

# III. Jinhua ham, China

by

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## Abstract:

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

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

# Introduction

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

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

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

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

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

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

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

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

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

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

## Protection of GIs by SAIC through the Trademark Law

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

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

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

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

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

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

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

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

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

## Protection of GIs by AQSIQ through GI registration

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

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

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

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

<sup>1</sup> Germany, Italy, Jamaica, Mexico, Thailand, the United Kingdom and the United States of America. ([www.saic.gov.cn](http://www.saic.gov.cn)).

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

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

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

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

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

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

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

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

<sup>2</sup> [www.aqsiq.gov.cn](http://www.aqsiq.gov.cn)

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

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

## A new system to protect GI products by MOA

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

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

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

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

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

## 2. Geographical zone and specific resources

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

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

### General context of Zhejiang Province

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

Zhejiang has 11 cities. Nearly 46.29 million people live in the province and it is considered one of the more densely populated regions of China. The province is smaller in area than other provinces.<sup>3</sup> Its topography is very varied, with almost 70.4 percent covered by mountains and hills, and 23.2 percent by plains and basins, while its rivers and lakes account for 6.4 percent. It has green cover over 60 percent of its area. It is a province with rich biodiversity, where 3 800 varieties of vegetation have been identified. In terms of GDP, in 2008 Zhejiang was ranked in fourth place in the country, with CNY 2 100 billion<sup>4</sup> (a 10 percent increase over 2007). However, inasmuch as most of the production comes from intensive sectors, the added value is relatively low.

**Figure 1. Map of China and Zhejiang Province**



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

<sup>3</sup> Internet site of the People's Government of Zhejiang Province: [www.zjagri.gov.cn/html/main/zjagroView/2008042187407.html](http://www.zjagri.gov.cn/html/main/zjagroView/2008042187407.html)

<sup>4</sup> [http://news.xinhuanet.com/newscenter/2009-01/16/content\\_10669490.htm](http://news.xinhuanet.com/newscenter/2009-01/16/content_10669490.htm)

<sup>5</sup> National Bureau of Statistics of China.

**Table 2. Agricultural production in Zhejiang in 2008 (National Bureau of Statistics, 2009<sup>6</sup>)**

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

Although the agricultural sector is fairly well developed in Zhejiang Province, there is still a significant gap in income between rural and urban populations. In 2008, the average incomes were respectively CNY 9 258 and CNY 22 727 (National Bureau of Statistics, 2009<sup>7</sup>). Various factors are responsible for the difference. For example, although the province has a very good agricultural basis and an abundance of products, there is a lack of technological support and neglect in implementing the results of scientific research, so that products lack sufficient added value.

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

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

## Delimitation of production and processing zones

The Jinhua ham production area was recognized by AQSIQ in 2002 and is divided into the two regions of Jinhua and Quzhou<sup>8</sup> (see the map of Jinhua and Quzhou regions in Figure 2 below). Six districts in the Quzhou<sup>9</sup> region and nine in the Jinhua region are classified as falling within the protection zone.

<sup>6</sup> [http://www.stats.gov.cn/tjgb/ndtjgb/dfndtjgb/t20090318\\_402548975.htm](http://www.stats.gov.cn/tjgb/ndtjgb/dfndtjgb/t20090318_402548975.htm)

<sup>7</sup> [http://www.stats.gov.cn/was40/gjtj\\_detail.jsp?searchword=%D5%E3%BD%AD&presearchword=%D5%E3%BD%AD&channelid=4362&record=1](http://www.stats.gov.cn/was40/gjtj_detail.jsp?searchword=%D5%E3%BD%AD&presearchword=%D5%E3%BD%AD&channelid=4362&record=1)

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

<sup>9</sup> [www.zjagri.gov.cn](http://www.zjagri.gov.cn)

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

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

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

**Figure 2. Map of Jinhua and Quzhou regions**



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

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

<sup>10</sup> Jinhua Statistics Office.

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

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

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

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

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

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

### 3. The product

#### Specific quality and product differentiation

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

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

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

### ***Traditional product and process, and specific quality***

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

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



***Jinhua piglets (black two-ends breed)***

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

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

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



**Traditional drying process**



**Jinhua ham traditional recipe**

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

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

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

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

## Product protection process

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

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

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

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

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

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

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

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

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

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

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

In 2008, the SAIC central office registered "Jinhua ham from Jinhua city" as a certification mark. In 2009, there were 39<sup>13</sup> companies that had obtained permission from SAIC. The registration process is the same as that for registration of a classic brand.

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

<sup>13</sup> [http://www.jhhtzmsb.com/ShowArt.aspx?News\\_ID=193](http://www.jhhtzmsb.com/ShowArt.aspx?News_ID=193)

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

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

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

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

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

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

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

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

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

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

<sup>14</sup> These producers often also register with AQSIQ as producers of Jinhua GI ham.

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

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

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

## 4. Stakeholders, supply chain and market

### Historical situation

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

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

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

### Present situation: stakeholders in the Jinhua ham supply chain

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

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

<sup>18</sup> [http://www.jhhtzmsb.com/ShowArt.aspx?News\\_ID=193](http://www.jhhtzmsb.com/ShowArt.aspx?News_ID=193)

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

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

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

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

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

As Jinhua is one of the main production centres for pigs in Zhejiang Province, environmental protection is an important criterion for the region. Breeding areas have been defined, and the development of herds with an average size of 100 head has been encouraged. Farmers have received financial support to invest in means of recovering livestock waste and in implementing a prevention system against livestock epidemics. The government also encourages cooperation between the livestock sector and other sectors<sup>19</sup> (crops, forestry, fisheries etc.) in order to collaborate on environmental protection and sustainable development and have more influence in the social and economic spheres.

<sup>19</sup> [http://www.zjahv.gov.cn/html/main/zw\\_jcxxView/8102.html](http://www.zjahv.gov.cn/html/main/zw_jcxxView/8102.html)

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

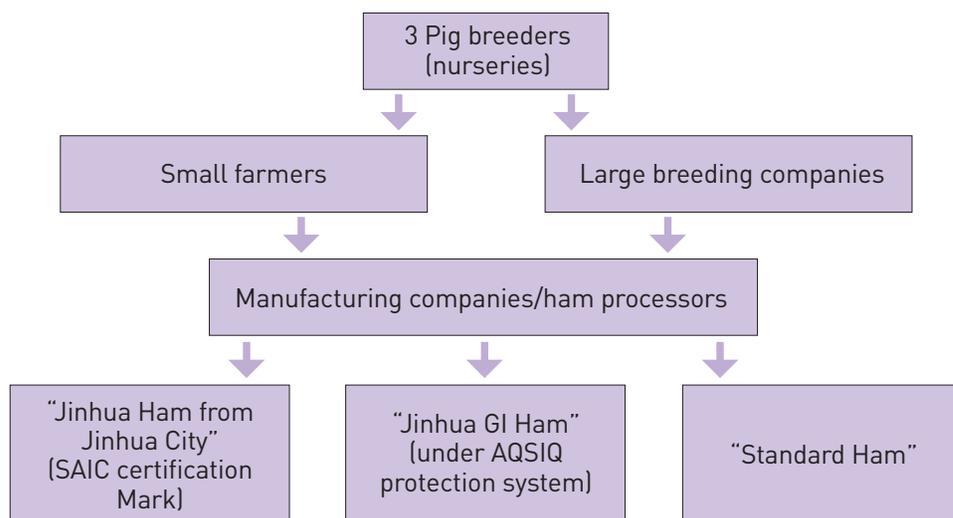
- 59 percent of companies produce between 1 000 and 2 000 pieces;
- 25 percent of companies produce between 3 000 and 5 500 pieces;
- only one company produces a total of 15 000 pieces.

Most companies have “limited liability” status.

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

## Supply chain organization and external support at various stages

*Figure 3. Simplified organization of the Jinhua ham supply chain*



In 2007, three breeders/nurseries<sup>20</sup> were supplying piglets to the market. These three companies, formerly with public status, are now privately owned and are either independent or are financially dependent on processors. Some local and regional animal science institutes on the one hand collaborate with agricultural universities to improve the species by adjusting to market needs, and, on the other, help farmers to seek an outlet market. Moreover, in order to ensure the supply of raw material, agrifood companies have all agreed to be involved in a mutual benefit process.

<sup>20</sup> <http://www.jhxm.gov.cn>

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

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

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

## Markets

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

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

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

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

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

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

## 5. Challenges

### Challenges for Jinhua ham

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

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

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

<sup>21</sup> [http://www.jhny.gov.cn/article\\_show.asp?articleid=904](http://www.jhny.gov.cn/article_show.asp?articleid=904)

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

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

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

## General challenges

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

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

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

## 6. Impact analysis and recommendations

### Impact of the GI process on Jinhua ham

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

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

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

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

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

### Recommendations

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

### **General recommendations**

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

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

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

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

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

### **Recommendations regarding the Jinhua ham GI**

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

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

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

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

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## IV. Uvs sea buckthorn fruit, Mongolia

by

Ts. Enkh-Amgalan

### Abstract:

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

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

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

## Introduction

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

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

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

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

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

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

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

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

## 1. Institutional context

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

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

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

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

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

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

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

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

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

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

Applicants may apply as a group for GI registration.

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

## Recognition of the role of sea buckthorn in local development

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

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

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

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

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

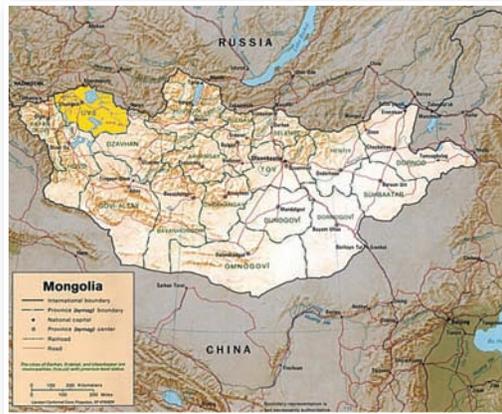
## 2. Geographical zone and specific resources

### General context

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

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

**Figure 1. Uvs Province**



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

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

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

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

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

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

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

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

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

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

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

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

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

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



***Sea buckthorn fruit and trees***

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

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

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

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

## Delimitation of the area

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

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

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

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

## Specific resources

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

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

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

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

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



*Harvesting of sea buckthorn*

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

## Issues regarding these resources

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

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

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

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

### 3. Product specification

#### Specific quality

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

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

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

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

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

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

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

Source: Mediplant Center, Lausanne, Switzerland, 2008.

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

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

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

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

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

## Qualification process and dynamics of GI registration and implementation

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

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

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

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

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

## Code of practice

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

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

Two observations can be made regarding this code of practice:

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

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

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

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

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

## 4. Stakeholders and collective organization

### Types of stakeholder involved and organization of the supply chain

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

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

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

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

**Table 2. Capacity of the three local processing companies**

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

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

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

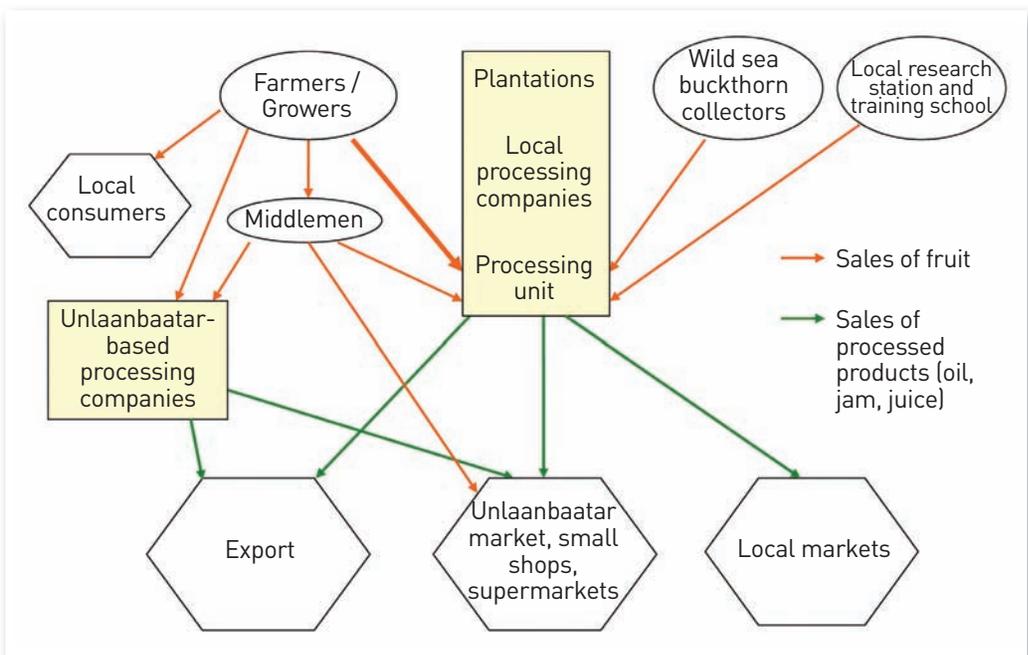
The Us Erdene Company has its own shop in the province's main town, where it sells products directly to consumers, as well as selling to regional and Ulaanbaatar markets.

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

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

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

**Figure 2. Sea buckthorn supply chain in Uvs Province**



## Role of outside support and facilitation

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



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

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

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

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

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

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

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

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

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

## Collective organization and action

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

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

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

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

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

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

## 5. Marketing

### Markets

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

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

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

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

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

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

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

**Table 3. Uvs sea buckthorn products and prices**

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

### Collaboration of local stakeholders in marketing

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

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

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

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

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

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

## Certification and monitoring mechanisms

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

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

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

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

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

## 6. Impact analysis

### Perception by stakeholders

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

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

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

### Impact on rural development: economic and social aspects

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

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

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

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

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

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

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

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

## Culture and traditions

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

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

## Environmental impact

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

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

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

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

### Internal strengths and weaknesses

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

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

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

### Context-linked opportunities and dangers

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

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

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

### Success and failure factors

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

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

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

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

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

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

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

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

## Support and capacity-building required by stakeholders

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

## 7. Conclusions and recommendations

### Conclusions

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

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

## Recommendations

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

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

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