Sustainability standards and certification: A review of concepts and international practices for Australian agri-food enterprises and industries

Literature review to inform the development of an Australian Agricultural Sustainability Framework

Author: Dr Daniel Gregg, Intersection Innovations Pty. Ltd.

for the Australian Farm Institute
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Abstract

Interest in the sustainability of agricultural and food systems is constantly increasing. This interest comes from both within Australia and also from outside. As an export-oriented country, Australian agri-food industries are sensitive to changes in policy and market regimes, particularly for key target markets in Asia, North America and Europe. Meanwhile, domestic populations play roles as both consumers and in decisions regarding how natural resources are treated in the policy landscape, and also in the valuation of products from companies that adhere to, or run afoul of, changing perceptions of ethics in production processes.

From these changes have emerged a range of sustainability-focused certification programs operated by private enterprises, non-governmental organisations and industry associations. These certification programs are often limited in scope but with substantial overlap between them. The lack of coordination, cohesion, and cooperation between different sustainability standards generates confusion amongst food enterprises seeking to assure customers and markets whilst potentially diminishing the strategic value of sustainability standards and associated certification/accreditation schemes.

This document provides a review of standards, certification and assurance (SCA) schemes, and their relationship to current approaches to sustainability certification in Australian agri-food industries. The aim of this review is to provide insights into applicability of SCA schemes, their strengths and weaknesses, and how the sustainability SCA landscape in Australia might be adapted to improve cohesion amongst existing schemes in order to take advantage of potential opportunities or to mitigate potential emerging risks.

This review provides a benchmark of relevant literature to inform deliberations on the structure of the proposed Australian Agricultural Sustainability Framework (AASF).
Introduction

Standards, Certification and Accreditation (SCA) schemes are complex, costly and involve long-term commitments to establish consumer and/or market trust. They are costly not only for the organisations seeking to operate them but also for the enterprises that may seek, or be forced to, be certified according to a standard. Despite these issues, SCA schemes serve a clear conceptual purpose: to resolve the failure of markets to provide information on particular qualities of goods. These qualities desired by consumers might include food safety (assurance that producers use appropriate food handling systems for example); food taste (e.g. Meat Standards Australia); production practices that respect human/animal ethics (e.g. ‘sweatshop-free’, ‘free-range’), and; production practices that respect environmental ethics or outcomes such as biodiversity stewardship and sustainability schemes.

Given the complexity of SCA schemes, it is critical that careful consideration is given to three key factors (ISO Guide 64) as noted in Figure 1.

Figure 1: Conceptual foundations of an SCA program

This review seeks to provide insights into the conceptual underpinnings of the ‘why’, ‘what’ and ‘how’ in the creation of an SCA program. In doing so, conceptual ideas are presented that can guide consideration of the institutional structure chosen to define an SCA program. In addition, the review relates these conceptual ideas to real-world observations on current, topical, SCA programs and to the history and potential future of the ‘sustainability standards’ SCA landscape for agri-food products.
Standards, Certification, and Accreditation (SCA)

Standards, certification and accreditation are each distinct components of a system of accountability that is largely focused on product qualities, including those qualities that are not directly observable by consumers before and/or after purchase (FAO 2003); i.e. they are different components of a ‘complete’ system of quality assurance.

In the most basic sense: *standards* are the basic requirements for a product or process to meet consumer/market needs; *certification* is the process of checking whether a product or enterprise meets particular standards, typically undertaken by a certifying organisation that is independent of the enterprise/product being certified; and *accreditation* is the process by which certifying organisations are acknowledge to have the capacity to certify enterprises/products to a particular standard (Table 1).

### Table 1: Types of attributes of products and their relationship to observability

<table>
<thead>
<tr>
<th>Standards</th>
<th>Certification</th>
<th>Accreditation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Documents that set out specifications, procedures and/or guidelines that are designed to ensure products and/or the processes used to produce them meet the expectations of users/consumers</td>
<td>An assurance that a product, and/or the process used to produce the product, meets the respective standards that are being certified. Usually undertaken by an organisation that is independent of the producing organisation but not necessarily (e.g. in the case of ‘self-certification’).</td>
<td>An assurance that a certifying body (one that issues certification) is competent and with appropriate organisation to undertake effective certification of target standards.</td>
</tr>
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</table>

The SCA program/process

The SCA program can be considered as part of the ‘Information Economy’ rather than the ‘Physical Economy’. The latter is concerned with the production of goods (e.g. an apple) or physical services (e.g. a haircut). The former seeks to provide consumers with information needed to make a more informed consumption choice without requiring them to undertake verification of that information independently (e.g. certification of a producer and their products as ‘organic’ by an accredited organic certification body). This process is depicted conceptually in Figure 2.
Figure 2: The Standards, Certification and Accreditation (SCA) process

Note: Adapted from Sayogo et al. (2016)

Jahn et al. (2005) note the importance of the entire SCA process for ‘strong credence attributes’ (pp 56-57):

“The central task of certification, the reduction of information asymmetry within the market, can be fulfilled only if the institutions in charge succeed in assuring certification quality and, thus, the validity of the audit signal. Only if the underlying organisations succeed in establishing a quality reputation in markets will the corresponding labels be accepted as a quality surrogate. They need to demonstrate a credible commitment towards the principles and specific regulations of the certification system in question.

The key implication of the review by Jahn et al. (2005) is that SCA programs are entirely reliant on consumer perceptions of them as being credible in their commitment to seeking to ensure production processes undertaken under their certification/accreditation are highly likely to be conducted according to the relevant standards.

Why do we need SCA programs?

SCA approaches differ on a number of levels depending on the control body or owner (Figure 2), the end user and the desired outcome, for example:

- National, regional or local governments seeking to generate value through market protection or access, protect national assets or investments (e.g. genetic material), to safeguard human health, animal health and/or biodiversity (i.e. sanitary and phyto-
sanitary measures under the WTO/GATT) or to reduce costly externalities (e.g. health impacts of cigarettes)

- Industry bodies in order increase the reputation of production practices/products in the eyes of the consumers, or to assure governments that the enterprises within an industry achieve a minimum standard
- ‘Clubs’ of consumer-facing enterprises that seek to differentiate themselves on a quality basis and are seeking a reputational basis for seeking premium prices from consumers (or to maintain/grow market share)
- ‘Clubs’ of producers that seek to access high-value markets through the creation of a quality-assurance program related to credence attributes
- Individual enterprises that seek to product differentiate through independent SCA processes in order to gain premium prices or access to restricted markets for their products

All these cases involve attributes of products referred to as ‘credence attributes’. They are differentiated from ‘search’ and ‘experience’ by the extent to which an individual consumer can observe them before or after purchase. **Certification is used to provide assurance to consumers/governments/processors and others regarding the presence of ‘credence attributes’**. Credence attributes can be best understood by comparing them to the other key attributes of goods as shown in Table 2 (Nelson 1970; Darby and Karni 1973, Andersen and Philipsen 1998).
Table 2: Types of attributes of products and their relationship to observability

<table>
<thead>
<tr>
<th>Search Attribute</th>
<th>Experience Attribute</th>
<th>Credence Attribute</th>
</tr>
</thead>
<tbody>
<tr>
<td>Characteristics that are observable by a consumer prior to purchasing the product (e.g. price, colour, weight, etc.)</td>
<td>Characteristics that can only be observed after ‘experiencing’ (i.e. consuming) the product (e.g. taste).</td>
<td>Characteristics that cannot be easily observed by the consumer even after consumption. These are often aspects related to methods of production such as ‘organic’, ‘sweat-shop free’, ‘sustainable’ etc.</td>
</tr>
</tbody>
</table>

Benz (2007) provides a more ‘natural’ interpretation of these attributes based on the costs to the consumer of evaluating the quality of the good:

- **Search attributes** feature low pre-buying costs of quality-detection. Hence consumers can effectively and efficiently learn about the product before buying it.
- **Experience attributes** feature high pre-buying costs of quality-detection but low post-buying costs of quality-detection. Hence, whilst consumers must consume/use the product to determine quality they can adapt future consumption decisions after initial consumption.
- **Credence attributes** feature high costs of quality-detection both before and after purchase. A consumer cannot efficiently nor effectively independently determine whether the credence quality is/was present in the consumed/used product.

SCA are systems that are applied to provide assurance to consumers regarding both experience and credence attributes. In the case of the former, the focus is on providing quality assurance to consumers regarding taste expectations: for example, the ‘Meat Standards Australia’ (MSA):

> Meat Standards Australia was developed by the Australian red meat industry to improve the eating quality consistency of beef and sheepmeat. The system is based on almost 1.2 million consumer taste tests by more than 171,000 consumers from 11 countries and takes into account all factors that affect eating quality from the paddock to plate. (MLA 2020)

Whilst certification of taste or other experience attributes is an important component of market differentiation for many producers (i.e. that can provide a premium or access to a niche market), in these settings standards and certification are relatively straightforward. Specifically, consumers are easily able to assess experience attributes for themselves, so there
is no need to demonstrate independently to consumers that quality assurance over these attributes is actually occurring.

The opposite is true for credence attributes. Credence attributes are such that consumers cannot easily assess quality even after consumption/use of the product. In these cases there is a substantial and persistent level of asymmetric information between the seller/producer of a product and the user/consumer of that product. This means that consumers are likely to remain reticent about purchasing certified goods unless they can be assured that such certification is likely to indicate a high probability that the certified product meets the relevant standards.

**Asymmetric information is pervasive for ‘process’ attributes**

Asymmetric information describes the case wherein one party in a transaction has more information than another. For example:

- A ‘farmers market’ stallholder who knows that the produce he sells at the stall is purchased as rejects from a large producer, whilst his customers think he has farmed the produce himself.
- A café which makes claims that they sell ‘sustainably produced’ coffee but don’t tell their customers that the majority of the coffee sold through the shopfront is commodity-grade with no ethical certification (i.e. ‘greenwashing’ their product).

**What types of goods are SCA programs needed for?**

More recently, credence attributes have been further defined into a *weak* credence attribute that embodies asymmetric information at an individual consumer level but that can be resolved through industry or government-led testing, and a ‘Potemkin’ or *strong* credence attribute that is associated with process-related aspects and that cannot be verified through any testing of the final product (Jahn et al. 2005) – see examples in Table 3.

<table>
<thead>
<tr>
<th>Table 3: Differentiating credence into ‘weak’ and ‘strong’ attributes</th>
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</thead>
<tbody>
<tr>
<td><strong>Credence Attributes</strong></td>
</tr>
<tr>
<td><strong>Weak (‘testable’ attribute)</strong></td>
</tr>
<tr>
<td>Attributes that are not easily observable to the individual consumer but that can be verified via testing of final products. For example:</td>
</tr>
<tr>
<td>• Nutritional profiles of foods</td>
</tr>
<tr>
<td>• Presence/levels of chemical compounds</td>
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<tr>
<td></td>
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</tbody>
</table>
Strong credence attributes have the direct implication that, short of complete and persistent monitoring of the production process, consumers are unable to ascertain whether a particular product is truthfully produced using methods that are claimed as being used.

Importantly, the asymmetric information associated with strong credence attributes is hierarchical: consumers also typically face difficulties in assessing whether a certification body has adequately audited a producer that makes strong credence claims. Thus, the standards→certification→accreditation framework seeks to transfer consumer concerns around the truthfulness of credence claims from the product to a certifying body (i.e. consumers can see that the product/producer has been certified) and this certification trust onward to the accreditation body (i.e. consumers can see that the certifier is accredited with an industry/government body).

Asymmetric information and the ‘market for lemons’

Asymmetric information can have severe adverse effects on the operation of markets. In the worst case, asymmetric information issues that are unresolved can lead to a ‘race to the bottom’. The ‘race to the bottom’ results when consumers have no method to efficiently assess credence qualities of products. When this happens, and when producers have incentives to ‘cheat’ on quality (i.e. when quality is costly to produce and/or when it is valued more highly) the market will tend to converge to a low-quality, low-value equilibrium. The resulting loss to consumer and producer welfare, that is to potential economic and social welfare gains, can be large if there is a large difference in value between high-quality and low-quality produce.

**Asymmetric information and the ‘race to the bottom’**

Consider this scenario:

- Many producers and many consumers interact, with the consumers being unable to ascertain the quality of a good prior to purchase (but able to ascertain quality post-purchase).
- If we assume that quality is costly to produce and consumers value high-quality, we can infer that producers have an incentive to pass off a low-quality product as being of high quality to save on cost of production and retain a price premium for the product.
- Knowing this about producers, consumers will in turn be generally unwilling to pay the full price for high-quality goods as they know there is a chance that the good will be low-quality and so worth less.
- As this cycle repeats the equilibrium will move from a high-quality, high-value point to one of low-quality and low-value.
- There is a need for producers to effectively and efficiently assure consumers about the quality of their produce.

High-quality, high-value

Low-quality, low-value
Environmental attributes of production are strong credence attributes

Environmental attributes of products, those that reflect the process of production rather than being reflected in taste or visual attributes of food products, are inherently difficult for consumers to assess independently. Process-related claims made by food producers are ubiquitously more difficult for consumers to assess than other attributes that are more experiential or can be observed directly (e.g. taste, price, visual amenity) (McClusky and Louriero 2005). Asymmetric information issues occur for production-related claims because producers are aware of what processes were used in production whilst consumers typically cannot easily (cost-effectively) independently verify these claims.

In cases where consumers cannot verify claims made by producers regarding environmental factors related to food production practices, consumers then rely on reputational considerations or other signals to consider the veracity of these claims. Without effective signals, or a strong reputation of the enterprise (e.g. that can be independently verified by others), consumers are unlikely to pay the full potential value associated with an environmental claim. As a result, there is likely to be under-provision of environmental quality-related attributes of food in cases where an effective (i.e. perceived as a robust indicator of a claim’s veracity) and efficient (i.e. cost-effective for a consumer to observe) signal is not established (McClusky and Loureiro 2005).

Resolving asymmetric information problems for strong credence attributes

SCA is a mechanism that seeks to resolve the difficult challenges arising from asymmetric information associated with strong credence (i.e. ‘process’) attributes. This mechanism seeks to assure customers that ‘certified’ producers can be expected to be meeting target ‘standards’ through a process wherein producers are checked for requirements by ‘accredited’ certifiers.

However, SCA schemes do not arise for simply any credence attributes but rather arise from the co-existence of a number of factors. All goods have ‘credence attributes’, however few are associated with SCA processes. For example, whilst a ‘pasture-fed beef’ SCA program exists in Australia, the program does not specify the species of pasture that is predominantly used in the certified livestock enterprises, despite concerns around the effects of improved pastures on native biodiversity. SCA processes are only justified when the total value of a certification program can be shown to be expected to be higher than the substantial costs of implementing and maintaining an SCA program, accounting for potentially large time and initial implementation costs for individual enterprises.

How do we ‘do’ SCA?

There are numerous approaches to design and implementation of SCA schemes. At each level (standards, certification, accreditation) of such schemes the initiation, design, and/or
operations can be undertaken by governments, industry organisations, private firms/clubs and/or external groups, e.g. environmental non-governmental organisations (NGOs).

A voluntary scheme is the most common approach to sustainability SCA schemes, usually tied to non-governmental standards developed either privately or by an NGO. Government-led sustainability SCA programs are less common; however, there may be growing pressures for governments to intervene in a market characterised as one best served by a single or a few large suppliers.

Where government does commonly play a role is in the licensing or regulation of certifying/accrediting bodies. This is particularly so for established standards schemes (e.g. International Organisation for Standardisation or ISO and Standards Australia) but also for labelling criteria on food products through, for example, Food Standards Australia New Zealand (FSANZ). Differences in SCA design differ by product types, sustainability focus, and region. For example: organic food certification is operated entirely within a private/market-led arrangement in Australia, entirely under Government jurisdiction (though with third-party certifiers) in the United States, and with standards set by the European Commission in Europe (with individual member states accrediting certifiers in accordance with ISO Guide 65).

Figure 3 provides a depiction of the alternative pathways from credence attributes, creating asymmetric information, to SCA frameworks and final programs.
Figure 3: Alternative pathways and outcomes for SCA programs

Voluntary SCA

- Asymmetric information arising from credence attributes

Mandatory SCA

- Regulatory framework

Implementation framework

Market/industry

Hybrid

Government

Certification with respect to a public standard
For example: self-assessment by a farming enterprise with respect to ISO 14001 (environmental management systems)
Also certification can be to a public standard (e.g. ISO 14001) but through a fully-independent certifier that is accredited by the appropriate national body (i.e. JAS-ANZ in the Australian case).

Club certification
Certification according to privately-set standards by certifiers arranged by the ‘club’. For example EUREP-GAP certifies food suppliers for inclusion in the supply chain of a ‘club’ of food retailers operating in Europe. Club members agree to adhere to procurement rules (from certified suppliers) and agree on the standards and certification process for admitted suppliers.
Industry-level certification programs also come under the club certification process. Another example is the use of geographical indicators and culturally-relevant production processes in order to gain certification within a geographical (e.g. PDO) or conceptually-defined club (e.g. TSG).

Government-led, privately operated
Governments can seek to intervene in the SCA process, most commonly by developing the relevant standards for certification and outlining requirements for certifying/accrediting bodies.
An example is the USA approach to organic certification that sought to develop standards through government departments (mainly the USDA). This process took substantially longer and resulted in a overly-detailed sets of organic production standards in comparison to countries that allowed a market-led approach (e.g. Australia).

Mandatory certification with private SCA schemes
Historically these types of programs have been rarely applied. However they are increasingly being used for a range of process-related standards (i.e. for Strong Credence Attributes) such as:
- Halal production
- Hormone Free (EU)
There are emerging potential applications of these systems that may require environmental management certification in order to gain market access to key potential export markets.

Mandatory labelling/food safety schemes
Commonly used for public health concerns. Examples include animal production regulations (e.g. NLIS), mandatory labelling of cigarette packages according to government-selected imaging and wording, mandatory nutritional labels with strict requirements.
Given the plethora of potential outcomes from the different pathways for SCA programs, it is relevant to ask how it is decided what the ‘best’ choice is for creation of an SCA program. Unfortunately, the answer to this question depends on a range of factors such as:

- Few products or many?
- Complex or simple standards?
- Are there major risks to society/human health?
- Is fraudulent activity likely even with a SCA scheme?
- Demand driven or public-good driven?
- Local, national or international market operations?
- Overlap with domestic or international regulations?
- Existing SCA schemes (complementary and/or competing)?

Defining the ‘why’ and ‘what’ are core questions that need to be answered before the ‘how’ can be effectively defined. This is particularly so in the highly dynamic space of sustainability SCA schemes where private, NGO, and governmental programs are increasingly crowding a space with limited demand-driven market premiums.

An overview of existing schemes in the domestic (Australian) and international (with relevance to Australian industry/enterprises) has been undertaken and is included in additional documents provided with this review.

**Mandatory certification programs (a brief review)**

Government mandates for food labelling tend to only occur in cases of substantial risk to human health (e.g. nutritional labelling, heart-tick) or based on import regulations of other countries (e.g. Halal certification in Malaysia and some Middle Eastern countries).

There are no mandatory environmental labelling programs for food products within Australia and there is limited public appetite for, or compelling theoretical/market-based reasons for implementing a mandatory environmental labelling program. Golan *et al.* (2001) suggest two key reasons that governments may be compelled to mandate food labelling and certification:

1. To correct for asymmetric information issues that are not naturally signalled by secondary markets for information (i.e. for certification) due to these attributes being costly to signal or having negative value implications, and;
2. To correct for externalities.

There is unlikely to be a widely accepted, and substantive reason for the establishment of a mandatory SCA scheme for sustainability outcomes within Australia. However, there is potential for such schemes to be implemented in large markets overseas: for example, in Europe.
Are mandatory labelling regimes effective?

Mandatory labelling regimes are typically targeted at resolving concerns from a consumer viewpoint. As such they are not typically targeted at improving value, or managing market risks, to agricultural producers/processors. Even focusing on consumer concerns, Golan *et al.* (2001) show that mandatory regimes cannot be guaranteed to be effective at achieving information revelation or behavioural change outcomes. Thus, government-mandated labelling/certification should be considered only with care and with substantial effort given to considering the costs of such a program across all economic sectors (i.e. accounting for externalities to the target group).

But wait - isn’t ‘sustainability’ an outcome, not a process?

Almost all SCA schemes target outcomes: whether for experience attributes (e.g. taste) or for credence attributes (improved income for the poor, enhanced biodiversity conservation, reduced impacts of pesticides on ecosystems, etc.). However, very few SCA schemes actually use outcomes in awarding certification. Instead, and particularly for strong credence attributes such as those targeting sustainability outcomes, SCA schemes typically use standards that are defined over production procedures and associated activities.

Why processes (farming activities) are targeted rather than sustainability ‘outcomes’

A core reason for the focus on processes in production over sustainability outcomes is related to observability of the ‘signal’ regarding sustainable production. Given that:

1. the environment in which production occurs is highly variable (i.e. weather, climate);
2. the range of contexts that production occurs in is highly differentiated by the natural environment (soils, average climate, altitude), cultural context, institutional factors, and even the period of production (i.e. the technology and current knowledge), and;
3. that environments are typically slow to change (e.g. soil health, biodiversity),

then we can relatively firmly say that direct observation on *environmental outcomes* is difficult (costly). Moving on to sustainability, with the definition “the capacity to endure in a relatively ongoing way across various domains of life” we can relatively firmly state that sustainability is something that relies on long-term sustenance and/or improvement. Thus, sustainability can never be confirmed (as it can, at any point in the future, be rejected).

The implication of these insights is that measuring the sustainability of any individual set of farming activities with respect to their sustainability is likely to be effectively meaningless. That is, such measurements will reflect far more the vagaries of the weather, of environmental conditions, of institutional frameworks, and other largely unobservable phenomena rather than sustainability outcomes.

However, we are far better able to discern the practices that relatively reliably generate improved environmental outcomes (compared to a base set of activities) in a large range of
contexts. These set of practices might be termed ‘best practice’. They are, of course, dependent on the era in which they were measured, and so must be updated over time. These average ‘best practice’ measures are typically both highly observable and highly stable. They thus present measures that, whilst possibly not ideal, are feasible and indicative measures of ‘sustainability’.

The (potential) pitfalls of focussing on processes

Whilst a focus on the adoption of sustainable farming processes is essentially ubiquitous for sustainability SCA frameworks, it is not without pitfalls.

A key concern with SCA frameworks that focus on processes is that they generate technological ‘lock-in’. Technological ‘lock-in’ refers to cases where a business, industry or economy selects a particular technology that becomes difficult to supersede due to network effects and/or slow rates of depreciation, even when vastly superior technologies are available. Matus (2010) raises the potential for SCA programs to generate technological lock-in within sustainability SCA programs. This would result in potentially drastically stalled innovation in agricultural/food technologies with commensurate harm to farming enterprises and food consumers alike.

Similar to technological lock-in is the potential for standards-setting organisations to be captured by interest groups, resulting in standards that are reflective more of the interests of particular stakeholder groups rather than the best (i.e. most efficient) method to achieve sustainability outcomes. Examples of this appear to be present in the ‘Farm to Fork’ sustainability strategy outlined by the European Commission (EC 2020) that targets an achievement of 25% of farmland being under organic farming by 2030 - despite there being considerable evidence that organic farming is unlikely to be able to substantively contribute to feeding global populations (Muller et al. 2017) and foregoes the potential for technological improvements to delivery achievement of sustainable agriculture objectives (Connor 2013).

Thus, whilst a focus on processes in sustainability SCA frameworks is largely necessary, they must be designed to, as far as possible, avoid technological lock-in and stakeholder capture outcomes as described here.

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1 Note: Muller et al. (2017) seek to outline positive strategies to shift the world to an organic farming system. In doing so, whilst there are theoretically possibilities to make this shift, the assumptions needed to be met are somewhat heroic: including a 100% conversion to effectively vegetarian diets and a 50% reduction in food waste. Under current dietary and food supply chain systems the authors conclude that organic farming can only supply 20% of food supply, and that with additional constraints associated with declining fertility and/or requiring inputs from conventional agricultural systems (i.e. livestock systems).
History

Author’s note: much of the material from this section is derived from Vogt (2019) who provides a recent and detailed history of sustainability certification schemes, amongst other aspects of sustainability certifications in the book: “Vogt (Editor) 2019. Sustainability certification schemes in the agricultural and natural resource sector, Routledge: London”.

The market for sustainability certification has changed markedly over the last 40-50 years. The first broadly-based certification program was initiated by farmers with a focus on organic production standards. In 1972 the International Federation of Organic Agriculture Movements (IFOAM) was established to share scientific data on organic farming methods and outcomes. This was followed in 1982 with the first effort at labelling of food in order to differentiate produce, in this case on the basis of organic production by Oregon Tilth.

The precursor to Fairtrade™, the Max Havelaar label, was launched in 1988 with a focus on social sustainability outcomes and presented the first attempt by an NGO to compete in the space of international trade: a substantial effort given the complicated trade routes of the time. There has been substantial cross-fertilisation between organic certifications and Fairtrade with 50% of Fairtrade agricultural produce being also certified as organic (Vogt 2019). Rainforest Alliance (RA) was initiated in 1987 with a focus on reducing or reversing deforestation and with labelling developed in 1990. The Sustainable Agricultural Network (SAN) was then established in the late 1990s in order to standardise RA principles providing the capacity to certify producers according to RA principles.

The Forest Stewardship Council (FSC) is an example of a globally coordinated effort originating in the private sector that sought to define a global certification system for sustainable forest management. The FSC was initiated in 1993 and incorporated in 1996.

Since these early efforts there has been considerable growth in the use of SCA schemes, and associated labelling, in the realm of agri-food products and industries. This growth has, overall, been less coordinated than in the early phases of emergence of SCA within the agri-food landscape. The current state of SCA within agri-food industries is reviewed in the next section.

Current environment

The current environment of SCA for agri-food sustainability is vastly different to the environment only 20 years ago. From existence of a few, largely global sustainability SCA schemes, the agri-food landscape has changed to one with hundreds of schemes that cover a wide range of possible standards related to sustainability (Changing Markets Foundation 2018).

Indeed, the Ecolabel index (www.ecolableindex.com) lists 455 eco-labels, within 199 countries and covering 25 industry sectors across the world (accessed 17th April 2021). Even within only Australia there are currently 57 eco-labels currently operating. This is clearly a
contested environment. Whilst many of these may be irrelevant to the majority of agri-food producers/enterprises within Australia (e.g. Coffee and Farmer Practices C.A.F.E. is only used within Starbucks retail outlets), there appears to be a tendency toward increased provision of sustainability-related SCA schemes.

There are benefits and costs of the emergence of a dynamic, contested, SCA landscape. Obvious benefits are related to diversification and innovation: the increased offerings of sustainability-related SCA schemes means that consumers of these schemes (i.e. agri-food enterprises/producers) have more choice and may be able to meet the desires of increasingly picky niche markets. However, these benefits only occur if the dynamism in these markets is related to relevant diversification. It is possible that diversification in schemes is largely in-name only with minor differentiations in standards certified from one program to another, creating both confusion amongst those seeking certification and amongst consumers - and increasing the costs of achieving relevant certifications (as multiple certifications may be needed despite substantial cross-over between schemes).
The ‘Intention-Behaviour Gap’

Are market opportunities from sustainability certification just a mirage? It is not uncommon to hear industry comments along the lines of “60% of consumers are willing pay more for products in order to reduce the environmental footprint of their consumption” (e.g. Neilson 2015).

This type of statement resonates with agri-food enterprises, and particularly with their respective industry organisations which are tasked with seeking out market opportunities and managing market risks. However, this type of statement is often based on survey-based measures of intention. Statements such as these, based on survey data, lack credibility because they are associated both with Hypothetical Bias (HB) and with Social Desirability Bias (SDB).

**Hypothetical Bias:** The presence of inflated statements of behaviour and/or Willingness to Pay (WTP) due to the use of hypothetical scenarios rather than real scenarios to assess purchasing behaviour

Grebitus *et al.* (2013) show that hypothetical bias can result in over-estimation biases for value premiums from as little as 13% to almost 100% using experimental methods. Lusk and Schroeder (2006) show that these issues are inconsistent across studies with different stated preference methods generating vastly different results for price premiums, indicating that HB is unable to be predicted (and thus moderated). Indeed, Penn and Hu (2018) conduct a large literature review that indicates HB is difficult to avoid for stated preference methods and that there is little in the way of theoretical development that indicates a robust methodological approach to removing HB post-survey.

**Social Desirability Bias:** A distortion of stated responses in the direction considered desirable for society or for the survey enumerator

Fredrik *et al.* (2019) show that SDB effects may be substantial in stated preference surveys with a 50% reduction in estimated premiums from a single, simple, framing intervention. Gregg and Wheeler (2018) also show that there are substantial potential biases arising from stated preference methods for environmental values using an Australian case study.

What to do about prospective ‘value’ measures for price premiums?

In discussions around consumer-led risks, industry bodies and governments should largely disregard survey-based measures of consumer intentions and instead consider observational (i.e. actual purchase behaviour) measures as strongly indicative of likely patterns of behaviour from adoption of sustainability certifications. Stated Preference (SP) studies (e.g. choice experiments) should be treated as embodying both HB and SDB and thus be unreliable. Revealed Preference (RP) methods that use experimental approaches are unlikely to be substantially affected by HB but may remain affected by SDB depending on the survey strategy. Supermarket or real-world choices (e.g. placing a new product on supermarket shelves and varying price by time and location) are unlikely to be affected by either SDB or HB but are also difficult to undertake (i.e. expensive).
On the value side there are additional costs: as consumers are increasingly overwhelmed with the range of certified labels on offer, they are less likely to pay a premium for a given certification program and are less able to discern the trustworthiness of each program (OECD 2016; Changing Markets Foundation 2018). Indeed, there is evidence that supposed ‘value’ from product differentiation via sustainability certification is minimal or even non-existent (see box above on the intention-behaviour gap). This value is likely to be diminished as more schemes are established.

Duplication is also seen as a core emerging concern in the proliferation of ‘eco-schemes’ (OECD 2016) and is a regulatory concern within the Technical Barriers to Trade (TBT) component of the General Agreement on Tariffs and Trade (GATT) and World Trade Organisation (WTO) frameworks.

**Figure 4: How duplication reduces realised value**

![Figure 4](image)

Figure 4 shows a depiction of how duplication in SCA schemes generates a market failure: with each scheme seeking to certify across the whole range of standards, the costs for each additional certification remain high, even when the enterprise only achieves marginal additional certification to standards.

This duplication and the potential for marketing efforts to drive enrolments may also mean that a large portion of potential innovation investment is, instead, put towards aspects that do not lead to true improvements in achievement of sustainability standards. Specifically, superficial differentiation is possible in SCA markets where there is no or little effort to coordination to a ‘standardised set of standards’. That there is little or no standardisation of sustainability standards globally or even locally was noted as early as 2010 (National Research Council 2010), a characteristic of sustainability certification schemes that continues now. In cases of limited standardisation, and difficulties in the ability of customers to efficiently and/or effectively assess differences between certification offerings, market strengths around innovation may turn into market failures. Particular concern is with resources devoted to a proliferation of standards that are similar, and that may create difficulties in determining accreditation toward current or future global standards.
**Green mercantilism: can SCA schemes avoid being ‘beggar-thy-neighbour’ programs?**

To ‘beggar-thy-neighbour’ is to undertake actions that seek to gain advantage through capturing value from another (and thereby reducing the value available to the other). It is a program that seeks to divert effort away from generating value-through-innovation (good) to one that strives to transfer value from others (bad).

The proliferation of SCA schemes, and their complexity from the perspective of both clients (food/agri-food enterprises) and food consumers/retailers means that there is substantial scope for the operators of sets of sustainability standards to undertake arbitrary differentiation from other, similar standards, and to divert resources directly toward market share capture – both in terms of food producers through requiring meeting of standards that are arbitrarily differentiated of standards already being met, and in terms of marketing directed toward consumers, i.e. ‘greenwashing’.

Greenwashing is the process of seeking to convince consumers and/or the wider public that a business, industry, or product is associated with environmental credentials that imply environmental responsibility/sustainability beyond that truly implied.

**Is greenwashing a concern?**

Urbanski and ul Haque (2020) used a choice experiment of real and ‘green-washed’ food items in order to assess whether consumers were susceptible to ‘greenwashing’ through labelling of food. The authors found that across a wide range of populations (i.e. the US, Canada and Pakistan) that people were highly susceptible to greenwashed claims. Even those scoring highly on an index of environmentalism were highly susceptible and faced difficulty in selecting products that were not greenwashed.

These results indicate that agro-food producers, and the SCA sustainability market is likely to be highly susceptible to fake claims, and to diversion of resources away from high-value (to broader society) innovation activities toward diversionary tactics. This is more likely to occur in institutional environments in which it is difficult for consumers to discern true claims from false claims: i.e. in environments where proliferation of arbitrarily differentiated certification labels leads to consumer confusion.

**WTO rules, rulings and sustainability certifications**

The World Trade Organisation (WTO) has dealt with labelling and market access factors related to SCA schemes across a number of disputes. The two most important ones were associated with the EU-US ‘Beef War’, for which Australia was an observer, and ongoing discussions around country-of-origin-labelling (COOL). The key article relevant to these, and future debates, are articles from the Technical Barriers to Trade agreement of the General Agreement on Tariffs and Trade (the main WTO precursor). According to the TBT Agreement Article 2:
Members shall ensure that technical regulations are not prepared, adopted or applied with a view to or with the effect of creating unnecessary obstacles to international trade. For this purpose, technical regulations shall not be more trade-restrictive than necessary to fulfil a legitimate objective, taking account of the risks non-fulfilment would create. Such legitimate objectives are, inter alia: national security requirements; the prevention of deceptive practices; protection of human health or safety, animal or plant life or health, or the environment. In assessing such risks, relevant elements of consideration are, inter alia: available scientific and technical information, related processing technology or intended end-uses of products.

(TBT Article 2.2)

Whilst the tone of TBT Article 2.2 suggests that SCA should not be applied as technical barriers to trade, the conditional statement at the end indicates substantial room for implementing trade barriers given that core ‘legitimate’ reasons for doing so are: “protection of human health or safety […] or the environment”. Concerns around human health were used in the case of the EU-US beef war but were rejected as legitimate, due to the lack of scientific support for human health effects from the use of hormone growth promotants in livestock. Yet the EU has maintained a hormone-meat ban since 1996.

Given the failure of the Doha Round of multilateral trade negotiations to reach a conclusion in over 20 years of negotiations, it appears unlikely that any headway with respect to international standardisation of trade regimes will be achieved in the near future. As a result, bilateral agreements appear to be the mainstay of trade negotiations for the foreseeable future with resultant limitations on the ability of small nations (i.e. Australia) to influence trade rules (through, for example, the Cairns Group²).

Related programs for AASF design

For an Australian Agricultural Sustainability Framework (AASF) to be successful, it must be concordant with global standards to leverage stewardship efforts in the global marketplace and enable progress towards international sustainability reporting obligations (McRobert et al., 2020). While an AASF should clearly not seek to match every existing global SCA framework or scheme, some relevant and related programs should be considered in design and development, as noted below.

The Food and Agriculture Organization of the United Nations (FAO) has developed a System of Environmental-Economic Accounting for Agriculture, Forestry and Fisheries (SEAA AFF) as a multipurpose conceptual framework that describes the interactions between the…

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² The Cairns Group is a coalition of 19 agricultural exporting countries (members) - including Australia - which account for more than 25% of the world’s agricultural exports which is committed to “achieving a fair and market-oriented agricultural trading system”.

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economy and the environment, and the stocks and changes in stocks of environmental assets (FAO & UN, 2020). It is a statistical system, not an SCA program, which integrates information on the environment and economic activities of AFF using the principles of the SEEA Central Framework with the aim to ‘facilitate understanding of the trade-offs and dependencies between these activities and their related environmental factors’. Possible users and beneficiaries of the SEEA AFF include national statistics offices, government departments, natural resource managers, as well as industry associations and individual economic units, including multinational corporations. The SEAA AFF could be an invaluable tool in supporting Australian SCA sustainability standards by providing a consistent system of accounting the data vital for the analysis of ‘sustainable’ food and agriculture.

The most widely used standards for sustainability reporting in the world at present are probably the Global Reporting Initiative (GRI) Standards, with more than 10,000 GRI reporters in over 100 countries. The GRI Standards provide a comprehensive common language for Environmental, Social and Governance (ESG) disclosure with the aim of improving transparency and consistency in sustainability reporting. GRI also facilitates implementation of the UN Sustainable Development Goals (SDGs) via its Reporting on SDGs Action Platform. The GRI is currently developing a Sector Standard for Agriculture and Fishing, which is due to be released for public comment in Q2 of 2021. The aim of this project is to identify and describe the significant impacts and stakeholder concerns for the sector from a sustainable development perspective, which will provide a strong reference point for AASF criteria and indicators.

Closer to home, the Joint Accreditation System of Australia and New Zealand (JAS-ANZ) aims to ‘help markets work better’ by providing internationally recognised accreditation services that create economic benefit. JAS-ANZ does not certify or inspect organisations, products or people; rather, it accredits the bodies that do. It does not develop schemes or standards, but serves to manage and administer schemes. Currently JAS-ANZ oversees more than 20 programs under the category of ‘food and biological systems’, including regulatory (government-led) and market (industry-led) schemes. JAS-ANZ serves to provide assurance to consumers regarding product and service attributes, i.e. to verify the claimed integrity and credibility. An AASF should not seek to duplicate the role of JAS-ANZ, but to work within the same trust system.

3 The GRI also supports the EC’s Corporate Sustainability Reporting Directive (CSRD), adopted on 21 April 2021, which aims to bring sustainability reporting on a par with financial reporting, ensuring both have equal weight and rigour. More information: https://ec.europa.eu/info/publications/210421-sustainable-finance-communication_en
Emerging risks

Risks arising from the emergence of sustainability certification regimes can arise from:

1. Value reductions from rapid (but not necessarily sudden) changes in consumer preferences regarding sustainability actions;
2. Sudden changes in overall market preferences for a product or products from an enterprise or industry from a sudden shift related to ‘social license’ to produce/farm;
3. Changes to access to capital and insurance as these supporting industries seek to manage emerging social and capital risks, and;
4. Regulatory risks.

Of these, (1) is dealt with in the earlier discussion on potential value from consumer schemes: the risk of changing preferences is simply the inverse of the potential opportunities from taking advantage of these changes. The third case (3), that of changes to access to capital and insurance, is beyond the scope of this review and is reviewed in other work associated with this project. The remaining issues are briefly outlined in the below. The review of these risks is necessarily brief, only seeking to point out an informed view of what the risks may be and provide some guidance over their potential management.

Social licence: risks emerging in the SCA landscape

The social licence is an abstraction from the concept of popular support: the idea that a particular activity can become seen as socially unacceptable if it becomes viewed as something that causes unjustifiable costs to people, animals, and/or the planet.

The idea that the ‘social licence to farm’ is under threat is particularly well known in agricultural industries. For instance, the Grains Research and Development Corporation (GRDC) and the Australian Farm Institute (AFI) both have prominent comments on this concept on their respective websites. Whilst it is exceedingly unlikely that farming itself will become unacceptable, the concern around social licence issues is that large portions of farming/food industries will be left facing substantial limits in market access and/or regulation from failing to adhere to, sometimes unwritten, rules of social behaviour.

Obvious examples are found in the abrupt closure of live export markets in 2011 and in the campaigns against Australian kangaroo meat and skin exports. Other examples include the ongoing debate regarding the environmental sustainability of sugarcane farming in northern Queensland due to concerns about impacts on the Great Barrier Reef, or the perceived failure of the Murray-Darling Basin Plan to protect ecological processes (as well as growing concerns around cultural values for water).

These types of concerns, aired often in public forums initially, can lead to substantial regulation that may result in major shifts in agri-food enterprise processes; from the need for increased ecological assessments in planning approvals through to substantial changes in
resource rights (e.g. water reallocations to the environment), and even potentially market access limitations (see box next page).

Sustainability certification schemes may provide some potential to mitigate some of the risks emerging from social licence concerns. For example, they may allow a portion of the market to retain access to markets that shift toward a regime that requires proof of meeting a particular sustainability standard. However, without coordination it may prove difficult for the SCA landscape to manage for the uncertain emergence of uncertain costs. Enterprises and industries are unlikely to seek to spend substantial amounts of money (i.e. spent for certain) on efforts to curtail the uncertain emergence of uncertain costs. In addition, there remains uncertainty over what certifications would effectively curtail potential emergent social licence risks, leading back to concerns around duplication and a lack of over-arching standardisation of sustainability certification schemes.
Emerging market risks driving the need for a comprehensive AASF

In 2020 the European Commission (EC) announced a new agri-food policy foundation: the ‘Farm to Fork’ strategy (2020-23). This strategy outlines an ambitious plan to create a comprehensive sustainability framework around food production, processing, and marketing systems within the European Union (EU).

Acknowledging the potential for such a system to place European-located food supply chains at risk with the emergence of increasing bilateral trade agreements, mostly with countries that have a less ambitious (and expensive) sustainability agenda, the EC has outlined the potential to incorporate conditions into market access for food products produced in non-EU countries.

The strategy specifically notes:

“EU trade policy should contribute to enhance cooperation with and to obtain ambitious commitments from third countries in key areas such as animal welfare, the use of pesticides and the fight against antimicrobial resistance.”

As some of the most export-reliant farming industries in the world, the Australian farming industry faces both substantial risks and opportunities from this strategy. This is made clear by the EC with the statement that Farm to Fork seeks to use its market position as the largest agri-food market in the world to lead a global transition that will “promote a global transition to sustainability in cooperation with partners and through trade agreements.” (Europa 2020).

Key targets of the strategy are (Europa 2020):

- 50% reduction in the use and risk of pesticides
- at least 20% reduction in the use of fertilisers
- 50% reduction in sales of antimicrobials used for farmed animals and aquaculture
- 25% of agricultural land to be used for organic farming

Risks are likely to propagate if the EU implements market access constraints before an effective, accredited AASF can be developed. The history of the EU in food trade regulations (e.g. the ‘beef war’) indicates that market-access restrictions should be considered a very real risk. Recourse through the WTO is unlikely to be helpful given WTO and ISO statements and those of the EC regarding threats to society/human health from environmental impacts of agriculture:

<table>
<thead>
<tr>
<th>WTO:</th>
<th>ISO (Guide 64):</th>
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<tbody>
<tr>
<td>WTO members may adopt policy measures that are inconsistent with GATT disciplines, but necessary to protect human, animal or plant life or health</td>
<td>Where there are substantiated threats of serious or irreversible damage to the environment or human health, lack of full scientific certainty should not be used as a reason for postponing the inclusion of an environmental provision in a standard.</td>
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Summary

This review has sought to provide a basis for discussion around the why, what and how regarding Standards, Certification and Accreditation (SCA) schemes for sustainability outcomes (Figure 1).

The review was partly motivated by the lack of clarity over what issues the Australian Agricultural Sustainability Framework (AASF) seeks to resolve. A concise rationale for the AASF remains missing from the supporting documentation. This lack of clarity severely hinders objective-setting, and activities that target defining what the AASF will seek to do and how it will be done.

In order to assist in developing a rationale, objectives, and clarifying an effective program of work for the AASF this review provides:

(1) Background to Standards, Certification and Accreditation (SCA) schemes;
(2) An outline of the conceptual issues that they seek to solve (namely related to ‘credence’ attributes that involve substantial asymmetric information between buyers and sellers;
(3) A review of approaches to SCA schemes design, implementation and operation;
(4) A description of why schemes focus on inputs (activities) to certify sustainability standards rather than outputs and the types of issues that can lead to;
(5) A review of the history of sustainability SCA schemes and the current status, and;
(6) A brief review of emerging risks related to sustainability and sustainability certifications.

Core findings:

1. There is increasing complexity in the sustainability SCA market due to proliferation of competing and often overlapping certification programs.

This is likely to be creating confusion amongst consumers leading both to lower values for certification (more competition) and lower trust as consumers are less able to determine which claims may be reliable. It is also creating confusion and increased costs for enterprises through increased search costs for the appropriate certification and duplication of certification costs for enterprises. Increased complexity in the SCA landscape also increases the potential for ‘greenwashing’, creating risks within the sustainability SCA landscape itself.

2. There are already well-established sustainability SCA schemes in the market which have both strong consumer credibility and established certification programs.

Whilst these schemes may not be comprehensive, they are clearly targeted at being so in the long run (e.g. GlobalGAP). Furthermore, private sector approaches to sustainability have tended to have more success than public sector-led programs or even broadly based industry-led programs (i.e. without a tight specific target, such as for the organic farming movement).
However, industry and government have been able to effectively support sustainability certification programs through regulation of labelling and SCA schemes. Additional support may be effective in the future, particularly targeted at reducing unnecessary duplication and seeking to reduce the potential for ‘greenwashing’.

3. **Key risks are emerging related to new or proposed market access rules on sustainability standards.**

In addition to increasing private market segmentation (more of an opportunity than a risk), there are indications that achievement of sustainability standards may become a requirement for access into large agri-food markets in the near future. The EC has developed a ‘Farm to Fork’ strategy that highlights ambitious targets around achieving sustainability in agricultural systems, and points toward potential to leverage its position as a dominant food importer to influence food exporting countries to adopt sustainability standards. Given the history of European trade restrictions on the basis of scientifically dubious claims (e.g. the ‘Beef War’), and the continued presence of trade restrictions even after being found in contravention of WTO rulings, trade restrictions could well emerge in this space.

4. **Certification programs remain limited in terms of costs for monitoring, effectiveness of standards at achieving target outcomes, evaluating efficacy (i.e. certification), the potential for elite capture, and standards inertia.**

Dynamism in SCA schemes need not be only confined to competition in the standards space. Industry and government can support the development of efficient SCA programs through supporting research that can generate innovative approaches to both certification programs and to increasing consumers’ response to those.

**What might an AASF aim to achieve?**

A range of possible objectives for the AASF are proposed here. These are neither exhaustive nor prescriptive: rather they are used to indicate areas where an industry-wide initiative may achieve the greatest potential benefit, e.g.:

- **Reduction in the complexity of the SCA landscape for sustainability initiatives (identified from the Biodiversity Phase 1 report)**

  Given the increasing costs arising from complexity in the SCA landscape, there is potential for the AASF to act as a centralised ‘marketplace’ for accessing certification schemes, information on certification schemes and potentially facilitating greater coordination between current or future schemes and international standards.

- **Reducing duplication of scheme targets**

  The potential for enterprises to require multiple different certificates for sustainability standards from different suppliers is likely to generate substantial duplication (unnecessary costs) and create the potential for arbitrary differentiation of standards by certification/accreditation companies leading to a diversion of resources away from effective innovation and increases in costs to food producers. The AASF may have a
major role to play in seeking to standardise sustainability standards across domestically operating schemes and onward to international schemes such that any individual standard needs only to be certified once under the OECD-promoted concept of ‘full mutual recognition’. This role may require either the AASF to establish itself as a holder of relevant international standards in the Australian context (in order to gain recognition as the domestic agent for those standards) or for legislation to ensure that certifiers/accreditors are seeking to certify against a recognised standard (where it exists) or to publish their standards for public use (where they do not exist) and to limit exclusivity over certification activities.

• **Managing market access risks**
  As outlined above, a core emerging risk may be related to market access. The AASF may reduce this risk by facilitating the emergence of sustainability certifications that match sustainability regulations in overseas markets. In addition, the AASF may be able to act as a source of information to assist in negotiations around emergent sustainability regulations that may have limited scientific backing.

**What should an AASF avoid?**

• **Arbitrarily increasing the number of SCA sustainability schemes**
  Creating a new sustainability SCA scheme and expecting to be able to effectively compete against the private operations currently in existence is likely to be a high cost and low-return activity. There is little support for a broadly-based industry-led sustainability SCA program in the literature. Such activities are more likely to add to the confusion within the market and are likely to crowd out legitimate private sector activities rather than generate substantively new standards.

• **Competing directly with the certification and accreditation industry**
  There is an established (and growing) certification and accreditation industry within Australia. Certification programs are costly and complex to operate with costs largely passed on to users. Given the strong economic incentive toward lowering costs of certification (whilst maintaining reputation and standards) these activities will generally be better provided by the private sector.

• **Seeking to set standards independently of international bodies**
  The AASF should not seek to develop new standards that are not tied to emerging international standards. Australia is a small country with limited power to influence global activities and thus should seek to have input to the emergence of international standards while standing ready to respond to standards that emerge from independent economies which are important as markets for food produce.
References


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