion of the final market price goes to the producer – a part of which can be used for workers’ welfare. The only disadvantage of direct sale is that not everybody can carry out direct marketing through personal contact, while production quantities are much lower than world demand, so that not all buyers can be satisfied.

Advantages and disadvantages of auction sale. The advantage of the auction system is that it is a confirmed, traditional, systematic disposal method, in which producers have an assured outlet for their product without any extra trouble or any changes in the system. Bulk quantities of Darjeeling tea are therefore still sold through auction. Many producers who lack a good individual marketing network prefer auction sale in order to dispose of their product. For them, sale at auction to both domestic and international buyers is therefore easier and safer. The disadvantage of the auction system is that the very high mark-up between auction price and retail price means that producers receive a smaller proportion of the final market price and therefore have less money for workers’ welfare. Many producers selling their produce at auction find that they receive only a small proportion of the price paid by end consumers. Ferguson (2002) estimates that producers receive only 32 to 37 percent of the consumer price, while the average mark-up between auction price and retail price is 192 percent. In the case of auction sale, the lion’s share of the consumer price thus goes to non-producers in the value chain.

Business relationship

Business relationships in the supply chain are maintained through direct interfaces with buyers, particularly those with establishments on estates. Meetings between buyers and sellers are organized, and buyers are invited to visit the estate, at which time producers extend all possible hospitality. All decisions regarding marketing are taken here – a type of one-on-one marketing. Contracts are normally signed for one year, but occasionally for longer.

Alliances with other organizations are also formed in order to obtain better prices, for example links with such international organizations as the Ethical Tea Sourcing Partnership and the Rainforest Alliance.

Trade is very secret and very competitive. The Tea Board of India also helps to organize buyer-seller meetings, both within the country and abroad, so that marketing policy can be formulated and decisions reached. Nobody knows about the discussions and decisions at these meetings.

Distribution of value

It is the producer-processor who decides on the definition of the product, quality and grade on the basis of established traditional norms, with the assistance of tea tasters. Decisions

regarding the price of raw materials, for example green leaves, are taken by the estate manager on behalf of and in consultation with the producer.

Prices and margins are formed along the supply chain by the participants in each link through mutual agreement. In the process of price determination, the final point buyers are the price-makers, while the first point sellers, i.e. the producers, are the price-takers. The marketing decision is taken by the producer. Other rules regarding the distribution of value along the chain concern compliance with GI requirements for direct export and the obtaining of an export licence from the Government of India.

7. Impact of registration under the GI Act

Stakeholders' perception

In terms of the primary objectives described in the subsection "Objectives of the actors regarding GI registration" above, stakeholders are to a large extent satisfied over the fulfilment of certain objectives, although there is also dissatisfaction over the non-fulfilment of others.

The first objective was that of *protecting the name Darjeeling from misuse in various countries in various ways*. It was expected that prevention of the misuse of the name would protect the original product – Darjeeling tea – by placing legal barriers to the entry of fake or false "Darjeeling tea" onto the market, so that the market would receive 100 percent genuine Darjeeling tea cultivated and manufactured within the delimited zone. In fact, however, the protection of the name is a never-ending task, requiring constant surveillance and considerable financial outlay. However, the ambitious verdicts of the Court of Appeal in France in the Dusong case and the Trademark Trial and Appellate Board in the United States in the Darjeeling Nouveau case in favour of the Tea Board of India made the board more optimistic, inasmuch as its success in these cases could send a strong message to improper users of the name, discouraging them from such misuse in the future. As a result, greater awareness concerning the quality sign has been created within the trade (including international trade) and some large-scale packers are now following GI norms and complying with quality sign requirements. Stakeholders have observed this success of the Tea Board with satisfaction.

The second objective was that of *improving market access*, and stakeholders could see this as another success of the quality sign process. The improvement in market access has been reflected to a certain extent in events: during the period from 1999/2000 to 2005/06, when the entire Indian tea industry suffered a recession, leading to severe price falls and a reduced demand for tea, Darjeeling tea showed little of these negative effects. Since 2002, the average auction price of Darjeeling orthodox leaf tea has seen a regular upward movement – from Rs 128.52 per kilogram in 2002 to Rs 205.00 in 2008. The highest average price in 2009 was Rs 229.18, reported by J. Thomas & Co. of Kolkata. The Darjeeling tea GI may have helped to protect it and be responsible for the increase in average price each year since 2002 – as was not the case for tea grown elsewhere in India (see Figure 2 above, giving auction prices).

The third initial objective of the stakeholders – *differentiating Darjeeling tea from other teas in order to increase its added value* – has thus been fulfilled to some degree of stakeholders' satisfaction.

Darjeeling tea has achieved the fourth objective of the stakeholders, that of *escaping the adverse effects of fluctuations in the international market in order to achieve a strong, stable position on the domestic and international markets*, partly by making more direct exports through forward contracts, but also by making personal contact with buyers, leading to better prices and better brand imaging than is the case with export through merchants.

Another objective that has been fulfilled through the quality sign process is that of *supporting the local population by providing employment and other opportunities such as civic, educational and medical facilities within the locality*. Out of a total population of 1.6 million in the Darjeeling hills (Census of India, 2001), roughly 1.12 million, or 70 percent, are directly or indirectly associated with the tea industry, while between 45 and 60 percent of total industry expenditure goes on workers and their benefits. The objective of keeping the population within the locality has also been successfully met.

Secondary objectives. The four secondary objectives (see Section 4, “Stakeholders and the qualification process” above) – to preserve biodiversity on estates and in the locality by protecting various animal species and endangered plant and insect species, enhancing soil fermentation possibilities etc.; to prevent biopiracy; to preserve the traditional know-how of Darjeeling tea manufacturing; and to preserve the local cultural heritage – should be achieved along with fulfilment of the primary objectives and the conversion of conventional estates to organic production. It is important to note that 55 to 60 percent, or perhaps more, of the estates in Darjeeling are already organic or in the process of conversion. The present traditional method of cultivation and manufacture, using age-old bushes, preserves traditional know-how and the local cultural heritage. Details are given in the subsections “Culture and tradition” and “Environmental impact” below.

Limitations

However, the stakeholders feel there have been some failures in the quality sign process.

- The lack of change in the price situation on the international market and the delay in registering Darjeeling tea as a GI product in the European Union and various other countries mean that the economic benefits of the GI process are yet to be received.
- Little progress has yet been achieved in terms of rural development. Workers have been employed here generation after generation for more than 150 years. Over time, their dwelling areas have taken the shape of villages inside the estates. Although producers do undertake various measures from time to time to improve these dwelling areas, including houses, it is hoped that once they obtain economic benefits from GI registration, the process of rural development will be accelerated.
- Misappropriation of the name is still taking place. In the absence of adequate regular monitoring, Nepalese tea is entering India both in processed and unprocessed form, flooding Indian markets. Nepalese tea resembles Darjeeling tea and is sold under the name Darjeeling, thereby receiving the benefits of the reputation of genuine Darjeeling tea.
- Domestically, compliance with GI norms within the tea trade is still poor. Some domestic intermediaries in the tea trade, including traders and retailers, are not yet

registered with the Tea Board of India, so that they are not obliged to sell tea according to the GI requirements. Some consumers are thus not obtaining genuine Darjeeling tea, despite paying a high price. The compliance of the domestic tea trade with the GI requirements should be enhanced so that domestic consumers also obtain GI benefits.

Economic impact

Economic effects of GI registration

The economic impact has been analysed in terms of various indicators (number of tea estates, area under tea, quantity of production, yield, price on domestic markets, price fluctuations, export development, quantities sold at auction etc.), comparing the figures for the years from 1991 to 2007/08, i.e. before and after GI registration. The results of analysis regarding five major variables are summarized in Table 6 below.

Table 6: Impact of GI registration on five variables

Variables	Before GI	After GI
Number of tea estates	102 in 1991 ↓ 80 in 1997	85 from 1998 to 2009 ←
Area under tea	20 085 ha in 1991 ↓ 17 228 ha in 2000	17 818 ha in 2008 ←
Quantity of production	13.93 million kg in 1991 ↓ 9.18 million kg in 2002	11.59 million kg in 2008 ←
Yield per hectare	694 kg/ha in 1991 ↓ 492 kg/ha in 1999	650 kg in 2008 ←
Price	Rs 77.50/ kg in 1991 ↑ Rs 128.52/kg in 2002	Rs 204.88/kg in 2008 ←

The table shows the positive economic impact of GI registration on five variables – number of tea gardens, tea-production area, production quantity, yield and price. In this context, the growth and price charts given in Section 6 above (Figure 1 and 2 in part “Markets”) are also relevant.

Quality improvement

Quality improvement started before the GI process, with a move toward adoption of good agricultural and manufacturing practices.

Since 1999, it has been mandatory to follow good agricultural and manufacturing practices in order to obtain GI registration. However, the GI process has itself further encouraged quality improvement, inasmuch as there is some assurance that high-quality tea will be protected from fake or false Darjeeling tea in domestic and international markets, which in turn may increase the price of the genuine article.

GI registration prevented the massive use of chemicals. Many conventional estates have discontinued the practice altogether and converted to organic cultivation and production. Quality has been further improved by the introduction of a more precise two-leaves-and-one-bud picking method instead of the previous less precise method. This improvement in quality started slowly in 1994/95, and then accelerated from 2000 onwards after the start of the GI process – although it was not a factor in GI definition.

The improvement in quality is reflected in a growing demand for Darjeeling tea on domestic and international markets, involving steadily increasing numbers of countries.

Impact on rural development, economic and social aspects

Evolution in producers' income

Although the price of Darjeeling tea has not yet risen and no impact on producers' income has yet been observed, the price has resisted the generalized global fall in tea prices better than other teas. It is expected that in the post-depression period, when the quality sign is recognized in all the countries to which it is exported, there will be considerable improvement in the economic situation of Darjeeling tea producers, enabling them to make further investment in rural development.

Evolution in employment

Employment on tea estates is based on a very high fixed land-labour ratio, with 3.5 workers per hectare (Government of India Report, 2009). The livelihoods of approximately 70 percent of the total population of the Darjeeling hilly zone where 87 estates are located depend directly or indirectly on the tea industry. Although there is very little possibility of expansion in the area under tea, it is hoped in the industry that once the Darjeeling tea quality sign obtains recognition in European and other importing countries, the marketing situation will improve to such an extent that blending, packing and packaging will be carried out in Darjeeling, leading to employment for another 10 percent of local inhabitants.

Deceleration in the rural exodus

Earlier, when the tea estates were not functioning efficiently, some estates were closed, wages were not paid and workers left the estates in search of better jobs in other towns and cities in India. However, since GI registration, no estate in Darjeeling has been closed for economic reasons for the past seven or eight years. There are now sufficient job opportunities on tea estates, providing good wages and multiple fringe benefits. No one is migrating to the plains any more. In the entire Darjeeling tea-growing zone, the rural

exodus is therefore practically nil. Most of the workers who left the estates earlier have returned and others are still returning.

Induced effect on tourism

Darjeeling is a major tourism destination and tourism is a source of considerable revenue. The area is famous for a variety of reasons:

- the Toy Train, recognized as a UNESCO World Heritage Site and preserved as such;
- the city itself, known as the Queen of the Hills, with more than 30 interesting tourism sites for visitors;
- the tea gardens, encircling the town on all sides.

Many tea buyers and other people from various places in India and the world, including tourists, visit Darjeeling every day from March to November, staying in hotels and eating in restaurants. With increasing numbers of tourists (including tea tourists), this sector will create more job opportunities for local people and generate a greater inflow of money, leading to more development.

Tourists in Darjeeling now want to visit tea gardens and observe the manufacturing process, so there are good prospects for tea tourism. However, the sector still requires development, and recent efforts have been made to popularize it in the area. Some estate owners are thinking of opening their gardens to tea tourists on an experimental basis. Tourists will be able to stay in the traditional garden bungalows, mostly built by the original British owners but with modern amenities, in order to enjoy the serene atmosphere of the gardens. Thus they can view the lush tea gardens on their sloping land, discover the unique garden culture, trek along the raised grit roads and obviously taste the world-famous Darjeeling tea.



Bungalow for tea tourism

This approach could:

- develop and consolidate Darjeeling tourism by generating tourist satisfaction;
- enable tea producers to earn additional income from tourists (rental of accommodation and direct sale of made tea and other local products);
- promote tea marketing with the creation of an individual brand image;
- enable state and local governments to obtain more revenue from tourism;
- generate a positive awareness of the Darjeeling tea GI.

However, legal barriers are currently preventing estates from being opened to tourism. All the estates are leased, and the contracts with the state government do not provide for

tourism activities within the properties. Since tea tourism has huge economic prospects, a few estates have already started it on an experimental basis under the existing set-up, with limited capacities and resources. However, until contracts are amended to accommodate this activity, there is little possibility of its achieving success. For example, existing contracts do not allow lessees to build any new constructions within the prescribed area for any purpose. The unused portion of estates should be used for tourism purposes with the permission of the state government.

Development of infrastructure

In order to meet the full development needs of the Darjeeling tea industry, the Ministry of Commerce and Industry has declared the tea-production zone an agri-export zone with a view to make necessary developments under the Agricultural and Processed Food Product Export Development Agency. The memorandum of understanding is yet to be signed by the Tea Board of India, the West Bengal State Government and the Darjeeling Tea Association for development of this agri-export zone with the required infrastructure for tea promotion and export, with an expenditure of Rs 2 126.5 million. As part of this programme, the infrastructure for packing and packaging will be developed in the Darjeeling tea-production zone, along with development of estate roads and the communications network, and establishment of a Darjeeling Tea Park in Kolkata for the promotion of exports. Details of the agri-export zone scheme are available from the Agricultural and Processed Food Product Export Development Agency website (www.apeda.com).

Development of relations and joint actions by producers and other actors in the supply chain

The quality sign process has brought all the stakeholders together, and most of the producers, processors, traders, direct exporters and merchant exporters are now under the DTA umbrella and are registered with the Tea Board of India. Such registration is compulsory for those who intend dealing in Darjeeling tea under the GI sign. The DTA members meet from time to time to exchange their views on the GI process and also undertake collective action on various issues, ranging from production to sanitation to GI certified exports, thereby developing a collective sense of responsibility.

Relationships have further developed because the GI process has increased buyers' awareness and they are coming from abroad to visit estates in order to select the estate of their choice before purchasing tea. These micro-level relationships may be commercial, but they have developed mainly because of the GI process.

Culture and tradition

People linked to the tea estates in any way are proud of being associated with the Darjeeling tea industry, in particular in the case of economically sound, stable estates. This sense of pride has developed among employees and their children because of the quality sign of Darjeeling tea and has increased steadily since registration of the quality sign.

Environmental impact

Good practices for the production of safe, high-quality food (for example good agricultural practices and good manufacturing practices) on conventional estates and bio-organic or biodynamic estates to a large extent take environmental and natural resource protection into account.

Soil erosion and landslides

Soil erosion and landslides are two important factors that have a profound effect on tea estates in Darjeeling's hilly areas.



Landslide on Monteviot tea estate (close view)



Landslides on tea estates (distant view)

However, the China variety of tea cultivated in Darjeeling, with its sideways-spreading, deep-rooted system, is an excellent soil conserver. Soil conservation is also ensured by planting saplings of leafy plants indigenous to the region each year. In addition, construction of a drainage system, green crop cultivation before planting tea bushes, mulching, organic cultivation and stone riveting are some of the measures adopted in Darjeeling in accordance with good agricultural practices to prevent soil erosion, that represents one of the main environmental hazards in Darjeeling's hilly areas.

Biodiversity has also been preserved to a large extent through the reduction in applications of chemical fertilizer and pesticide on conventional tea estates in accordance with good agricultural practices, while a significantly greater contribution has been made by the conversion of estates from conventional to organic production. With organic cultivation, the number of different types and varieties of friendly insects, birds and animals is gradually increasing. In addition, increasing quantities of cow dung are needed for use as organic manure, so that the cattle population is steadily increasing with the conversion of more and more estates to organic production. Wild shrubs and herbaceous plants are also cultivated on various gradients within tea estates for animal fodder.

Costs

Production, manufacturing and marketing costs

Various costs are incurred at various stages from production to marketing – cultivation, picking, processing, sorting, packing and packaging, and dispatch – in order to maintain and improve the quality of Darjeeling tea. The average production cost has been estimated at Rs 300 to 325 per kilogram of made tea, with estate-level cultivation and processing costs amounting to Rs 200 to 225 per kilogram, and administrative costs, including office establishment and taxes, amounting to Rs 100 to 125 per kilogram.

The production costs of tea are higher in Darjeeling than in any other tea-growing zone as a result of:

- the high altitude of the estates;
- very low yields per hectare;
- very high labour costs due to tough working conditions on 60° to 70° gradients, coupled with a very precise and selective leaf-picking technique;
- the low per capita productivity of the workforce;
- transportation bottlenecks, with poor road conditions;
- high transport and fuel costs;
- unpredictable climatic conditions;
- frequent political agitation.

Certification costs

Certification is required to indicate the authenticity of the product with regard to such variables as genuineness, origin, practices, hygiene, ecology and fair trade. No fee is required for the certificate of origin issued by the Tea Board of India to producers, processors, traders, exporters or others involved in the Darjeeling tea trade who are registered with the board and renew their registration regularly.

However, for other types of certification, the fees of the various accredited certifying agencies are very high. There is no worldwide standardized food safety and quality certification and different countries have different specifications and norms. Inasmuch as Darjeeling tea is an agro-based, manufactured, high-quality and mainly export-oriented product, certification from a number of agencies is required. Moreover, analysis and certification have to be carried out in importing countries, at considerable expense. Total certification costs are thus very high and represent a major constraint for the Darjeeling tea industry (for further details regarding certification, see Section 5, “Effective protection of the GI”, above).

SWOT analysis

The inherent qualities of the product and its proper management at all stages of production (cultivation, manufacturing, marketing etc.), leading to value addition along the supply chain, are its internal strengths, while the certificate of origin issued by the Tea Board of India for identification of the genuine product and other types of certification issued for improved product quality are additional strengths. However, the industry also faces certain weaknesses and constraints.

Strengths (internal)	Weaknesses (internal)
<ul style="list-style-type: none"> • High quality and worldwide reputation • Geo-agro-climatic conditions, with a favourable environment for tea production • Easy conversion to organic production • Skilled workforce of local people, with local traditions and know-how, as well as technical knowledge, a sense of belonging and self-esteem 	<ul style="list-style-type: none"> • Erratic, unpredictable weather • Continuing misrepresentation and misappropriation, in particular unmonitored entry of Nepalese tea • Very high production costs: very low yields per hectare, a high land-labour ratio (1:3.5) and very high costs for such items as transport, energy, soil conservation, organic and biodynamic

	Weaknesses (internal)
	conversion and cultivation, and low productivity per labour unit <ul style="list-style-type: none"> • Very high costs of the overlapping certification of various accredited certifying agencies for food safety or environmentally friendly production (lack of standardization of food safety and quality certification) • Old age of tea bushes and their low replacement rate (2 percent per year) • Most domestic consumers' lack of awareness of the quality sign or the Darjeeling tea GI
Opportunities (context linked)	Threats (context linked)
<ul style="list-style-type: none"> • Potential to increase production through an increase in the replacement rate for tea bushes from 2 to 10 or 12 percent per year in order to generate increased production in the future • Opportunities for market development through creation of new markets in countries where Darjeeling tea is not yet sold • Further opportunities to develop additional products or by-products of the tea industry with economic viability (for example, tea perfume from the flowers) • Opportunities for tea tourism development 	<ul style="list-style-type: none"> • Ongoing misappropriation of the name Darjeeling in many countries, including India • Very high costs involved in registration and protection of the quality sign

8. Conclusions

Lessons learned

Darjeeling's exceptional geo-agro-climatic situation has created unique conditions that are very suitable for growing a superfine quality of tea that cannot be replicated elsewhere. However, various constraints and weaknesses may jeopardize the future prospects of the industry unless due attention is paid and appropriate measures are taken in time.

Darjeeling tea faces both internal and external difficulties in both the production and the marketing spheres. Efforts are made to solve external problems and marketing difficulties through the GI process, but little attention is paid to solving internal problems and difficulties, which is essential if the GI process is to be successful. There is a high demand for Darjeeling tea on the international market. However, there is a large gap between demand and supply, so that tea of other origins in other countries is coming onto the market to fill the gap and being sold under the name "Darjeeling tea". Various measures have been taken to protect the genuine article from fake or false versions, including enacting of the GI Act in India and

registration of the product under the same act. On the other hand, the area under tea in Darjeeling and the quantity of Darjeeling tea produced shrank strikingly over the years in the pre-GI period. Although the GI process is gradually improving the situation, the intervention of the appropriate authorities has become essential in order to increase the cultivation and production of this high-quality product.

Surprisingly, although legal measures are taken to protect Darjeeling tea against misappropriation, no measures are taken to increase the supply of the product on the domestic and international markets in order to reduce the shortfall between demand and supply by expanding the cultivated area, yields and quantities produced. Only 50.4 percent of the total area granted for tea cultivation is actually used for that purpose, while the remainder is used for various other purposes. There is therefore still some possibility of increasing production of Darjeeling tea.

Price increases over the years in sales at auction for the domestic market have been insufficient to offset the increased costs of production and marketing. With regard to the export price of Darjeeling tea, producers' experience is even worse. Export prices have also stagnated for several years in terms of US dollars or euros. In such a situation, the survival of tea estates becomes moot. However, owing to fluctuations in the exchange rate between Indian rupees and US dollars or euros, tea exporters and producers obtain some respite, but not enough to satisfy them fully.

The extraordinarily fine qualities of Darjeeling tea are expressed through the quality sign of a logo registered under the Trademark Act of 1999 as a certified trademark and the GI Act of 1999 as the first Indian GI product after prolonged joint efforts by the Tea Board of India and DTA, with a view to preventing misuse of the name Darjeeling on domestic and international markets. Despite this, the precise quantity of fake and false Darjeeling tea available on international markets remains unknown to the Tea Board, DTA or the government. The quantity of "duplicate" Darjeeling tea still flowing onto the international market needs to be assessed. The name Darjeeling has been misappropriated in various countries for non-Darjeeling tea, creating confusion among consumers, damaging the reputation of Darjeeling tea and diluting its brand image. The Darjeeling tea quality sign as an indication referring to its geographical origin has not yet been registered in many importing countries, especially in the European Union, although in many countries it is recognized as a certified trademark, collective trademark etc.

The genuineness, safety and quality of Darjeeling tea are assured by the certification of various authorities, accredited agencies or NGOs. The certificate issued by the Tea Board confirms the origin of Darjeeling tea. Quality and safety aspects are maintained because the tea is produced under good hygienic and sanitary conditions in accordance with the Sanitizing Standard Operating System, good agricultural practices and good manufacturing practices under the provisions of the Prevention of Food Adulteration Act. The HACCP certification process ensures that the product is safe for consumption. Other quality schemes and labels – organic, fair trade, eco-fair trade etc. – are certified by various accredited agencies. The certification fees charged by various agencies and NGOs regarding food safety and quality norms are very high. However, compliance with these norms is compulsory for export to various countries. The high cost of all these overlapping types of certification has become a problem to stakeholders in the supply chain. A solution therefore needs to be found.

Tea tourism is a potential source of substantial revenue and also an important way of promoting the Darjeeling tea quality sign and the GI concept. However, due to legal complications and the absence of suitable modalities, it cannot be developed for the moment.

Recommendations

Recommendations for supply chain stakeholders and the Darjeeling Tea Association

- *Market promotion, the development of new markets and stable product positioning within and outside India* are needed on the part of the Tea Board of India through the assurance of product quality and safety. Such action will help to improve quality and also encourage increased production. The use of various promotional tools is needed so that domestic consumers become aware of the concept of the Darjeeling tea GI, thus increasing demand and allowing prices to keep pace with rising production costs.
- *The production and supply of this high-quality tea to the domestic and international markets should be increased* in order to reduce the shortfall between demand and supply: by increasing the area under cultivation and the yield, and by providing an appropriate environment to grow this precious product.
- *Tea tourism and other potential by-products should be developed.* However, some institutional obstacles need to be removed first (see the following recommendations for the Government of India and the West Bengal State Government).
- *For the boosting of collective action.* In order to boost collective action, DTA must take the necessary steps to bring the few non-member tea estates in the Darjeeling delimited zone under the DTA umbrella at the earliest possible date. These non-member estates should thus join DTA, settling their differences and reservations, if any, so that collective action can be stronger, more effective and result-oriented. As a collective body, DTA should ensure more transparency in the Darjeeling tea trade with regard to the total quantity exported, the quantities directly exported and exported through merchant exporters, the quality and grade of tea exported, and the average price on domestic and international markets for the various grades.
- *For value addition in the value chain.* Action is needed by the Tea Board of India, DTA and all producers to make Darjeeling tea a product instead of a commodity. Efforts are needed at all levels to popularize the concept of packet sales. The producer-level packing of tea into small packets of various sizes bearing the quality sign would definitely allow value addition. Producers should arrange individually or collectively for the necessary finance for this purpose by obtaining long-term loans at low interest rates from commercial banks in cooperation with the Tea Board of India under the central government guarantee system.
- *For strong integration in the supply chain.* The Tea Board of India should act in association with DTA to include all tea traders and large-scale retailers within the GI supply chain in order to boost the comprehensive character of the system.

Recommendations for the Tea Board of India, the Government of India and the West Bengal State Government

The unique blend of geo-agro-climatic conditions in Darjeeling for tea production should be exploited to the full through efforts on the part of the Government of India, the West Bengal State Government and the Tea Board of India so as to obtain the maximum benefit.

- *For strict vigilance on the international market.* The Tea Board of India, which has been the main instrument in the registration of Darjeeling tea, should be more alert and vigilant in protecting all the various quality signs of Darjeeling tea on domestic and international markets, because misappropriation is still taking place – according to the allegations of many producers. The Tea Board should also seek to assess and quantify the fake and false Darjeeling tea currently being sold on domestic and international markets even after the registration of Darjeeling tea under the GI Act.
- *For the introduction of a standardized certification system.* The Ministry of Commerce and Industry should take the necessary steps to introduce a standardized certification system through negotiations with various countries, in order to reduce the burden of costly overlapping certification.
- *For the promotion of tea tourism.* The West Bengal State Government, in association with DTA, should adopt the necessary steps to remove legal barriers and formulate suitable modalities for the promotion of tea tourism on Darjeeling tea estates with a view to generating income from tourists, both Indian and foreign, while making them aware of the concept of the Darjeeling tea GI through a proper campaign. Guidelines need to be formulated for sharing income from tea tourism among estate owners and the state or local government, and procedures laid down for the development of tourism infrastructures. The existing lease contracts between the state government and tea producers (which do not permit the latter to build any new construction within the prescribed area for any purpose) need to be amended to allow tea estates to build the necessary constructions to promote tea tourism.
- *For generic promotion of the quality sign and the GI.* The Ministry of Commerce and Industry must take any actions deemed necessary for worldwide recognition of the Darjeeling tea GI, using WTO as the appropriate forum. The Ministry of Commerce and Industry and the Tea Board of India should take appropriate steps through trade missions to end the long price stagnation of Darjeeling tea on international markets, especially in such countries as the United States, European Union countries, Australia, Japan, Iran and Sri Lanka for the survival and better performance of the industry.
- *For the maintenance of a congenial working environment.* The Government of India and the West Bengal State Government must come forward to protect this flagship of India's tea industry from external trouble during any political disturbance, including agitation for separate statehood (by taking appropriate measures to restore and maintain peace and a good working environment on tea estates). In more general terms, tea estates should be kept away from the effects of any political disturbance. The Government of India and the West Bengal State Government must take steps to ensure peace, tranquillity and a congenial working environment on Darjeeling's tea estates in order to save the world-famous industry from further economic and social disruption.

- *For the improvement of labour productivity.* The Labour Department of the West Bengal State Government should strive to inspire workers to enhance both the quantity and the quality of Darjeeling tea during tripartite negotiations for higher wages and bonuses, thus enhancing the work ethic on tea estates.
- *For technical innovation.* The outdated machinery in Darjeeling's tea factories occupies a great deal of space, runs by primitive methods with a huge consumption of fuel and time, and needs to be replaced by more efficient, compact, time- and cost-saving machines that enhance aroma retention capacity and increase whole-leaf recovery. Packaging materials and systems must also be developed that can retain quality for longer periods. Such advances require innovative research at the Indian Institute of Technology and engineering colleges and institutions, including Jadavpur University and the Bengal Engineering and Science University.
- *For the development of infrastructure.* The West Bengal State Government must ensure a good infrastructure network in the tea plantation areas of Darjeeling, including remote villages, by providing good roads, an adequate water supply and a continuous power supply, and building the bridges needed for the regular flow of inputs and outputs to and from the estates, thereby enhancing the efficiency of the whole system. The installation of light-weight ropeways within tea estates for the speedy transfer of picked leaves from distant zones to the factory (currently available on only a few estates) has become essential with a view to increasing the quality of made tea and reducing primary transport costs. The Tea Board of India should collaborate with DTA and individual tea estates to explore the possibility of installing such ropewalks at a lower or subsidized installation cost. The West Bengal State Government should collaborate with the National Highway Authority to improve road conditions so that roads are made suitable for higher tonnage vehicles, which could then carry inputs and outputs at a lower cost. The district and local administrations should accord the necessary permission for the movement of high-capacity vehicles for tea estates. The concerned departments of the Government of India should ensure the availability of telecommunication and internet connections on each tea estate, which should be equipped with a computerized system and trained staff to work with various software packages. The concerned departments of the central and state governments should work with the Tea Board and DTA to provide the industry with the necessary technical and financial assistance to solve power problems through the development of hydroelectric, solar and wind power.
- *For miscellaneous assistance.* Various rural development schemes of the central and state governments should be made available to the Darjeeling tea industry for the improvement of rural areas and villages on tea estates, where workers' families live in traditional style, thereby to a certain extent reducing the burden of social costs borne by producers. Considering the future requirement of the industry for skilled staff, an appropriate package for human resource development should be introduced to impart ongoing training.
- *For research and development.* Research for tea estates on various cultivation and botanical aspects, including plant species, cloning etc., can be undertaken by

agricultural universities and the Tea Department of the North Bengal University in association with the Darjeeling Tea Research and Development Centre, the Tea Research Association etc. Research and training on various aspects of management, export and marketing, including WTO and TRIPs, could be undertaken by institutions with expertise and resources, such as the Indian Institute of Management in Kolkata, leading to an over-all improvement in industry performance. The Tea Board of India should take the necessary initiative to fill currently vacant positions for scientists and researchers in the Darjeeling Tea Research and Development Centre in order to increase the centre's efficiency and output. Research is also needed to develop a more efficient packaging system capable of retaining the quality of tea for a longer period. Initiatives may also be taken, initially on an experimental basis, to use the tea flowers that bloom in such abundance in September, October and November, with their light but attractive fragrance. If the experiments are successful, good-quality perfume could be prepared as a by-product of tea, after proper research and development on the subject, and could generate appreciable amounts of income.

Bibliographical references

Calcutta Tea Traders Association. 2008. *CTTA Tea Digest*. Kolkata.

Darjeeling Tea Association. 1998. *Darjeeling Tea*. Calcutta, Thomson Press (India) Ltd.

Darjeelingnews net. *Darjeeling teas*. http://darjeelingnews.net/Darjeeling_tea.html

Darjeeling Tea Association. *Darjeeling tea: a historical beginning and growth*. <http://darjeelingtea.com/growth/beginning.asp>

Darjeeling Tea Industry. <http://www.darjnet.com/darjeeling/darjeeling/fact/tea/teaindus.htm>

Das, K. 2006. International protection of India's geographical indications with special reference to "Darjeeling" tea. *Journal of World Intellectual Property* 9(5). Also available at <http://www3.interscience.wiley.com/cgi-bin/fulltext/118576043/main>

Das, N.K. 2003. Geographical indications: protection of Darjeeling tea. *WIPO/USPTO Symposium on Geographic Indications*, San Francisco, 9–11 July 2003. WIPO/GEO/SFO/03/8.

Dasgupta, Rajashri. 1987. Selling the "real" Darjeeling. *Business and Finance*. TEA [5–11 July 1987].

Dasgupta, Reshmi. Time to sit up and smell the tea. *Economic Times*. Available at http://economictimes.indiatimes.com/Features/Time_to_sit_up_smell_the_tea/articleshow

De, S.K. 1997. The limiting factors for productivity in Darjeeling. In: A.R. Sarkar & G. Boriah (eds). *Proceedings of the Seminar on Darjeeling Tea Industry*. Calcutta, Darjeeling Planters' Association and Tea Board of India; pp. 6–18.

Dutta, I. 2007. How Tea Board won GI battle. *The Hindu* (5 February 2007). Also available at <http://www.thehindu.com/thehindu/biz/2007/02/05/stories/2007020501161700.htm>

Exploredarjeeling.Com. Darjeeling tea: the gateway to Darjeeling. <http://www.exploredarjeeling.com/estates.htm>

Ferguson, A.F. 2002. A study on post-auction pricing structure and supply chain for tea. A.F. Ferguson & Co.

Gadi, K. 2004. Darjeeling tea. Intellectual property rights of Darjeeling tea in the age of globalization and world trade. *American University – Trade and Environment Database (TED) Journal* 752 (July 2004). Available at <http://www.american.edu/TED/darjeeling.htm>

Gogoi, N. 1999. Blitz for the Dar(jee)ling brew. *Rediff on the NeT Business News*. Also available at <http://www.rediff.com/business/1999/dec/21tea.htm>

Government of India. 2004. *Geographical Indications Journal* 1 (July 2004). Geographical Indications Registry, Teynampet, Chennai.

Government of India. 1953. *Tea Act*. New Delhi.

Government of India. 2009. *Report of the Committee on the Competitiveness of the Indian Tea Industry*. New Delhi, Ministry of Commerce and Industry.

Pratt, J.N. 2009. Darjeeling Parts I, II, III. T Ching Blog Archive 03.24.2009, 03.31.2009, 04.07.2009. Available at <http://www.tching.com/index.php>

J. Thomas & Company Private Limited. 2007. *Tea statistics*. Kolkata.

Kumar, R. 2007. Trips: protection of geographical denominations. In: A.R. Sarkar & G. Boriah (eds). *Proceedings of the Seminar on Darjeeling Tea Industry*. Calcutta, Darjeeling Planters' Association and Tea Board of India; pp. 6-18.

O'Malley, L.S.S. 1999. *Bengal District Gazetteers: Darjeeling*. 2nd reprint. New Delhi, Logos Press.

Milestones Pocket Guide. 2008. *Darjeeling, India*. Gangtok, Sikkim, Metroprints.

Ministry of Commerce and Industry. 2002. Geographical Indications of Goods (Registration and Protection) Rules. *Gazette of India*, Extraordinary, Part II, Section 3, Subsection 1. New Delhi, Department of Industrial Policy and Promotion.

Ministry of Law, Justice and Company Affairs. 1999. Geographical Indications of Goods (Registration and Protection) Act. *Gazette of India*, Extraordinary Part II. New Delhi.

National Council of Applied Economic Research. 1977. *Techno-economic survey of Darjeeling tea industry*. New Delhi, NCAER.

Parmer, V.S. 2008. Cultivation and importance of organic tea in Darjeeling area. In: S.P.S. Beniwal, S.L. Choudhary & Y.L. Nene (eds). *Improving productivity and quality of tea through traditional agricultural practices*. Asian Agri-History Foundation (AAHF), Secunderabad, Andhra Pradesh, Rajasthan Chapter of AAHF, Udaipur, Rajasthan; pp. 36-45.

Pradhan, S. & Sunar, D. 2008. Biodiversity study of tea garden in Darjeeling hills. In: S.P.S. Beniwal, S.L. Choudhary & Nene, Y.L. (eds). *Improving productivity and quality of tea through traditional agricultural practices*. Asian Agri-History Foundation (AAHF), Secunderabad, Andhra Pradesh, Rajasthan Chapter of AAHF, Udaipur, Rajasthan; pp. 64-77.

Roy, B. 2008. *Protecting the geographical indications for Darjeeling tea*. <http://beacononline.wordpress.com/2008/10/11/protecting-the-geographical-indications-for-darjeeling-tea/>

Sharma, G. *Tea technology*. Asian Review Publishing Co.

Srivastava, S.C. *Protecting the geographical indication for Darjeeling tea*. Managing the challenges of WTO participation, Case Study 16. http://www.wto.org/english/res_e/booksp_e/casestudies_e/case16_e.htm

Tea Board of India. *Darjeeling tea: there is no flavour finer*. Kolkata, Tea Board of India & Darjeeling Tea Association.

Tea Board of India. *Protection of Darjeeling tea as a geographic indication, Darjeeling tea – the best: a quest for intellectual property rights*. Kolkata, Tea Board of India & Darjeeling Tea Association. Also available at www.indiateaportal.com & <http://darjeelingtea.com>

Tea Board of India. *Overwhelm your senses*. Kolkata, Tea Board of India.

Tea Board of India. *Regulations governing the use of Darjeeling logo and Darjeeling word*. <http://teaboard.gov.in>

Tea Board of India. 2001. *Techno-economic survey of Darjeeling tea industry*. Kolkata, Tea Board of India.

Tea Board of India. 2007. *Tea statistics, 2004-2005*. Kolkata, Bina Enterprise.

Tea Board of India. 2008. *Tea digest, 2006 & 2007*. Kolkata, Bina Enterprise.

Tea Board of India. 2008. *54th Annual Report, 2007-08*. Kolkata.

World Trade Organization. *TRIPs Agreement*. www.wto.org/english/tratop_e/gi_background_e.htm

VI. Nakornchaisri pummelos, Thailand Impact on farming practices of producing pummelos under geographical indication

by

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Abstract:

The Nakornpathom Provincial Chamber of Commerce submitted the application for GI registration of Nakornchaisri pummelos, and this was granted on 30 September 2005 in order to protect Nakornchaisri growers and prevent the deception of consumers. The unique geographical conditions and traditional farming systems of the Nakornchaisri zone have long been recognized as important factors in the production of quality pummelos. In addition, there are well-established distribution networks in the zone, especially for export. Nakornchaisri growers receive a premium price for their produce, and the price set in the area has been used by traders as a benchmark for pummelos from other sources.

The study compared the farming systems and production costs of GI-designated areas with those of neighbouring districts in Rachaburi Province, outside the GI area. There are very clear differences in farming concepts between the two zones, not as a reflection of GI registration but rather as a result of the social, cultural and economic contexts. Moreover, it is hard to assess the impact of GI registration because Nakornchaisri growers have always received premium farmgate prices and pummelo production has now expanded to many other regions of the country, putting in question the relevance of the current GI system (delimitation of area, limited involvement of producers, impact of GI registration on market demand etc.).

Introduction

The present study was carried out to examine the impact on farming practices of producing pummelos under the Nakornchaisri geographical indication (GI). After presenting the product and reviewing the GI code of practice, the report examines farming practices and the marketing system for Nakornchaisri pummelos. The final section presents the lessons learned and draws conclusions from the study.

1. Nakornchaisri pummelos and their list of requirements (or code of practice)

Nakornchaisri pummelos

The pummelo is one of the main ancestors of the grapefruit. Botanically, it is identified as *Citrus maxima* Merr. (*C. grandis* Osback; *C. decumana* L.). The pummelo is tropical or near-tropical and is native to southeastern Asia. It flourished naturally at low altitudes close to the sea. Because of its restricted cultivation areas, it is often overshadowed by the grapefruit. Currently, it is much cultivated in southern China, Thailand, Taiwan, the far south of Japan, southern India, Malaysia, Indonesia, New Guinea and Tahiti. As a luscious fresh fruit, it is famous and even more popular than grapefruit in the Far East.

The pummelo is one of the most popular citrus fruit on Thailand's domestic market. It was first introduced into the country in Samphran District of Nakornpathom Province. Nakornpathom's main production areas today are in Nakornchaisri and surrounding districts, which lie in the low swampy plain along the river. Combined with the fact that salty sea-water filters into the land at high tide, this location produces fruit with a specific delicate flavour and texture. The pummelo is considered of potential interest in regional trade. Thailand started exporting pummelos some 30 years ago and is still the only country in the region with a mature and sustainable pummelo export trade. Ever since the start, this export trade has depended mainly on fruit (the CV Tongdee variety) grown in the Nakornpathom Province. Hong Kong is the main export market. It is claimed that the



attributes of Nakornchaisri pummelos are a result not only of unique geographical conditions, but also of human factors, entailing specific farming traditions and production skills. Nakornchaisri pummelos have a reputation well-recognized in the market, and growers enjoy an almost guaranteed market and high price. GI registration to identify the produce, protect it and promote its marketing was thus initiated in 2005 by the Nakornpathom Chamber of Commerce and was expected to be welcomed by the various stakeholders along the supply chain.

◀ **Nakornchaisri pummelo**

Registration and list of requirements for producing Nakornchaisri pummelos

In Thailand, the Ministry of Commerce's Department of Intellectual Property is in charge of the protection and approval of GIs. By 8 January 2010, there were 32 GIs registered with the Department of Intellectual Property: 26 Thai products and 6 foreign ones. Among the 26 Thai GIs, there are two for pummelos: one for Nakornchaisri pummelos and one for Chainat Khaotangkwa pummelos.

The application for GI registration for Nakornchaisri pummelos (application 47100002) was submitted by the Nakornpathom Provincial Chamber of Commerce on 29 September 2004 and granted on 29 September 2005 (registration 48100002).

The following requirements appeared with slight modifications in the GI registration filed with the Department of Intellectual Properties, to allow pummelo growers to carry the GI mark. The list of requirements covers production areas, characteristics of the fruit, production practices and processes, and management norms.

Definition. Nakornchaisri pummelos refer to two cultivars, Tongdee (brilliant gold pummelo) and Kao Nam Pueng (white honey pummelo) grown in Nakornchaisri, Samphram and Puttamonton Districts of Nakornpathom Province.

Physical characteristics of the fruit

Shape	CV Tongdee	Nearly round to oblate with slightly flat end, no neck
	CV Kao Nam Pueng	Nearly round to oblate. Size larger than Tongdee
Peel	CV Tongdee	Thin peel, yellowish green lime in colour, dotted with small oil glands
	CV Kao Nam Pueng	Thin peel (slightly thicker than Tongdee), yellowish green in colour, rough, dotted with oil glands larger than Tongdee
Pulp	CV Tongdee	Pale-yellow to pink, pulp soft, firm but not hard, heavy feel, dry, not becoming watery even when fully ripe
	CV Kao Nam Pueng	Whitish to pale yellow in colour, the source of its cultivar name of "honey", pulp firm but not hard, heavy feel, dry, not becoming watery even when fully ripe
Taste	CV Tongdee	Sweet with faintly acidic flavour, no bitterness
	CV Kao Nam Pueng	Sweet to sub-acid flavour, no bitterness



◀ Physical characteristic of the fruits

Production practices. The tree flourishes naturally in the low-lying swampy plain near the coast in Nakornchaisri and surrounding areas. Farmers claim that salt contributes to the flavour and juiciness of the fruit. The prime growing region near Bangkok in central Thailand has a mean temperature of about 28 °C and mean rainfall of 143 centimetres,

heaviest from May to October and scarce in January, February, March, November and December.

In the low-lying orchards of the region, farmers dig ditches and channels (2 to 2½ metres wide at the surface) for drainage and as routes for in-farm transportation. They also set up elevated beds (4 to 5 metres wide) in which trees are planted 3 to 4.5 metres apart (and 6 metres apart between channels). It is essential to dry out the elevated beds for one to two months before planting in order to prevent *Phytophthora* root rot. The ditches have to be constantly deepened and widened, and soil has to be added to the beds in order to counteract erosion.

Young orchard of Nakornchaisri pummelos (on dykes) ►



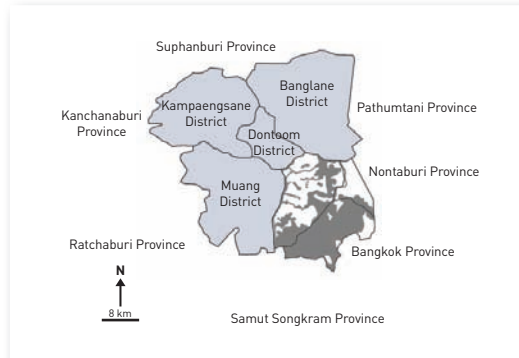
Harvesting. CV Tongdee usually flowers two to four times a year. The fruit ripens approximately six to seven months after flowering (although, according to a field interview, the fruit is harvested eight to nine months after flowering). Flowering has been adjusted by thinning, watering restrictions and fertilization so that the main crop is harvested in August to September when export demand is high. There may also be a small crop between February and April. CV Tongdee is the leading Thai cultivar and perhaps the only one exported in substantial quantities to Hong Kong. CV Kao Nam Pueng may flower four or more times a year, so that harvesting can become a year-round operation. The fruit ripens and can be harvested approximately six to six-and-a-half months after flowering (although, according to a field interview, the fruit is harvested seven to eight months after flowering). The fruit of this cultivar is some of the most popular on the domestic market and some has been exported to Shanghai, China, in the past two or three years.

Packaging. The word “Nakornchaisri pummelo” should appear on the labelling of the package.

Specific links with the characteristics of the geographical area. Pummelos grow fairly well on mudflats overlying clay to loamy clay soil, characteristics of the swampy plains beside the Nakornchaisri and Tha Chin Rivers in the Nakornchaisri zone and the Rachaburi River in Rachaburi Province. The soil profile indicates a deposited top layer that is organically rich, a brownish middle layer of clay and a lower layer, approximately 2 metres deep, of sand and shell. The trees are highly tolerant of brackish water, the rich river silt and the salty water pushed inland at high tide. The soil is lightly acid to neutral, with a pH ranging from 6.5 to 8.

Origin and distribution history. The pummelo is believed to have originated at some unknown date in the Oomyai Subdistrict of Samphran District. After a severe flood in 1942, sweet oranges were introduced into the area, and one pummelo tree was accidentally included. Once planted, pummelos gradually expanded into other parts of Samphran District and then to Nakornchaisri District, where the fruit attained the best quality. Hence the name “Nakornchaisri pummelo”.

Geographical location. The trees are grown in the three adjacent districts of Nakornchaisri, Samphran and Puttamonton, which share similar geographical characteristics.



Map of Nakornchaisri pummelo cultivation area (dark grey areas) in Samphran, Nakornchaisri and Puttamonton Districts of Nakornpathom Province

GI monitoring and certification. GI management norms include requirements for grower and trader registration, a monitoring and inspection system, traceability, a certificate of origin and clear labelling on the packaging. However, there is no specification as to what type of monitoring, inspection and traceability systems should be put in place.

Quality standards are not included in the GI registration. The following standards are found in the "Pummelo standards" published in December 2004 by the National Office of Agricultural and Food Standards.

Minimum quality requirements (national standards). Pummelos should be:

- sound: produce affected by rot or deterioration such as to make it unfit for consumption is excluded;
- clean, basically free of any foreign matter or taste/smell;
- surface blemishes caused by bruising and pests affecting the general appearance of the produce ranging from less than 10 to 30 percent of the surface depending on grade;

Quality grade	A	B	C	D
Surface blemish	<10%	10.1-20.0%	20.1-30.0%	>30%

- free of damage caused by sunburn or high temperature;
- free of any foreign smell and/or taste;
- carefully picked and having reached an appropriate degree of development and ripeness in accordance with criteria specific to the variety and the area in which they are grown;
- minimum total soluble solids content of no less than 8 percent for CV Tongdee and 7 percent for CV Kao Nan Pueng;
- colour and shape typical of the variety, with a uniform surface colour that is more green than yellow.

Size grade requirements and packaging

Variety	Grade	Circumference (inches)	Weight (kg)	Number of fruit per box	Net and gross weight (kg)	Market
CV Kao Nam Pueng						
	0	>21.0	>1.5			Domestic
	1	19.1-21.0	>1.3	9,12	#9:14.0-15.6 #12:16.0-17.6	Domestic and export
	2	18.1-19.0	>1.10	14	17.0-18.0	Domestic and export
	3	17.1-18.0	>0.9	16	-	Domestic and export
	4	16.1-17.0	>0.7	18	-	Domestic and export
CV Tongdee						
	0	>20	>1.2			Domestic
	1	17.1-20.0	>0.9	12, 14, 16	#12:17.1-18.5 #14:18.1-19.5 #16:17.1-18.5	Domestic and export
	2	16.1-17.0	>0.8	20	18.6-20.0	Domestic and export
	3	15.1-16.0	>0.7	22	16.6-18.0	Domestic and export
	4	14.0-15.0	>0.6	24, 28, 32	-	Domestic and export

Quality grade requirements

Quality attribute	A	B	C	D
CV Kao Nam Pueng				
Total soluble solids (%)	>9.0%	8.1-9.0%	7.0-8.0%	<7%
Acidity (%)	0.4-0.9	0.4-0.9	0.4-0.9	>0.9
TSS/acid ratio	>18.0	12.1-18.0	8.0-12.0	<8.0
Puffiness (%)	0	<5%	5.1-10.0	>10%
CV Tongdee				
Total soluble solids (%)	>10.0	9.1-10.0	8.1-9.0	<8.0
Acidity (%)	0.4-0.9	0.4-0.9	0.4-0.9	>0.9
TSS/acid ratio	>18.0	12.1-18.0	8.0-12.0	<8.0
Puffiness (%)	0	<5%	5.1-10.0	>10%

2. Farming practices and Nakornchaisri pummelo markets

Production statistics, trends in the Thai pummelo sector and the proportion of pummelos produced in GI-designated areas

Total Thai pummelo production acreages and tonnages increased more than two-fold in five years as shown in Table 1, from about 100 000 rai and 75 000 tonnes in 1992 to 200 000 rai and 120 000 tonnes in 1997, and to 283 000 rai and 267 000 tonnes in 2002. Production in 2006 increased slightly to about 258 000 rai and 295 000 tonnes, while total production in 2007 is estimated at more than 300 000 tonnes. The difference between the planted area in column 2 and the harvested area in column 3 is accounted for by new pummelo plantations less than four years old. New areas under pummelo production increased rapidly in 1995 and continued to increase with years of high prices until production reached more than 250 000 tonnes in 2002-2003, when prices started to fall. The downward trend in farm prices continued until 2006.

Table 1. Annual production, farmgate price and farm value of pummelos grown in Thailand, 1982-2006, and estimated production in 2007

Year	Total production					Production (Nakornpathom)		Production (Rachaburi)	
	Planted area (rai) (2)	Harvested area (rai) (3)	Production (tonnes)	Farm price (baht)	Farm value (million baht)	Planted area (rai)	Production (tonnes)	Planted area (rai)	Production (tonnes)
1982	67 962	59 466	32 956	11.36	374 377				
1987	94 248	66 714	44 850	11.79	528 787				
1992	91 172	59 015	75 688	13.33	1 008 924				
1993	98 290	63 412	82 395	13.25	1 081 737	10 623	16 939	1 081	753
1994	130 365	64 654	81 558	13.36	1 089 609	9 166	14 310	983	556
1995	162 740	72 030	87 589	14 12	1 236 763				
1996	177 288	71 263	89 544	15.46	1 384 345	7 849	12 355	1 569	818
1997	204 195	87 934	121 573	15.06	1 830 883	9 100	13 206	3 228	826
1998	225 561	94 739	127 478	16.36	2 085 538	9 871	23 189	3 464	1 309
1999	222 734	120 190	164 329	15.59	2 561 892	10 034	29 401	3 408	2 211
2000	242 828	145 446	183 930	15.5	3 034 845	10 034	29 401		
2001	264 256	189 726	224 579	16.58	3 723 520	10 778	18 262		
2002	283 826	202 013	267 288	16.88	4 506 476	11 012	18 437		
2003	229 920	165 490	265 750	9.69	2 575 117	9 140	13 464	2 721	3 064
2004	173 413	135 389	197 716	11.51	2 295 483	7 748	11 768	2 542	2 709
2005	227 915	192 103	276 288	7.84	2 168 745			628	1 503
2006	258 166	197 862	295 210	7.38	2 178 650	3 540	4 500	744	940
2007	NA	200 965	308 079	NA	NA	6 965	7 000	927	763

The corresponding farm values for Thai pummelos also rose from 1 000 billion baht in 1992 to 1 830 billion baht in 1997 and 4 500 billion baht in 2002. After steadily rising for some years, farmgate prices started to fall in 2003 as production areas expanded and the tonnage exceeded 250 000 tonnes from a harvested area of 200 000 rai. As farmgate prices fell, farm value fell to 2 179 million baht in 2006. There are complicated reasons for the current downward trend in prices, one of the main ones being that new production areas may not be suitable for growing pummelos. The proportion of tradable fruit in some regions is as low as 20 percent. The fruit from these new regions is often of unreliable quality in terms of appearance, disease, pest infestation, sooty mould, surface blemishes of various sorts, thick peel, puffy fruit, variation in eating quality, underripe or overripe when harvested, and a bitter taste.

Despite the increase in total production in the country, production in Nakornpathom Province decreased as a result of high land prices and increasing commercial and housing activities, falling from 10 000 rai and 17 000 tonnes in 1993 to 9 100 rai and 13 000 tonnes in 1997, and 6 600 rai and 12 000 tonnes in 2004. In 2006/07, the area under pummelos in Nakornpathom remained stable at about 7 000 rai. Current pummelo production in the province accounts for less than 5 percent of total production and comes mainly from the GI-designated areas in Nakornchaisri District (1 300 rai), Samphran District (4 500 rai) and Puttamonton District (250 rai). The pummelo production acreage decreased significantly in GI-designated areas in Samphran and Nakornchaisri Districts, while production in Puttamonton District is insignificant (see Table 2).

Table 2. Production of pummelos grown in GI-designated districts, 2001-2006

Year	Nakornchaisri		Samphran		Puttamonton	
	Area (rai)	Production (tonnes)	Area (rai)	Production (tonnes)	Area (rai)	Production (tonnes)
2001	2 111	3 026	6 705	13 891	181	362
2002	1 898	2 814	6 653	13 777	255	765
2003	1 825	3 413	5 928	12 087	255	765
2004	1 524	1 910	4 539	8 773	237	339
2005	1 524	1 910	4 539	8 773	237	339
2006	1 300		4 500		250	

Thai pummelo exports and the proportion of GI pummelos in the export trade

Table 3. Total exports of pummelos from Thailand and exports to major markets in Hong Kong and China, 1992-2006

Year	Tonnes	Value (thousand baht)	Export to Hong Kong		Export to China	
			Tonnes	Value	Tonnes (thousand baht)	Value (thousand baht)
1992	5 889	71 854				
1993	5 083	53 159				
1994	3 985	67 813				
1995	4 776	56 122				
1996	6 182	66 907	5 221	48 557	-	
1997	3 247	44 375	2 660	34 078	-	
1998	4 496	66 317	4 168	56 783	-	
1999	6 432	103 468	4 278	70 925	1 208	13 940
2000	6 209	100 410	3 947	53 603	1 572	34 893
2001	6 574	101 531				
2002	7 518	101 388	5 068	55 508	1 341	19 494
2003	7 607	114 125	3 685	37 215	2 069	32 912
2004	7 313	102 039	2 901	29 800	541	14 711
2005	6 293	99 673	2 648	14 970	1 390	21 385
2006	9 386	132 904	3 660	33 074	2 928	30 309

Hong Kong and China are the most important export markets for Thai pummelos. Hong Kong accounts for some 70 percent of the country's total exports (see Table 3). Historically, Hong Kong was the port of entry for the re-export of Thai fruit to China, and direct export to China is fairly recent. Reliable sources indicate that a large quantity of pummelo exports consigned to China was actually channelled to Hong Kong markets. The reversion of routing from China to Hong Kong was the result of China's entry into WTO and its consequent reduction in its tariff rate for fresh fruit. China has its own pummelo production in the south of the country with production costs that are a fraction of the cost of Thai pummelos. However, the quality is very poor, so that the demand from China may increase. It should be noted that China has recently been putting major effort into pummelo variety improvement. CV Tongdee accounted for more than 95 percent of exports to Hong Kong. The main aim of the Nakornchaisri pummelo GI registration is therefore to protect Thai growers and maintain the Hong Kong export market long enjoyed by Thailand, rather than to expand into Chinese markets.

The Nakornchaisri name has been recognized since the early years of pummelo exports to Hong Kong and continues to enjoy a good reputation even today among a group of loyal, enthusiastic consumers. Some 70 percent of the pummelos produced in Nakornchaisri are CV Tongdee, a preferred variety in the Hong Kong market. After long years of experience, the exportable rate has reached an average of about 80 percent to as high as 90 percent on some farms, and growers are easily able to adjust their harvest season to meet peak export demand in August and September during the Chinese mid-autumn festival. Nakornchaisri and the surrounding areas have been and continue to be indispensable as the main export supply base. Traders and exporters have been exploring supply sources from other regions of the country with reasonable success. The quality of fruit from some of the new regions is almost equal to that of Nakornchaisri pummelos. However, other pummelo-growing regions in the country are not yet able to provide high-quality fruit ready for harvesting during the peak export season. The trees grow well in lighter types of soil such as loam or sandy loam in other growing regions in the country. They can apparently monopolize large quantities of nitrogen for development of their fruit because roots grown in such soil tend to produce long, profuse systems. An excessive nitrogen nutrient uptake results in puffy fruit, thick peel and unreliable quality, especially during the first two years of harvesting.

Production costs of a pummelo farm (trees aged 5 to 25 years)

The farming approach in the GI-designated area around Nakornchaisri (the three districts of Nakornchaisri, Samphran and Puttamonton) is very different from that found in Rachaburi Province.

Traditionally, Nakornchaisri is famous as the land of pummelos, with a long history and excellent reputation. Farms are usually small, with an average size of less than 10 rai. Most farms grow mainly CV Tongdee, which is the preferred variety for export. Despite their small size, farms in the area are more export-focused than farms elsewhere. The area also has two major packing plants. With a relatively stable market, Nakornchaisri growers have improved their skills in order to maximize profits and receive higher prices by adjusting their harvest season to meet peak export demand in August and September. Lastly, based on their traditional farming systems, Nakornchaisri growers grow a cultivar that meets consumers' variety preference. Their experience enables them to improve their farming techniques in order to adjust the harvest season and attract traders or exporters so as to form effective sourcing networks, thus receiving higher prices for their produce and maximizing profits.

Rachaburi, where the average farm size is even smaller than in Nakornchaisri, is marked by the wide range of crops grown: coconuts, grapes, citrus and cash crops such as papayas, bananas and orchids. The most common companion crop for pummelos is coconuts. Farming is based on a greener, more sustainable approach with fewer applications of fertilizer and chemical sprays. The yield per rai is much less for farms in the Rachaburi area, where growers manage risks based on the traditional low-input farming system, growing a range of crops.



◀ **Pummelos grown on dykes, in association with other trees**

The very different farming systems in the two areas surveyed are based purely on traditional practices, the regional culture and the economic background. The information indicates that the farmers' production methods, decision-making processes and success and failure factors are not related to GI registration. The differences in farming systems are reflected in the difference in production costs in the two regions, as seen in Table 4.

Table 4. Comparison of the average cost (baht/rai) of pummelo production in various regions of Thailand, 2006

Item	Central region (include Nakornpathom)	Ratchaburi	Whole country (average)
1. Variable cost	6 525.11	3 433.39	7 253.99
1.1 Labour cost	3 217.78	1 573.64	2 975.75
Land preparation	(236.50 for 1 st year)	(176.00 for 1 st year)	(400.18 for 1 st year)
Planting	(193.30 for 1 st year)	(62.00 for 1 st year)	(164.33 for 1 st year)
Farm care (pruning, water level adjustment, flood prevention)	2 369.84	1 259.41	1 747.44
Harvesting	847.94	314.23	1 228.31
1.2. Material input cost	2 852.09	1 620.21	3 772.15
Planting materials	(709.29 for 1 st year)	(1,095.00 for 1 st year)	(930.05 for 1 st year)
Fertilizer	1 345.51	1 019.41	1 899.41
Pesticides and herbicides	464.19	242.08	763.89
Fuel/electricity	412.27	221.18	370.05
Equipment/machinery	580.49	137.00	705.83
Maintenance	49.63	0.54	32.97
1.3 Opportunity cost*	455.24	239.54	506.09
2. Fixed cost	1 924.79	1 546.72	2 015.21
Land (rent)	561.62	473.20	505.07
Depreciation	402.74	106.72	444.93
Opportunity cost	61.72	15.44	59.45
Pre-harvest cost (up to the 4 th year)	898.71	951.36	1 005.76
3. Total cost (baht per rai)	8 449.90	4 989.11	9 269.20
4. Cost (baht per kg)	6.59	8.41	4.24
5. Yield (kg per rai)	1 282.81	592.13	2 188.32

Note: * Opportunity cost = the money (variable cost) if it is put in the bank at a 7 percent interest rate.

The subsections below summarize general farm information for three cases surveyed in GI-designated areas in Nakornchaisri and surrounding districts in order to analyse factors affecting farming systems and production costs, and the various reasons why growers make their particular decisions. The sizes of the farms surveyed ranged from 8 to 30 rai. A size of more than 10 rai is considered fairly large and probably quite wealthy.

Farming system in Nakornchaisri GI area:

Land and soil preparation. The soil in Nakornchaisri District is marked by organic deposits in the top layer, with clay or clay-loam subsoil – considered ideal for pummelos. Farms in the Nakornchaisri GI areas that lie along Nakornchaisri and Tha Chin Rivers are mainly old-established orchards with similar requirements for land preparation. Unlike farms in other regions of the country, these need dykes around them. Growers dig ditches or channels for drainage and build raised beds on which to plant trees. After preparation, the land should be allowed to dry, preferably for two weeks, before pummelos are planted in the raised beds. The water-level in the beds, sometimes at a depth of only 50 to 70 centimetres for root development, is maintained by high raised dykes and water gates with pumps to prevent flooding at high tide and allow water to come in during the dry season. Maintenance of the dykes, continual deepening and widening of the ditches, and the addition of soil from the ditches to the beds are needed every two to four years to counteract flooding and erosion. One of the farms recently had this job carried out at a cost of 10 000 baht. Yearly flooding during the rainy season, lasting one to three months or even longer, is becoming a routine occurrence. Sand-bagging the dykes, maintaining the water-level and flood prevention activities are other major items of expenditure for farms.

Planting and cultivation. Trees are planted in flat raised beds in two rows, with a spacing of 3 × 3 or 4½ metres or 4 × 4 or 5 metres between rows and about 6 metres between beds. The space taken up by ditches or channels means that there are fewer trees per hectare – which accounts for the lower yield per rai than the national average. Planting density ranges from 40 to 90 trees per rai, with 50 being a fairly standard rate for CV Tongdee. *Phytophthora* root rot is a major problem, and individual diseased trees are removed, burned and replaced. Pummelo decline is caused by a virus (tristeza) and a bacteria-like agent (greening), which set in after three to four years or six to eight years depending on the variety, the severity of the strain, and general farm care. Growers are reluctant to use disease-free planting materials because of the higher cost – 70 baht as against 20 to 25 baht per tree – and farm decline would still be a problem without routine control measures. Growers set a portion of their land aside for new planting once the decline sets in, leading to low productivity. Tree age on a farm will range from three or four to twelve years.

Varieties. CV Tongdee (brilliant gold Pummelo) and CV Kao Nam Pueng (white honey Pummelo) differ in the time taken to ripen and in their appearance, yield, quality and resistance to adverse environmental conditions, disease and insects. Most farms grow both varieties, in a proportion of about 60 to 70 percent of the pink-fleshed CV Tongdee, which is hardier and a preferred variety for export, to 30 to 40 percent of the larger, white-fleshed CV Kao Nam Pueng, which is a preferred variety on the domestic market and is more highly priced.

Fruit are thinned when they are the size of a small lime, so that the remaining fruit on the tree can reach a larger size for the market. The number of fruit left per tree differs depending on variety. In the case of CV Tongdee, an average of 40 to 60 fruits is left per tree, inasmuch as fruit size is significantly smaller when more than 100 fruits are allowed to ripen per tree. In the case of CV Kao Nam Pueng, an average of 20 to 40 fruits is left per tree (but certainly fewer than 50). CV Tongdee fruit grown in Nakornchaisri relies mainly on export. CV Kao Nam Pueng has lower yields and is less hardy.

Farm care and material inputs. With reasonably good farming practices, pummelo orchards require replanting about every 12 to 15 years, depending on the cultivars used and general orchard management. Replanting is a major additional cost. In general, CV Tongdee is more tolerant under adverse growing conditions. A well-managed farm planted to CV Tongdee may maintain its productivity for 20 years or even longer.

Chemical fertilizer is used extensively, but organic manure (from cows) is also used on all the farms surveyed. A simplified chemical fertilizer application is 1 kilogram for a one-year-old tree, 2 kilograms for a two-year-old tree and 3 kilograms for a three-year-old or older tree. The time of application is very important in order to regulate flowering, the subsequent setting of fruit, the various stages in fruit development and post-harvesting. Various chemical fertilizer formulae are used during different stages of development. When nitrogen is abundant, vegetative growth is vigorous and unfruitful. Fruit starts to form with fertilizer application and the foliar spray of nutrients after a dry spell when vegetative growth is low. After the fruit sets and during its development, the complete 1:1:1 fertilizer formula is used. The supply of nutrients to the fruit eventually checks or stops vegetative growth. After harvesting, the complete fertilizer formula is used again. An excessive supply of nitrogen is seldom a problem in the Nakornchaisri zone, since root systems tend to be restricted because of the high water-level in the beds. A sudden increase in the supply of nitrogen, either from the application of fertilizer or from rainfall during fruit development, is likely to result in fruit with thick peel or puffiness – one of the problems affecting pummelo quality in other growing regions in the country.

Copper compounds, particularly copper oxychloride, are the most commonly used fungicides for citrus fruit, supplemented with other insecticides and fungicides in one spray mixture. The most popular pesticides used are abamectin, lannat, dimethoate, dichlorate and cypermethrin, and a range of fungicides and bactericides, normally mixed together in one application. Many types of sprayer are in use, from small hand equipment to a specially designed multiple-head sprayer installed on a small boat and sprayed into the trees as the boat travels along the channels.

Harvest maturity. CV Tongdee should be harvested eight to nine months after flowering, when the oil glands on the peel become more prominent and less dense at the blossom end and before the flesh becomes dry and corky at the stem end. CV Kao Nam Pueng is harvested seven to eight months after flowering.

Harvest season. In the case of CV Tongdee, there is often a small crop in February to March, with the main crop in August to September. For a fairly good-sized farm of about 10 rai, harvesting lasts from a few days to no more than two weeks. Kao Nam Pueng flowers repeatedly, so that fruit are selectively harvested throughout the year.

In the Nakornchaisri GI zone, land prices are becoming prohibitive and are one of the main constraints on expansion of production in the area. The national average rent for farmland is about 500 baht per year, but in the GI zone the rate can be as high as 1 000 baht per rai or even 2 000 baht for prime land. Leases are often for three years, with an option to renew for up to ten years. Most growers who seek to rent farms to grow pummelos once worked as hired hands on established farms. They therefore have only basic farming skills, but lack

experience in farm management and in marketing. Taking advantage of lower land rent and cheaper labour in other regions of the country, increasing numbers of Nakornchaisri growers are migrating to new regions to grow pummelos or are making contracts with existing pummelo farms to grow and sell pummelos.

Most farms rely on family labour because of the small farm size and also because routine care for pummelos is not very labour intensive. As and when needed, extra help can be arranged through labour sharing with neighbours or contracting labour for initial land preparation, erosion and flood prevention, scheduled spraying, weeding or harvesting. The present cost of labour is 300 to 400 baht per day, well above the average of 150 to 175 baht in other regions.

Seasonal variations in farmgate prices

Seasonal variations in farmgate prices for CV Tongdee and CV Kao Nam Pueng of various sizes (baht/kg) are shown in Tables 5 and 6. Pummelo prices have fewer seasonal variations than other more perishable seasonal fresh fruit. The farmgate prices for Nakornchaisri pummelos would be at least 20 to 30 percent higher than those listed in the table. At the time of the interviews (May 2007), the farmgate price for a 17-inch fruit was 25 to 27 baht. The average farmgate price paid by exporters in 2006 was 23 baht per piece.

Table 5. Seasonal variations in farmgate prices (baht) of CV Tongdee of various sizes, 2001-2005

Year	Size	Month											
		J	F	M	A	M	J	J	A	S	O	N	D
2001	Large						12.00	12.00	12.00	12.50	11.50	10.00	10.00
2003	Large	8.0	10.0	15.67	18.22	18.50	12.20	16.25	19.33	13.00	14.58	15.08	
2005	Large	11.70	12.42	10.84	8.66	11.23	13.68	13.37	12.52	11.37	11.94	12.04	10.51
2001	Small						8.00	5.00	6.00	6.00	6.00	6.00	6.00
2003	Small	6.00	6.66	10.00	12.00			8.00			11.00		
2005	Small		4.00	4.66	5.66	7.60	7.50	6.50	5.00	6.00	6.00	6.13	7.37
2005	Mixed	8.81	8.62	8.37		10.00			5.46	7.00	7.00	5.00	

Table 6. Seasonal variations in farmgate prices (baht) of CV Kao Nam Pueng of large and mixed sizes, 2004-2005

Year	Size	Month											
		J	F	M	A	M	J	J	A	S	O	N	D
2004	Large		14.37	14.75	14.00	13.00	13.00	16.58	17.45	15.34	15.29	15.10	15.81
2004	Mixed	12.87	12.50	12.75	12.67	11.95	12.87	13.19	15.66	13.83	12.00	14.00	13.25
2005	Large		19.17	16.00	14.33	17.00	15.00	15.00					16.67
2005	Mixed	14.50	16.37	15.25		16.00		7.00	7.00	5.00	5.00	5.00	

Bangkok wholesale market prices are not affected by farmgate prices, as can be seen from Table 7 on seasonal variations in Bangkok wholesale prices of CV Tongdee pummelos between 1999 and 2007.

Table 7. Seasonal variations in Bangkok wholesale prices of large and small fruit, 1999-2007

Year	Month											
	J	F	M	A	M	J	J	A	S	O	N	D
Large fruit												
1999	40.25	27.50	27.50	27.50	27.50	27.50	27.50	27.50	27.50	27.50	27.50	27.50
2001	24.40	27.50	27.50	27.50	27.50	27.50	27.50	27.50	27.50	27.50	27.50	27.50
2003	33.41	40.00	40.00	40.00	38.16	33.33	30.00	30.00	30.00	25.67	22.65	21.21
2005	24.00	30.17	32.50	32.50	32.50	32.50	32.50	32.50	32.50	28.50	26.14	22.50
2007												
Small fruit												
1999	17.80	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
2001	13.48	17.50	17.50	17.50	17.50	17.50	17.50	17.50	17.50	17.50	17.50	17.50
2003	23.32	27.50	27.50	27.50	25.66	20.83	17.50	17.50	17.50	13.89	11.15	9.29
2005		20.61	22.50	22.50	22.50	22.50		22.50		18.25		
2007												

Supply chain and type of marketing relationships among stakeholders

Table 8. Supply chain and type of marketing relationships among stakeholders

GI-designated area			Rachaburi
Grower		Grower	Grower
Domestic		Export	Domestic
Sales to local market	Long-term trading relationships with local markets, which sell to people from towns or to visiting tourists	Long-term informal relationships with consolidators, who have long-term formal relationships with exporters. Consolidators move about the country to obtain supplies. After on-farm pre-grading, they may provide transportation from farm to packing plant. The purchase price is set by the exporters and consolidators are paid on a commission basis.	Sales to local market
Sales to visiting traders	Either spot arrangements during the harvest season when traders come with truck to pick up produce, or through long-term arrangements with traders who organize transportation	Packing plants operated by the exporter. Inspection, grading, cleaning, waxing, packaging and final loading into the container	Sales to visiting traders
Sales via wholesale market	Only large growers with large quantities sell to wholesale markets in other provincial towns or Bangkok		Sales via wholesale market
Roadside stalls	Roadside to tourists	Farmers' roadside stalls, direct sale	Roadside stalls selling to tourists
Peri-urban markets	Usually to a group of large fruit stalls commonly located on the outskirts of Bangkok	Through local traders, long-term relationship	Peri-urban markets

Price formation and gross margin of stakeholders along the supply chain

Several factors were identified as affecting price formation to varying degrees and are described under the various headings below.

Export as a factor in price formation

Table 9. Monthly exports of pummelos, 1999-2007

Month	1999		2001		2003		2005		2007	
	Volume (tonnes)	Value (1 000 baht)	Volume (tonnes)	Value (1 000 baht)	Volume (tonnes)	Value (1 000 baht)	Volume (tonnes)	Value (1 000 baht)	Volume (tonnes)	Value (1 000 baht)
J	357	3 547	334	5 781	410	6 455	227	3 369		
F	157	3 834	40	951	139	2 055	133	4 110		
M	26	360	294	4 831	436	7 823	168	4 781		
A	92	1 326	210	3 928	563	10 269	257	8 078		
M	372	5 870	186	2 184	434	7 226	345	7 071		
J	202	6 916	268	4 990	507	10 845	538	10 785		
J	391	9 544	546	9 134	559	10 227	679	13 003		
A	1 349	20 502	1 257	20 457	2 050**	25 149	1 015**	16 774		
S	2 608**	45 176	2 712**	38 142	1 453**	23 238	1 116**	12 734		
O	135	2 547	244	2 351	374	5 123	514	5 385		
N	248	2 769	242	4 425	389	3 812	519	5 344		
D	120	1 089	236	4 351	306	1 896	275	8 232		
Total	6 431	10 3467	6 573	101 530	7 606	114 124	6 292	99 672		

Note: ** Peak export season

Exports are a major driving force in price formation and are the single most important determinant for pummelo prices in GI-designated zones. This is especially true for CV Tongdee, because pummelo exports to Hong Kong are based mainly on this cultivar.

At the packing plant, the purchase price is paid on a “per fruit” basis, depending on quality and size. The price has not fallen below 20 baht per piece for several years and has sometimes risen to as high as 45 baht per piece. Peak export demand is in August and September, although recent years have seen a gradual increase in demand during other months. Available supplies in the Nakornchaisri zone are limited, and sourcing from alternative supply bases in other regions of the country to ensure a year-round supply will increase. Fruit quality from these new sources is already improving.

Geographical indications. GI registration is a major factor in high prices. With regard to exports, the purchase price and quality of Nakornchaisri pummelos have been used as benchmarks for fruit from other regions. CV Tongdee fruit from Nakornpathom (GI-designated areas) receive 2 to 4 baht more than fruit from Phetchaburi or other areas of almost equal quality. Supplies from other regions of the country are growing. In markets, consumers are paying a higher price for fruit claiming to be from Nakornchaisri, even when there are some reservations about the true origin of the fruit. Traders rely mainly on consolidators to guarantee the production area. This close long-term working relationship between exporters and consolidators is a key success factor in establishing a trader’s reputation.

Preference as to variety. The preference of domestic demand as to variety has changed as new cultivars have started to appear on the market. The most popular varieties on the

domestic market are Kao Nam Pueng, Kao Daeng Gua and Kao Phuang. All these cultivars have whitish to yellow pulp. They are medium to large fruited cultivars and are well-accepted by markets in Bangkok, and some consistently receive higher prices than CV Tongdee. A high price is guaranteed for CV Tongdee especially during the peak export season in late August as it is the favourite variety for export to Hong Kong.

Appearance. It is very important for pummelos to meet minimum visual requirements. The most common defects leading to lower prices – or to almost unsaleable fruit – are surface blemishes of various kinds, sunburn, sooty mould, external damage caused by insects or disease, odd shapes, sizes not complying with standards, thick peel, light feel when picked up, puffiness, underripe fruit, overripe fruit and peel colour more yellow than green. If the taste is acceptable, such fruit can still end up in the ready-to-eat packs that are now increasingly available in city stores. Urban retailers peel and pack the fruit for these ready-to-eat packs, and the price is set at an average of 25 baht for a 200- to 300-gram pack.

Size difference. Fruit is always sold by the piece rather than by weight, with larger fruit receiving higher prices. As can be seen from the table below, fruit that is size graded receives a higher price and suffers smaller seasonal price fluctuations than fruit of mixed sizes. In the case of exports, price differences due to size differences are significant at the farmgate. It is an established practice for packing plants to purchase fruit based on circumference. For the export market, fruit larger than 20 inches or smaller than 14 inches is rejected, but may still be acceptable for the domestic market. Price differences for different sizes at the farmgate and in Bangkok wholesale markets are shown in Table 10.

Table 10. Comparison of prices (baht) of pummelos of various sizes at the farmgate and in the Bangkok wholesale market, 2005

		CV Tongdee											
		J	F	M	A	M	J	J	A	S	O	N	D
2005 (farmgate)	Large	11.70	12.42	10.84	8.66	11.23	13.68	13.37	12.52	11.37	11.94	12.04	10.51
2005 (Bangkok)	Large	24.00	30.71	32.50	32.50	32.50	32.50	32.50	32.50	32.50	28.50	26.14	22.50
2005 (farmgate)	Small		4.00	4.66	5.66	7.60	7.50	6.50	5.00	6.00	6.00	6.13	7.37
2005 (Bangkok)	Small	-	20.61	22.50	22.50	22.50	22.50	-	22.50	-	18.25	-	-
		CV Kao Nam Pueng											
2005 (farmgate)	Large		19.17	16.00	14.33	17.00	15.00	15.00	-	-	-	-	16.67
2005 (farmgate)	Mixed	14.50	16.37	15.25	-	16.00	-	7.00	7.00	5.00	5.00	-	-

Price fluctuations from year to year. To obtain a picture of yearly price fluctuations for pummelos, it is necessary to look at long-term trends over a five- to seven-year cycle because newly planted trees take at least four years to become productive and fruit harvested during the first two years is usually of poor or unreliable quality. From 1982 to 1992 the farmgate price remained stable at 11 to 13 baht per kilogram. The farmgate price then rose to more than 15 baht per kilogram from 1997, remaining high until 2002. The price increase then led to an increase in supplies, with total production rising from 121 000 tonnes in 1997 to 267 000 tonnes in 2002. This led to a fall in price to less than 10 baht in 2003 and 7.38 baht in 2006. Low farmgate prices do not appear to have been reflected in Bangkok wholesale prices.

Seasonal price changes. As compared with other more perishable fresh fruit with a shorter shelf life, pummelo prices are less affected by seasonal variations (see Table 10 above). Prices are more affected by export demand or demand during festivals, particularly the mid-autumn festival, Chinese New Year etc.

Different market segments. Prices are affected by the delivery distance from production areas, although to a lesser extent than in the case of more perishable fresh fruit. Retail prices are more affected by market location and are two to three times higher on markets in high-income areas. However, growers selling fruit to the high-end market or modern trade outlets do not necessarily enjoy the price premium that stores charge their customers.

Growers' reputation and innovative marketing skills. Individual growers' reputations are also a factor in price formation. Although this is still more the exception than the rule, it is becoming a more influential element.

3. Lessons learned

1. Pummelos are a favourite fresh fruit among Thai people, most of whom consider it a high-priced fruit. The country's total annual production has stood at about 250 000 tonnes in recent years, with exports accounting for less than 10 percent of the total. Thailand has a history of exporting pummelos (CV Tongdee), especially to Hong Kong, where there is a group of loyal, enthusiastic consumers.
2. Overproduction is almost impossible because of the restricted geographical conditions required to grow pummelos. After years of high prices, production has expanded from the central region to the south, north and northeastern regions. However, it should be borne in mind that many new farms are not yet productive and fruit from most farms is not of export quality. Even for domestic consumption, farms with only 30 to 50 percent tradable fruit are common rather than the exception.
3. Pummelo production was first introduced into Samphran District and spread naturally to surrounding areas. The main production areas in the central region of the country are in Nakornpathom Province. Nakornchaisri District and neighbouring Samphran District are considered prime pummelo production areas. Nakornchaisri has a long established reputation for quality pummelo production, and it can be said that pummelo exports from Thailand are linked to the fame of the Nakornchaisri name. Fruit grown in Nakornchaisri depends more on exports than fruit grown in any other region. Growers in the Nakornchaisri zone enjoy an almost guaranteed market and a price premium for their fruit. Consumers have long appreciated the quality and reputation of Nakornchaisri pummelos, especially CV Tongdee, which has a long cultivation history in the area.
4. The application for GI registration for Nakornchaisri pummelos was made by the Nakornchaisri Chamber of Commerce. GI registration was limited to growing regions in Nakornchaisri, Samphran and Puttamonton Districts for two cultivars, CV Tongdee and CV Kao Nam Pueng. The registration process was initiated to provide protection to the Nakornchaisri pummelo name for growers in the region.
5. Some unique traditional farming practices are used for pummelo production in Nakornchaisri. Pummelo trees naturally grow well on the low-lying land along the river,

which is rich in organic deposits. There are few adverse temperatures and humidity fluctuations. As the orchards age and the trees mature, growers tend to use less chemical fertilizer and more organic fertilizer. Fruit quality is stable and reliable. Moreover, highly specialized skills have been developed to adjust the harvest season to meet peak export demand. The marketing networks in the area are already functioning efficiently, with established price structures and marketing costs, and profits are maximized to the benefit of both growers and traders.

6. In neighbouring Rachaburi Province outside the GI-designated area, farming is based on a totally different concept. The land is famous for mangos, coconuts, grapes, a whole range of other fruit and orchids. Farming is based on more sustainable practices, with low inputs and intercropping with various crops. Pummelo production is not the main source of income, production costs are low and yields per rai are probably some of the lowest in the country.
7. The cost of pummelo production in GI-designated districts remains lower than the national average. The major cost items are material inputs, mainly fertilizers and agricultural chemicals such as insecticides, fungicides and other foliar sprays containing nutrients, trace elements or growth promoters. There are also the costs incurred for fuel and hired labour. The amount spent on activities to prevent flooding and erosion of the channels and beds has increased each year.
8. Pummelo farms are less labour-intensive than other types of fruit farm. Since the majority are small, family labour is almost exclusively used. Labour costs are high in the area, and if hired labour is used, this is only for specific activities under contract.
9. CV Tongdee is a cultivar particularly favoured by Nakornchaisri growers, since it is more tolerant of adverse conditions (flooding, saline water, disease etc.) and has fewer nutritional requirements, while its productivity is higher than that of CV Kao Nam Pueng. Growers use their traditional farming systems to grow a cultivar that meets consumers' preferences in terms of variety, developing techniques to adjust the time of the harvest and attract traders' or exporters' interest in order to form effective sourcing networks.
10. The Nakornchaisri farmgate price for a 16- or 17-inch fruit seldom falls below 20 baht, with a retail price ranging from 25 baht to over 70 baht. In conclusion, two major factors – the consistent quality of the fruit and the concentration of pummelo farms in the Nakornchaisri zone – make sourcing and marketing efficient. Growers' high profits are a result less of high yields than of the high price received for the fruit.
11. Prohibitively high land prices in Nakornpathom Province have acted as a constraint on the expansion of new orchards in neighbouring areas with similar geographical conditions, and led to the migration of skilled growers from Nakornchaisri to other parts of the country, either to establish new farms or to lease established pummelo farms. An interesting development in the export trade is that supply bases have expanded greatly in recent years, with quality fruit increasingly being sourced from as far as the southern and lower northeastern regions of the country.
12. Pummelo production has expanded, for example, to Petchaburi and Chumporn in the south, the lower eastern region and the northern part of the country. Some 25 to 30 percent of new pummelo farms are not yet productive. Despite the expansion and the

possibility of new supply sources, there are still problems to be solved over unreliable fruit quality and over an inability to adjust the time of harvesting to meet peak export demand. New farms receive too much fertilizer, and fruit harvested during the first two years is usually of very poor quality. Older trees receive too little fertilizer and too much chemical spray. The quality is inconsistent and there are tell-tale signs indicating the real production area. With the recent downward trend in overall pummelo prices, there will be little incentive for these new farms to improve their farming practices.

13. Sourcing from areas outside GI-designated zones is for experienced traders only. Supplies from other parts of the country of a quality almost on a par with Nakornchaisri GI fruit have increased recently. It seems that “Nakornchaisri pummelo” is seen more as a generic term associated with a certain quality than as indicating a specific link to a geographical zone.
14. The recent application for GI registration for Nakornchaisri pummelos was made by the Nakornchaisri Chamber of Commerce in order to protect the name and reputation. The initiative was based on the unique geographical conditions of the area, the traditional farming practices, the recognized and reliable quality of the fruit and a loyal group of consumers. However, the majority of growers are poorly organized and poorly informed on the pros and cons of GI registration. Commercial operators, traders and exporters also express reservations on GI implementation, so that there is little sense of urgency regarding progress in this connection.
15. Pummelo production in GI-designated areas has decreased in recent years and its market share is shrinking, factors that have militated against the formation of any organization to ensure compliance with GI requirements.
16. Although there is still a general recognition of the geographical link with a certain quality and reputation, it is becoming tenuous. The GI application contains no specific implementation plan to ensure compliance with requirements. Moreover, traders supplying both the domestic and export markets welcome opportunities to obtain additional supplies from outside the Nakornchaisri zone in order to reduce costs.

4. Recommendations

1. The GI registration of Nakornchaisri pummelos should involve stakeholders all along the supply chain and should take into account how the fresh produce trade operates.
 - *Growers.* Nakornchaisri growers have long enjoyed an almost guaranteed market and a high farmgate price for their pummelos, and there is a well-established marketing network in growing areas. Although there appears to be a major gap between farmgate and domestic wholesale prices, this is less the case with pummelos produced in GI-designated areas. The gap can be explained partly by transportation costs, storage rental, the low turnover rate etc. Growers are currently poorly informed and poorly organized regarding the GI issue.
 - *Traders.* The supply of pummelos from Nakornchaisri is fairly limited and fruit is usually so expensive as to be out of reach of most local consumers. Traders for the domestic market would obviously prefer to avoid confining their supplies to a few thousand tonnes of high-priced fruit from Nakornchaisri. There are therefore considerable doubts and reservations as to the benefits of GI registration for the trade

or the traders. Nakornchaisri GI pummelos rely on the export trade. Although success in exporting fresh produce involves more than the use of a GI name, the importance of the GI name and reputation in the export market should be measured.

- **Consumers.** The capacity of GI registration to provide protection against consumer deception with non-GI pummelos is probably more easily understood. Consumers have long appreciated the quality and reputation of GI fruit and probably associate high prices with the GI mark. The price can be as high as 60 or 80 baht for a single fruit, and consumers are reluctant to pay such a high price or to purchase GI fruit on a regular basis. Moreover, consumers have the choice of increasing numbers of other cultivars producing good to excellent quality fruit in other regions. The high retail price of GI pummelos may reduce purchases by consumers.

All these factors lead to a lack of any real progress on application of the GI system in the Nakornchaisri zone.

2. A national approach is required in order to pursue implementation of GIs in Thailand. The specific quality of Thai pummelos and their reputation in overseas markets should be assessed in order to consider the potential for GI protection. However, this would perhaps fall under a brand-focused strategy and would require in-depth discussion of the pros and cons among researchers and communication of this decision-making process to stakeholders along the supply chain.
3. Lastly, implementation of the GI system requires some control measures and systems. These have not yet been discussed by any of the stakeholders, but their establishment should be the next major step in guaranteeing the specific quality linked to the origin of Nakornchaisri GI pummelos.

Bibliography and further reading

China Daily. 2005. Geographic trademarks urged for produce. July 12, 2005.

Citrus: lemon, limes, oranges, tangerine, grapefruit – Citrus spp. www.uga.edu/fruit/citrus.html

Matthew. 2005. China provides further protection of geographic indications. www.ipfrontline.com.

Morton, J.F. 1987. Pummelo. In *Fruits of warm climates*. Miami, FL.; pp. 147-151.

One Bihar. 2007. Patna rice, a killer geographic indicator. www.1bihar.blogspot.com.

FAO. 1996. *Report of the 6th session of the Codex Committee on Fresh Fruits and Vegetables*. Appendix VII. Proposed draft Codex standard for pummelos (at step 5). www.fao.org

Standaert, M. 2007. Is bologna bologna if it is not from Bologna. www.brandchannel.com.

Tropical products transport handbook. www.ams.usda.gov/tmd/tropical/text.html

Vincent, M. 2007. Extending protection at the WTO to products other than wines and spirits: who will benefit? *The Estcy Center Journal of International Law and Trade Policy*, 8(1):57-68.

WIPO. About geographical indications. www.wipo.int.

WIPO. Geographical indications. www.wipo.int.

Conclusion: synthesis and recommendations

This section synthesizes the main lessons learned from the six case studies of Asian GIs, together with the resulting recommendations and their implications. Some elements from the conclusions of the Technical consultation on rural development and agricultural and food quality linked to geographical origin (Quality&Origin), organized in Bangkok in June 2009 by FAO, the European Commission Delegation to Thailand and the Department of Intellectual Property of the Thai Ministry of Commerce, have also been inserted to complement the findings of the case studies.

1- Synthesis

Institutional context

One major finding regarding the institutional context is that when the law allows individual persons or companies to register a GI, there is a danger that stakeholders traditionally involved in the production and processing of a GI product will be left out and prevented from receiving the benefits of their knowledge and practices because the GI is protected for a sole user. This defeats the purpose of GIs of protecting a *collective* intellectual property to benefit all producers located in the delimited GI area and producing the specific-quality product. Indeed, a GI product is the outcome of the traditions and know-how of many people in the zone over a long period of time. It is tied to a community and has a heritage dimension. The name and reputation of the product on the market cannot be the property of a single private actor or even a consortium of actors if it excludes other legitimate actors. A collective and participatory approach is therefore required in order to promote and protect a GI.

This is illustrated by the case of Uvs sea buckthorn (Mongolia), in which a single company registered the GI individually, without any prior consultation between local stakeholders to agree on common rules (a code of practice) for use of the GI. The Bangkok technical consultation on quality and origin identified similar situations in Thailand, for example in the case of Petchabun tamarind. Thus, if whole communities that have developed or inherited intrinsic knowledge are to benefit from GI registration, countries interested in building an appropriate institutional context for GIs should ensure that such registration is a collective undertaking by all the stakeholders willing to be involved in the marketing chain of the product in question.

The second important institutional lesson learned from the Uvs sea buckthorn case is that laws on GIs should make the existence of a code of practice for a product a prior condition for registration. A code of practice constitutes the voluntary standard that defines the specific quality of the product, justifying the link to the specified area and providing the production rules subscribed to by all the GI producers. Without a code of practice developed in a coordinated way among the various stakeholders involved in the production and marketing chain, there is a danger that the geographical indication will be used to designate various types of product or various levels of quality, thus creating consumer confusion and distrust, and damaging the GI reputation. A similar situation was illustrated by the case of

Nakhonchaisri pummelos, where the indication is used by traders to refer to a superior quality product but not necessarily one coming from the Nakhonchaisri region. On the other hand, the codes of practice set up in the case of Bali Kintamani coffee and Kampong Speu palm sugar were carefully drawn up and agreed upon by all the producers involved. This participatory approach has led to a precise definition of the specific quality that can be the basis for added value on the market, a common vision and strategy shared by all the stakeholders involved, and the implementation of a local control system to guarantee conformity with the code of practice, all of which are key factors in ensuring sustainability.

Lastly, the case studies show how coordination among public institutions at national and local levels is essential for the successful implementation and protection of a GI system. The Chinese case illustrates the ambiguity of implementing two or more different GI standards, each with its specific registration process, identification label and target public: there are double procedures for producers who wish to register under both systems, and also various different products for a single GI, creating consumer confusion.

All the cases recommend or show the importance of having local authorities involved from the start in identifying their region's natural resource potential and in implementing national laws and regulations regarding GI products. Many governments of Asian countries have developed national strategies for GIs without informing the local level about their potential for sustainable economic, environmental and social development, thus failing to encourage local authorities to adopt the concept and participate more enthusiastically in its implementation. Another important role of public authorities concerns consumer information and guarantees, in order to ensure the credibility of the GI label (i.e. controls) and increase understanding of it, thus contributing to the economic success and sustainability of local GI systems.

Geographical zone and its specific resources

Another lesson learned is that a detailed inventory of the geographical zone, its specific natural resources and the local practices involved in the origin-based product are all necessary to ascertain the uniqueness and specific quality of the GI product, and also to justify the link between specific quality and origin, thus legitimizing legal protection of the GI in question. Governments of countries interested in adopting the GI tool should make use of the scientific expertise available in their country or region in order to record the potential of their various geographical zones in terms of natural and knowledge resources. Scientific studies, historical data, inventories and descriptions of resources, and market studies are all important elements to help first in identifying GI potential and market potential, and second in defining the product specifications and justifying the link between specific quality and geographical origin. This is particularly well illustrated by the Bali Kintamani coffee and Kampong Speu palm sugar cases, with the establishment of an international and national scientific team to define the product and identify how its quality was linked to its geographical origin. Similarly, the cases of Darjeeling tea and Jinhua ham show how important careful documentation of traditional knowledge and history is in legal definition of the product, as set out in a code of practice.

The product

Although the case studies presented in this document refer to food products, it is important to note that the TRIPs Agreement allows GI registration to cover handicrafts and other

traditional non-food products. This trend was identified by the experts at the Bangkok technical consultation on quality and origin in Asia. Asian countries are thus experimenting with the potential use of GI systems not only to protect and support both edible and non-edible products, but also to contribute to the sustainable development of rural areas. This innovation should be highlighted.

The present case studies confirm that the marketing potential of a GI label can be fulfilled only if the product is truly of a quality differentiated from the mainstream product, and if this quality has attributes linked to its geographical origin. The product must also meet basic compulsory requirements before it can be placed on the market, in particular in terms of food safety. In order to become a real asset, this specific quality linked to geographical origin must be monitored and certified, using a robust quality control system. Both the Bali Kintamani coffee and the Kampong Speu palm sugar cases show the importance of the control plan associated with the code of practice, in which self-monitoring by producers is the basis of the guarantee provided to buyers. Although these two case studies were carried out very soon after the start of the respective GI processes, they found that when the product registered under a GI system does indeed demonstrate a specific quality, as opposed to the generic product, and when consumers trust the quality sign being used and its label, thanks to a rigorous quality control system, there is the potential for increased prices at both farmgate and processor level.

Innovation and investment in improving the quality characteristics of GI products should be encouraged so as not to disappoint consumers who are expecting a quality eating experience. Innovations to adapt the attributes to modern consumption expectations are always possible, provided that they are in line with the image of the GI product. In the case of Bali Kintamani coffee, for example, growers identified the importance of drying methods in relation to the coffee's taste quality, and they decided to change their processing technique to improve the quality of their roasted coffee beans. Producers of Kampong Speu palm sugar took the opportunity of the GI process to improve the overall quality of their product in order to meet market requirements and expectations. As a consequence, they adopted a code of practice that required technical progress from a majority of producers, but with the intention of supporting these producers' progress so that they could meet the requirements within a specified period. Similarly, a majority of Darjeeling tea gardens are in the process of converting to organic farming in response to consumer demand for environmentally friendly practices.

The stakeholders and the GI process

A very important lesson learned for stakeholders and for implementation of a GI process is the advantage of creating a GI organization that groups together the various actors likely to be involved in the production and marketing chain – farmers, processors and distributors, depending on the particular circumstances. This organization is essential in order to take collective decisions on how the code of practice for the product is to be defined (requirements, geographical delimitation of the production zone, indicators for the guarantee system, and controls) and to design collective actions for the marketing and management of the GI. Such actions will concern negotiation of marketing conditions and value sharing, development of collective communication tools, implementation of the control plan, supply of various marketing or production services to producers, and representation of the GI value chain with regard to consumers and public actors. The cases of Bali Kintamani coffee and Kampong

Speu palm sugar are very good illustrations of the advantages that such a stakeholder coordination structure can provide. The decisions taken are shared by all the stakeholders, leading to a real strategy that improves the value of the GI product. On the other hand, the problems arising from the lack of such an organization are obvious in the cases of Uvs sea buckthorn and Nakhonchaisri pummelos: no real strategy can be achieved and decisions are blocked or hampered by conflicts between stakeholders with varying interests. In such situations, the GI tool is not used to its full potential.

Benefit of external support

Throughout the case studies, external support appears as a common element, albeit to varying degrees. Such external support covers the supply of specific knowledge and capacities by actors outside the local value chain, often facilitators from the scientific, academic, development and cooperation fields. External support is particularly structured in the cases of Bali Kintamani coffee and Kampong Speu palm sugar, where projects involving proactive government offices and national and foreign public research agencies have been designed to support producers at all stages of GI implementation: identification of the product potential, elaboration of the code of practice, including a control plan and its implementation, creation of the GI group, training and information of the stakeholders, marketing etc. External support should be designed in such a way as to empower producers for GI management and decision-making, so that the whole process is sustainable and can continue to develop on its own when such external support inevitably comes to an end.

Marketing issues

All the cases illustrate the problem of misappropriation, with GIs being used by stakeholders who are not entitled to do so and who usurp the genuine users' intellectual property rights and the reputation they have built up. This is seen in various contexts: at the international level in the case of Darjeeling tea, at the regional level in those of Nakhonchaisri pummelos and Uvs sea buckthorn, and at the national level in those of Jinhua ham and Kampong Speu palm sugar. The good reputation built up by the GI producers has to be protected effectively and jointly by the government and private sector stakeholders. Protection and boosting of the GI reputation thus require an effective law enforcement system for legal protection, awareness-raising among consumers, and investment in marketing and promotion by the industry stakeholders themselves, so that customers and consumers are put in a position to recognize the distinctive quality of the GI.

Moreover, it is important to note that a GI strategy can be complementary to other quality improvement schemes, such as organic or fair-trade promotion. GI operators who have followed such a strategy appear to have boosted the reputation of their product by associating it with another quality sign that currently enjoys better consumer awareness or addresses environmental and social expectations. This is seen particularly in the cases of Darjeeling tea and Kampong Speu palm sugar. In other cases, socially and environmentally friendly practices are included in the code of practice as part of the definition of the GI, and in such cases it is important to communicate these attributes to consumers, for example the fact that Uvs sea buckthorn is collected as a wild species in a pristine environment with no use of chemicals, or the fact that Jinhua ham is intrinsically associated with a traditional pig breed that deserves to be preserved for reasons of biodiversity.

Another marketing strategy that can boost the reputation of the product and also that of the zone as a whole is the forging of linkages with tourist products and services. Such a strategy presupposes the development of a territorial approach with other local actors, so that they can provide information jointly on the destination and the GI zone, and encourage the offering of GI products and direct sales at tourist sites and in accommodation and restaurants. Such a strategy is seen in the case of Darjeeling tea, where there is the intention to develop facilities to welcome consumers and tourists to tea gardens, and also in that of Bali Kintamani coffee, where the zone is also an important international tourist destination.

In conclusion, and in line with the technical consultation held during the Quality&Origin event in Bangkok, GIs have been recognized as a tool for rural and agricultural development in Asia, in relation to the potential identified in these countries (existing specific origin-based quality products and the capacities of a GI system to structure a value chain and create value). However, it is not some magic wand, inasmuch as circumstances have to be taken into account – which is why two levels of recommendations can be seen, as summarized below.

2- Recommendations

Based on these discussions and analysis, the following recommendations are addressed to governments and supportive organizations concerned by GI development, at two levels:

- a. The legal and institutional frameworks and capacities, in relation with evaluation, registration and protection of GIs at national level;
- b. At the local level, in relation with setting up and managing a particular GI product.

a. Legal and institutional recommendations

The governments should provide a clear and correct definition of what a GI is and the conditions for application that enhance their contribution to rural development, but they should also integrate some support policies to strengthen GI contribution to rural development.

Registration and protection

Legislation should provide a clear and correct definition of a geographical indication as a collective intellectual property right in line with TRIPS as a minimum legislative framework, including some clear conditions for applications. A regional approach could be enhanced by continuing to share views between countries, and other regional seminars, study tours and regional projects should be supported.

As for the conditions of application, the code of practice and the collective approach are two main elements to be considered. As discussed, GIs cannot be the property of a single private actor or even a consortium of actors if it excludes other legitimate actors. Thus the legislation and registration procedure should ensure a collective and participatory approach to benefit all legitimate stakeholders, by ensuring that the applicant is a collective organization that equitably represents all potential stakeholders in the GI.

In addition, the intellectual property rights reserved to a community who apply for a geographical indication must be justified by the specific quality or the reputation linked to the product's geographical origin. This application should then be supported by a code of practice, or specifications, that demonstrate the link between the specific quality or reputation and the geographical origin, and list the requirements to be followed by producers to reach this

specific quality so as not to mislead consumers. Again, the legislation on GI should request such a document and the associated guarantee system, whether public or private (plan of control and verification or certification system). Indeed, a cost-effective control system to avoid usurpation should be set up, considering the respective role of private and public stakeholders in an efficient guarantee system. This control system may then prevent infringement by ensuring *ex officio* protection and enforcing sanctions. In this view, the government should also provide guidelines and criteria for the accreditation of certification bodies (public or private), taking into account the international accreditation rules.

As a consequence, the registration procedure should allow the assessment of the request, upon the following criteria: specific product quality linked to geographical origin, a collective approach to GI setup and registration, fair compromise among stakeholders and protection against infringement. This requires an expertise for the assessment of registration applications to be developed, based on a code of practice. In this regard, governments should provide capacity building such as training or exchanges with other assessment systems already in operation to their personnel in charge of such assessments.

The coordination between sectors involving several institutions and experts from the ministries in charge of agriculture, food safety, trade etc. is also very important so as to build consensus on the registration process and enforcement, and some coordination structure has to be set up, either thanks to a central interministerial planning body responsible for a national GI development strategy, or through a national commission gathering representatives of various concerned ministries, other institutions and national experts. This body will assess registration and provide recommendations on GI policy development to the national authority in charge of GIs. The coordination should also be made with the different administrative levels: it is very important to involve local authorities in the support of the GI concept, GI application and control, as well as of the identification of new products with GI potential. In this perspective, central governments should propose sensitization and capacity building to the staff in local and regional authorities.

Another important element that public authorities should take into account is the support policies and information campaign they should integrate in order to enhance the success of the GI system in the economic, social and environmental fields.

Supportive policies

Governments should consider taking actions along the different steps of implementation and management of a GI system: identification, qualification, remuneration and reproduction of local resources¹ in order to develop the enabling environment that will support sustainable GIs.

The first support is related to the identification of the potential and the characterization of links between the product's quality and its geographical origin: studies and analysis could be supported by universities and research centres to help producers in identifying their potential for a GI through inventories. Whenever the case arises, it is very important to justify the links between quality and geographical origin so as to elaborate the future specifications. At a national level, public actors could identify potential products and stakeholders or

¹ See FAO-sinerGI guide on GIs Linking products people and places, available at <http://www.foodquality-origin.org/guide/index.html>

interprofessional bodies ready to cooperate in order to implement new GIs. As a follow up, public actors should launch pilot projects to develop newly registered GIs, in particular those products meant for export. The public sector should also provide temporary support such as investment to pilot cases, which could serve as a learning process and provide lessons for future cases.

As for the qualification phase public authorities play an important role in providing the relevant information on the legal and institutional framework and in facilitating the registration once the request and code of practice is finalized. This relates to the description of the product and the elaboration of the code of practice in order to be recognized by society through an official registration and by the market.

For the next phase of remuneration of the GI to its stakeholders, governments and local authorities should help in raising consumer awareness on what a GI is. Other specific quality labels are also necessary to allow the positioning of the product in the market. A major tool is a national official logo that will identify all GI products registered so as to build consumer recognition. Other tools to raise awareness through the media can be used to disseminate information, for example, by publishing booklets with short straightforward messages, organizing fairs and festivals, or publishing videos and flyers. Public institutions can play another important role in supporting the setting up of an interprofessional organization of producers and other GI stakeholders at the local level. This organization should represent all potential stakeholders in the GI system equitably. It should also allow the redistribution of added-value by ensuring that farmers and primary producers have a majority say in the association while building the capacity of producers in managing the internal control system. Another way of supporting territorial development is by enhancing linkages with activities from the tourism sector, for example by including GIs in a national strategy for tourism and export promotion of the country's products.

The last phase is the reproduction of local natural and human resources supported by a regular impacts assessment. The impact assessments of the project and its actions relate to economic, social and environmental dimensions, which can lead to the reorientation of the system towards more sustainability. The role of public actors is very important here to call for and facilitate such assessment and support the inclusion of new rules and requirements which can support a GI process in contributing better to the three pillars of sustainable development. Once the way of improving the system has been agreed among producers, public authorities should provide a simpler procedure to allow the registered code of practice to evolve. This should be taken into account in the legislation and the conditions for modifying the code of practice should be clearly defined.

b. Local level and value chain

For the GI system to benefit producers and territorial development, different actions should be taken into account in the different phases of the implementation and management of the GI system, including its marketing chains.

Setting up the GI: identification and qualification of the product

During the first phase of identification, it is very important to identify properly the resources that give the product its specific quality. These specific resources should be included within

the code of practice during the qualification phase. It is also very important to identify the market potential and the future niche markets to target. For this, market analyses and studies may be necessary: e.g. documenting traditional knowledge and stories about the product so as to be able to produce a historical record of the GI. Facilitators or an external network of development and research stakeholders may help the producers in these phases. Nevertheless these facilitators should not carry out all the process but ensure the empowerment of local actors in the implementation of their GI system, and subsequently its management. Indeed, facilitators should involve all value chain actors, in particular the primary producers, so as to ensure representativeness in the setup process.

Local actors have to make sure that the code of practice that defines the criteria for the specific quality of their product is controllable, and establish a control plan. It is possible to consider the code of practice as a tool to ensure food safety requirements by introducing them within the description of the process. The code of practice may also include product innovations as the origin-linked product may have to evolve in time to address the consumers' demand, while maintaining its specific quality.

The long time this process requires should be seen as necessary to ensure learning and empowerment. This is particularly important for bottom-up approaches, which should be privileged. To give producers time to comply with the code of practice, a pilot test scale may be considered before the system is generalized to a whole production area. In this pilot phase facilitators and organizations should provide technical assistance: capacity building, technical inputs, financial support for investment, sharing of knowledge through study tours, privileging areas with ancient experience or neighboring countries to favour a regional approach, and documentation, especially in the case of small-scale producers.

Managing the marketing and conformity of the GI

Solid marketing and control systems for GIs should be developed to ensure their economic viability as a pillar of sustainability. To achieve this, it is recommended to set up a local organization including farmers, processors and distributors concerned by the GI, if it is not already existing. This interprofessional organization is responsible for the internal control system. It should also be responsible for communication and promotion related to the collective reputation of the product. As for promotion, the organization and participation in local and international fairs is a very relevant way to build and reinforce the product's reputation.

Projects to support the marketing chains should plan activities for both short- and long-term. These activities should enhance the market linkages with sellers, retailers or exporters, according to the local context. In order to undertake this, study tours and the organization of visits within the territory are a good way to present the specific conditions of production and the specific quality, and favour marketing relations and trust between the stakeholders.

Organizations involved in supporting the GI process should provide support to foster agro-industries based on GIs, especially by providing technical assistance on market assessment and increasing the awareness of consumers. Guidelines should be diffused: the FAO-sinerGI guide *Linking products people and places* is available online in French and English.² Translation into Asian languages should be facilitated by national governments while training tools based on the guide will be developed and diffused by FAO.

² <http://www.foodquality-origin.org/guide/index.html>

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ISBN 978-92-5-106564-8



I1592E/1/05.10/800