

Geographical Indications As Catalysts For Sustainable Development: A Global Systematic Literature Review

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Abstract

Geographical indications (GIs) are collective intellectual property instruments that identify products whose qualities, reputation or characteristics are attributable to their geographical origin. There have been claims that these initiatives can simultaneously create producer value, conserve landscapes, protect cultural heritage and strengthen rural economies as they spread quickly. This paper reviews the global literature on if, how and under what conditions GIs act as catalysts for sustainable development in a systematic manner. A structured search was conducted in July 2026 in Google Scholar and publisher databases by combining the terms “geographical indication”, “sustainability”, “rural development”, “environment”, “collective action” and “territorial development”. After relevance screening and bibliographic verification by means of publisher records and digital object identifiers, 23 peer-reviewed publications from 2000 to 2025 were retained. Evidence was integrated across the economic, social-cultural, environmental and governance dimensions. According to the literature, GIs can create price premiums, enhance market access, preserve local knowledge, enhance territorial identity, and provide incentives for conservation. But these results are neither automatic nor evenly spread. Weak producer organisations, elite capture, costly compliance, vague product specifications, limited enforcement and production intensification can undermine sustainability. The review thus frames GI protection as an enabling institution rather than a guarantee of sustainability. Its development effects are mediated by collective governance, territorial embeddedness, benefit-sharing rules, environmental standards, public support and adaptive monitoring. The article concludes with a research and policy agenda centered on longitudinal impact evaluation, Global South evidence, gender and youth inclusion, climate adaptation, and credible sustainability indicators...

Keywords: geographical indications; sustainable development; territorial development; rural development; collective action; biodiversity; governance; Sustainable Development Goals.

Introduction

Geographical indications (GIs) have emerged as important tools in debates on intellectual property, agricultural differentiation, cultural heritage and rural development. A GI identifies a product as coming from a territory, where a given quality, reputation or other characteristic of the product is essentially attributable to that territory. A GI is not a single trademark. Its value is generally collective. Eligible producers have a common name, reputation and code of practice. However, this collective structure allows for the transformation of local ecological and cultural resources into durable territorial value, but also leads to coordination, exclusion and enforcement problems.

The importance of GIs for today's world is more than simply informing consumers. Place-linked products are the consequence of accumulated interactions among soils, climate, plant and animal varieties, craftsmanship, culinary practice, social memory and regional institutions. The relationship is explained by Barham (2003) in terms of the notion of terroir, while Ilbery & Kneafsey (2000) demonstrate how "quality" is socially constructed by producers, regulators, retailers and consumers. GI schemes convert these relationships into legally recognised market signals. In principle, the signal mitigates information asymmetry, shields reputation from imitation, and enables producers to extract value from product differentiation. It can also help to keep production geographically anchored, linking commercial success with local employment and stewardship of resources.

These possibilities explain why GIs are increasingly perceived as tools for sustainable development. Price differentiation, market access, value retention, and rural diversification may enable economic sustainability. Transmission of knowledge, reinforced identity, collective organization and recognition of heritage can produce social and cultural sustainability. Environmental sustainability may be supported by product specifications that protect local breeds, varieties, landscapes or low-input practices. Governance sustainability means the capacity of public institutions and producer organizations to formulate rules, monitor compliance, deal with conflicts and distribute benefits equitably. These dimensions map onto several Sustainable Development Goals (SDGs), notably ending poverty, promoting decent work, responsible production, resilient communities, and protecting biodiversity.

But the same literature warns against treating registration as a development intervention in its own right. The tequila case demonstrates that a famous GI can be consistent with ecological simplification, industrial concentration and unequal value capture (Bowen & Valenzuela Zapata, 2009). Similarly, Mancini (2013) finds that Latin American GIs can function as "branding from below" or as devices that exclude poorer actors. Environmental reviews indicate positive impacts, but also point out cases where the growth of demand increases monoculture, pressure on resources or pollution (Milano & Cazella, 2021; Falasco et al., 2024). The key analytical question is thus not whether GIs are inherently sustainable, but under what institutional and territorial conditions does GI protection lead to sustainable outcomes.

This article tries to answer that question through a systematic global literature review. It has three objectives: to synthesize mechanisms linking GIs with economic, social-cultural, environmental and governance outcomes; to identify recurrent risks and distributional tensions; and to develop an integrative framework and future research agenda. The review helps to link the establishment of the territorial-development scholarship to more recent SDG-oriented and environmental assessments, and to highlight the difference between the legal protection and market valorization and the verified sustainability performance.

2. Conceptual Framework: From Origin Protection to Territorial Sustainability

Territorial embeddedness, collective reputation and institutional control may be useful in understanding the link between GI and sustainability. Territorial embeddedness is the notion that the value of a product depends on the resources and relationships that are hard to move. GIs can link external demand to localized production systems and contribute to the integration of local places in global markets (Bowen, 2010). In 2022 Crescenzi et al. found the population increased and the economy moved to higher-value activities in Italian rural areas with deeply embedded wine GIs. The case with digits is like that. Yet the fact of being part of a territory is not the same thing as local power. Even when production is localized, global buyers, processors, certifiers or dominant firms manage to capture more value than they deserve.

The second mechanism is reputation as a group. Because of the work of so many to follow the rules and build reputation, the GI name is now a shared asset. It may mean higher prices, and people may feel safer, but it also makes them more likely to free ride. Teuber (2011) points out that meeting the needs of both buyers and sellers does not guarantee success in the market. Awareness, communication, reliable quality assurance – these things must be there. The reason monitoring and punishments matter for long-term value creation is because one actor's failure to abide by the rules can harm the shared name.

The third tool is government. GI rules say where the production takes place, what materials are allowed, how the process works, what the output looks like and how it is controlled. They also decide who takes part and what information is recorded. Tregear et al (2007) argue that qualification schemes can only contribute to rural development if they are connected to economic action and wider networks in the locality. Registration is a group activity, and it is affected by leadership, trust, ease of use, and cost sharing (Quiñones-Ruiz et al., 2016). Belletti et al. (2017) go even further in this direction, showing that GIs can give public goods, but only when the valorization in the market is consistent with territorial goals and strategies of the actors.

Hence, GI protection should be regarded as an enabling institution. Property and cooperation options are established, but the results depend on how producer groups, businesses, governments and citizens use those options. This is called sustainable development when governments turn origin-linked image into value creation for all, in the form of conservation incentives, social learning and reinvestment. It is when rules are broken,

benefits are harmed, specs do not take environmental limits into account or market growth separates the GI name from the actions that made it famous that unsustainable paths are created.

3. Methodology

A structured systematic review was performed to identify peer-reviewed research on the relationship between GIs and sustainable development. Searches were conducted in July 2026, and included Google Scholar and searchable databases of major academic publishers. Search strings combined the terms ‘geographical indication’ or ‘protected designation of origin’ with ‘sustainable development’, ‘rural development’, ‘territorial development’, ‘environmental sustainability’, ‘biodiversity’, ‘collective action’, ‘governance’, ‘producer benefits’ and ‘SDGs’. Foundational studies were identified through backward citation tracing from recent reviews.

Eligibility criteria for studies included: (1) substantial focus on GIs or closely related origin-protection systems; (2) examination of at least one economic, social, cultural, environmental, territorial or governance outcome; (3) provision of empirical evidence, systematic review or substantial conceptual framework; and (4) publication in English in a peer-reviewed journal from 2000 to 2025. It excluded purely doctrinal discussions without analysis of development, consumer studies unrelated to sustainability, duplicate editions, and publications that did not have verifiable bibliographic records. The final analytical corpus consisted of 23 articles. Each citation was checked against a publisher page or DOI record and was also searchable in Google Scholar.

The geographical setting, product category, research design, sustainability dimension, reported benefits, reported risks and identified enabling conditions were extracted from the data. The evidence was synthesized thematically rather than statistically, as the studies used heterogeneous units, indicators, counterfactuals and time horizons. Results were grouped into four dimensions: economic resilience; social and cultural well-being; environmental integrity; and governance. It also looked at the interaction of these dimensions and how they map onto the SDGs. Comparative studies, systematic reviews, and studies with explicit causal or counterfactual designs received higher weight in interpretation; case studies explained mechanisms and contextual variation.

Limitations of the review Google Scholar has a wide reach, but it is less reproducibly indexed than the subscription databases. The English-language selection also under-represents local scholarship. Geographically, the evidence base is uneven. There is a large concentration of evidence in Europe, and some Latin American and Asian cases. Publication bias may favour visible or successful products. These limitations are treated as findings about the field's maturity, not as reasons to dismiss its consistent institutional insights.

Table 1. Systematic review protocol

Element	Protocol
Search date and sources	July 2026; Google Scholar and publisher databases, supplemented by backward citation tracing.
Core terms	“Geographical indication,” “protected designation of origin,” “sustainable development,” “rural/territorial development,” “environment,” “biodiversity,” “governance,” “collective action,” “producer benefits,” and “SDGs.”
Inclusion criteria	Peer-reviewed English-language articles (2000–2025) with substantial economic, social-cultural, environmental, territorial, or governance analysis of GIs.
Exclusion criteria	Purely doctrinal articles without development analysis, unrelated consumer-label studies, duplicates, and records without verifiable bibliographic data.
Final corpus	23 articles; each verified through publisher metadata or DOI records and discoverable in Google Scholar.
Synthesis method	Qualitative thematic synthesis across economic resilience, social-cultural well-being, environmental integrity, and governance.

4. Findings

4.1 Economic Resilience, Market Differentiation, and Territorial Development

The most common and most powerful pathway is economic differentiation. GIs can be used to prevent generic appropriation and foster premium markets through the link of reputation to origin and codified practices. GIs are associated with authenticity and regional quality by consumers and producers, but their market realization depends on awareness (Teuber 2011). Looking at the producer evidence Cardoso et al. (2022) find higher prices, better

access to markets, increased visibility and cultural recognition as main benefits. Neilson (2007) shows, in the case of Indonesian specialty coffee, that quality institutions might influence if value stays with the farmers or is captured downstream, and that price premiums alone do not inform about distribution.

The evidence is growing stronger at the territorial level. Cei et al. (2018) find positive relationships between GIs and rural development indicators across Italian regions. Crescenzi et al. (2022) use long-run counterfactual methods to show how territorially embedded wine GIs can support population retention and diversification into higher-value non-farm activities. This is the effect of a “basket of goods”: where a recognized product generates tourism, gastronomy, logistics, services and complementary local branding. Bowen (2010) argues that such effects are most likely where local institutions prevent the GI from being reduced to an export label divorced from the community of production.

But the economic results are heterogeneous. The costs of compliance, certification, organization, marketing and legal enforcement may be difficult for small producers to meet. Mancini (2013) describes how unequal capabilities in Latin American value chains can lead to exclusion of poorer actors, particularly where specifications or market channels favor larger firms. Bowen & De Master (2011) argue that rigid heritage standards can morph living production systems into ‘museums of production’, reducing flexibility and increasing barriers to entry. Cardoso et al. (2022) also identify repeated barriers such as limited knowledge, weak organization, bureaucracy and insufficient public support.

So, it’s the distribution of value that is more important than total sales. A successful GI may increase total revenue and worsen inequality if processors, exporters or retailers control definitions of quality and market access. In contrast, collective ownership could strengthen the bargaining power in the negotiation of contracts, promotion coordination and service sharing by producer organizations. Transparent rules of membership, proportionate systems of compliance, mechanisms for smallholder participation and reinvestment in territorial assets are key to sustainable economic outcomes. Thus, economic sustainability should be measured by income stability, retention of local value, quality of employment, rates of participation, and resilience to shocks, rather than by premium price alone.

4.2 Social and Cultural Sustainability

GIs are also vehicles of the recognition and reproduction of culture capital. Traditional products are the repositories of skills, oral knowledge, rituals, local classifications and social relations. According to Bérard & Marchenay (2006), origin protection can help to preserve local knowledge and biodiversity, by highlighting and giving value to specific cultural practices. Barham (2003) shows that systems of origin create a link between territory, history and collective identity. When producers are meaningfully involved in the definition of specifications, GI registration can validate local expertise and strengthen pride.

Cooperation, organizational learning and inter-generational transfer are social benefits. Quiñones-Ruiz et al. (2016) describe a collective process that may establish forums for producers to negotiate standards and common objectives. In Vietnam, Hoang et al. (2020) report that the GI of Cao Phong orange provided for better recognition, more product value and local development and pointed out the importance of government facilitation and producer participation. A greater appreciation may enable younger people to view traditional production as an economic alternative, rather than as obsolete.

But codification is never a neutral exercise. The decisions around what is the ‘authentic’ place, method, variety or recipe can favor certain histories and actors, and exclude others. As Mancini (2013) notes, the poorest producers may not have the necessary assets to comply. Bowen & De Master (2011) illustrate how standards designed to protect tradition may freeze practices or marginalize innovation. Even when women are in key roles of cultivation, processing or knowledge sharing specifications and benefit sharing arrangements often lack gendered or informal labor.

Social sustainability therefore requires both procedural and distributional inclusion. Producer assemblies, open membership procedures, recognition of diverse knowledge holders, conflict-resolution mechanisms and support for new entrants are critical. Cultural preservation should be a dynamic stewardship: preserving the territorial meaning of a product, but allowing communities to adapt practices responsibly. Without these protections, heritage becomes a marketing story disconnected from the people whose work and knowledge created it.

4.3 Environmental Integrity, Biodiversity, and Resource Trade-offs

What people disagree on the most is how to protect the earth. The environmental point of view is strong. If the reputation of a product relies on the biodiversity, landscapes, or production methods in the area, then producers will take steps to protect those assets. In 2006, Bérard and Marchenay found a link between biological diversity, traditional products, and information. Belletti et al. (2015) analyzed the GIs of European olive oils and demonstrated that environmental impacts are a function of inclusion or not of ecological requirements in the specifications and strategies applied to add value to the oil. Vandecastelaere et al. (2021) proposed a plan including steps to move forward that includes climate change, wildlife, resource use, animal care, and government. The new reviews are promising, but uncertain. They will claim that the positive effects on the environment such as the preservation of large land uses, local varieties, landscapes and traditional practices are normally more

significant than the negative effects. 7. But they get worse results in cases in the Global South and lack enough evidence from a broader point of view. Furthermore, Falasco et al. (2024) highlight the potential role of GIs in greening food supply chains, although the mechanisms are different depending on the product, the behavior of the stakeholders and the structure of the supply chain. There's plenty of talk about sustainability. As Nirosha and Mansingh (2025) observe, GI registration needs to be linked to robust government and SDG frameworks.

The tequila case shows that security is not sufficient. The plant is globally recognized, but the expansion of the industry has put one agave plant genetically at risk, strained resources, and made farmer relationships less equitable (Bowen & Valenzuela Zapata, 2009). If the market follows the model, we could see higher levels and higher volumes. It will be a number of different ways of doing things instead of a narrow high yield model. If the codes of practice have no measurable requirements and the inspection is only checking to see if the product is real then environmental claims might be meaningless.

For an environmental GI plan to work, solid ecological baselines, enforceable indicators and adaptive thresholds are needed. There might be rules about native plants, crop rotation, grazing, water use or landscape features but those rules can't be impacted by climate change. We have to monitor the effects of the GI but also the effects of general agricultural policy, of technology or of market trends. If the environment has enough market value it must be worth conserving. Producers need to link resource to image and public agencies need to work across landscapes not farm by farm.

4.4 Governance as the Mediating Condition

The main reason the same legal tools produce different results is governance. GI must agree on restrictions, requirements, oversight and representation. Advertising. The collective registration is affected by the leadership, confidence, ease of use, and current capabilities of the organization. Qualified products contribute to the development of the rural economy through networks that connect the product with activities in a broader context (Quiñones-Ruiz et al., 2016; Tregear et al., 2007). GIs are able to produce public goods, but Belletti et al. (2017) argue this can be constrained by market, collective action and policy failures.

There is an interior and an exterior part of good government. Producer organizations should be able to rely on controls they can trust, fees that are fair and benefits that are obvious when they make their own choices. Governments need clear legislation to deal with other countries, enforced against abuse, outreach services, market infrastructure and policies that complement natural and rural development policies. Public institutions do the job (Hoang et al., 2020) in Vietnam. According to Neilson (2007), the sustainability of value in global chains depends on the effectiveness of quality institutions.

Governance is also about tradeoffs. More rules could make them more real but they would also stop small or new makers making them. More people would mean a bigger production site but would also weaken the relationship between place and result. More output means more jobs (but also more resources used). Branding can attract tourists, but it can also commodify cultural practices. The law will not tell you what the right thing is. "It needs to be measured and looked at from time to time and to be involved in." Sustainability management should be about prioritizing, assessing, improving and talking about it" (Vandecandelaere et al., 2021). Guareschi et al. (2023) also developed a method to link GI public goods with SDG indicators. These methods turn the question of whether a GI exists into an ongoing one: how well is it organized? They also need to provide evidence, to lower the risk of greenwashing. So, governance is not the fourth pillar of sustainability. It is rather the result of the way economic, social and environmental objectives are balanced, measured and changed.

Table 2. Sustainability pathways, risks, and enabling conditions

Dimension	Potential contribution	Principal risks	Key enabling conditions
Economic	Premiums, market access, local value retention, employment and diversification.	Compliance costs, downstream capture, unstable demand, exclusion of smallholders.	Collective marketing, proportional fees, market communication, transparent distribution.
Social-cultural	Identity, recognition of knowledge, cooperation, intergenerational transmission.	Frozen traditions, elite definitions of authenticity, invisible labor, restricted entry.	Representative participation, dynamic stewardship, recognition of diverse knowledge holders.
Environmental	Protection of varieties, landscapes, extensive practices and conservation incentives.	Monoculture, intensification, resource pressure, symbolic environmental claims.	Measurable ecological specifications, landscape monitoring, climate adaptation and enforcement.

Governance	Collective learning, reputation management, conflict resolution and public-good provision.	Free riding, weak controls, elite capture, fragmented policy and poor enforcement.	Trusted organizations, clear rules, public support, sanctions, periodic review and indicators.
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5. Integrative Discussion: A Governance-Mediated GI–Sustainability Pathway

Five propositions can be derived from the literature. It is a prerequisite for protection, but not for development. Registration is an institutional opportunity. Whether the opportunity is taken up depends on commercialization, collective capacity and public support. Second, territorial embeddedness boosts developmental potential as value creation stays linked to local resources and skills (Bowen, 2010; Crescenzi et al., 2022). Third, benefits of sustainability are distribution dependent: Exclusion and concentration can be compatible with gains in producer income, cultural recognition or conservation. Fourth, environmental performance has to be built and measured, not assumed by traditionality. Fifth, adaptive governance transforms GI reputation into a long-term territorial asset.

These proposals clarify the relations to the SDGs. The inclusive value creation and rural diversification are the SDG 1 and 8. SDG 2: Sustainable production and SDG 12: Resilient agriculture. Goal 11 is about cultural continuity and territorial identity. The SDG 15 is biodiversity and landscape protection. Participatory institutions are the SDG 16. Guareschi et al. (2023) show that these links can be triggered by indicators of the public good. But SDG mapping should not be a tick-box exercise assuming a positive contribution. Each proposed link has to have a mechanism, and a measurable effect.

A moderated governance pathway is shown in Figure 1. GI protection results in a legal exclusivity and a shared reputational asset. Then producer organization and public policy set specifications, controls, rules of inclusion, marketing and conservation. These processes produce intermediate mechanisms of market differentiation, local value retention, transmission of knowledge, collective learning and ecological incentives. Sustainable outcomes are only achieved in the presence of moderating conditions such as fair participation, enforcement, market demand and adaptive monitoring. Negative feedbacks such as elite capture, overproduction, monoculture and exclusion can reverse benefits.

The regional difference is also included in the results of this framework. Europe has matured legal systems, established consortia and complementary rural policies. Many initiatives in the Global South have weaker enforcement, fragmented organizations and unequal chains. But the difference is not deterministic. The story of Cao Phong orange demonstrates positive institutional learning in Vietnam (Hoang et al., 2020). Tequila is an example of a mature and commercially powerful GI that can generate ecological and social costs (Bowen & Valenzuela Zapata, 2009). The key variable is not geography but the fit between governance and territorial resources and value chain power.

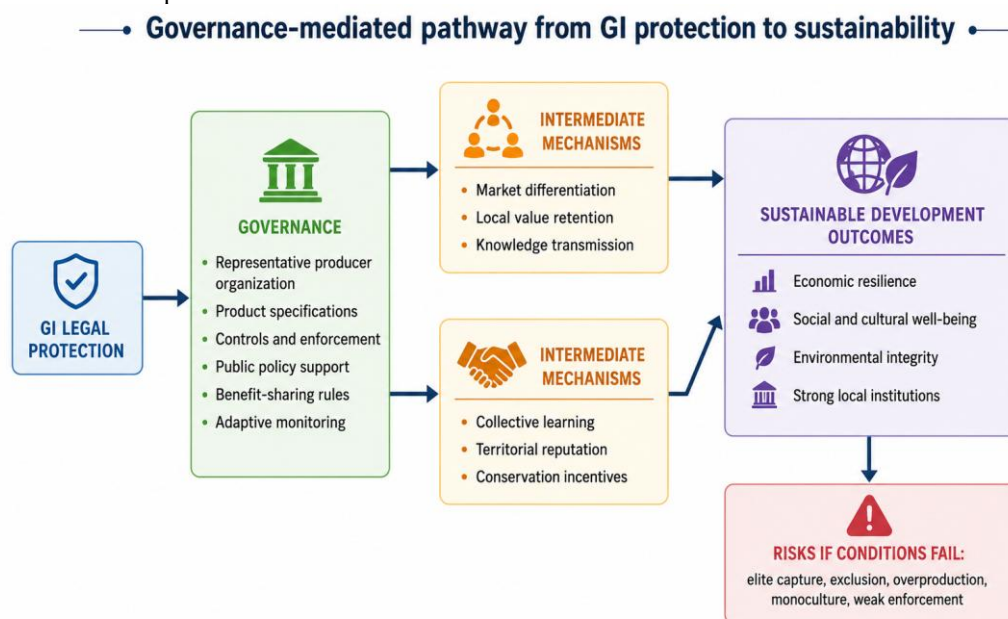


Figure 1. Governance-mediated pathway from GI protection to sustainable development outcomes.

Source: Authors' synthesis of the reviewed literature.

Table 3. Illustrative cross-regional evidence

Context	Evidence	Sustainability insight	Representative source
Italy and wider EU	Regional, municipal, and sectoral evidence from wine, olive oil, and qualified foods.	Strong institutions and territorial networks can support diversification and public goods, but environmental clauses must be explicit.	Belletti et al. (2015); Cei et al. (2018); Crescenzi et al. (2022)
Mexico—tequila	Commercially powerful and internationally recognized GI.	Market success can coexist with monoculture, ecological vulnerability, and unequal value capture.	Bowen and Valenzuela Zapata (2009)
Latin American value chains	Comparative analysis of GI positioning within unequal chains.	GIs can enable bottom-up branding or deepen exclusion depending on organizational and relational capacity.	Mancini (2013)
Indonesia—specialty coffee	Institutional analysis of quality governance and value retention.	Quality differentiation benefits farmers only when chain governance enables on-farm value capture.	Neilson (2007)
Vietnam—Cao Phong orange	Qualitative evidence involving policy makers and producers.	Public facilitation and producer engagement can translate GI recognition into rural-development gains.	Hoang et al. (2020)

6. Research and Policy Agenda

Future research needs to go beyond success stories into longitudinal and comparative impact evaluation. First, more research needs credible counterfactuals, baseline data, and repeated measurement pre- and post-registration. Economic indicators should include distribution of value, stability of income, quality of jobs and local multiplier effects. Environmental studies need metrics for land use change, biodiversity, water, emissions and climate resilience at the farm and landscape scale.

Secondly, the geographical imbalance of the literature needs to be addressed. Many craft-based GIs such as African and South Asian are still under-represented. The research should take into account the interaction between informal production, non-agricultural goods and formal GI rules with customary institutions. Thirdly, inclusion should be analyzed directly. Who becomes an authorized producer and who benefits may be determined by gender, caste, ethnicity, migrant labor, youth entry, tenant status and the size of the enterprise.

Fourth, climate change breaks the link between product and place. Temperature and rainfall patterns, and pest and species ranges, may all shift, making historical specifications difficult to meet. Adaptive governance is real, but it cannot be blind to scientifically driven change. Fifth, digital traceability, e-commerce and remote verification may reduce fraud and link small producers to consumers but may also increase compliance costs and dependence on platforms.

Finally, indicator frameworks need to be tested in real-life producer organizations. Two strong bases are the participatory approach of Vandecastelaere et al. (2021) and the SDG methodology of Guareschi et al. (2023). Their worth will be judged by their usefulness, cost and impact on decisions and not just reporting.

7. Conclusion

Geographical indications can support sustainable development, but not automatically. The evidence reviewed suggests plausible pathways to higher value, rural diversification, cultural continuity, collective learning, biodiversity conservation and territorial reputation. It also logs exclusion, unequal value capture, ecological intensification and institutional weakness. The key insight is that a GI is an enabling governance arrangement, not a sustainability certificate.

Policy should therefore integrate GI protection with producer organization, inclusive membership, environmental specifications, enforcement, rural services and transparent monitoring. Producer groups should regard sustainability as a journey that they are on, with regular re-evaluations of priorities and practices as markets,

communities and ecosystems change. GIs can link global demand to locally rooted development by treating collective reputation as a territorial asset in common and sharing benefits and responsibilities equitably. In the absence of those conditions, the label can protect a name but not the people, knowledge and landscapes that give the name meaning.

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