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TERRITORIAL SUSTAINABILITY AND GEOGRAPHICAL INDICATIONS: A PROPOSAL FOR FACTORS TO ASSESS OPPORTUNITIES AND BARRIERS IN GIS

SUSTENTABILIDADE TERRITORIAL E INDICAÇÕES GEOGRÁFICAS: UMA PROPOSTA DE FATORES PARA AVALIAÇÃO DE OPORTUNIDADES E BARREIRAS NAS IGS

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Abstract

The topic of geographical indications in Brazil, although new, has grown in importance in the last two decades.The research aimed to systematize factors for assessing the sustainability of territories that have products with GI and for prospecting new GIs, allowing the evaluation, under the same basis, of different products and territories. The study used as theoretical and methodological basis the territorial approach and it was structured in five stages, which involved the search for theoretical and empirical references to the proposal and test of the framework. The systematized framework proposed 20 factors organized into five dimensions of sustainability (environmental, social, economic, political-institutional and territorial), which were unfolded into indicators. The test was carried out in eight regions of Rio Grande do Sul (four recognized, one in analysis and three in prospection or structuration), encompassing different products, categories, regions and degrees of maturity and development. The data were confirmed using triangulation of results with results from other studies, fieldworks and interviews with experts. The main results referring to the GIs of RS, point to the presence of products with territorial identity and the strengthening of territorial factors, with special emphasis on the performance of CTIs. The dynamism of the processes of the GIs, on the other hand, goes through political-institutional factors, especially governance, and in the structuring related to economic factors and the presence of professional management. Initiatives related to environmental factors can be strengthened, contributing to the sustainability of GIs and also positioning them as mechanisms for preserving biodiversity. The validated framework can be used in other contexts and future projects, by researchers, managers and formulators of public policies.

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Keywords: Geographical indication. Territory. Rio Grande do Sul. Public policies. Regional development.

Resumo

O tema das indicações geográficas no Brasil, embora novo, tem crescido em importância, nas últimas duas décadas. A pesquisa teve como objetivo sistematizar fatores para avaliação da sustentabilidade dos territórios que possuem produtos com IG e para a prospecção de novas IGs, permitindo avaliar, sob a mesma base, produtos e territórios diferentes. O estudo utilizou como base teórica e metodológica a abordagem territorial e foi estruturado em cinco etapas, que envolveram da busca de referenciais teóricos e empíricos à proposição e teste do protocolo. O protocolo sistematizado propôs 20 fatores organizados em cinco dimensões de sustentabilidade (ambiental, social, econômica, político-institucional e territorial), que foram desdobrados em indicadores. O teste foi realizado com oito IGs do Rio Grande do Sul (quatro registradas, uma depositada e três em prospecção ou estruturação), englobando diferentes produtos, categorias, regiões e graus de maturidade e desenvolvimento. Os dados foram confirmados utilizando triangulação dos resultados com resultados de outras pesquisas, trabalhos de campo e entrevistas com especialistas. Os principais resultados referentes às IGs do RS, apontaram a presença de produtos com identidade territorial e o fortalecimento de fatores territoriais, com especial destaque à atuação das ICTs. Já o dinamismo dos processos das IGs passou por fatores político-institucionais, sobretudo governança, e na estruturação relacionada a fatores econômicos e presença de gestão profissional. As iniciativas relacionadas aos fatores ambientais podem ser fortalecidas, contribuindo para a sustentabilidade das IGs e também posicionando-as como mecanismos para preservação da biodiversidade. O instrumento validado poderá ser usado em outros contextos e futuros projetos, por pesquisadores, gestores e formuladores de políticas públicas.

Palavras-chave: Indicação geográfica. Território. Rio Grande do Sul. Políticas públicas. Desenvolvimento regional.

Introduction

Geographical Indications (GIs) are a modality of intellectual protection, whose main function is the recognition and protection of the specificities of the producing regions. In a broad concept, the term geographical indication refers to products with a defined origin, incorporating material and immaterial assets, such as reputation, environmental and human factors, which translate the identity and culture of a given geographic space, providing products with specific characteristics (WIPO, 2002).

The subject has recently developmented in Brazil, when compared to the international context: the first positive legislation on the subject is only from 1996 (BRASIL, 1996) and the first registered GI[3] was in 2002 – Vale dos Vinhedos in the category of Indication of Origin. Meanwhile, France had its first GI recognized in 1919 and Portugal in 1756, considered the first GI in the current format (BRUCH, 2008). Despite this, GIs have grown in representation and importance, whether in number, diversity, academic repercussions and knowledge of the general public. In quantitative terms, until August 2022, Brazil had 92 GIs, 69 in the Indication of Origin (IP) category and 23 as Denomination of Origin (DO). The expansion also occurred in qualitative terms, considering the growing diversity of products and the national repercussions, since it is present in 21 States of the federation. (INPI, 2013, 2018, 2021). Such movement is also perceived in terms of research development, considering the growth of studies on the topic, especially as subjects of dissertations and theses. (Flores; Falcade, 2019a)

[3] In Brazil, geographical indications are registered by the National Institute of Industrial Property (INPI) in two categories: indication of origin, requiring that the toponym of the territory have social recognition for the production; and denomination of origin, requiring demonstrate the correlation of the product with the territory of origin.

GIs are often associated with agricultural products, of rural or artisanal origin, and have been seen as a paradigm of territorial development and object of public policies, as they become an alternative to recognize and value traditional knowledge. (BARHAM, 2003; BOWEN, 2010; NGO BAGAL; VITTORI, 2011; POLLICE, 2010; RANGNEKAR, 2004). Each geographical indication represents a context, with its specificities, which include physical and intangible factors, actors, institutions and culture, with their own systems and codes – a territory and its territorialities. In this sense, the promotion of GIs can also be seen as a tool to foster cultural diversity and the sustainability of territories.

Sustainability in the territorial approach refers to the capacity for reterritorialization and has a broad scope, considering the environmental, social, economic, political-institutional and territorial dimensions (MAGNAGHI, 2000, 2005, 2011). Thus, GIs can be considered a factor for promoting sustainability in a broad aspect: they contribute to political-institutional organization, value local production and producers, add value to products, preserve cultural and environmental diversity and have the potential to promote environmental sustainability.

Several studies have been working with the impacts of GIs. Among the main positive externalities resulting from GIs, it can be identified: the organization of the region and its actors, the valorization of products and production, in addition to tourism (FALCADE, 2007; NIEDERLE, P. A.; VITROLLES, 2010). Successful cases are often observed, however the spectrum of comparison has been between a few cases, which does not allow a broader analysis of the topic. It is a fact that the GIs present different levels of articulation, maturity and dynamism and a broader observation under the same criteria allows identifying opportunities and barriers for the development of the theme.

This paper presents a part of the results of a research project "IGS: factors of innovation, competitiveness and sustainability in Gaucho Geographical Indications (GIs)", supported by the Fundação de Amparo à Pesquisa do Rio Grande do Sul (Fapergs), which aimed to identify sustainability and innovation factors for the promotion of GIs in Rio Grande do Sul. Although the instrument was developed and tested in the GIs of Rio Grande do Sul, the procedures and concepts used are broad and allow the application of the protocol in other territories, supporting reflection on the topic.

The text is structured in the following items: synthesis of the theoretical basis used for the development of the research, followed by the presentation of the methodological procedures. The results are presented in two moments, starting with the systematized sustainability factors and evaluation format, followed by considerations regarding the application of the protocol in the GIs of Rio Grande do Sul. Thus, the paper aims to contribute to the analysis and reflection on GIs and their impacts on territories, collaborating with researchers, but also with producers and public policy makers to promote strategies aimed at territorial development.

GIs and territorial sustainability

The relationship between geographical indications, sustainability and territorial development has been investigated in several studies, in addition to being supported by public policies in terms of promotion and support. The territorial approach considers the territory and its processes as a unit of analysis, understanding it as a result of the combination of different factors, a process of territorialization whose territorialities are strongly linked to the place, receiving influences at the same time that they give it identity (SAQUET, 2007, 2009). Thus, in the territorial approach, issues involving sustainability are directly related to the way society structures its territory, i.e., they result from territorialities, which involve an understanding of the relationships between culture, nature and history, in addition to the relationships between man, society and nature (DEMATTEIS, 2008; LEFF, 2006; MAGNAGHI, 2000, 2005; RAFFESTIN, 2009).

In the territorial approach, sustainability has a broad scope, considering that the issues involving environmental balance are directly related to other factors, whose cultural and governance aspects are considered, in addition to the well-known environmental-social-economic tripod. According to Magnaghi (2000, 2005), sustainability can be seen in the environmental, social, economic, political-institutional and territorial dimensions. For the author, as well as the ecological footprint and the preservation of natural resources, dimensions of sustainability might consider aspects involving governance, participation of actors and the representation of the territory in the face of external contexts. At the same time, in the territorial approach, cultural diversity and heritage preservation are seen as central to guaranteeing the autonomy and competitiveness of territories (DEMATTEIS, 2008).

In this sense, geographical indications can be an instrument for the protection and recognition of these specificities, based on products or services with territorial identity. Even considering the diversity of products and contexts, GIs have in common the origin-product-quality tripod, that is, the origin or a defined geographical environment, which is related to a product (or service) with certain quality attributes that differentiate it from the others. It is important to highlight that they are not isolated pillars, but elements that, interrelated, give rise to unique products that come to represent the territory. GIs are considered the oldest qualification reference or brand, with citations already in the Bible and the theme has been evoking diverse discussions involving intellectual property, international trade and territorial development. (BRUCH, 2008; RANGNEKAR, 2004).

The institutionalization of the concept of GIs was consolidated through protocols established by the WTO in 1994, in the city of Marrakesh, Morocco. The legitimacy of protecting GIs is recognized by the Trade Related Aspects of Intellectual Property Rights (TRIPS), an agreement on intellectual property rights relating to trade, under the General Agreement on Tariffs and Trade (GATT) – or General Agreement on Tariffs. Customs and Commerce, to which Brazil is a member (BRASIL, 1994). Article 22 of TRIPs defines geographical indications as:

> [...] those that identify a product as originating in the territory of a Member State, or region, or locality in that territory, where a certain quality, reputation, or other characteristic of that product is essentially attributed to its geographical origin. (BRASIL, 1994, p. 3).

From the agreement, the countries are responsible to internalize and create their own instruments and regulations. In Brazil, GIs are considered a category of industrial property (as well as trademarks and patents, for example), according to Law N° 9.279, 14 may 1996 (BRASIL, 1996) and regulated by the INPI, in accordance with various Acts, Resolutions and Normative Instructions, the current regulation is the INPI Normative Instruction No. 95, 2018 (INPI, 2018).

From another perspective, geographical indications are ways of formalization, recognition and protection of the terroir. The French expression terroir, used without translation, is often associated with wines, but is also applied to other agricultural products and refers to symbolic and subjective factors in the relationship with the land, involving the action of a social collectivity, its family and cultural relationships, traditions common defense, solidarity and exploitation of products (BARHAM, 2003). The concept emphasizes and preserves diversity, opposing standardization (TONIETTO, 2007).

Geographical indications have been the object of public policies by countries or organizations, considering their initial objective of protection, but also the positive externalities resulting from their recognition, such as the potential for territorial articulation (NGO BAGAL; VITTORI, 2011; VALENTE; PEREZ; FERNANDES, 2013). Among the impacts identified from the geographical indications are the protection and valorization of products, which refers to aspects of marketing, differentiation and economic return. (AGARWAL; BARONE, 2005; AGOSTINO; TRIVIERI, 2014; BARJOLLE; PAUS; PERRET, 2009; DALLABRIDA, 2013). In addition, GIs can contribute to the organization of producers, in terms of institutional representation, governance and articulation of the sector as a whole (FANTE; DALLABRIDA, 2016; TONIETTO; MILAN, 2003). In this sense, GIs can be configured as an instrument to promote territorial sustainability, in this approach proposed.

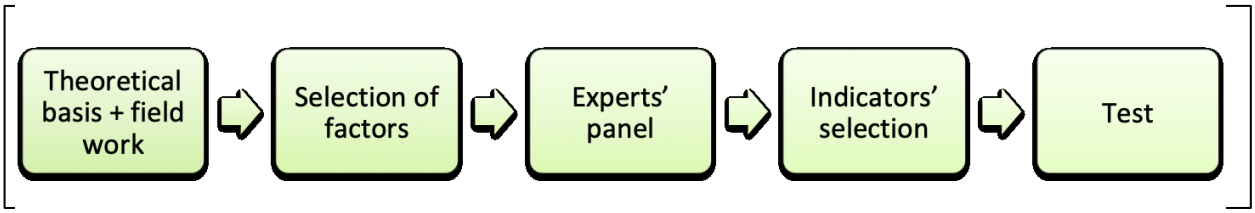
Another aspect to highlight is the potential for development in countries such as Brazil. As an example, while Brazil has 92 registered GIs, France had, in 2020, a total of 363 AOPs (equivalent to the denomination of origin in Brazil) for wines only, plus 50 for dairy products (mainly cheeses) and 50 for agri-food products, which represented around 23 billion euros in revenue (INAO, 2016). All this shows the potential for the development of the theme as the processes are recognized by producers and consumers, accompanied by the necessary institutional advances.

Data and methodology

This is an exploratory and qualitative study. Qualitative research allows observing the meanings given to a problem by actors and social groups, while promoting the verification of complex aspects of a phenomenon (CRESWELL, 2010; STRAUSS; CORBIN, 2002). The exploratory

nature is applied to situations which are less known and studied, in order to expand knowledge about the object of study and generate hypotheses (GIL, 2011). The study was structured into five main steps, which can be seen in Figure 1.

Figure 1: Phases of the study



Source: authors

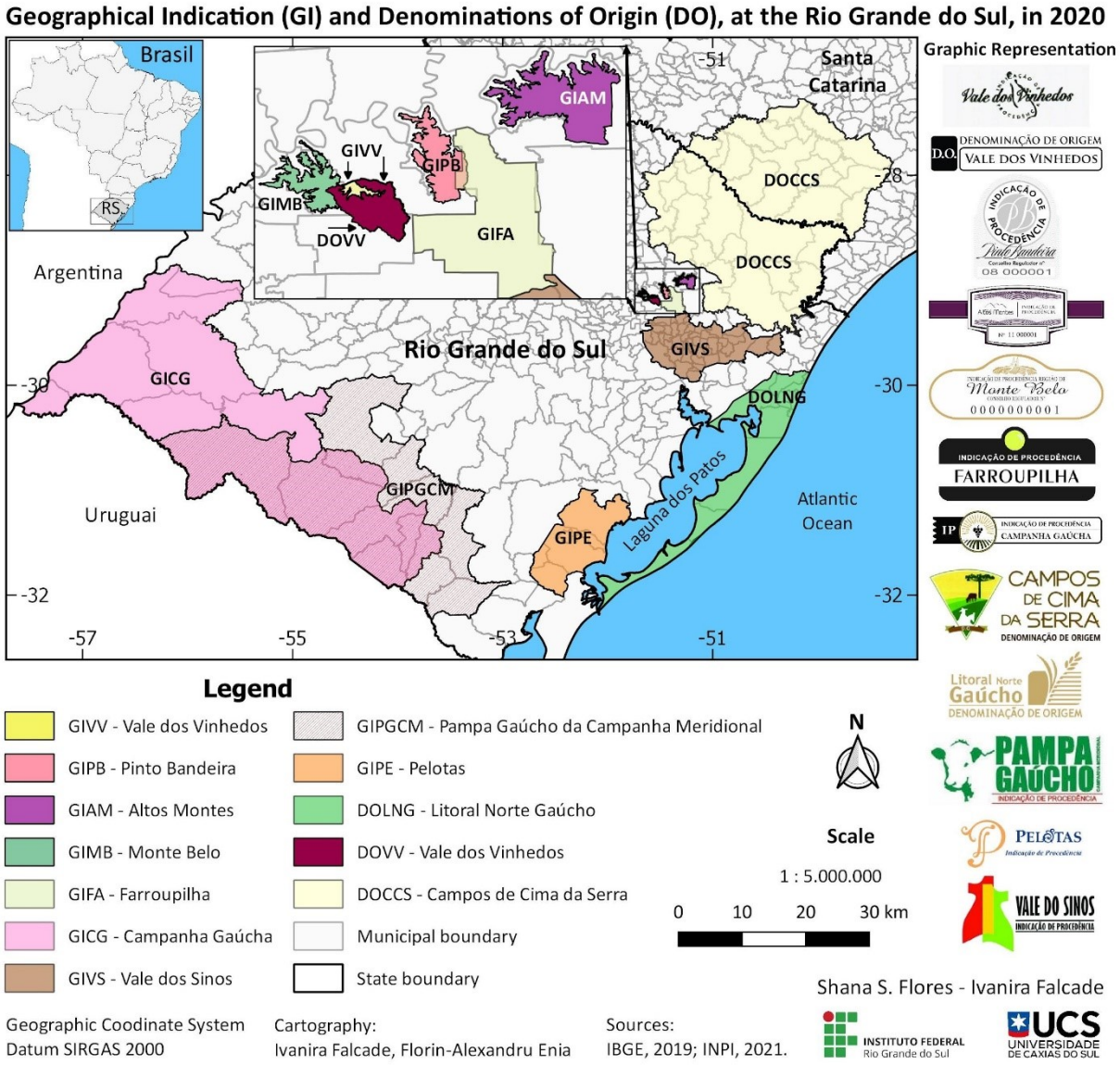
The first phase aimed to search for theoretical and empirical references to support the study. The theoretical research was based on the territorial approach, but also publications on the topic of geographical indications in Brazil and international context. Empirical references were sought by conducting interviews with experts on the subject and public policy promoters, fieldwork on geographical indications in Rio Grande do Sul and Espírito Santo, in addition to participation in events and discussion of the topic with GIs. from Santa Catarina.

In the second phase, 20 critical factors were systematized, classified into 5 dimensions (environmental, economic, social, political-institutional and territorial), as proposed by Magnaghi (2000, 2005). The factors were considered critical for the prospection of IGs, but also for the moment known as post-IG (after the registration of the IG), which involves management and consolidation, which is particularly important in a new institutional environment, such as the case of Brazil. In the third phase, the factors passed through a panel of 10 experts for validation, using an electronic questionnaire. The experts were executives in the management of GIs, researchers or members of institutions working on the subject, especially in the processes of structuring Geographical Indications. Due to confidentiality commitments, the names and institutions will not be disclosed. In the questionnaire, the experts gave their opinion on the validity of the factors, ranking, as well as having space for comments and suggestions for indicators. Validation was done in one round and data were assessed using triangulation with other sources. The results of this first phase were published (Flores; Falcade, 2019b).

For each factor, indicators were selected that could be used for an objective assessment and facilitate comparison in different contexts, corresponding to the fourth phase. For each indicator, units, sources and collection format were specified. Then, in the fifth phase, the framework was tested in geographical indications in Rio Grande do Sul. The instrument was applied to eight GIs with different maturity levels in RS: four registered, one deposited and three in prospecting or structuring. Validation was carried out using triangulation, a technique to confirm information in qualitative research by crossing information from different data sources (JONSEN; JEHN, 2009). For this, interviews were used with experts, with representatives of the GIs, in addition to documentary and bibliographic research.

Rio Grande do Sul was a pioneer in the registration of GIs in Brazil and currently has a diversity of products and GIs in different stages of maturity, which favor a broader view of the subject. The state had the first GI recognized in Brazil, the indication of origin Vale dos Vinhedo, also the first denomination of origin in the country, for rice from the Litoral Norte Gaúcho (on 8.24.2010) and the first DO for dairy products for cheese, "Queijo Serrano dos Campos de Cima da Serra" (3.3.2020). For a long time, RS was the state with the highest number of registered GIs, being surpassed, in 2020, by Minas Gerais, which has 14 registered GIs (11 IPs and 3 DOs). By the end of 2020, RS had 12 registered GIs (9 IPs and 3 DOs), recognizing 7 different product categories (Map 1).

Map 1: Geographical Indications in Rio Grande do Sul, registered until 2020



Among the GIs in RS, eight cases were chosen for testing, covering: theme diversity, different regions of the state (see Map 1), variety of geographical indication categories (IP or DO) and products, in addition to the stage of development or maturity. Table 1 systematizes the main information of the GIs that make up the sample.

Table 1: Geographical Indications surveyed, in 2017.

Category	GI	Product Category	GI type	Description
Registered	Vale dos Vinhedos	Wine	IP e DO	It was the pioneer region in Brazil, recognized as IP (81km2) in 2002 and DO (72km2) in 2012 (first DO for wines and remains the only one). The delimited area is located in Serra Gaúcha, the main and traditional Brazilian wine region, in the municipalities of Bento Gonçalves, Garibaldi and Monte Belo do Sul.
	Litoral Norte Gaúcho	Rice	DO	First Brazilian DO, registered in 2010. The special characteristics of the product are due to natural/human factors, the location and configuration of the region, composed of municipalities arranged on a narrow strip of land between water bodies (the ocean and a system of coastal lagoons). The region is composed of 12 municipalities on the North Coast (total or partial), with about 1300km2 and 300km in length.
	Pelotas	Traditional candies	IP	IP was recognized in 2011 and highlights a typical product of the region, with the rescue of Portuguese recipes to use the yolks of eggs, whose whites were used to iron clothes of the lords of the "charqueadas" (traditional farms). There are 15 types of candies in the IP, which is delimited considering the "Old Pelotas", which includes Pelotas and 5 now emancipated municipalities (total of 5,052km2). IP has an online tracking system and has already sold more than 3 million sweets under the seal.
	Farroupilha	Wine	IP	Recognized in 2015, IP is exclusive to wines based on muscatel varieties. IP has 379km2 and is located almost exclusively in the municipality of Farroupilha (99%), which is the largest national producer of muscatel grapes, especially Moscato Branco, cultivated in the region since the 1930s and with a genetic profile identified as unique. in the world.
Deposited1	Gramado1	Handmade chocolate	IP	Deposited at the INPI in July 2018, it is under analysis and aims to protect the typical product of the municipality, with factories since 1976. The artisanal chocolate produced in the municipality of Gramado, from the cocoa bean, will be registered by IP. Other quality specifications are: minimum 35% cocoa and no hydrogenated fat. According to information from the Municipality of Gramado, the twenty-two chocolatiers in the municipality have a turnover of R$ 66 million and generate 651 direct jobs.
In prospecting or structuring 2	Vale do Jaguari 3	Honey	IP	Honey production in the Jaguari Valley dates back to the 1950s and currently has 6 associations, more than 200 beekeepers and an estimated annual production of 865 tons of honey, 600 kg of propolis and 10 kg of royal jelly. The commercialization of the product includes exports to countries such as the United States, however, the product is not identified as local, which has motivated the search for recognition in the region.
	Panambi 3	Käsekuchen (cake)	IP	Popularly known as "kesko", Käsekuchen is a cheese cake with origin linked to the German colonization, in the municipality of Panambi. The product has a commemorative date and an annual festivity, and is a reference of the municipality for the local population, tourists and visitors.
	Ovino Crioulo da Fronteira Oeste 3	To be defined	IP	The IP project aims to enhance the breed of Crioulo Sheep from the West Frontier of RS. It is a typical creation of the region, with rustic characteristics, created in native countryside and very present in properties/small enterprises. The creation of sheep is related to the identity of the region and the culture of the gaucho, and has already been the object of research projects to characterize the breed.

Source: authors

1 - IP Gramado was recognized in Jun/2021. The option to keep it as deposited was to respect the situation at the time of the research and data collection.

2 - Structuring Projects of Geographical Indications of the Instituto Federal Farroupilha.

3 - The toponyms of the regions are provisional, in the period in prospect or structuring, as they are mentioned before the registration proposal.

Results and discussion

The presentation of the results and their discussion is structured in three parts. First, the sustainability factors (1) are presented, systematized based on consultation with specialists, considering the environmental, social, economic, political-institutional and territorial dimensions.

The factors are unfolded in a proposal of sustainability indicators for geographical indications (2), which were then tested in the context of RS GIs (3).

Sustainability factors

The 20 sustainability factors systematized from the environmental, social, economic, political-institutional and territorial dimensions are listed below, identified in interviews with experts in 2017. In the environmental dimension, the notion of reducing the ecological footprint by restricting the consumption of natural resources (such as water and energy), improving the quality of products (in relation to the environment and culture) and restoring the local ecosystem. The dimension has 4 factors:

- Water and energy: eco-efficiency programs; initiatives for water quality, consumption reduction and reuse, participation in watershed committees or other discussion instances, for water; initiatives for energy efficiency, facility design, use of energy from renewable sources, for energy.
- Waste and effluents: initiatives for waste management (reuse, composting, selective collection, recycling), proper disposal of special waste, reduction in the use of materials or generation of waste and effluents, effluent treatment.
- Biodiversity: initiatives for monitoring and monitoring biodiversity, maintenance of native vegetation, conservation areas and surroundings, maintenance of land cover, participation in initiatives to promote biodiversity and integrated landscape management.
- Environmental Management Programs: integrated initiatives aimed at environmental management that may involve air or water quality, management of water and energy consumption, waste and effluents or specific aspects involving production and environmental quality (such as integrated management, food program insurance, organic agriculture, among others).

The social dimension dealt with issues related to quality of life and social indicators, which involve establishing ethical relationships with the public involved. The 4 social factors were considered at three levels, ranging from micro to macro, involving internal public, community relations and society in a broader sense, as can be seen below:

- Health, safety and working conditions: considering aspects such as good working conditions and environment, initiatives for ergonomics and occupational health, initiatives for accident prevention and use of PPE and initiatives for quality of life at work.
- Training and qualification: considering aspects such as initiatives for punctual and individual training and qualification, articulation and partnerships for training and qualification and endomarketing actions.
- Community: considering aspects such as the relationship with the surroundings (for example, monitoring and initiatives to minimize impacts on the surroundings), initiatives to improve public spaces, preference for local products in purchases, appreciation of local professionals and participation in social and community programs.
- Territory: considering aspects such as participation in public policies for the territory or sector of activities and participation in local or sectoral associations.

The economic factors concern the production of territorial added value, which values the territory and identity, while contributing to the local economic system. The dimension is wide and reflects the ability of producers to take advantage of local potential, in terms of typicality, differentiation and communication. The 5 systematized economic factors are:

- Production and operations: considering aspects such as standardization of the production process, quality programs and territorial quality parameters.
- Management systems: considering aspects such as planning processes, marketing and commercialization structure and formalization of company management processes.
- Access to resources: considering aspects such as access to external resources (financial, knowledge, materials or equipment), access to technical support and consultancy.
- Diversification: diversification of products, markets or services.

- Tourism: development of tourism as a mechanism for diversifying income or promoting products.

Political-institutional factors reflect the territory's ability to organize itself and make decisions about its resources. Aspects related to the institutional organization of the territory are dealt with, whether through networks of relationships or constituted forums. The 2 systematized political-institutional factors are:

- Governance: management practices in producers, companies and entities, micro level; presence of associations and/or representative entities that bring together producers and other actors involved; considering the territory.
- Articulation: integration of the various actors related to the sector, which can be at the level of information exchange or the development of partnerships with specific objectives, at the micro level; partnerships established with external agents for the promotion of the territory or access to diverse resources, considering the territory.

Territorial factors concern the ability to reproduce the local identity and deal directly with the integration between product, production and territory, having been systematized in 5 factors. It is a basic dimension for geographical indications.

- Heritage and culture: aspects of heritage (natural and built, tangible and intangible) and local culture that are recognized by local actors or outside the territory, valued from specific initiatives or in product and installation projects or potential to be recognized or valued .
- Landscape: aspects of the local landscape that are recognized by local actors or outside the territory, valued from specific initiatives or in product and installation projects or potential to be recognized or valued.
- Knowledge: initiatives to expand knowledge about territorial factors in a systematic way, which can be CTI research projects, publications, as well as monographs, dissertations and theses.
- Product with territorial identity: existence of a product that is linked to the territory.
- Product with notoriety: existence of a product that is linked to the territory and that is recognized in other territories.

Proposal of sustainability indicators for geographical indications

After sustainability factors' selection and validation, indicators that could represent them were proposed. It is important to highlight that the indicators presented below are not intended to exhaust the topic, but to provide elements for analysis and reflection on a common database. Table 2 presents the indicators, as well as forms and sources of evaluation.

Table 2: Territorial sustainability indicators for geographical indications and evaluation methods, 2017

Dimensions	Factors	Indicators	Scale	Source
Territorial	Heritage and culture	Museums	Yes/No	National Register of Museums and Portal MuseusBR
		Agroindustrial Fair	Yes/No	Tourism Secretary
		Gastronomic festival	Yes/No	Tourism Secretary
	Landscape	Landscape heritage-listed	Yes/No	Search
		Conservation units	Yes/No	ICMBio (Dynamic Panel)
		Projects	Yes/No	Association or representative entity
	Knowledge	Papers	Yes/No	CAPES
		Theses and Dissertations	Yes/No	CAPES
		Projeto de pesquisa por CTI	Yes/No	Association or representative entity
	Product with territorial identity	Environmental and physical characteristics of differentiated (or typical) product	Yes/No	Association or representative entity Results of preliminary research or surveys.
		Historical link between the product and the territory	Yes/No	Association or representative entity Results of preliminary research or surveys.
	Product with Notoriety	Known product	5 point Likert scale	Association or representative entity Results of preliminary research or surveys.
Político Institucional	Governance	Association	Yes/No	Association or representative entity
		External participation in the Regulatory Board	Yes/No	Association or representative entity
		Frequency of meetings (The regulatory board or association meets at least twice a year, and has a defined frequency)	Yes/No	Association or representative entity
		Attendance at meetings (75% of regulatory board members attend at least 75% of meetings held annually)	Yes/No	Association or representative entity
	Articulation	Integrated initiatives for product and region promotion	Yes/No	Association or representative entity
		Integrated initiatives HR training and capacity building	Yes/No	Association or representative entity
		Integrated initiatives acquisition of raw materials and equipment	Yes/No	Association or representative entity
Economic	Product and operations	product on the market (% - associates with products on the market / total associates or no product)	5 point Likert scale	Association or representative entity
	Management systems	Strategic planning	Yes/No	Association or representative entity
		Integrated marketing actions	Yes/No	Association or representative entity
		CEO	Yes/No	Association or representative entity
	Access to resources	Existence of projects and partnerships with external agents: Teaching and Research Institutions	Yes/No	Association or representative entity
		Existence of projects and partnerships with external agents: Sebrae or consulting	Yes/No	Association or representative entity
		Existence of projects and partnerships with external agents: Others	Yes/No	Association or representative entity
	Diversification	Access to markets (commercialization)	5 point Likert scale	Association or representative entity
	Tourism	Origin of tourists	5 point Likert scale	Association or representative entity
Social	Health, safety and working conditions	Initiatives for ergonomics and occupational health, use of PPE and accident prevention	5 point Likert scale	Association or representative entity
	Training and empowerment	Conducting training activity in the last 3 years	Yes/No	Association or representative entity
	Community	Community participation in the association	Yes/No	Association or representative entity
	Territory	Participation of the association of municipal councils	Yes/No	Association or representative entity
Ambiental	Water and energy	nitiatives for energy efficiency, facility design or renewable energy	Yes/No	Association or representative entity

		Initiatives for monitoring and conscious use	Yes/No	Association or representative entity
		Basin committee participation	Yes/No	Association or representative entity
	Waste and effluents	Wastewater treatment (% producers)	Yes/No	Association or representative entity
		Selective collection (% producers)	Yes/No	Association or representative entity
	Biodiversity	Initiatives for biodiversity	Yes/No	Association or representative entity
	Environmental management	Existence of environmental management programs	Yes/No	Association or representative entity

Source: prepared by the authors from research results, 2017.

Territorial sustainability in GIs in RS

From the systematized factors, unfolded into indicators, the framework was applied in the 8 GIs selected in Rio Grande do Sul (Vale dos Vinhedos, Litoral Norte Gaúcho, Pelotas, Farroupilha, Gramado, Vale do Jaguari, Panambi, Ovino Criolo da Fronteira Oeste), in order to identify opportunities and barriers for its development. The observation of GIs in different product categories, regions and maturity stages provides a broad view of the topic and allows the validation of the instrument.

From the territorial perspective, in terms of heritage and culture, it was identified that the tested regions have museums and also gastronomic festivities, which are important points to cultivate local elements and identity. The survey did not take into account the number or impact (such as the number of visitors, for example), which could be tested in future works. It was not considered whether the festivities are specifically aimed at the GI product, as they occur in all regions surveyed and end up involving the products, even if this is not the main focus of the party. The festivities showed a relation with the promotion of tourism, which is an important factor in the economic dimension. It was found that the relationship between GI and tourism appears not only as a consequence, but also as a cause. The recognition of a GI promoting tourism can be identified, above all, in the case of Vale dos Vinhedos, which is an international reference on the subject and receives about 500 thousand visitors/year, according to information from the association of local wine producers. However, the opposite path was also observed, for regions that are investing or already have a tourist reputation, seeking to register the GI, as is the case of Panambi and Gramado, respectively.

In terms of agro-industrial fairs, they do not only occur in a GI in the southern region of the state, which is also characterized by less economic dynamism. The fairs are a potential moment to relate GIs to other economic activities in the region and, therefore, an opportunity for appreciation. The results showed that the landscape factor proved to be a fragile indicator: when actions are identified, they are linked to biodiversity projects; and the relationship between landscape and cultural heritage is a gap to be addressed because, at the same time, it is an opportunity to value the regions.

The knowledge factor was a very positive point, showing the participation of science and technology institutions (CTIs), whether in GI structuring projects or working on regional themes. Furthermore, in the case of registered GIs, CTI representatives are members of the Regulatory Councils, contributing to the governance of the region (with regard to the product). Only at IP Gramado (in process for registration during the study) there was no direct participation of ICTs in the project, but it appears as academic production, which denotes action on the subject. One opportunity is to strengthen the role of CTIs in terms of innovative extension, especially in projects in the post-GI registration period.

In the registered GIs, a point of attention was the presence of a product with the IG seal on the market, even in more mature GIs. In many GIs, there are few associated with products with the seal on the market, or the seal is used occasionally at events or corresponds to a small portion of production. Interviews with experts and representatives of associations indicated that the costs involved, associated with the low appreciation and knowledge on the part of the consuming public, are barriers to the expansion of products with the IG seal. The survey result highlighted that consumers look for products from the region, but not necessarily for the IG product. RS has registered GIs that, until the date of the survey, had not placed a product on the market with the IG

seal, however, it is noteworthy that all four registered GIs addressed in the research have products with the seal on the market, with greater or lesser volume or frequency, available in all or several Brazilian states and even abroad.

Other barriers or critical success factors that could be identified are: professional management, marketing channel and dissemination of the GIs theme. Professional management can be with an CEO position, technical support or consultancy, permanently available to the association and regulatory council; this proved to be a very important factor for the development of GIs. For example, the presence of someone dedicated to management, who is not necessarily from the associations, proved to be a differential with greater impact than the time of existence of the IG.The commercialization channel and the possibility of transforming this product into a "specialty" or premium proved to be another important factor, which impacts on others and on the effective adoption of seals. This channel can be linked to tourism, or specific fairs, in which consumers know and value GIs. It can be seen that the adoption of the IG seal does not happen naturally if the producer continues in the same channels.

Another opportunity identified was to use more variables related to sustainability, such as biodiversity, landscape and eco-efficiency. The themes are little discussed in the GIs and present a potential for product differentiation, in addition to preserving the territories' resources. In the current context, the sustainability of GIs in RS is closely related to territorial factors; the dynamism of its processes involves political-institutional factors (mainly governance) and the structuring related to economic factors (mainly management systems). In this sense, initiatives related to environmental factors can not only contribute to the sustainability of GIs but also position them as mechanisms for preserving biodiversity.

Final considerations

The present study aimed to systematize factors for evaluating GIs and their processes in terms of territorial sustainability, assessing development potential or maturity of GIs based on common criteria. One of the concerns was to focus only on the analysis of successful cases and also to observe territories in structuring processes or with a lesser degree of dynamism and maturity, in order to support the formulation of public policies and transversal actions related to the theme.

Brazil has been showing a consistent development of actions in the area, which has grown in the diversity of products and regions, which allows us to take a look based not only on projections, perspectives and potentials, but also on the learning resulting from the evaluation of the actions already implemented. Throughout the study, the importance of public policies in the area were highlighted, as a way of valuing the producing regions and adding value to local products and services. As a potential impact and opportunity for strengthening is the local articulation, in addition to the promotion of GI products and tourism, but also in training actions and formalization of management systems. Finally, the gaps identified in environmental factors are opportunities for geographical indications to advance and start to contribute not only to territorial governance, but also to its biodiversity and preservation, combining environmental resources with other territorial aspects, such as heritage and culture.

As a limit, it is worth noting that it is always a challenge to compare processes, especially in cases strongly related to territorial factors, which have multiple variables, often related to subjective or immaterial factors. The validated instrument can be used in other contexts and future projects, by researchers, managers and public policy makers. In this sense, the systematized protocol should contribute to staggering advances and outlining learning paths, supporting the understanding of ongoing processes, at the same time helping to identify opportunities and barriers for the development of the theme and its sustainability, in a broad scope.

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