

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.

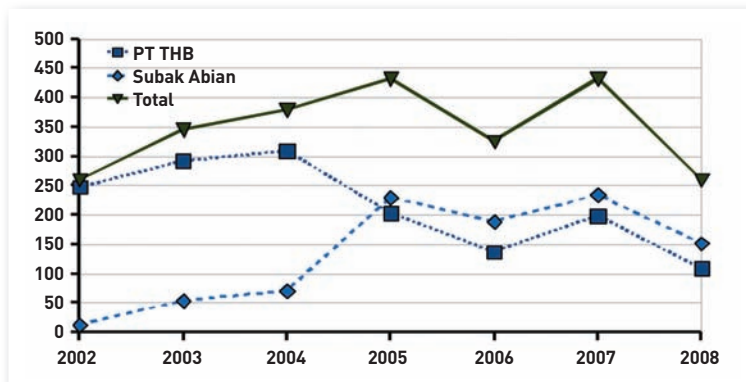
A number of domestic roasters, such as Caswell’s Coffee and PT Bhineka Jaya, have been purchasing Kintamani Bali Arabica coffee from *subak abians* and selling roasted beans or ground coffee under the “Kintamani Bali” brand. The roasters sell branded packets of “Kintamani Bali” mainly as souvenirs and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

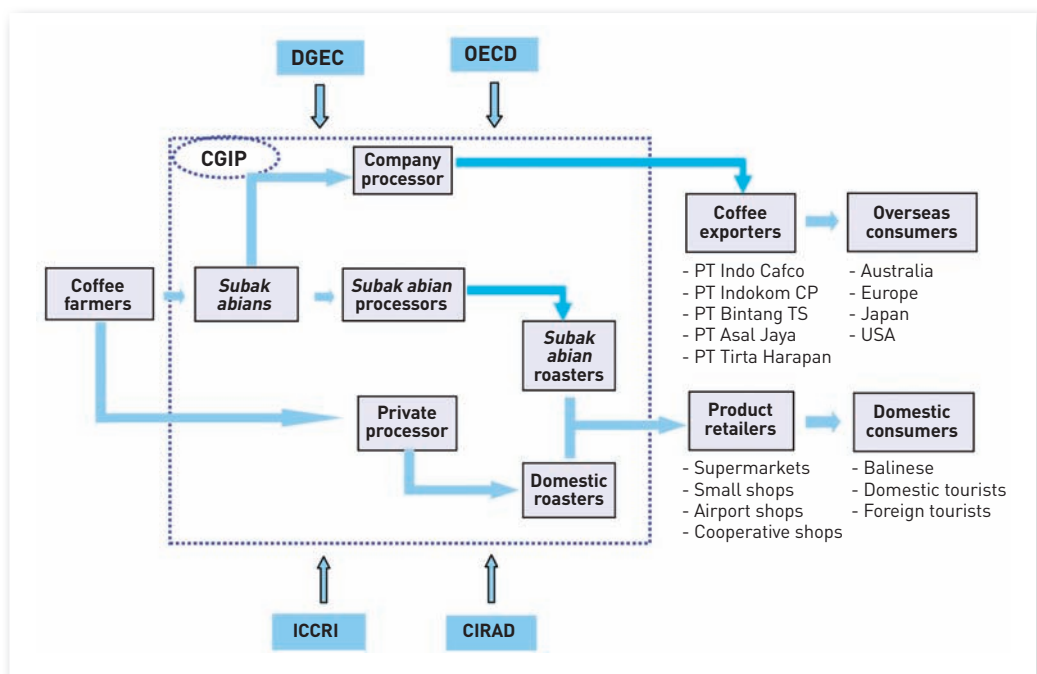
In the initial stage of the quality improvement project, only one exporter (PT Tirta Harapan Bali) was buying red cherries directly from *subak abians*, after which the cherries were

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 Terbatan* (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.

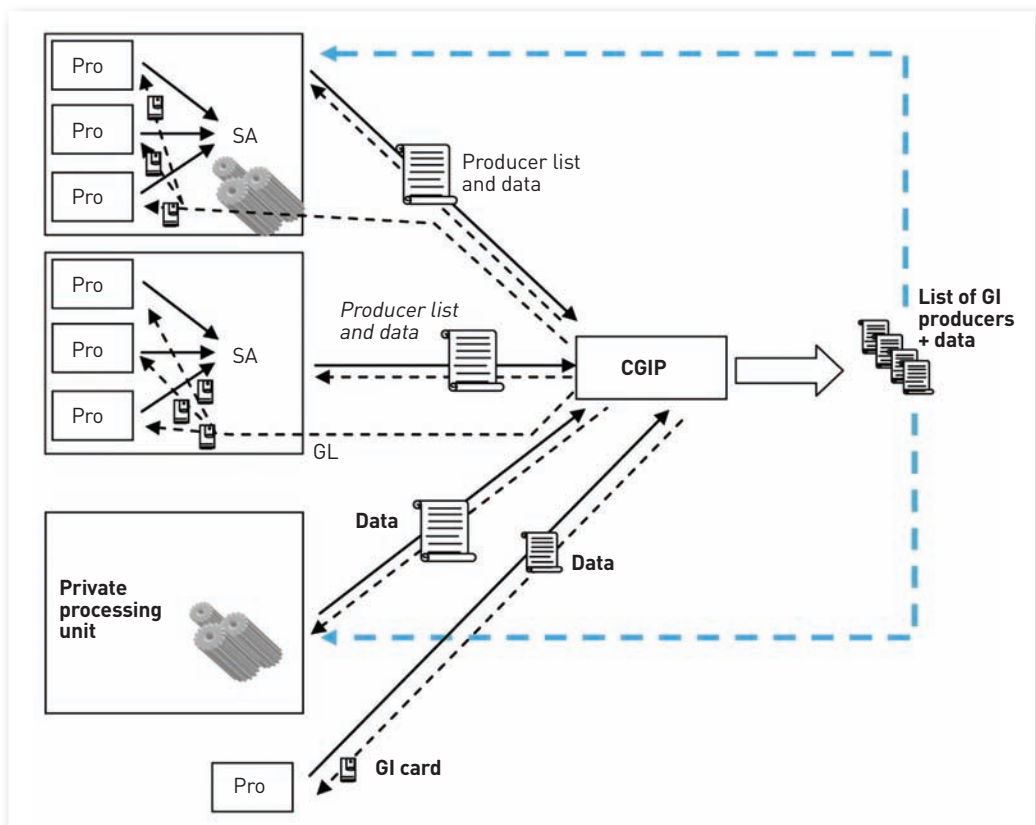
The *subak abians* belonging to CGIP have been asked to list all their coffee producer members. This list has been computerized and has allowed CGIP to give each producer a "GI card" with a membership number. Processing units should send CGIP a list of red cherry suppliers, and CGIP then checks whether 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

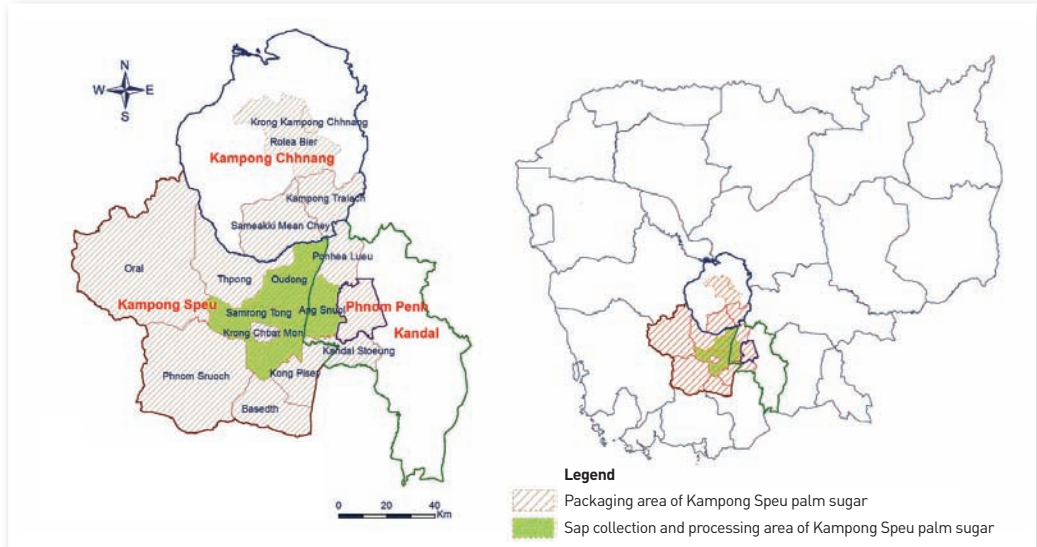
General context

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.

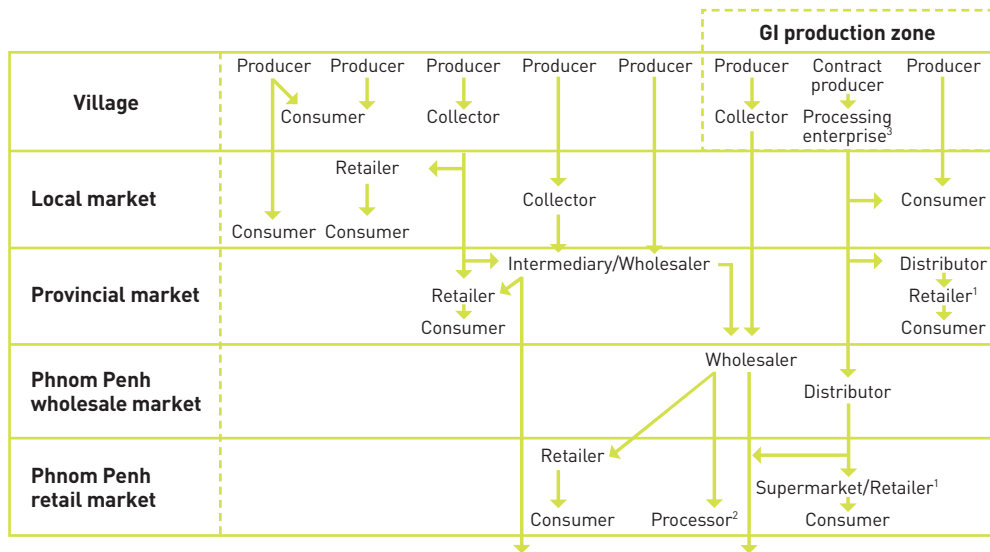
Individual collectors are mainly better-off villagers (most of them are farmers) who have access to the financial capital to purchase palm sugar and sap from producers to sell to wholesalers in Phnom Penh and retailers in the province. There are also individual collectors from outside the region who 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)

 ឆ្នាំរដូវកាល ២០០៩ (Season 2009) កាលបរិច្ឆេទលក់ ដុះស្ករ (SUGAR POWDER)					
កាលបរិច្ឆេទ Date	ឈ្មោះអ្នកប្រាក់ (ឬក្រុមហ៊ុន) Name of buyer (/ Company)	លេខកូដអ្នកប្រាក់ (បើបង់ប្រាក់បញ្ញើ) Code of buyer (if registered/KSFA)	រង (ក្ប) sold (kg)	លេខត្រីប័ណ្ណ lot n°...	ហត្ថលេខាអ្នកប្រាក់ signature of buyer
___/___/20__		___	___ kg	C°-___-___-___	
___/___/20__		___	___ kg	C°-___-___-___	
___/___/20__		___	___ kg	C°-___-___-___	
___/___/20__		___	___ kg	C°-___-___-___	

ផលិតករ (Producer) : P. ___-___-___
 ឈ្មោះ ឬក្រុមហ៊ុន ឡើងកាល ២០០៩ (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.