

GIs and the concept of terroir for the development of local wine and sake clusters in Japan

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Abstract. Geographical indications (GIs) have been increasingly used as a marketing tool to promote collective brand strategy regarding local agriculture and food clusters around the world. GIs can work, when combined with their power of terroir-based brand storytelling, as a common local asset on which local producers can strengthen collective regional brand values of their products and promote the discourse on the attractiveness of terroir of their regions. This function of GIs has increasingly gained attention as a tool for boosting the wine and sake industries in Japan. This paper analyzes the importance and potentiality of utilizing GIs as a marketing tool for terroir-based brand storytelling to revitalize local wine and sake clusters in Japan.

1. Introduction

Geographical indications (GIs) have been increasingly used as a marketing tool to promote collective brand strategy regarding local agriculture and food clusters around the world. A GI is an indication which identifies a product, especially an agricultural product or a foodstuff, as originating in a region where a specified quality, reputation or other characteristic of the product is attributed to natural and human factors of the place of its origin. The natural and human factors in this context, taken together, are generally translated to be the “terroir” of that place. GIs are supposed to be legally protected as intellectual property in accordance with the TRIPS framework of WTO.

As mentioned above, the concept of terroir constitutes the most core component of the GI system. Being a French term originally derived from *terre* (land), terroir connotes the notion that the place – both the environment and the people – defines the product. The concept of terroir is used across the world to explain about the important linkage between the quality of the product and the natural and human factors of the place of its origin.

GIs can work, when combined with their power of terroir-based brand storytelling, as a common local asset on which local producers can strengthen collective regional brand values of their products and promote the discourse on the attractiveness of terroir of their regions. This can be seen in many successful wine-producing regions around the world, including Bourgogne, Bordeaux and Champagne.

This function of GIs has increasingly gained attention as a tool for boosting the wine and sake industries in Japan. For wine and sake producers, the ability to mark their product out as different from all others because of the terroir of the place of its origin can be invaluable. To customers, natural and human factors of a wine- or sake-producing region taken as a whole – its terroir – culminate in a distinctive influence that can be tasted in the wine or sake. For them, the terroir signified in a Wine or Sake GI

provides the shared perception of how generations of local people expect the wine or sake should taste. For policy-makers in Japan, the effective use of GIs has been a vital policy target for boosting local wine and sake clusters.

This paper analyzes the importance and potentiality of utilizing geographical indications (GIs) as a marketing tool for terroir-based brand storytelling to revitalize the wine and sake industries and local wine and sake clusters in Japan.

2. Japan’s wine and sake GIs for terroir-based storytelling

2.1. Brief overview of the wine and sake industries in Japan

2.1.1. *The wine industry in Japan*

As the country’s population ages and shrinks, annual alcohol consumption per capita shrank by more than 20% over 25 years from 101.8l in 1992 to 80.5 in 2017 [1]. Under this circumstance, the wine consumption in Japan has steadily increased in recent years. Japan is ranked 15th in terms of wine consumption, consuming 3.5 mhl in 2017 [2]. The current wine boom can be called the seventh wine boom as its first counted boom started in 1972.

There are two major factors behind this booming wine trend in Japan. The first reason is that the increased import of low-priced Chilean wines into the Japanese market contributed to the expansion of the Japanese market for imported wine. This was a result of the step-by-step elimination of the tariff Japan imposes on Chilean wine, after the conclusion of the Japan-Chile Economic Partnership Agreement (EPA) in 2007. It is now predicted that the export of EU wines to Japan will increase as a result of the conclusion of the EU-Japan EPA in 2018, which took effect in February 2019. In total, imported wines account for 68.4% of the domestic wine market in Japan [3].

The second and most important reason behind the recent booming wine trend in Japan is the growing

popularity of so-called “Japan Wine.” Japan Wine is defined as wine made exclusively from grapes domestically grown in Japan (see Sect. 2.3.2). Japan Wine accounts for only 4.1% of the market, but its production has been on the increase in recent years [3]. The number of wineries has been on the increase in recent years, especially in the areas called the “Special Zone for Wine Production,” thanks to the Japanese government’s effort to raise the number startup wineries by reducing the minimum amount of wines a licensed winery is legally required to produce on an annual basis in those areas. More than 50 areas have been designated as the Zone by the government. Most of those newly created wineries engage in the production of Japan Wine. As of 2017, there are 303 wineries in the country [3]. The export of Japan Wine has also expanded, showing a 28.9% increase from 2015 to 2017 [3].

The growing popularity of Japan Wine has also brought about booming wine tourism in wine-producing regions of Japan. The promotion of wine tourism is regarded by municipalities as an important policy target to boost local wine clusters.

Japan Wine has now been regarded as the most important driving force for the wine industry in Japan. At the same time, Japan Wine has faced fierce competition against imported wines in the domestic market, as mentioned above, and against a variety of fine foreign wines in the global market. Competition also exists between domestic Japan’s wine-producing regions in the domestic and international markets. Moreover, from an international comparative perspective, the wine industry in Japan is still very small. Japan’s annual Japan Wine production of 17,663 kl in 2017 is a fraction of Italy’s annual wine production of 48.5 mhl in 2018 [2]. There are 160,000 wineries in Italy, 85,000 wineries in France, 8,287 wineries in the U.S.A., 2,573 wineries in Australia, 698 wineries in New Zealand, and 625 wineries in China [4].

In terms of the wine industry in Japan growing further, it is of crucial importance for local wine clusters engaging in the production of Japan Wine to grow further. One important key in this regard is to strengthen local brand values of those wine clusters. For this, the importance and potentiality of utilizing Wine GIs as a marketing tool for terroir-based brand storytelling has gained much attention in Japan.

2.1.2. The sake industry in Japan

Sake is a traditional alcoholic beverage made primarily from rice and water. Sake has a very long history in Japan with its origin dating back as far as 2,500 years ago when rice growing became prevalent in Japan. Sake has deeply rooted in Japanese traditional culture. There are 1,523 sake breweries in Japan, from Hokkaido in the north to Okinawa in the south [5]. Many of them have produced sake for more than 200 years. Sake is sometimes called “rice wine” in foreign countries.

Unlike the upward trend of domestic wine consumption in Japan, domestic consumption of sake in the country has fallen to 530,000 kl in fiscal 2017, one-third of the level from its peak in 1973 [1]. This has diminished sake’s share in the domestic alcohol market from roughly 24% forty years ago to just above 5% today. The number of

sake breweries has decreased by more than half since the 1970s. This decline can be partly attributed to the tendency to drink less, together with increased sales of alternatives such as wine.

In contrast to stagnating domestic demand, overseas sake exports are on the rise on the back of increasing global popularity for Japanese food. A new record for annual sake exports has been set in each of the past nine years. In 2018, overseas sales totaled JPY 22.2 billion, exceeding JPY 20 billion for the first time, while the export quantity reached 25,700 kl [6].

In accordance with the growth of sake exports, sake breweries tourism is now getting popular among foreign tourists in Japan. The Japanese government has regarded this type of tourism as an important element of its inbound tourism promotion policy.

The use of Sake GIs as a marketing tool for terroir-based brand storytelling has been increasingly gaining attention not only in terms of the promotion of sake export in the global market but also for upgrading local brand competitiveness in the domestic market.

2.2. The basic structure of Japan’s GI system for alcoholic beverages

In Japan, under Japan’s Liquor Industry Association Act, the Director-General of the National Tax Agency (NTA) has the authority to designate GIs for alcoholic beverages, including wine, sake and shochu (Japanese distilled spirits).

An application for GI designation may be submitted to NTA by a group of producers of the alcoholic product identified by the GI. The producers may be organized as an entity, such as a cooperative or association and are obliged to ensure that the GI-denominated alcoholic product fulfils the product specification which all the producers in the GI-denominated region have agreed upon. GI protection may also be requested by NTA itself.

After receiving an application for GI designation, NTA scrutinizes it and initiates a national objection procedure, allowing for a reasonable period within which any person having a legitimate interest may lodge their objection to the GI designation. If all the requirements specified in the Guidelines for GI Designation regarding Alcoholic Beverages (see below) are met and no objection is raised, NTA takes a favourable decision and the name of the region is designated by the Director-General of NTA as a GI for the prescribed alcoholic beverage.

NTA plays a vital role in policing the market and ensuring the protection of the designated GIs. Government support is also expected for the advertisement and promotion of GI-denominated products in the domestic and global markets.

Despite establishing the GI system for alcoholic beverages in 1995, as of May 15th, 2019, there are only ten alcoholic beverage GIs in Japan, as shown below:

- GIs for wine:
 - GI Yamanashi (designated in 2013)
 - GI Hokkaido (designated in 2018)
- GIs for sake:
 - GI Hakusan (designated in 2005)
 - GI Nihonshu (designated in 2015)

- GI Yamagata (designated in 2016)
- GI Nadagogo (designated in 2018)
- GIs for shochu:
 - GI Iki (designated in 1995)
 - GI Kuma (designated in 1995)
 - GI Ryuku (designated in 1995)
 - GI Satsuma (designated in 2005).

This is a very small number compared to the number of registered GIs in other countries. For example, in France, there are 380 registered PDOs (protected designations of origin) for wine and 75 registered PGIs (protected geographical indications) for wine [7].

Facing this situation, NTA revised the legislation regarding GI designation for alcoholic beverages and published the Guidelines for GI Designation regarding Alcoholic Beverages (hereinafter called “GI Guidelines”) in 2015 to provide the detailed information on the requirements regarding GI designation for alcoholic beverages. The GI Guidelines are expected to encourage wine-producing communities to apply for GI designation in this regard.

2.3. Japan’s wine GIs and terroir-based brand storytelling

2.3.1. Primary requirements for wine GI designation

The primary requirements specified in the GI Guidelines for Wine GI designation are the following ones:

1. The wine to be labelled with the concerned GI (hereinafter called the “GI wine”) must be Japan Wine.
2. At least 85% of the grapes used to make the GI wine come exclusively from the region designated by the GI.
3. The oenological process for the GI wine must occur in that region.
4. If the GI wine is to be stored in the process of its production, its storage must occur in that region.
5. The grape variety or varieties used for the making of the GI wine as well as appropriate sugar content levels regarding the variety or varieties must be prescribed.
6. Alcoholic strength, total acidity and volatile acidity of the GI wine must be prescribed.
7. The GI wine must possess a specific quality, reputation or other characteristic that is a result of or linked to natural and human factors of that region. The concerned quality, reputation or other characteristic and its linkage to those factors must be prescribed.
8. The group of local winemakers in that region applying for the GI designation (hereinafter called the “Applicant Group”) must draft the GI wine’s specification reflecting on all the requirements mentioned in the GI guidelines, including those mentioned above. The Applicant Group must gain the approval of the specifications from all the wine producers in that region.
9. A local organization that oversees the conformity of the GI wine to the prescribed specification must be

established and managed by local wineries in that region.

The Applicant Group can create additional requirements regarding viticultural and/or oenological processes for the making of the GI wine, and incorporate them into the concerned Sake GI specification.

For example, with regard to the second requirement mentioned above, it is mentioned in both the GI Yamanashi and GI Hokkaido specifications that GI Yamanashi wines and GI Hokkaido wines must be made *exclusively* from the grapes grown in the respective regions.

2.3.2. GI wines as a flagship of Japan wine

As mentioned in Sect. 2.3.1, one of the requirements for Wine GI designation in Japan is that the GI wine must be Japan Wine. This means that GI wines are a special type of Japan Wine. Also, GI wines are expected to function as a flagship of Japan Wine and as an ambassador for the terroir of Japan’s wine-producing clusters.

Japan Wine is wine made exclusively from grapes grown in Japan. This definition can be found in the wine labelling rule legislated by NTA in 2015. The rule took effect in 2018. Under the rule, Japan Wine must be labelled as “Japan Wine,” while the wines that do not fall within this definition cannot be labelled as “Japan Wine.”

Before this legislation, Japan had no regulation on the labelling of wine. Consequently, when winemakers produced wines while using imported grape juice and bottled them in Japan, they typically labelled them as “Wine produced in Japan.” This misled consumers and made it difficult for them to differentiate between wine made exclusively from domestic grapes and wine made from imported grape juice.

Together with the Japan Wine label, which signifies the fact that the wine is made exclusively from grapes grown in Japan, Japan Wine can also be labelled with the information on the place of production, the grape variety or varieties used, and/or the harvest year, when the 85% standard mentioned below is met. Only Japan Wine can be labelled with this additional information.

- For the name of a region to be mentioned as the place of grape harvest:
 - At least 85% of the grapes used for making the wine must be from that region.
- For the name of a region to be mentioned as the place of winemaking:
 - At least 85% of the grapes used for making the wine must be from that region and the grape fermentation process must occur in that region.
- For the name of a region to be mentioned as the place of grape fermentation for the wine:
 - The fermentation process must occur in that region. It must also be mentioned on the wine label that the grape harvest does not occur in that region.
- For the name of a grape variety or varieties to be mentioned:
 - In the case of a single varietal wine, at least 85% of the grapes used for making the wine must be from that variety.

- In the case of a blended wine using two varieties, for both the varieties to be mentioned on the label, those varieties must make up at least 85% of the grapes used for making the wine.
- In the case of a blended wine using three varieties, for all three varieties to be mentioned on the label, those varieties must make up at least 85% of the grapes used for making the wine.
- For the harvest year to be mentioned:
 - At least 85% of the grapes grown used for making the wine must be harvested in that year.

Importantly, the Japan Wine label does not guarantee any special quality, reputation, or characteristic of the concerned wine essentially attributable to the terroir of the place of its origin. On the other hand, while communicating to customers all the specifications regarding Japan Wine, a Wine GI guarantees the presence of a special quality, reputation, or characteristic of the concerned wine essentially attributable to the terroir of the place of its origin and that the wine was made in conformity with the prescribed GI wine specification approved by the government. Because of this, compared with non-GI Japan Wine, GI wines (or GI-labelled Japan Wine) can more strongly promote collective brand values of wine-producing regions in Japan.

2.3.3. *Natural- and human-factor-related terroir regarding signature grape varieties*

As stated in Sect. 2.3.1, one of the requirements for Wine GI designation is to identify in the product specification a grape variety or grape varieties for the making of the concerned GI wine. In this regard, 42 grape varieties are mentioned in the GI Yamanashi specification, while 57 varieties are mentioned in the GI Hokkaido specification. Local wineries can choose one or more varieties from those identified varieties to make GI wines.

At the same time, with regard to the seventh requirement mentioned in Sect. 2.3.1, the GI Guidelines highlight the following things as examples of natural and human factors of a GI-denominated region, respectively.

- Natural factors: topography, soil, temperature, rainfall and sunshine in the concerned area that may impact the quality, sugar content, acidity and flavour of the grape(s) for the making of the GI wine.
- Human factors: commonly shared viticultural practices that may impact the characteristics of the GI wine.

Importantly, all the varieties mentioned in a GI wine specification are not necessarily a perfect match with the terroir of the concerned region. In actual practice, it is of vital importance for wine-producing communities to identify a signature grape variety or varieties that perfectly match the natural conditions of that region and to develop viticultural and oenological techniques to produce fine wines from the identified grape variety or varieties. The successful combination of all these natural and human factors constitutes the most critical element of the region's terroir for winemaking.

In respect of facilitating the development of wine clusters and wine tourism in the GI-denominated region, it

is of vital importance to nurture the terroir in connection with the identified signature variety or varieties and to effectively use the concerned GI as a marketing tool for terroir-based storytelling regarding that variety or varieties. This is true of many successful wine-producing areas around the world, including Bourgogne (famous for wines made from Pinot Noir and Chardonnay) and New Zealand (famous for wines made from Sauvignon Blanc).

It should also be mentioned, in this context, that, according to Article 62(1)(b) of Regulation 607/2009 of the EU, in order for Japanese wines to have the names of their grape varieties on their labels in the EU market, the varieties' names need to be mentioned in one of the following lists:

- the International Organization of Vine and Wine (OIV);
- the Union for the Protection of Plant Varieties (UPOV);
- the International Board for Plant Genetic Resources (IBPGR).

For this reason, two Japanese grape varieties, Koshu (Japan's most popular variety for white wine) and Muscat Bailey A (Japan's most popular variety for red wine), were registered with the OIV in 2010 and 2013, respectively.

The processes for identifying a signature grape variety or varieties that perfectly match the natural conditions of a region and to develop viticultural and oenological techniques for the selected variety or varieties require some long-term testing practices and corresponding R&D capacity. However, most of the Japanese wineries and grape farmers remain small producers with minimal or no R&D capacity. For this reason, publicly funded local and national research institutes and universities have been increasingly expected to conduct R&D activities and openly share their research results for the benefit of those small local wineries and grape farmers. Large winemakers equipped with R&D capacity are also expected to play the same role in this respect.

Several local public institutes have recently engaged in the testing of new grape varieties that might be better suited to the natural factors of their regions. Example of those institutes include the Wine Research Laboratory within the Research Institute of Environment, Agriculture and Fisheries of the Osaka Prefecture Government, which conducts research on various grape varieties, including Alvarinho from Spain, and the Tokachi-Ikeda Research Institute for Viticulture and Enology in Hokkaido, which conducts research on grape varieties that can be tolerant at minus 20 degrees during the winter in that region.

Some institutes have also conducted research on grape clones. Specific grape clones might bring appealing qualities such as higher sugar content, higher disease resistance, higher yield and lower production costs. Clones have been imported to Japan from major foreign wine-producing regions such as Burgundy and Bordeaux. However, a clone selected in another country is not necessarily superior to what is available locally. Natural conditions abroad can differ dramatically from Japan's. Therefore, local research institutes in Japan are increasingly expected to create grape clones that can perform well under specific environmental and economic conditions of their regions.

At the same time, a growing number of publicly funded R&D projects have recently been promoted, under public-private partnerships, to facilitate the utilization of cutting-edge information technology such as Big Data and AI for viticultural and oenological practices. A project is now going on under the initiative of Shinshu University in Nagano with the aim of obtaining predictive behavior patterns in the vineyard relating to grape quality, production, biological cycles, and plant diseases by utilizing AI and Big Data.

Knowledge, methods and technology that are gained through these local knowledge-sharing platforms can be integrated and developed into a “new tradition” that constitutes a vital part of the human-factor-related terroir of the region.

2.3.4. *The case of Yamanashi – Koshu as a signature grape variety*

Yamanashi is the birthplace of Japan’s wine industry today and the largest producer of Japan Wine, accounting for 31% of the total production of Japan Wine [3]. Yamanashi is Japan’s first region to be awarded a Wine GI by NTA in 2013.

Yamanashi has an excellent climate condition for viticulture: long hours of sunshine, large diurnal temperature variation, relatively little rainfall, and good drainage. Under this natural condition, the most important wine grape variety has long been Koshu. Koshu is Japan’s grape variety for white wine. It was estimated by NTA that, in 2017, about 95% of Koshu grape cultivation in Japan took place in Yamanashi and about 51% of wine grapes made in Yamanashi were Koshu [3]. Naturally, Koshu is the most important signature variety for making GI Yamanashi wines.

The fact is that the taste of Koshu grapes tends to be rather flat and lacking individuality because of its low sugar content in fruits, weak flavours and insufficient acidity. For this reason, local wineries and grape farmers traditionally looked down on the value of Koshu as a grape variety for wine. In terms of upgrading the quality of Koshu grapes for making fine wines, there have been diverse initiatives in both the private and public sectors.

As mentioned in Sect. 2.3.5, in Japan, local wineries are heavily dependent on the supply of wine grapes from local grape farmers. This applies to Yamanashi as well. In Yamanashi, local wineries and their contracted grape farmers have mutually cooperated to raise the quality and potentiality of Koshu. In addition, Mercian, a large winemaker that produces wines in Yamanashi, has openly shared their technologies and research results with local wineries and farmers in that region. For example, Mercian succeeded in introducing the “sur lie” aging method to enrich the flavour of Koshu wine in 1983 and openly shared the method with medium and small-sized wineries in the region.

In the public sector, Yamanashi Prefecture’s Institute of Fruit Tree Science has engaged, among others, in the advancement of viticultural practices for wine grapes, especially Koshu grapes, and in the development of clones of Koshu grapes with high sugar levels. The University of Yamanashi, a national university in Yamanashi, has contributed to the development of human resources for the wine cluster in that region and has engaged

in various research activities for the benefit of local wineries and farmers. That university has collaborated with local wineries in Yamanashi to co-produce wines, including Koshu wines, while transferring its knowledge and technology to those wineries.

The commonly shared knowledge and skills gained through diverse local private and public initiatives such as mentioned above and the region’s natural factors surrounding Koshu grapes have constituted the most crucial element of the terroir of Yamanashi for winemaking. And, brand storytelling regarding this particular element of Yamanashi’s terroir has been a very important factor in facilitating the wine cluster and wine tourism in that region.

At the same time, in terms of supplementing the terroir-based storytelling regarding Koshu wines, some other local initiatives have also been taken. For example, efforts were made to identify the genetic character of Koshu grapes. In 2004, upon a request of winemakers in Yamanashi, the University of California at Davis confirmed that the Koshu variety is a *V. vinifera*. A few years later, the National Institute of Brewing of Japan conducted a detailed study in collaboration with a Canadian research group to identify the origin of Koshu through DNA analysis and concluded that this variety has its generic background in *V. vinifera* with some influences of a wild *Vitis* species in China (approximately 30% inclusion). The fact that Koshu is a hybrid with European species (*Vitis vinifera*), not an American species (*Vitis labrusca*) resulted in Japanese winemakers re-evaluating the suitability of Koshu for making high-quality Japan Wine and re-branding Koshu as a “Japanese heritage species” or “Japanese *V. vinifera*” for Japan Wine.

In addition, a series of campaigns conducted by Koshu of Japan (KOJ), a local network created by wineries in Yamanashi to promote the export of Koshu wines, especially to the EU market. The campaigns have focused on the best matching between Koshu wines and Japanese cuisine, and have resulted in international wine journalists expressing their appreciation for the marriage between Koshu wines and such typical Japanese cuisine as sushi and sashimi. The fact that traditional Japanese cuisine (“Washoku”) was added on the Representative List of the Intangible Cultural Heritage of Humanity of UNESCO in 2013 gave further momentum to these promotional campaigns.

On the other hand, in recent years, there has been a local initiative in the Katsunuma area of Yamanashi for uniting the local wineries’ opinions in that area to apply for the GI Katsunuma designation. If this attempt is successful, there will be an area denominated by GI Katsunuma within the Yamanashi area denominated by GI Yamanashi.

2.3.5. *Grape farmers’ viticulture as a vital part of the terroir of wine-producing regions in Japan*

Vineyards constitute not only the foundation for the wine industry but also the landscapes that are of vital importance for wine tourism. In Japan, a majority of vineyards is owned and run by grape farmers. In fact, it was estimated by NTA that, in 2017, only 13.2% of the wine grapes received by Japanese wineries originated from their own vineyards [3]. 85.1% of the wine grapes

received by Japanese wineries originated from grape farmers (50.1% from contracted farmers and 35% from agricultural cooperatives) [3]. In other words, viticultural activities by wine grape farmers constitute a vital part of the terroir of wine-producing regions in Japan. In addition, demand for domestically cultivated grapes for Japan Wine has been sharply rising as a result of the wine labelling rule mentioned in Sect. 2.3.2.

However, the supply of wine grapes has been declining in Japan. This has increasingly posed a negative impact on the wine industry in Japan. There are three major reasons for this. The first reason is aging, which is the issue for the entire farming industry in Japan. Over the last several decades, Japan's farming population has steadily decreased as the average age of farmers has risen. As of 2018, there are 1.75 million people engaged in agriculture, representing a decrease of 55% compared to 2000 and that the average age of those people is 66.6 [8]. The same declining tendency can be seen in the population of grape farmers. A growing number of grape farmers in this generation have stopped or will stop the cultivation of grapes for wine because of aging. The decline of wine farmers has also caused an increasing number of abandoned agricultural fields, which can lead to the deterioration of the rural landscape as an integral part of the wine tourism experience in the country.

Second, the general price level of grapes for wine is comparatively low in Japan. Japanese wine grapes are generally valued at one-third of the price of the most common Japanese table grape. Consequently, farmers tend to place their efforts in the higher value table grapes over wine grapes. The third issue is the lack of successors in viticulture. This is because a majority of the younger generations in local wine communities tend to emigrate to cities in pursuit of better job opportunities.

To solve this issue, it is of vital importance to promote two things simultaneously. One is to promote the transfer of ownership of vineyards that are likely to be abandoned to those who are willing to engage in wine grape cultivation. The other one is to make wine grape growing profitable business practices for younger farming generation. Multiple initiatives in industry and government at the local and national levels are needed for achieving these goals.

For the second point, while increasing demand for grapes grown in the concerned region, Wine GI designation may bring about a positive impact on wine grape farmers in the GI-denominated region by upgrading the brand value of their vineyards, grapes and wines. Also, grape farmers can be active players in booming wine tourism by providing accommodations for wine tourists and providing their own branded wines to those tourists. They should be able to earn from their terroir-based storytelling activities regarding their own vineyards and wines. This is a possible option, especially in the areas designated as "Special Zone for Wine Production" by the government (see Sect. 1). For this, grape farmers should be provided with opportunities to learn about the best practices of growing grapes and the hospitality business.

At the same time, there should be a system where farmers who produce high-quality wine grapes can gain respect directly from customers and heighten the brand value of their vineyards. Farmers tend to be always

behind the wineries so that customers do not usually recognize the importance of grape farmers in making wines. An interesting example in this respect is the wine named "Cuvée AKIO," made by Mercian. This wine is named after Mr Sato Akio, a famous grape farmer who grow grapes for the wine. Another example regarding the branding of vineyards is the wine named "Aruga Branca Issehara," a GI Yamanashi wine made by Katsunuma Jozo, a local winery in Yamanashi. This wine is made exclusively from Koshu grapes grown in a single vineyard owned and run by the winery's contracted farmer in a place called Isehara in Yamanashi. To sell this wine, the winery has promoted the storytelling focusing on the high-quality terroir of that single vineyard, which has heightened the brand value of the vineyard.

2.4. Japan's sake GIs and terroir-based brand storytelling

2.4.1. Primary requirements for sake GI designation

The primary requirements for Sake GI designation specified in the GI Guidelines are the following ones:

1. The sake to be labelled with the concerned GI (hereinafter called the "GI sake") and the koji rice to be used for the making of the GI sake must be made from rice grown in Japan.
2. The water to be used for the making of the GI sake must be drawn in the region designated by the GI.
3. The brewing process for the making of the GI sake must occur in that region.
4. If other additional ingredients than the rice and water are to be used for the making of the GI sake, the maximum weight of the ingredients for that purpose must be prescribed.
5. If the GI sake is to be stored in the process of its production, its storage must occur in that region.
6. The GI sake must possess a specific quality, reputation or other characteristic that is a result of or linked to natural and human factors in that region. The concerned quality, reputation or other characteristic and its linkage to those factors must be prescribed.
7. The group of local sake makers in that region applying for the GI designation (hereinafter called the "Applicant Group") must draft the GI sake's specification reflecting on all the requirements mentioned in the GI guidelines, including those mentioned above. The Applicant Group must gain the approval of the specification from all the sake producers in that region.
8. A local organization that oversees the conformity of the GI sake to the prescribed specification must be established and managed by local sake makers in that region.

With regard to the first requirement, koji rice is made by cultivating koji-fungi on steamed rice. Wine grapes contain sugars, which ferment in the presence of yeast, but with beverages made from grains, such as sake, it is necessary to use enzymes to break down the starch in the grain to convert it to sugar before yeast fermentation. In sake brewing, koji rice is used as the source of these enzymes.

The Applicant Group can create additional requirements regarding the making of the GI sake, and incorporate them into the concerned Sake GI specification.

2.4.2. *The hierarchical structure of sake GIs*

Japan's Liquor Tax Act defines the ingredients and manufacturing techniques that must be used for sake production. The Act states that sake must be made from rice, koji rice and water, or from these ingredients plus certain other ingredients such as neutral alcohol (ethyl alcohol of agricultural origin, called jozo-alcohol). Under the Act, the sake that meets all the requirements mentioned in the Act is defined as "seishu." This definition of seishu provides the most basic definition of sake. Importantly, the Act does not specify any requirements regarding the geographic origin of the ingredients to be used for making seishu sake.

Among those falling within this definition of seishu, the sakes that meet the following requirements can be labelled with GI Nihonshu (literally, Japanese Sake):

- The sake to be labelled with GI Nihonshu (hereinafter called the "GI Nihonshu sake") must be from the ingredients to be used for the making of seishu in accordance with the standards for the making of seishu specified in the Liquor Tax Act.
- The GI Nihonshu sake and the koji rice to be used for the making of the GI Nihonshu sake must be made from rice grown in Japan.
- The GI Nihonshu sake must be produced in accordance with the standards for the making of seishu specified in the Liquor Tax Act, and its production must occur in Japan.

Although not mentioned in the GI Nihonshu specification, the water to be used for the making of the GI Nihonshu sake is supposed to be drawn in Japan.

GI Nihonshu was designated by the Director-General of NTA in 2015. NTA itself took its own initiative in this designation process in close consultation with Japan Sake and Shochu Makers Association. The purpose of the GI Nihonshu designation is to make it easier for consumers in the domestic market to distinguish the sake labelled with GI Nihonshu from the other types of sakes that are produced outside Japan or that are made from rice grown in other countries than Japan. At the present time, most of the sakes that fall within the definition of sake can meet the requirement for the GI Nihonshu sake.

Also, GI Nihonshu is expected to be legally protected in an export destination country for GI Nihonshu sakes through an economic partnership agreement (EPA) between Japan and that country. In fact, GI Nihonshu (or GI Japanese Sake) is protected in the EU based on the EU-Japan EPA. In this sense, the GI Nihonshu designation is regarded as a vital part of the Japanese government's national branding strategy regarding Japanese sake.

GI Nihonshu provides the basis on which local Sake GIs can be established and promoted. There are three designated local Sake GIs that denominate the three respective regions of Japan, as mentioned in Sect. 2.2.

GI Nihonshu does not signify the presence of any special quality, reputation, or characteristic of sake essentially attributable to the terroir of any specific local place. On the other hand, a local Sake GI does

guarantee the presence of a special quality, reputation or characteristic of the concerned GI-denominated sake which is linked to the terroir of the specific local place of its origin. Because of this, local GI sakes are expected to function as an ambassador for the terroir of their denominated sake-producing regions of Japan.

Importantly, the above-mentioned Sake GI system and the so-called "Specially Designated Sake" system are two different systems. Specially Designated Sake refers to seishu sake categorized based on the rice polishing rate and whether alcohol has been added. The rice is polished using a highspeed rotating roller.

The outer layers of unpolished rice contain many nutrients, such as protein, fats, minerals and vitamins. Those ingredients can create acidity in sake. When those layers are polished, the flavour of the sake tends to be more aromatic from the starch at the centre of the grain.

There are eight varieties of Specially Designated Sake. Those categorized as Specially Designated Sake accounts for about 40% of total sake production.

The basic requirement for Specially Designated Sake is to polish off at least 30% of the surface of each grain of rice. If the rice polishing rate is less than 60% or the outer 40% or more of the grain is removed, the sake can be called ginjo-shu. If the rice polishing rate is less than 50%, the sake can be called dai-ginjo-shu. If no alcohol is added, the sake can be called junmai-shu (literally, pure rice sake), while, if alcohol is added (but only up to 10%), the sake can be called hon-jozo-shu. These criteria can be combined to call sake under such a name as junmai-dai-ginjo-shu, if the rice polishing rate is less than 50% and no alcohol is added.

The rice polishing ratios directly affect the cost of sake production. And, the prices of sake are decided based on the cost of producing it. Consequently, the higher the polishing rate, the more expensive the sake will be. At the same time, junmai-shu sake tends to be more expensive than hon-jozo-shu sake. The prices of wines are decided more on their reputation and values of their individual and regional brands. If the sake evaluation system becomes more similar to those for wine, the prices of sake may also come to be decided on their reputation and values of their individual and regional brands.

2.4.3. *Terroir regarding sake making highlighted in the GI guidelines*

With regard to the sixth requirement for the Sake GI designation mentioned in Sect. 2.4.1, the GI Guidelines highlight the following things as examples of natural and human factors of a GI-denominated region, respectively:

- Natural factors:
 - the impact of geological factors of the region on the quality of water;
 - the impact of temperatures or climates of the region on the fermentation process.
- Human factors:
 - the use of yeasts developed in the region;
 - the impact of a local Toji system on the characteristics of the GI sake.

Natural and human factors regarding rice growing are not mentioned in this context in the GI Guidelines. This is in

contrast to the fact that the GI Guidelines highlight natural and human factors regarding grape growing in the context of the Wine GI designation (see Sect. 2.3.3).

A Toji is the master brewer overseeing the team of brewery workers working for a sake brewery. Both Toji and the team members are traditionally seasonal workers working for sake breweries only during the winter months. Becoming a Toji requires long years of arduous apprenticeship, during which one is expected to learn from the Toji master about sophisticated sake brewing techniques. Only those who possess real talent and expertise in sake brewing can reach the Toji position. Many of the important traditional sake brewing techniques today have originated from local Toji systems.

There are different schools of Toji. Each school has developed and maintained its own sake brewing techniques. Those techniques have contributed to nurturing the human-factor-related terroir of their regions for sake-making. The Nanbu Toji School (originally from Iwate Prefecture), the Echigo Toji School (originally from Niigata Prefecture), and the Tanba Toji School (originally from Hyogo Prefecture) are three major Toji schools in Japan.

2.4.4. *Water and climate as natural-factor-related terroir for sake*

Water is indispensable for sake making. Sake contains approximately 80% of water. While being used to make a fermentation mash, water is also used to wash and soak the rice. Sake-making processes need approximately 10 times as much water as rice. Historically, most breweries use well water to make sake. They erected breweries in locations with access to high-quality water. There are many excellent water resources in Japan. Some of them are listed on the 100 best water resources by the Ministry of the Environment of the Japanese government.

The mineral content of water has a significant impact on the quality of sake. Calcium stimulates the production of enzymes. Other minerals such as potassium, magnesium and phosphates assist the fermentation process by promoting the proliferation of koji-fungi and yeast. Iron is the most unfavorable mineral in water. If sake contains too much iron, it has a reddish brown color, and its taste and aroma are considered to be unpleasant.

In most regions of Japan, including Yamagata, water is soft with lower mineral content. This makes the fermentation slower, resulting in a sweeter sake. However, in some places such as Nada, water is harder with higher mineral content. Sake produced in areas where the water is hard tends to have plenty of body and a dry taste. It is mentioned in all three local Sake GI specifications how particularities of the water collected in the respective regions have affected the specific characteristics of sake produced in those regions.

Together with the mineral content of water used for sake brewing, low temperatures or cold climates are also considered as an important natural-factor-related terroir that impacts the quality or characteristics of sake, because they can function to suppress the growth of undesirable microorganisms in the process of sake brewing. The positive effects brought about by low temperatures or cold climates in this regard are mentioned in the GI Yamagata and GI Nadagogo specification, respectively.

Terroir-based storytelling regarding water and climates for sake-making is a crucial element of local branding strategy regarding sake and sake-producing regions of Japan.

2.4.5. *Local knowledge-sharing system as human-factor-related terroir for sake*

An important human-factor-related terroir that affects the quality or other characteristics of sake is a local knowledge-sharing system regarding sake-brewing techniques. Local Toji systems are the most typical example in this regard.

The GI Nadagogo specification mentions that current sake brewing techniques prevalent in the Nadagogo region have been nurtured not only on the basis of the traditional knowledge kept within the Tanba Toji School (see Sect. 2.4.3) but also under the modern scientific knowledge provided by local sake brewers educated in universities. It also mentions that a public-private partnership (PPP) scheme created between the Nadagogo Brewers Association and the Kobe City has successfully committed to preserving the quality of the water resources used for the making of sake in the Nadagogo region.

On the other hand, in Yamagata, sake breweries used to produce mostly inexpensive, everyday sake for local distribution. As the entire popularity of sake declined in Japan, they had to shift their focus to producing high-quality branded sake. The issue was that there was no Toji guild for them to rely on for transformation. Under this circumstance, they completed this transformation by educating and training their staff members to be sake brewing experts.

For achieving this, a PPP scheme between the Yamagata Research Institute of Technology (YRIT), a public research institute run by the Yamagata Prefecture government, and the Yamagata Sake Maker's Association have played a vital role in developing human resource, improving brewing techniques, and promoting knowledge-sharing among them. For example, under this PPP scheme, YRIT has gathered technical data on brewing practices from local wineries, analyzed the data, and openly shared the research results among those wineries for them to constantly upgrade their brewing skills.

Nowadays, a growing number of sake brewers in Japan have departed from depending on traditional local Toji systems and have adopted modern systems where their corporate staff members are educated and trained to be sake brewing experts based not only on traditional sake-brewing techniques originally from Toji systems but also on cutting-edge information technology such as Big Data and AI. The combination of these "modern" and "traditional" expertise can constitute a significant human-factor-related terroir for sake-making.

2.4.6. *Terroir regarding rice growing*

Rice is an essential ingredient in making sake, just as grapes are an essential ingredient in making wine. However, local natural and human factors regarding rice growing have tended not to be considered as a vital component of terroir that affects the quality of sake. There are several reasons for this.

First, whereas grapes are turned more or less directly into wine, rice undergoes a transformation in the rice-polishing and sake-brewing processes that are highly dependent on human expertise. This has led to people putting more emphasis, in respect of producing fine sake, on natural and human factors in those processes than on those factors in rice growing.

Second, unlike grapes, rice is not damaged by transportation over long distances. This portable nature of rice has made it possible for sake producers to bring in some or all of their rice supplies from distant growing areas. This has resulted in sake makers underestimating the importance of using rice grown in their regions, short-circuiting the concept of terroir in this context. Yamada Nishiki, the most popular sake rice variety in Japan, is now being grown in a majority of regions throughout the country, but Yamada Nishiki grown in Hyogo Prefecture makes up roughly 60% of all Yamada Nishiki in use for sake-making today.

Third, the great popularity of Yamada Nishiki for making sake, especially ginjo-shu sake and dai-ginjo-shu sake, has led to people underestimating the uniqueness of different varieties of rice in relation to the quality or characteristics of sake made from them. Rice can be generally categorized into two kinds: Indica, a long-grained rice, and Japonica, a short-grained rice. Roughly 270 varieties of Japonica rice are grown in Japan. Among those varieties, the ones particularly suitable for sake-brewing are called “sake rice.” Features of sake rice are large grains, low protein content, and high solubility during the brewing process. Currently, about 100 varieties of sake rice are grown in Japan. Yamada Nishiki is the most popular rice variety for making sake, especially ginjo-shu sake and dai-ginjo-shu sake.

As mentioned in Sect. 2.4.2, to make ginjo-shu sake, at least 40% of the outer layers of the rice must be polished off. The purpose of this process is to eliminate the nutrients contained in the layers that create acidity in the sake. In respect of producing ginjo-shu sake or dai-ginjo-shu sake, acidity tends to be regarded as “off-flavour.” For making fine ginjo-shu sake or dai-ginjo-shu sake, it is important to suppress the acid-related off-flavour through the rice-polishing process and to extract aromatic flavour from the core of the rice. Yamada Nishiki is uniquely suited for crafting ginjo-shu sake or dai-ginjo-shu sake.

As the popularity of ginjo-shu sake and dai-ginjo-shu sake has grown among customers, techniques for making fine ginjo-shu sake and dai-ginjo-shu sake from Yamada Nishiki have captured much attention from many local sake brewers. This has resulted in underestimating skills and knowledge regarding the uniqueness of different varieties of rice for different tastes of sake. Moreover, the fact that many of the sakes exhibited and highly evaluated in the prestigious annual national contest for new sake, named Zenkoku Shinshu Kanpyokai, are dai-ginjo-shu sake or junmai-dai-ginjo-shu sake made from Yamada Nishiki has also contributed to this tendency.

In recent years, however, a growing number of local sake makers use locally grown rice that matches the terroir of their regions. This has contributed to revitalizing local rice farmers in their regions. Some of them even grow rice by themselves to make sake in the same way as wineries grow grapes by themselves to make wine. Examples of those sake makers include Izumibashi Shuzo, Hamashima Shuzo, Senkin, and Akishika Shuzo.

In line with this terroir-based movement, there is an increasing trend for the appreciation of acidity in sake as an important element of the quality of sake. This means that a growing number of sake makers are beginning to put less emphasis on aromatic ginjo-shu sake made from Yamada Nishiki and on the rice polishing ratio as a sake-making standard. Different tastes of acidity in sake mirror different kinds of terroir regarding diverse rice varieties. This very basic idea has been increasing its momentum among a growing number of local sake makers in Japan.

Moreover, in terms of promoting the export of Japanese sake, especially GI sakes, it is of crucial importance for Japanese sake makers to be able to explain to foreign customers about how the terroir of their sake-producing regions affects the qualities of sake. Terroir-based storytelling practices are especially important for appealing to customers in the EU market, where people tend to understand the quality of sake through terroir-based terminologies for wine.

3. Conclusions

Both Wine and Sake GIs will be increasingly used as a terroir-based marketing tool for Japan’s local wine and sake clusters to upgrade their collective local brand values in the domestic and international markets.

In relation to GI sakes, more emphasis will be placed on natural and human factors regarding local rice cultivation as a vital part of regional terroir for sake-making in Japan. As for GI wines, more attention will be paid to natural and human factors regarding grape fermentation as an important part of regional terroir for making fine wine in the country. For the making of GI sakes and wines, locally shared knowledge, skills and methods reliant on new technologies, including cutting-edge information technologies such as Big Data and AI, will be gradually integrated into a vital element of human-factor-related terroir.

In Japan, the issue of environmental sustainability has not so hotly been discussed in the context of terroir for wine grape growing as in the EU. On the other hand, such environmental concepts as natural wine and organic wine have been slowly gaining attention from the wine sector in Japan. In line with this trend, while most of Japan’s wineries use cultured yeasts for grape fermentations, increasing attention has been paid to the roles of local wild yeast ecosystems in winemaking. Also, an increasing number of rice farmers have now engaged in organic rice growing practices. Moreover, the negative impact neonicotinoid pesticides can have on bees has also been debated in relation to rice farming in Japan. Therefore, there will be a growing tendency for environmental sustainability and wild ecosystems to be incorporated into the concept of terroir in relation to wine and sake making in Japan. Terroir-based storytelling regarding these points will certainly be appealing to environmentally conscious customers in Japan. Accordingly, Japan’s Wine and Sake GIs may be more frequently used together with environmental certifications for sustainable farming or organic wine/sake making.

In terms of strengthening brand storytelling powers of GI wines and sakes, it will be crucial to develop their best pairings with specific kinds of Japanese and foreign cuisines to appeal to both domestic and foreign customers. Selling different kinds of Japanese cultures as a package to

foreign countries is deeply related to the national branding policy called the “Cool Japan” strategy promoted by the Japanese government.

References

- [1] National Tax Agency (NTA), *Sakeno-shiori* [Report on alcoholic beverages] (2019). At <<https://www.nta.go.jp/taxes/sake/shiori-gaikyo/shiori/2019/index.htm>>
- [2] OIV, *OIV statistical report on world vitiviculture 2018* (2018). At <<http://www.oiv.int/en/oiv-life/oiv-2018-report-on-the-world-vitivinicultural-situation>>
- [3] National Tax Agency (NTA), *Kokunai seizou wain no gaikyo heisei 29-nenn chosa bun* [Report on Japan's Wine Production in 2017] (2019). At <<https://www.nta.go.jp/taxes/sake/shiori-gaikyo/seizogaikyo/kajitsu/kajitsuh29.htm>>
- [4] L. Thach, S. Charters, ed. *Best Practices in Global Wine Tourism* (New York, Miranda Press, 2016)
- [5] National Tax Agency (NTA), *Seishu seizou no gaikyo heisei 29-nenn chosa bun* [Report on Japan's Seishu Production in 2017] (2018). At <<https://www.nta.go.jp/taxes/sake/shiori-gaikyo/seishu/2017/index.htm>>
- [6] Japan Sake and Shochu Makers Association, News Release as of 7th February 2019. At <https://www.japansake.or.jp/sake/pdf/20190207_yushutsusougaku.pdf>
- [7] E-Bacchus database run by the European Commission. At <<https://ec.europa.eu/agriculture/markets/wine/e-bacchus/>>
- [8] Ministry of Agriculture, Forestry and Fisheries (MAFF), *Nogyo roudouryoku ni kansuru tokei* [Statistical Data on Agricultural Labor] (2018). At <<https://www.maff.go.jp/j/tokei/sihyo/data/08.html>>