



# A Systematic Comparative Assessment of Certification Standards in India and Suggested Evaluation Frameworks

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Sustainable agriculture has the potential of addressing major social and environmental challenges affecting agriculture in India. One of the ways to promote sustainable agriculture is through certification. This refers to the broad family of voluntary standards set by third-party against which producers are independently audited and certified. An appropriate sustainability framework can guide more effective food procurement by accounting for context in the form of demand architecture and production systems. The study therefore presents a review of five different sustainability certifications prevalent in India with focus on spice certification. These have been analyzed against value drivers, impact pathways to different capitals, sustainability issues, and the stakeholders involved. The results indicate that these certifications cover most common issues with no evident differences indicating the possibility for a need for differentiation to allow consumers choose based on their preferred concerns. An evaluation framework is prepared to make a case for evaluating these certification initiatives to outline the differential parameters.

**Keywords:** sustainability standards, sustainable agriculture, differentiated certification, standards criteria, spice certification

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## INTRODUCTION

Sustainable agriculture has the potential of addressing major social and environmental challenges affecting agriculture in India. Historically the government's policies both at the National and Subnational levels have aimed at improving productivity to meet food grain self-sufficiency, which has not corresponded with agricultural sustainability (Shetty, 2018). One of the ways to promote sustainable agriculture is through certification. Certification refers to the broad family of voluntary standards set by third-party against which producers are independently audited and certified (or verified in some cases) (Arora et al., 2019). Such market based instruments (MBIs) have been used widely in agri-food systems through third-party certifications aimed primarily at traceability, environmental sustainability, fair treatment of workers, quality, and price security (Bose et al., 2019). Multiple standards have emerged around the world, which exist simultaneously due to legacy ties in national, sub-national and community contexts of both producers and consumers which end up driving the buy-in for the various standards available (Manning et al., 2012).

This study presents review of five different sustainability certifications prevalent in India with a focus on spice certification. These have been analyzed against value drivers, impact pathways to different capitals, sustainability issues, and the stakeholders involved. The results indicate that these certifications cover mostly common issues with no evident differences indicating the possibility for

a need for differentiation to let consumers choose based on their preferred concerns. The study further suggests an evaluation framework to make a case for evaluating these certification initiatives to outline the differential parameters.

## SUSTAINABLE CERTIFICATION

Certification are market-based methods of assigning value - environmental, social, or economic value to a given quality in a commodity (Bray and Neilson, 2017). As one of the measures that can help those directly involved in production, economically and socially, certifications refer to, “schemes that provide a guaranteed price premium to service providers for the provision of an ecosystem services.” It derives some of the principles from payments for environmental services (PES) schemes (Sommerville et al., 2009; Bray and Neilson, 2017).

There are several initiatives presently operating in the sustainable trade area, each representing varying standard criteria and approaches to implementation and verification. The same label may certify across different geographic regions, and different labels can work with distinct, similar, or identical theoretical objectives related to the definition of sustainability used (Vogt, 2019).

In terms of the organic certification, where India accounts for 30% of total certified organic producers in the world, the total organic cultivated area stands at a meager 3.3% (Chandra and Rosmann, 2020). There is a minor but growing domestic organic market, which is experiencing higher growth rates than the conventional sector. Further propelled by a surge of demand in the wake of the COVID-19 pandemic, India continues to be an emerging market for organic food and beverages with robust prospects. As per the latest data available of Fiscal Year 2018–19 with the Agricultural and Processed Food Products Export Development Authority (APEDA) certified organic production for all crop categories stood at 2.6 million metric tons (MT).

In 2016, Sikkim achieved a notable distinction by converting its entire cultivable land (more than 76,000 ha) to organic certification.<sup>1</sup> This opens up opportunities for growth in certification in the near and distant future.

The Government of India has come up with various schemes to mobilize commodity clusters and facilitate capacity building, handholding, and infrastructure creation for on-farm input production. There has been push toward capacity building and enabling the enterprises to offer efficient services, support them in building required management capacities, and stimulating market growth. The Ashok Dalwai Committee’s report on Doubling Farmers’ Income (Sep 2018) emphasizes on providing support to farmers with favorable policies to address shortage of inputs and encourage farmers to choose organic farming.<sup>2</sup> There is a need for efficient policy restructures boost growth in this sector, including certifications for better returns to stakeholders, creating a win-win situation.

Fair trade, Certified Organic, UTZ, and Rainforest Alliance are some of the examples of international sustainable certifications, which have gained market prominence over the two decades (Bray and Neilson, 2017). India has developed its own voluntary standards such as Trustea, INDIA Good Agriculture Practices (INDGAP), Zero Defect Zero Effect (ZED), and Voluntary Certification Scheme for AYUSH Products, Forest Certification, and Medicinal Plant Produce (Arora et al., 2019). However, most of these initiatives have been recent. In addition, there have been many initiatives and schemes promoted by National level government which include support related to certification as well. The standards established by UTZ and the Sustainable Agriculture Network (Rainforest Alliance) present themselves as being more holistically concerned about sustainability, and include a broader range of economic, social, and environmental criteria (Bray and Neilson, 2017).

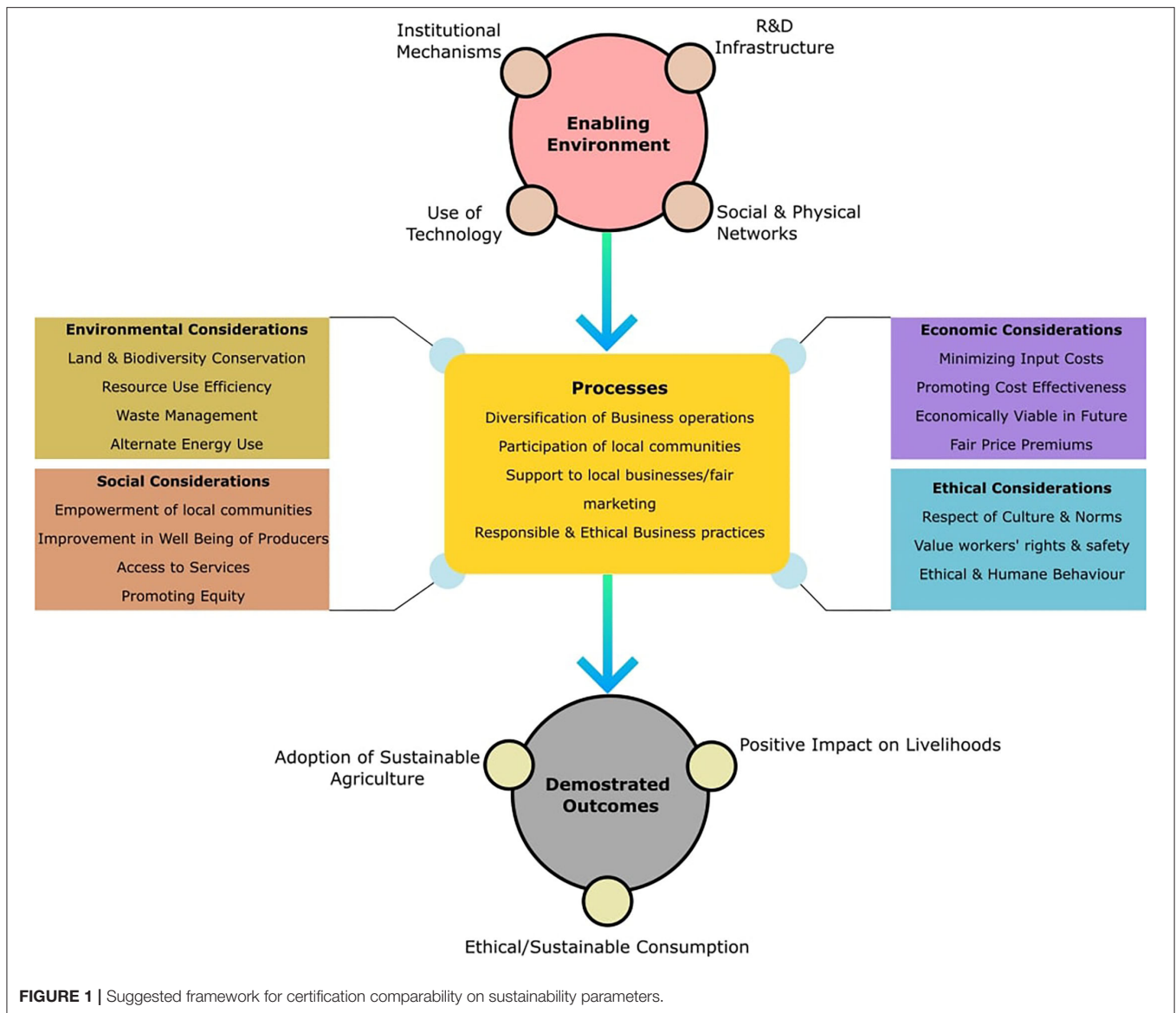
Although literature on sustainable certifications suggests that harmonizing industry requirements with social and environmental conservation can be complex. There exists significant difference among interests of various stakeholder groups. The positive effects includes more sustainable processes and infrastructure, creating new products and greater understanding between businesses and their communities (Morley, 2021). There have been many examples demonstrating benefits to stakeholders through sustainable certifications (Blackmore et al., 2012; Vogt, 2019). There exists a positive aspect of creating market demand for sustainable products leading to improvement in sustainable trade practices where Agri producers can be benefited through cooperatives or associations (Vogt, 2019) However, these standards have faced criticism for being a failure to solve the primary conditions affecting livelihood insecurity among Agri-producers (Starobin, 2021). These schemes have been criticized for the lack of credible evidence of their impact, particularly on the long-term impacts on the smallholders they purport to support. Additionally, recent mainstreaming efforts have increased competition among standards and driven down price premiums (Dietz and Grabs, 2022).

Results from the study conducted by Parvathi and Waibel (2015) indicate that adoption of organic farming under fair trade marketing practices is dependent on farm size and market distance. The adoption was found high in case of bigger farm size. A comparative gray analysis conducted by Ikram et al. (2020) reveal that the adoption of Quality, Environment, and Social (QES) standards have a positive and significant effect on exports of goods and services in developing countries. However, substantial heterogeneity exists, which is only partly attributable to observed factors that vary across studies [such as the type of product, standard, or region (Meemken, 2020; Bitzer and Marazzi, 2021)] analyzed the inclusiveness small-scale producers and other weak actors in Trustea, as an example of Southern sustainability initiatives, a global multi-stakeholder initiatives.

The last few years have noticed an increase in consumer’s ethical consumption. There has been increase in demanding traceable, ethical products; and greater responsibility and transparency from the companies that make them. As per research of the U.S. consumers’ actual purchasing of consumer-packaged goods (CPG) conducted by NYU Stern’s

<sup>1</sup><https://www.thehindu.com/news/national/Sikkim-becomes-India%E2%80%99s-first-organic-state/article13999445.ece>

<sup>2</sup><https://www.downtoearth.org.in/blog/agriculture/the-government-needs-to-midwife-indian-agriculture-to-an-organic-revolution-67177>



Centre for Sustainable Business, a 50% of CPG growth from 2013 to 2018 came from sustainability-marketed products. Additionally, there is increased awareness and movement of the climate crisis to the top of the agenda for leading food companies that recognize the need for climate impact mitigation. The resilience of agricultural inputs from suppliers is a key to long term business success. To meet these challenges, companies and international coalitions are collaborating to promote solutions. Most studies on consumer attitudes toward sustainability focus on selected product categories and/or labels and results are difficult to generalize. There is a lack of evidence on the economic benefits of certification schemes in the context of domestically consumed foods and beverages (Tran and Goto, 2019).

India, the world's leading producer and exporter of spices, is a significant stakeholder in spices export trade (Thomas and Sanil, 2019). The states of Andhra Pradesh, Rajasthan, Gujarat, and the

North Eastern Region of the country are the major contributors of the spice production in India. The variety of spices grown across these states vary widely (YES BANK and IDH, 2015). The National Sustainable Spice Programme (NSSP), an initiative of the national government aims to ensure that at least 25% of the spices grown in India would be cultivated sustainably by 2025. There are several region-specific local initiatives, particular from the state of Kerala, which has a long history of spice trade in India. For example "PDS Organic Spices," a unit of Peermade Development Society in the state of Kerala has been promoting cultivation, processing, and marketing of quality organic spices to help the marginal farmers achieve sustainable livelihoods (Sabu et al., 2020). A study conducted by Karunakaran and Thomas (2017), in Kasaragod observed that fair trade alliance offer more prices to the organic commodities and the difference was found highest for pepper, turmeric, cocoa and ginger. In terms of market selling, a significant 47% were found dependent on fair

trade for selling their organic products, only 8% of farmers depend on conventional markets (Karunakaran and Thomas, 2017).

One of the major challenges is the price volatility of spice commodities, like pepper, etc., which has increased in the open-trade regime. Different institutional mechanisms have been explored in this regard. For example, contractual agreement with smallholder pepper were found to be important in competitive markets and facilitate high returns to more established pepper producers (Sabu et al., 2020). The same study, however, argued that contractual agreements alone could not protect the farmers from price variations.

Another study from Odisha conducted a survey of the perception of farmers regarding different activities of FPOs, training, advisory services, financial services, input-supply services, marketing services, storage services, and certification services and found it to be highly positive (Sahoo et al., 2018). Also, most of the Agri-producers are marred by other challenges. Complications such as illiteracy, poor transport services, problems in accessing finance, lack of support by public institutions, and economic infrastructure all hold back the ability of producers and service providers to obey with sustainability certification necessities (Shukla and Bhamre, 2017).

Literature suggests that a global certification implemented in conjunction with a local conservation project or measures might be better suited to address both environmental outcomes as well as more adapted to relieve peoples' insecurity toward such initiatives (Bose et al., 2019).

Further research and practical measures can improve understanding of, and actual outcomes and legitimacy of work conducted earlier. There is need for research analyzing environmental, societal, or economic outcomes as indicative of sustainability, and implications as associated exclusively with any one certification effort, pillar of sustainability or across certifications and pillars (Vogt, 2019).

An appropriate sustainability framework can guide more effective food procurement by accounting for context in the form of demand architecture and production systems. There is scope for a potential strategy to support food supply that lack the assurance of impact provided by certification schemes such as organic or fair trade. This relates particularly to the support of local businesses who are embedded in the communities that individual public sector organizations have a duty to serve (Morley, 2021).

As a step in this regard, this study presents a review of different sustainability certifications prevalent in India with a focus on spice certification. The selected certifications include Sustainable Spices Initiative, Nedspice Farmers Partnership Programme, SAN-Nestlé Spices Responsible Sourcing Partnership, Fair for Life, Rainforest Alliance, and Sustainable Agriculture Standard. These cover the prominent certification standards for spices in India, which are covering relatively larger geographies with strong support from private players.

## METHODOLOGY FOR CRITERIA SELECTION AND REVIEWING OF SUSTAINABILITY STANDARDS

To conduct the review, we used Google Scholar and Harding's Publish or perishes databases for this review. We accessed national and international websites looking for reports and documents on sustainability certification initiatives. From the search, we narrowed down the sustainability certification initiatives based on the inclusion criteria that these certifications be focused on the spices sector with the Indian context. Once the required set of documents were collected, a parameterization of the structure of each certification was worked out to develop key variables for further analysis and development of a sustainability framework for comparative analysis of sustainable certifications. Below is a detailed description of various sustainability standards, which have been reviewed covering their key features, objectives, and requirements:

- Sustainable spices initiative-India:** The Sustainable Spices Initiative (SSI) was founded in 2012 to bring together companies and NGOs within the herbs and spices sector. SSI has not specified the definition or standards for sustainability in the herbs and spices sector but has instead relied on those that are already applied in agriculture. The following three objectives are pursued: to strive for a fully sustainable spice production and trade in the sector, to reach or exceed 25% sustainable sourcing in at least top 3 products categories by 2025 and, to achieve or exceed 10%-point growth for top 3 product categories by 2021. SSI also built a basket of standards, which are considered sufficient to certify or verify sustainable production of spices that are appraised by the SSI Benchmarking Working group against the key issues in the spices sector. The theory of change proposed by this initiative is to ensure that the quality of spices is good in terms of the long-term demand needs and its provisioning through smallholder farmers is sustainable and attractive enough for smallholder farmers. By following practices that are sustainable, the farmer helps to reduce the impacts on the environment from the farming practice that is adopted. This therefore builds up and strengthens smallholder farmer economic and social resilience and therefore a helpful strategy to diversify livelihoods. SSI-India comprises some of the leading exporters and industry organizations as members who are using their publications and market demand to work on the adoption of better farming practices (SSI-India, n.d.).
- Nedspice farmers partnership programme:** The Nedspice Farmers Partnership Programme invites farmers into a financially attractive and long-term partnership through training and on-farm support for sustainable production of high-quality and safe spices. For example, Cumin farmers benefit from a Package of Practice (PoP), which are uploaded into a mobile app and are led by Nedspice field technicians for decision making throughout the cultivation process. The NFPP project areas in India are in the states of Rajasthan, Andhra Pradesh, and Kerala. In Rajasthan NFPP farmers cultivate cumin, fenugreek, and fennel. In Andhra Pradesh,

NFPP farmers cultivate turmeric and in Kerala, NFPP activities for ginger, nutmeg, and turmeric are being carried out (Nedspice, n.d.).

- **SAN-Nestlé spices responsible sourcing partnership:** This is a collaboration between SAN and Nestlé initiated by Nestlé and co-designed with SAN to strengthen consumers' trust by knowing where ingredients come from and how are they made. This partnership will help to identify and implement mechanisms that can build positive impact for farmers, communities, and environment, beyond a compliance-focused certification approach. About 98% of the spices in India are produced by small-scale farmers, that SAN will engage with inter alia, through: traceability assessment for Nestlé's spices upstream supply chain; co-design outcome and performance indicators, and undertake baseline assessments in India. Nestlé and SAN will be adopting an "enabler" and "catalyzer" role toward the suppliers and the farmers involved and adapt the efforts needed to the challenges faced in the diverse sourcing areas. Any opportunity to enable agripreneurship, and to engage other stakeholders to create a wider shared value proposition will be identified and fully supported. Accordingly, Nestlé and SAN believe that self-sufficient, long-lasting solutions come from a combination of local knowledge with external expertise support that is understood, accepted, and replicable by the benefiting stakeholders: the farmer communities, the suppliers (SAN, n.d.).
- **Fair for life:** Fair for Life is a certification programme for fair trade in agriculture, manufacturing, and trade created to meet a specific demand from organic farming stakeholders with a specific focus on "responsible supply chains," where stakeholders have chosen to act responsibly by implementing good economic, social, and environmental practices. By following the framework defined by Fair for Life certification, producers, processors, and brand owners can secure their sales and supplies, thanks to tools such as long-term contracts that include fixed prices and volumes, and by establishing a real partnership between them. Through a Fair for Life certification there is a possibility to recognize other schemes that can be complementary, enabling synergies and a wider sourcing. There are other advantages as well such as independent third-party certification and the ability to source Fair Trade ingredients from any country (South and North) (Fair for Life, n.d.).
- **Rainforest alliance sustainable agriculture standard:** The Rainforest Alliance Sustainable Agriculture Standard recognizes the challenges already being posed by climate change and seeks to address these challenges by actively promoting Climate Smart Agriculture and improving the resilience of farms and farming communities. The Sustainable Agriculture Standard principles are organized into five outcome areas: Effective Planning and Management System, Biodiversity Conservation, Natural Resource Conservation, Improved Livelihoods and Human Wellbeing and Sustainable Cattle Production (applies for the cattle certification scope only). This revised standard has a few key distinctions and innovations such as approaches for child labor, force labor, and sexual harassment. Another field in which the Rainforest Alliance is exploring new pathways is more extensively

addressing economic prosperity of the farmers and workers. In the new standard, there is more focus on productivity and income, which will be explored together with further developments in our chain of custody standard and other requirements for buyers (Rainforest Alliance, 2021).

From the available literature on the comparison of various certification schemes, most of the studies focus on comparison of stand-alone crops like coffee, etc., where certifications have existed for relatively longer period. van Amstel et al. (2008) compares five eco-labels in the Netherlands through four aspects namely, agro-biodiversity measures included rule of law assurance to buyers, mechanisms for farmers' compliance and lastly, ecological impact measurement, and monitoring. The study selected all major institutionalized third-party eco-labels for arable farming, which was supported by a certificate authenticating support for sustainable agriculture. Bray and Neilson (2017) analyzed various certification schemes in terms of their impact on coffee smallholder livelihood assets, following the sustainable livelihood framework. The review study examined various case studies and peer-reviewed publications to determine the impact pathways of certification schemes on livelihood assets and showed that under specific institutional and contextual settings certification schemes did help, but the causation was difficult to establish.

Chiputwa et al. (2015) compared three sustainability-oriented standards, Fairtrade, Organic, and UTZ in terms of their impacts on the livelihoods of smallholder coffee farmers in Uganda. Of the three standards only, Fairtrade provides a minimum quality-invariant floor price. The study conducted a structured survey and propensity score matching to find that Fairtrade certification increases household living standards by 30% and reduces the prevalence and depth of poverty. Moscovici and Reed (2018) focused their study on analyzing 12 identified wine certifications around the world having sustainability in the certification or organization title and those that have been recognized by either the wine industry or the government, regardless of the level. The certifications were categorized based on their establishment, participation, outcomes, logistics, and structure. The review found that the certifications varied across a combination of extrinsic and intrinsic goals; common economic goals (reduced impact, improvement of operations, new markets, tool), intersecting social desires (equity, right thing to do, social), and overlapping environmental goals (natural resources, environmental stewardship, reduced impact). Mitiku et al. (2017) compares different coffee certification schemes in Ethiopia namely Fairtrade (FT-), Organic (Org-), double Fairtrade-Organic (FT-Org-), and Rainforest Alliance (RA-) certifications. The analysis was done to determine the estimated effects of membership in FT-, Org-, FT-Org-, and RA-certified cooperatives on coffee yields, coffee income, total household income, and poverty. It was found that RA- and FT-Org-certifications are associated with higher incomes and reduced poverty, mainly because of higher prices; FT- certification hardly affects welfare; and Org- certification reduces incomes, chiefly due to lower yields. According to Bonisoli et al. by using the SAFA tool it has been shown that the organic and Fairtrade farms have been driven to achieve sustainable performance metrics

**TABLE 1** | Sustainability criteria comparability matrix for five selected certification standards<sup>a</sup>.

		<b>Sustainable spices initiative-India</b>	<b>Nedspice farmers partnership programme</b>	<b>SAN-Nestlé spices responsible sourcing partnership</b>	<b>Fair for life</b>	<b>Rainforest alliance sustainable agriculture standard</b>
Value drivers	Create new products	X	X	X	X	X
	Cost reduction and process improvements		X	X	X	X
	New supplier relationships	X	X	X	X	X
	Improve downstream product preference	X	X	X	X	X
	Improve brand value and reputation	X	X	X	X	X
	Improve risk management	X	X	X	X	X
	Leverage public partnerships and funding	X		X		X
	Provide firm with opportunity to globally operate		X		X	X
Sustainability issues addressed	Water	X	X	X	X	X
	Farmer livelihoods	X	X	X	X	X
	Natural resources	X	X	X	X	X
	Climate change	X	X	X	X	X
	Preserving biodiversity	X	X	X	X	X
	<b>Impact pathways</b>					
Human capital	Skills development	X	X	X	X	X
	improved spending on health and education	X	X	X	X	X
	<b>Impact pathways for social capital</b>					
Social capital	Strengthening of producer organizations	X	X	X	X	X
	Enhanced networking opportunities for farmers	X	X	X	X	X
	Empowerment of individuals	X	X	X	X	X
	<b>Impact pathways for physical capital</b>					
Physical capital	Investment into physical infrastructure	X	X	X	X	X
	Investments made by buyers directly into physical assets			X	X	X
	Encouraging other actors to build physical infrastructure		X			X
	Requiring producers to invest in processing facilities			X	X	X
	<b>Impact pathways for natural capital</b>					
Natural capital	Introduction and mandating of good agricultural practices	X	X	X	X	X
	Active promotion of habitat protection or restoration	X	X	X	X	X
	<b>Impact pathways for financial capital</b>					
Financial capital	Higher incomes related to price premiums	X	X	X	X	X
	Adoption of more profitable agricultural practices	X	X	X	X	X
	improved access to financial credit	X	X	X	X	X
	Reduction in financial risk and price volatility	X	X	X	X	X
	<b>Stakeholders</b>					
Stakeholders	Agricultural producers	X	X	X	X	X
	Businesses/corporates	X	X	X	X	X
	Consumers and public	X	X	X	X	X
	Policy makers					

<sup>a</sup>The crosses are used to signify if the said certification standard fulfills the respective indicator.

than conventional farms. However, conventional farms appear to have a better performance in terms of social sustainability, but this has to do with reasons other certification standards such as possibly the size and processes of farms (Bonisoli et al., 2019). In the article by Reynolds et al. (2007), which compared five major third-party certifications by outlining the governance structures, environmental and social standards, and market positions, it was found that there is a struggle between the incumbent certification industry and these new formations on raising the ecological and social expectations from certification (Reynolds et al., 2007).

The parameters based on which review and comparison of these standards are the Value Drivers, Sustainability issues addressed, Impact pathways for human, social, physical, natural, and financial capital, and stakeholders. These have been arrived by the review of the comparison of sustainable certifications and initiatives in the previous section. Below is a description of the various parameters used for the review and comparative analysis the various certification standards:

1. Value Drivers: this parameter focuses on redistributing existing value in supply chains, but about creating more value—marketing value, improved quality, supply chain efficiency, increased productivity—that can be shared among supply chain actors.
2. Sustainability issues addressed: this parameter looks at how the certification standard has tried to address the sustainability issues in the spheres of water, farmer livelihoods, natural resources, climate change, and preserving biodiversity.
3. Impact pathways for human, social, physical, natural, and financial capital: Impact pathways refer to the ways a particular certification program can help realizing spill over benefits. These spill overs can occur by following the five “capital” or “assets” general classification in livelihood frameworks such as the Sustainable Livelihoods Framework. As regards for the review, impact pathways of each of the following were considered: Human capital which includes skills, knowledge, education, good health, and physical capability; Social capital which includes social networks, social claims, relations, affiliations, and associations; Natural capital which includes natural resource stocks (such as land and water) and other environmental services; Physical capital which includes infrastructure, housing, tools, and equipment, and Financial capital which includes wages, cash reserves, savings, and access to credit.
4. Stakeholders: refer to the actors that are involved in the creation or success of a certification standard. Following general principles this can be looked at as, agricultural producers, business/corporates, Consumers and public, and policymakers.

The following table presents the comparison of the selected sustainability standards:

The comparison of the certification and initiatives indicates similar nature of these certifications can be seen from the limited amount of differentiation that can be observed in **Table 1**. Similarities are expected given the nature of such initiatives but it also opens up opportunities to define a sense of differentiation to allow for a targeted approach of the certifications and initiatives

in their efforts to promote sustainability, thereby connecting directly to the most relevant consumer markets. Also, as the market grows, the producers also can be sensitized to the benefits of the each of the certifications and can choose based on fulfillment of their needs, aspirations, and expected benefits.

## EVALUATION FRAMEWORK FOR COMPARABILITY OF SUSTAINABILITY CERTIFICATIONS

Based on the literature of review, a for evaluating and differentiating sustainability been suggested that is developed in three stages as shown in **Figure 1** above. The first stage comprises of the enabling environment which comprises of four components namely: Institutional mechanisms that are prevalent in the existing paradigm; the next is the R&D Infrastructure that is available for utilization by sector specific actors; this is followed by the Social and Physical Networks that have been used not only to develop and maintain the existing networks but also the emerging variations that would help strengthen the said networks and finally we have the use of technology that is an emerging viable cost-effective and forward leading approach to the robustness of a certification process. The second stage of evaluation looks at the systemic connections the enabling environment has to the development of processes within the institutions that are affected by various social, ethical, economic, and environmental considerations. Each of these considerations has various sub-components that need to be satisfied for the acceptability as an effective certification standard. These processes define the working of the various entities and stakeholders engaged, working toward demonstrated outcomes. The demonstrated outcomes are the final stage in the overall certification framework analysis that is developed. This is made all encompassing by the three elements consisting of sustainable agriculture, positive impact on livelihoods, and the ethical (or) sustainable consumption metric. The empowerment and upliftment of the local communities has been considered as one of the key elements in this framework and is demonstrated by the various sub elements prevalent in the three stages. This could possibly be one of the most effective ways one can make a positive direct social, environmental, ethical, and economic impact.

## CONCLUSION

The study attempts to harmonize the criteria assessment and operationalization of sustainability standards in order to create differentiation among the various available certification standards/initiative by providing a suggestive framework for evaluation. The framework includes enabling environment actors and various sustainability concerns, which define the processes with the outcomes based on development of local communities and promotion of sustainable consumption and lifestyle. The indicators of the framework cover are indicative and broad in nature covering the aspects from a macro perceptible. These can be expanded further within their respective

domains covering larger range of sustainability aspects. This may provide better insights into consumers' response to sustainability certifications/initiative based on which criteria are preferred by consumers and it may also provide producers with the choice to select third party certifications or labels in the long run. However, while this provides a basic approach to evaluation, more research on assessment tools and general frameworks, as well as criteria and indicators for certification standards, is required.

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## AUTHOR CONTRIBUTIONS

The article has been conceptualized by MV and then jointly developed through intensive research by all authors and written together and finalized by MV. MV: overall structuring, ideas and writing, and finalization. PS: research and review of spice certification standards and writing. EJ: developing criteria table and figure as per guidance from MV and PS. All authors contributed to the article and approved the submitted version.

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