

# ENHANCING FARM ASSURANCE

## A WHITE PAPER

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To cite this report:

Castka, P., Manhire, J., Ruha, C. and Reid, J. (2023). Enhancing Farm Assurance – A White Paper. Our Land and Water National Science Challenge.

Version 1 – 4 May 2023

# EXECUTIVE SUMMARY

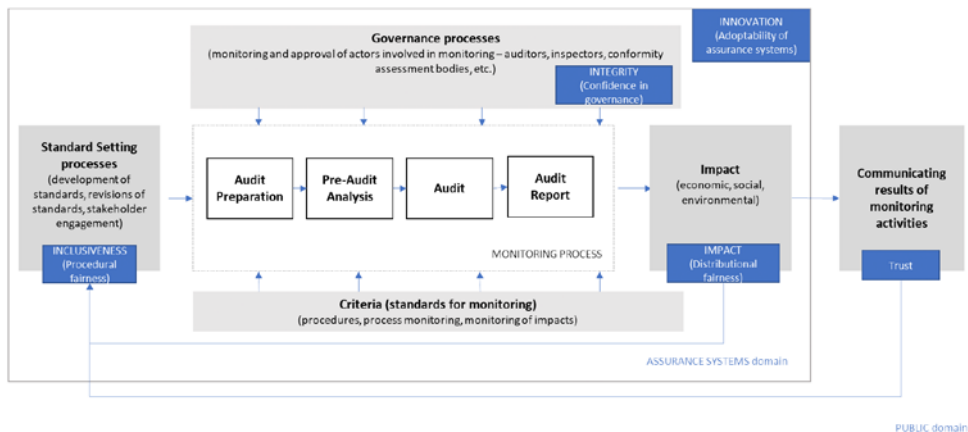
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## CONTEXT

- Assurance systems and various monitoring mechanisms (such as for freshwater monitoring) are one of the corner stones of NZ economy and NZ agribusiness – ensuring compliance of NZ firms with regulations, enabling international trade, ensuring safety of products and firms’ operations, animal welfare, water quality, biodiversity, and many other aspects farm management. In 2016 assurance systems facilitated over 60% of NZ exports at a value of 27.6 billion NZD. At each step across food value chains, there are regional, national, and international standards and regulations that must be complied with.
- Assurance systems support a “social licence to operate” for farms and other actors in the food sector. Social licence to operate (SLO) refers to “the ongoing acceptance of a company or industry’s standard business practices and operating procedures by its employees, stakeholders, and the general public.” At the present time, ‘social licence to operate’ is primarily understood as a compliance process: a firm (farm, food producer, etc.) satisfies the criteria set by any given assurance system and thus builds its social licence to operate. Such a viewpoint is however limited and does not fully embrace the social licence to operate principles – a limitation that we address in this White Paper.
- Assurance systems are challenged by increasing demands of urban communities for transparency in farming, new forms of farming and engagement between consumers and farmers, and the rapid development of technology driven monitoring and reporting mechanisms (such as Eco-index for biodiversity, freshwater monitoring such as those outlined in the OLV Freshwater Monitoring Programmes to Detect Early Improvement or Tauutuutu in the Māori agri-economy). Concurrently with the emerging challenges, assurance systems also need to reinvent their modus operadi to not only face these challenges but also address mistrust and scepticism of farmers in regard to the efficacy of assurance processes.
- Leading Māori entities are moving into the processing of their primary products and have established premium export value chains (such as for meat, milk, and fibre). Māori businesses and iwi trusts that use various Māori frameworks offer an alternative approach to assurance that could benefit NZ farming and existing assurance practices.
- Even though the white paper focuses mainly on farm assurance systems, the findings and recommendations are applicable more broadly – for other industry sectors as well as for NZ conformance system.
- The aim of this white paper is to determine **how farm assurance can be enhanced to maintain and improve its social licence to operate**. To fulfil its aim, the white paper specifically addresses the critical areas of technological development, public awareness and demand for social and environmental accountability; potential and value of incorporating Māori world perspectives, insights and cultural attributes; linkages to normative references and standards and alignment with international standards; the delivery of assurance (assurance process)

## APPROACH

- We have conducted a set of interviews with key stakeholders (including regulators, iwi, industry representative, assurance providers and retailers), a case study with farmers involved in Synlait’s *Lead with Pride* assurance system and conducted a survey of NZ public to understand their perceptions regarding farm monitoring and farm assurance (data was collected from representative sample of NZ population; 500 respondents participated in the study).
- We have developed an analytical framework that can be used to evaluate (and to enhance) current farm assurance including how to effectively support the building of trust between farmers, local communities and the public. The framework is grounded in key aspects of the *Social Licence to Operate (SLO)* concept: fairness (distributional and procedural), confidence in governance, and adaptability. Translating these theoretical underpinnings of SLO into the context of farm assurance, assurance systems must provide services of high integrity, efficiency and of demonstrable impact – that need to be appreciated by local communities, the public or broadly speaking, all stakeholders.
- The analytical framework is based on **four “I’s”– Impact, Innovation, Inclusiveness, and Integrity**. The white paper discusses its use for the purpose of improving farm assurance systems and more broadly, NZ conformance system. The framework is presented below and discussed in detail in the report.



## FINDINGS

- Farm assurance provides a fundamental “social license to operate” for farmers and other food system actors. However, farmers are also questioning the efficacy of assurance processes, as the requirements are becoming increasingly complex and burdensome for organizations. They are sometimes sceptical about the impact of these systems on farm management and the environment and are thus promoting a transformation towards impact-based approaches. Public perceptions of farm monitoring and accountability for farming practices are generally positive. Nevertheless, increased activism from non-governmental organizations (NGOs) and criticism from independent studies are tarnishing the value of assurance systems globally.
- Māori take a relational and process-oriented approach to assurance. Gaining social license to operate from tangata whenua entails the building of direct personal relationships, networks, and connections between stakeholders and across value-chains. More emphasis is placed on relationship quality than on independent assurance systems or formal auditing processes. However, many Māori entities have invested heavily in their own social, economic, and environmental monitoring systems, and also utilize a range of assurance systems.
- The innovation of assurance systems must involve all aspects of the assurance process, including setting standards for new approaches in assurance, qualifying personnel, and developing the quality infrastructure. Although farmers are supportive of innovative approaches, they are cautious about investing in new technologies. The New Zealand public supports the use of technology for farm assurance however traditional methods, such as on-site visits are still preferred as the cornerstone of assurance practice in the public’s view. Māori entities invest in technologies and use them for assurance, such as in the Our Land and Water project *Kaitiaki Intelligence Platforms*. The use of technology supports the monitoring of farms in line with Māori world perspectives.
- Farm assurance can serve as a foundation for cultivating relationships with stakeholders. Farmers value feedback mechanisms, but have expressed concerns regarding the extent to which their opinions are taken into account and their limited resources that impede their full participation. Farmers support greater involvement of the New Zealand Public in farm monitoring and, to some extent, support data sharing to foster trust (although with some reservations). The New Zealand Public is interested in assessing farm performance with a focus on food safety, animal welfare, and water quality. The public is also interested in benchmarking, gathering general data (such as the number of non-compliant issues in the sector), and monitoring trends. From a Māori perspective, experts in various cultural domains can contribute to decision-making processes to ensure that aspirations align with the needs of tangata whenua.
- Assurance systems’ integrity is compromised by several factors, such as audit fatigue, lack of adequate resources, conflicts of interest or doubt regarding the value of the assurance services. Farmers acknowledge that assurance systems’ integrity levels vary; some may be manipulated. Cynicism toward assurance exists, which undermines farmers’ trust. The public acknowledges the significance of highly qualified auditors with industry expertise and personal integrity. Moreover, the public supports the government and regulators’ oversight of the development of key indicators.

## RECOMMENDATIONS

- Develop and fund the implementation of a comprehensive farm assurance strategy that aligns and supports the New Zealand quality infrastructure in continuously improving its role in building trust. A strategic approach to transforming the New Zealand quality infrastructure is essential. This will require investment in further research and planning for the transition, public engagement, involvement in international standards development, and training of auditors and other areas. Failure to do so puts the New Zealand economy at significant risk.
- Develop and allocate resources to the development and adoption of performance-based indicators for assurance practices. The introduction of impact-based approaches and performance-based indicators has significant implications for all aspects of the assurance process, from how requirements and regulations are put into operation to how the results of assurance are disclosed, shared, and communicated.
- Due to the decreased cost of technologies, the digitalization of international trade, and the increased competition from new entrants such as ESG reporting and the Big 4 accounting companies, innovation in farm assurance has become essential. Technology offers opportunities to improve the accuracy and timeliness of the system. Innovation must encompass all aspects of the assurance process, including but not limited to, establishing standards for new approaches to assurance, qualifying personnel, and developing the quality infrastructure.
- Develop and resource strategies to increase public awareness about assurance and the important role conformity assessment has for the NZ economy and public wellbeing. Failing to address the engagement will likely lead to increased mistrust in assurance (especially assurance for sustainability) and contribute to increased staff shortages in the sector.
- Draw on wisdom from Māori indigenous perspectives that offer alternative ways for ascertaining impacts drawing on reciprocal human environmental relationships. Leading Māori agribusinesses operating in the farming sector that have built comprehensive monitoring systems for reporting to their collective owners provide clues into how such wisdom might be operationalized.

## CONCLUSIVE POINTS

- The recommendations provided in this report are primarily based on discussions with relevant stakeholders. The recommendations are also underpinned by a NZ-wide survey of the public and their perceptions regarding farm assurance and farm monitoring. Furthermore, the relevance and practical utility of the 4I's was tested in a case study setting. Further empirical work is needed to deepen our understanding of 4I's. This report and its recommendations thus should be understood with such limitations in mind.
- This White Paper outlines the first steps of the development cutting edge farm assurance and NZ quality infrastructure. The authors hope that this report will assist with future efforts to enhance social licence to operate of assurance systems in New Zealand and internationally – for the benefit of all stakeholders.

## GLOSSARY OF TERMS

**Assurance process** – a process through which assurance providers collect and analyse evidence (data) to establish a compliance with a reference point.

**Assurance provider** – an organisation that provide assurance services for voluntary and/or mandatory schemes.

**Assurance sector** – an industry sector providing conformity assessment services (testing, inspections, certification, and compliance) for other industry sectors.

**Assurance systems (programmes or scheme)** – an organisation (or a group of organisations) that develop reference points (standards, etc.) and audits farms, verify compliance with the standards, and issues a certification or assurance approval.

**Farm assurance** – a system that ensures that agricultural products, processes, and practices meet a set of agreed standards or requirements. The aim of farm assurance is to assure consumers that products have been produced in a way that meets defined standards or criteria, such as food safety, animal welfare, environmental protection, and social responsibility.

**Quality Infrastructure** – the public and private institutional framework needed to implement standardisation, accreditation and conformity assessment services including inspection, testing, laboratory and product certification.

**Reference point** – a standard, regulation, code of conduct (or similar) that specifies a set of requirements.

## MĀORI GLOSSARY OF TERMS

**Hapū** – a sub-tribe consisting of a grouping of family units who genealogically link to an eponymous ancestor.

**Iwi** – a grouping of sub-tribes to form a larger tribal entity in which all sub-tribes can genealogically link to an eponymous ancestor.

**Kaitiaki** – an individual being, entity or spiritual essence which seeks to maintain a balanced state of environment through reciprocity of actions and intent.

**Kaitiakitanga** – the notion and concept of the foundations for what it is to maintain a balanced state of environment.

**Kaputī** – having a cup of tea or coffee and in this case includes utilising this relaxed social environment to create connections.

**Kaumātua** – elders.

**Kōrero tuku iho** – knowledge that has been passed down intergenerationally.

**Kotahitanga** – a concept formed around togetherness and ensuring collective understanding and progression towards an agreed pathway which prioritises the welfare of all involved.

**Mātauranga/mātauranga Māori** – specifically Māori ways of knowing which draws off the experiential knowledge of Māori people who have a genealogical and spiritual connection with their environment; Māori at place are able to interpret the rhythms and flows of their surroundings through centuries of occupation and knowledge transferred intergenerationally.

**Mahi toi** – Māori artistic expressions through formats such as wood carving and flax weaving as well as many other types which support the telling of historical events and the intergenerational transfer of ancient wisdom.

**Mana** – a divinely inherited privilege or dignity from the primeval essences of creation, through all of one's ancestors down to each individual, where each individual's privilege can be influenced by their own actions and can also be externally influenced by other's actions.

**Mana whenua** – the expression and term for people who help to carry the dignity and wellbeing of the environment for a particular piece of area.

**Manaaki** – the act of uplifting the spiritual and physical wellbeing of another.

**Manaakitanga** – the foundations that make up what activities and intentions are involved to uplift the spiritual and physical wellbeing of another.

**Mauri** – commonly regarded as the life-force or vital essence of a being, object, or entity, which has been passed down through genealogical ties from primeval beginnings.

**Pūrākau** – stories of events which depict knowledge of history and various types of ancient wisdom told in a format which supports the practice of intergenerational transfer.

**Rangatahi** – younger generation.

**Rangatiratanga** – this is a concept that gives regard to the chiefly authority of individuals and indeed at a family and tribal level to be self-determining in a way that protects the spiritual and physical essences of the people and places they are connected to.

**Rongoā** – natural and spiritual medicinal practices and methodologies developed by Māori over centuries.

**Takiwā** – tribal district or area over which a tribe extended its reach of physical and cultural influence.

**Tangata whenua** – often translated as “people of the land” and can be defined as indigenous people who have a longstanding physical, cultural and spiritual relationship with their environment at place.

**Taonga** – treasure or something of extreme cultural or spiritual value.

## ACRONYMS

**Tapu** – a state of sanctity which is regarded as being under divine protection which implies restrictions on interactions with places, people, and certain objects and acts depending on the degree of that sanctity.

**Te Ika ā Māui** – the North Island of Aotearoa New Zealand.

**Te Tiriti o Waitangi** – Māori written version of The Treaty of Waitangi which was drafted and signed alongside the English version, where there are significant differences in the meaning and intentions of both documents and therefore, Māori privilege Te Tiriti o Waitangi version over The Treaty of Waitangi version.

**Te Waipounamu** – the South Island of Aotearoa New Zealand.

**Tikanga** – a set of protocols which are adapted by Māori at place to suit a set of circumstances in alignment with the cultural, spiritual and environmental wellbeing of people and the area they are undertaking any given activity.

**Tūpuna** – ancestors; referring specifically to a being that is of an older generation.

**Waiata** – songs and dance which are presented and performed in various styles and can be depicting historical events or ancient wisdom in a format which supports the practice of intergenerational transfer.

**Whānau** – a family unit consisting of immediate family members and extended family members.

**Whanaunga** – relatives who are tied to you through a sense of genealogical connection whether close or distant.

Whanaungatanga – the concept of relating to other individuals, beings, or entities both animate and inanimate.

**Whakapapa** – the interconnectedness of all things through the linking of ancestral connections to shared origins; the concept pertains that all things in the universe are derived from the same origin and therefore we are all close or distant relatives.

**Whakapapa kōrero** – a discussion centred around the interconnectedness of all things through genealogy.

**Whakatauki** – proverbs spoken by an unknown source which help relay wisdom and philosophy from a uniquely Māori lens.

ATT	Automated tools or techniques
AUASB	Information Systems Audit and Control Association
B2B	Business to Business
ESG	Environment, Social and Governance
EU	European Union
FAO	Food and Agriculture Organisation
FDAL	Farm Data Accreditation Ltd
FSC	Forest Stewardship Council
FWFP	Freshwater Farm Plans
IAASB	International Auditing and Assurance Standards Board
INFDP	Integrated National Farm Data Platform
ISACA	Information Systems Audit and Control Association
IAF	International Accreditation Forum
IANZ	International Accreditation New Zealand
ISEAL	International Social and Environmental Accreditation and Labelling Alliance
ISO	International Organisation for Standardisation
MAC	Māori Agribusiness Collective
MBIE	Ministry of Business, Innovation and Employment
MFE	Ministry for the Environment
MPI	Ministry for Primary Industries
NGO	Non-government organisations
NZ	New Zealand
OLW	Our Land and Water
SAFA	Sustainability Assessment of Food and Agriculture Systems
SDG	Sustainable Development Goals
SLO	Social licence to operate
TANZ	Trust Alliance NZ
UK	United Kingdom
UNIDO	United Nations Industrial Development Organization
XRB	External Reporting Board







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# 1. INTRODUCTION

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Assurance systems and various monitoring mechanisms are one of the corner stones of the NZ economy – ensuring the compliance of NZ firms with regulations, enabling international trade, ensuring safety of products and a farms' operations compliance with animal welfare, water quality, biodiversity, and many other expectations.

Existing assurance systems are well established and institutionalised (domestically as well as internationally). Yet at the same time, assurance systems are being challenged by a rapidly changing environment: consumers are increasingly mindful of, and informed about, the negative impact of commercial activities of farms on the environment, farms themselves are burdened by increasing compliance costs whilst new technologies challenge the underlying operational processes of existing assurance systems. Many existing assurance systems are often developed as Business to Business (B2B) systems – focusing mainly on building relationships with primary stakeholders such as commercial partners, regulators or auditors – rather than consumers and other secondary stakeholders.

Whilst assurance systems are increasingly focusing on stakeholder engagement, such efforts are relatively new and there is a great potential for assurance systems to broaden their connections with secondary stakeholders, such as local communities and the public. As NZ progresses with new regulations such as the Freshwater Farm Plan regulations and NZ farms continue to develop self-regulatory assurance programmes (i.e., Synlait's Lead with Pride) to address matters of public concern, it is timely to investigate how such initiatives – in which assurance systems play key role – are accepted (and trusted) by stakeholders.

Assurance systems support a “social licence to operate” for farms and other actors in the food sector. Social licence to operate (SLO) refers to “the ongoing acceptance of a company or industry's standard business practices and operating procedures by its employees, stakeholders, and the general public.” In general, SLO aims to develop a psychological identification (trust) with a company (or industry) through in-depth relationship building (Edwards et al., 2019). At the present time, ‘social licence to operate’ is primarily understood as a compliance process: a firm (farm, food producer, etc.) satisfies the criteria set by any given assurance system and thus builds its social licence to operate. Such a viewpoint is however limited and does not fully embrace the social licence to operate principles – a limitation that we address in this White Paper.



**Assurance systems support a “social licence to operate” for farms and other actors in the food sector.**

**Social licence to operate (SLO) refers to “the ongoing acceptance of a company or industry's standard business practices and operating procedures by its employees, stakeholders, and the general public.”**

## 1.1 Project Background

The project addresses the National Science Challenge – Our Land and Water (OLW) Strategic area 7 “Increase our social capital so that we can have well informed debates about alternative futures”. The aim of this white paper is to determine **how farm assurance can be enhanced to maintain and improve its social licence to operate**. To fulfil its aim, the white paper specifically addresses the following critical areas:

- Technological development: monitoring systems including remote and real time monitoring and its impact of assurance and the SLO.
- Public awareness and demand for social and environmental accountability; including challenges associated with the level of veracity and timeliness and its implications for the SLO.
- The potential and value of incorporating Māori world perspectives, insights and cultural attributes (as discussed in *Tautuutu-White Paper*) into assurance processes (Tikanga, Te Taiao) and its potential to enhance the SLO in Aotearoa NZ and internationally.
- Linkages to normative references and standards and alignment with international standards – in relation to the delivery of assurance systems International Organization for Standardization (ISO), International Accreditation Forum (IAF) and new standards and market access regulations (EU Farm to Fork, Carbon zero regulations, etc.).
- The delivery of assurance and the roles for assurance to implement the SLO in organisations (i.e., audits, certification, support for export; compliance with new regulation such as environmental farm plan).
- Positive engagement of those engaged in assurance processes and the assurance objectives – for example farmers – to shift them from a box ticking process to one where farmers agree with/align with the objectives of the assurance programme and actively work to achieve these.
- Performance of assurance programmes in relation to providing an accurate insight on the environmental/social impacts that are being targeted.

## 1.2 Scope and Context

This White Paper is grounded in the context of farming and farm assurance. In particular, we focus on how farms and the general public view the current status of assurance practice. Combined with the interviews with thought leaders and leading experts from Māori businesses, we outline critical components of Social Licence to Operate for farm assurance. Although our enquiry originates in the farm assurance domain, we interlink our findings with insights from other conformity assessment systems. Therefore, our findings are (in part) transferable across the entire conformity assessment industry.

This White Paper is a result of project supported by Our Land and Water National Challenge. We obtained funding to provide a “think piece” – an output that answers, explores and/or refines a research question(s) as appropriate. The scope of our work was limited to exploring the topic and to outline the direction for future work. Overall, **we provide a guidance on building trust in farm assurance.**

## 1.3 Research Approach and Consultation

This project involved the following research steps:

- A literature and desk top review including academic literature, ‘grey’ reports and a website search. The review was also supported by referrals from assurance experts on relevant information and sources.
- Interviews with stakeholders that are involved in assurance systems or are affected by them. **Appendix 1** lists the stakeholders that we interviewed. A total of 22 interviews with assurance experts were conducted in person, on-line or in a hybrid form between July and December 2022. The experts included representatives from the government, regional councils, accreditation and certification bodies, standards development experts and retailers.
- A survey of 500 New Zealand residents was conducted in November 2022. The aim of the survey was to obtain public perceptions regarding farm assurance and to identify options to improve public understanding of farming and its impacts. Overall, this survey provides significant insights in building the social licence to operate of farming, farm assurance and the NZ Conformance system in general.
- One in-depth analysis was conducted between July 2022 and December 2022 of the *Synlait Lead with Pride* assurance system. A second case study on the Freshwater Farm Plans (FWFP) associated with the Ministry for the Environment (MFE) Essential Freshwater policy package was also planned however delays in the development of the regulations disrupted this activity. Insights from this project on possible strategies to support wider public understanding and the impact of FWFP will however be shared with MFE.
- Interviews with Māori assurance experts and desk top research on the role of Te Ao Māori in assurance. Six interviews were conducted with decision-makers at a governance level from various types of Māori entities.



Assurance systems cover practically all aspects of food systems: from food safety and traceability, through environmental aspects (biodiversity, water quality, carbon management) to social responsibility (workers' rights, modern slavery, community engagement).



## 2. ASSURANCE SYSTEMS

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### 2.1 Background

Assurance systems play a critical role in international business and are crucial mechanisms for national economies/regulators (a) to enable international trade and (b) to ensure compliance of goods, services and facilities that are sold in NZ. Assurance systems are underpinned by 'quality infrastructure' – a network of accreditation bodies, conformity assessment bodies, regulators and other actors that collectively ensure functionality of assurance. These are made up of International bodies – such as IAF and ISO that provide a set of guidance documents that are followed across the world and which 'regulate' the interactions between actors within the quality infrastructure (UNIDO, 2020a, b).

Assurance systems can be classified as voluntary and mandatory. Voluntary systems are typically developed by industry associations or by multi-stakeholder platforms. Voluntary systems operate within NZ or are international. Quality infrastructure supports both voluntary and mandatory assurance. For example, conformity assessment bodies (such as Asurequality) provide auditing services for voluntary systems as well as determine compliance with regulatory requirements.

Assurance systems cover practically all aspects of food systems: from food safety and traceability, through environmental aspects (biodiversity, water quality, carbon management) to social responsibility (workers' rights, modern slavery, community engagement). In general, food safety aspects of assurance systems are well developed and established; other aspects, such as social responsibility are relatively new and still developing. Assurance systems operate as B2B or B2C systems. Consumers do benefit from activities of assurance service providers (i.e., food safety) yet they may not be aware about the systems that are in place to ensure food safety. Often, analogies such as an 'invisible fabric of trust' are used to describe this phenomenon.

Māori agribusiness collectives (MACs) also use and comply with various assurance systems, however they have also developed their own, primarily to establish reporting between their commercial entities in the primary sector and their owner-collectives. It is through such systems that MACs obtain their social license to operate from owner-collectives. We are also seeing Māori thinking and approaches making their way into national regulatory and policy framework. Initiatives such as *Te Mana o te Taiao*, *He Waka Eke Noa*<sup>1</sup> provide examples of how indigenous Māori values are becoming embedded in assurance systems.

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<sup>1</sup> *He Waka Eke Noa = farm-level pricing of agricultural greenhouse gas emissions to reduce the impact of our farms on the climate, and secure our reputation as the world's most sustainable provider of high-value food and fibres.*

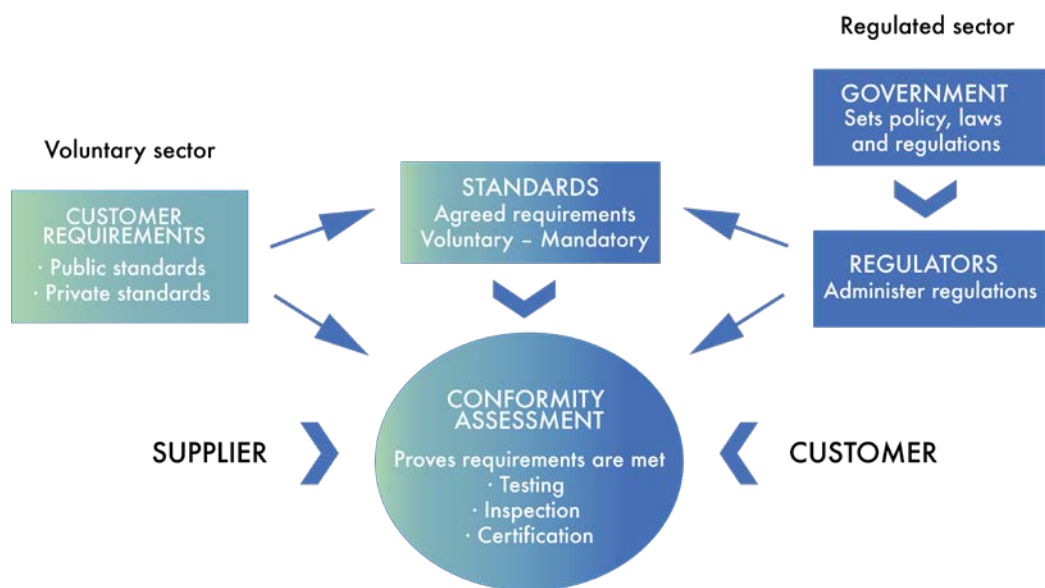


In another example, proposed freshwater farm regulation asserts that “Te Mana o te Wai sets out a hierarchy of obligations to ensure that natural and physical resources are managed in a way that prioritizes: (a) the health and wellbeing of water bodies and freshwater ecosystems; (b) the health needs of people (such as drinking water) and (c) the ability of people and communities to provide for their social, economic, and cultural wellbeing, now and in the future.”

Perhaps what is revolutionary about these regulations is that they are ascribing qualities, such as mana, or an inherent dignity, to environmental bodies like water, in a way that transcends utilitarian conceptions of them as simply resources. This attempt to marry European and Māori value positions with evidence-based science in the formation of regulations is internationally unique and innovative, leading to the institutionalization of indigenous perspectives into assurance. Various Māori collectively owned farming enterprises are feeding their own innovations into the process offering new ways to address environmental and social problems. We provide more details on Māori Assurance Practice in **Appendix 2**.

## 2.2 A typology of assurance programmes and their requirements

Assurance programmes is a broad umbrella term for voluntary initiatives and regulatory activities that share a common infrastructure and overlapping requirements. Although there is no generally agreed classification, the following typology is used in the project. This typology is useful for the analysis and discussion about the SLO in assurance: each type of an assurance programme listed below has some specifics and therefore different path to SLO. We also recognise though that many aspects of these various ‘types’ are very similar.



**Figure 2.1 Relationships between voluntary and regulatory sectors and standards (Source: Russ et al., 2018).<sup>2</sup>**

<sup>2</sup> Source: Russ M, et al. – ‘Environmental Assurances Research Report’ prepared for MAF 2009

- Regulatory programmes – for example Freshwater Farm Plan, Environmental Farm Plan
- Voluntary programmes for multiple organizations – for example NZ GAP, New Zealand Farm Assurance
- ‘In-house’ supply chain assurance programmes – for example Synlait’s *Lead with Pride*.

Figure 2.1 provides an overview of how assurance is provided in the voluntary domain (i.e., industry) and the regulatory domain (i.e., government) and the process used for assurance for customers.

The issues covered by assurance systems are diverse. For example, in relation to water quality, Resource Management (National Environmental Standards for Freshwater) Regulations 2020 aims to control high-risk land-use practices (e.g., intensive winter grazing), provides protection for wetlands, caps synthetic nitrogen fertiliser use, and establishes interim controls on conversions to intensive land uses. As another example, Resource Management (Stock Exclusion) Regulations 2020 require “all dairy cattle and farmed pigs to be kept out of waterways, and for beef cattle and deer to be excluded from waterways on flatter or more intensively grazed land”. The Food and Agriculture Organization of United Nations (FAO) outlines the following areas for its Sustainability Assessment of Food and Agriculture Systems (SAFA)<sup>3</sup>:

- Good Governance: corporate ethics, accountability, participation, rule of law, holistic management.
- Environmental Integrity: atmosphere, water, land, biodiversity, materials and energy, animal welfare.
- Economic Resilience: investment, vulnerability, product quality and information, local economy.
- Social Well-Being: decent livelihood, fair trading practices, labour rights, equity, human safety and health, cultural diversity.

A similar typology of requirements is common across all farm assurance systems however, individual assurance systems differ in the stringency of their requirements and also in terms of their assurance practices. Examples of some specific criteria are outlined in **Appendix 4**.

Assurance systems (and quality infrastructure in general) involve numerous actors. Some are directly involved in assurance service provision (auditors, conformity assessment bodies, regulators – we call these ‘primary stakeholders’), other stakeholders are indirectly involved (investors, consumers, the public – ‘secondary stakeholders’). More detailed overview of various stakeholders is provided in **Appendix 3**.

<sup>3</sup> The full list of criteria is available at [https://www.fao.org/fileadmin/templates/nr/sustainability\\_pathways/docs/SAFA\\_for\\_sustainable\\_development\\_01.pdf](https://www.fao.org/fileadmin/templates/nr/sustainability_pathways/docs/SAFA_for_sustainable_development_01.pdf)

### 3. WHAT ARE THE KEY COMPONENTS OF SLO FOR FARM ASSURANCE?

The social license to operate (SLO) concept provides a framework to investigate “a community’s perceptions of the acceptability of a company and its local operations.” SLO has been explored in various settings, mostly in industries that have a high impact on local communities, such as mining (Edwards et al., 2019), forestry and aquacultural sectors (Baines and Edwards, 2018). The SLO concept has also been used to conceptualise the impact on indigenous communities (Boiral et al.). More recently, SLO has been used in other domains of enquiry, for example a social licence for sharing economy (Baumber et al., 2019) or in the financial sector (O’Brien et al., 2015). Such recent work demonstrated the usefulness of the SLO concept outside of a company (or project) centric application (for example in relation to mining projects) that dominated the literature (and the application of SLO concept) initially. Even more importantly, the applications (such as in the context of sharing economy) have shown the utility of the SLO concept in the network economy. This aspect is of particular importance in the context of assurance need to strengthen relationship with local communities and the public.

The SLO literature often focuses on relationship with ‘local communities’. It does however also highlight that local communities are not necessarily the only stakeholder. **Local community** refers to a group of interacting people (stakeholders) that live in a common location. For example, farms co-exist with local communities in catchment areas and share resources (water, soil, space). Noise, air or water pollution of any farm within any given catchment area thus affect local communities. Assurance systems – through their auditors or inspectors inspect farms and monitor a farm’s practices. Trust in assurance systems thus can be potentially enhanced through an engagement with local communities.

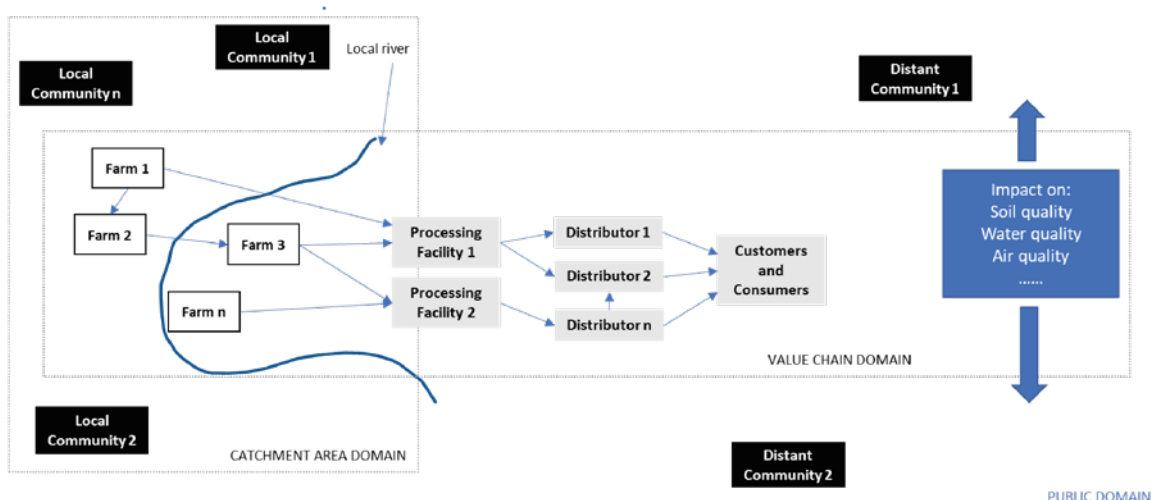


Figure 3.1. Critical Domains in Assurance.

Unlike local communities, the **public** might not be directly affected by a farm's activities. Still, the public might be concerned about, for example, water quality or biodiversity in NZ. Assurance systems can be used to build positive perceptions about the operation and impacts of a farm's activity. At the same time, due to the B2B nature of many assurance systems, the public is generally unaware of their activities. For example, ensuring food safety involves auditing of firms' management systems, inspection of facilities or testing in laboratories. It also involves multiple layers of governance (for example accreditation bodies oversee certification bodies and their auditors, and so on). The public is largely unaware of such activities. Although it is probably unreasonable (and impractical) to expect the public to have such detailed insight into operations of assurance systems, some of these practices/activities can enhance the SLO and trust in assurance systems. Figure 3.1 graphically depicts the interactions between farm assurance and local/distant communities. It also outlines critical domains: catchment area domain, value chain domain and public domain.

### 3.1 Key factors influencing SLO

The SLO concept provides a generic roadmap for building relationships and trust with stakeholders. The literature outlines various factors that are central to SLO (Gellynck et al., 2006; O'Brien et al., 2015; Sinner et al., 2020). In general the key factors are centred around trust (as a desired outcome) and factors contributing to the development of trust with stakeholders (Baumber et al., 2019). The factors are listed below (the definitions in parenthesis are from Zhang et al. (2015)). Alongside these factors, we also outline their implications for assurance systems.

- **Distributional fairness** ("Fairness of outcomes of resource allocation"): Assurance systems address societal problems and externalities. Some systems (such as FairTrade) address directly matters of distributional fairness (distribution of profits within the supply chain). Other systems contribute indirectly (i.e., freshwater monitoring systems ensure water quality for local communities as well as general public).
- **Procedural fairness** ("Procedural fairness refers to perceived justice in the processes of decision-making by those carrying out a particular practice such as mining"): Assurance systems have been increasingly focused on stakeholder inclusion. Mandatory systems focus, for example, on public consultations. Voluntary standards on stakeholder participation in standards development.
- **Confidence in governance** ("Ability of a regulatory system to hold actors accountable"): Assurance systems have a complex governance system, which includes multiple actors and complex systems of checks and balances. The governance system is well established.
- **Adaptability** ("Ability to change practices in the face of changing expectations"): Assurance systems are built on long-standing governance practices. They are also built on standards that are regularly revised and updated. However, more recently new challenges arise – such as emergence of new technologies – that present opportunities (and challenges) to redesign the assurance practice.

### 3.2 SLO in the context of assurance systems

The language of the SLO literature could be quite abstract for assurance practitioners. We therefore suggest to ‘translate’ the critical factors into a language that aligns with a narrative that is common in the assurance sector. Table 3.1 outlines a set of critical SLO factors in the context of assurance systems.

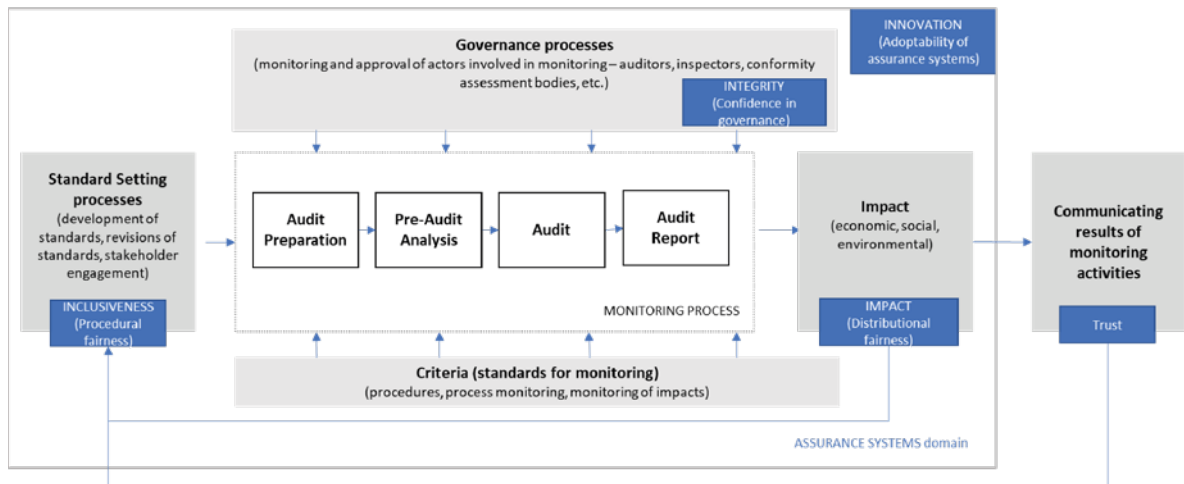


Figure 3.2 Analytical framework – SLO in the context of assurance systems.

Essentially, we posit that SLO (and trust) in assurance systems can be enhanced through four “I’s”- Impact, Innovation, Inclusiveness and Integrity. Figure 3.2 demonstrates how these SLO related factors translate into the context of assurance systems.

**Table 3.1. SLO in the context of assurance systems.**

SLO factor	Key question for assurance systems	Corresponding Assurance factor	Description/ Argument
Distributional fairness	What can assurance systems do to enhance their contribution to well-being of NZ?	Impact	Assurance systems can enhance their distributional fairness by focusing on measurement and disclosure of the impact of their activities
Procedural fairness	What can assurance systems do to enhance stakeholder involvement in setting-up of standards and monitoring processes?	Inclusiveness	Assurance systems can enhance their procedural fairness by broadening their scope from primary stakeholders (i.e. farmers, regulators) to involve secondary stakeholders (i.e., involvement of general public)
Confidence in governance	What can assurance systems do to enhance the quality of governance?	Integrity	Assurance system can enhance stakeholder confidence in governance (accreditation, standard setting and conformity assessment) by addressing threats associated with their integrity (i.e. audit fatigue, scepticism of the value of the assurance services, etc.)
Adaptability	What can assurance systems do to enhance the quality of governance?	Innovation	Assurance systems can enhance their adaptability by investing into digitalization of their services, integration with existing data platforms and investments into new technologies.
Trust	What can assurance systems do to maintain and enhance trust with local communities and general public?	Trust	Assurance systems can enhance trust by understanding needs of stakeholders, proactively addressing concerns of general public and providing evidence of their contribution to NZ economy and societal well being

### 3.3 SLO from a Māori perspective

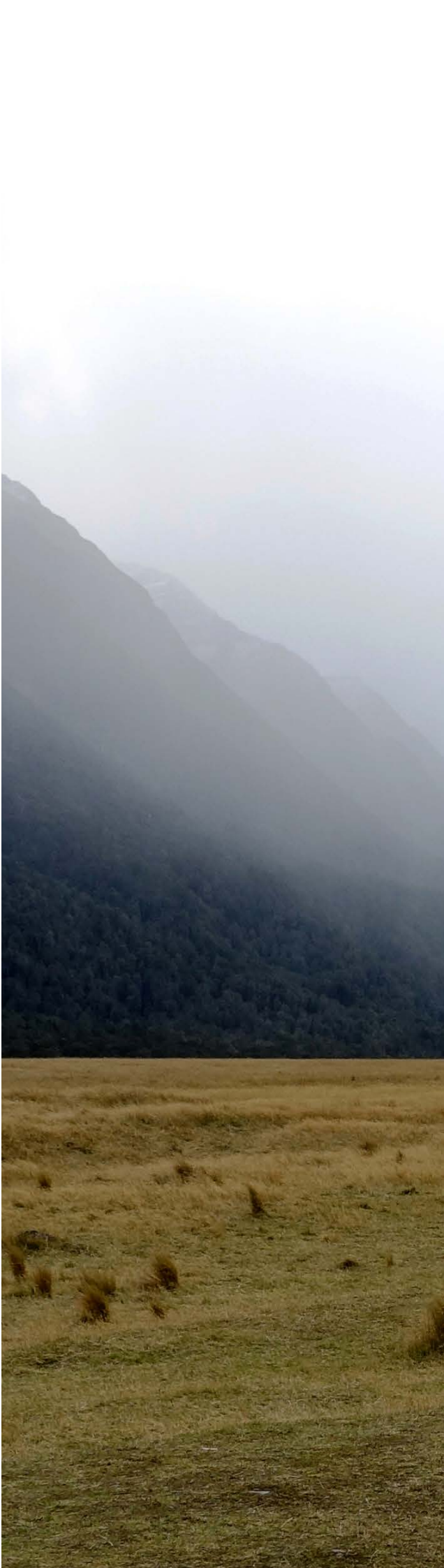
To examine SLO from a Māori perspective, a two-step process was undertaken. Firstly, literature was examined to determine the key conditions required for the granting of social license from a Māori cultural perspective. Secondly, interviews were undertaken with the directors and trustees of MACs to determine how social license was granted in practice, and in particular the conditions placed upon Māori farming operations by their elected governors. These conditions reveal the characteristics of SLO from This process is outlined below.

#### Literature Review

Prior to colonization individuals and whānau required the social license of their broader hapū or kin-groups to 'operate.' There were serious social sanctions for those who failed to operate within the social license of the hapū, and a broad range of values and concepts, such as tikanga or cultural protocols, guided practices and behaviours to achieve this outcome (Durie et al., 2017). Māori culture is generally understood as a collectivist culture, with an expectation, following a general rule of thumb, that actions by individuals and whānau should benefit the broader community (Afoa and Brockbank, 2019; Durie et al., 2017). However, this notion of collectiveness extends beyond the social to include the environment, by ensuring that what is done on the land and water benefits both people and place in a reciprocal relationship (Afoa & Brockbank, 2019). To enact these social and environmental obligations *tangata whenua* (indigenous people of the land) fearlessly defend their right to self-determination over themselves as hapū (tribal members) and the land and water that they relate to through *whakapapa* (a deep intrinsic ancestral connection).

Ruha et al. (2021) have explored the evolution of what this means for Māori across time, from pre-European contact until the present. Through that investigation, core interrelated indigenous concepts were identified that have carried through from pre-colonial times to the present (Harmsworth et al., 2016; Harmsworth and Awatere, 2013). In essence these concepts are interrelated and underpin not just the logic used when granting social license to operate, in that sense of approval is also sought not just from the social group but from the environment itself.

Through a Māori lens of the world, all things are interconnected – including humans to their environment. By looking at the environment, including the land, water, mountains, sky, birds, and insects as tūpuna (ancestors) and whanaunga (relatives), we can cast away any anthropocentric ideologies to acknowledge that the health of the wider ecosystem will affect our health and vice versa. Undertaking practices on land and water which promotes the value of health for the environment and its people connected as a holistic body is fundamental. This worldview establishes an underlying ethical guide and structure for determining what actions are appropriate, and a litmus for the granting of social license. The core concepts and how they relate to social license are outlined in Table 3.2.





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The social and environmental ethics guiding many Māori collectives operating in the agriculture sector means that they hold higher environmental, cultural and social wellbeing standards in their operations than what the government policies and regulations have set.

**Table 3.2 Conditions for granting social license.**

<i>Concept</i>	<i>Conditions for granting social license</i>
Mana	Operating in a manner that upholds the dignity of people, land, and water
Tapu	Operating in a manner that protects the integrity, and sacred essence, of people, land, and water
Mauri	Operating in a manner that maintains and enhances the vitality and life-support capacity of people, land, and water
Rangatiratanga	Operating in a manner that recognizes the authority of tangata whenua and their responsibility for ensuring that mana, tapu, and mauri of people, land, and water are maintained and enhanced
Whakapapa	Operating in a manner that recognizes the interconnectivity of people, land, and water
Whānau	Operating in a manner that supports the welfare and wellbeing of whānau
Hapū	Operating in a manner that upholds the wellbeing of the collective
Iwi	Operating in a manner that upholds the mana of the broad tribal grouping
Tangata Whenua	Operating in a manner that respects the wisdom, insights, and relationships that the people indigenous to a place possess.
Kaitiaki	Operating in manner that reflects an obligation to maintain reciprocal caring and protection relationships between people and the environment

Arguably these concepts may be used, or built, into non-Māori assurance systems and approaches; however, at the same time they may be difficult to generalize because they emerge from the unique spiritual connections that each hapū has to the land and waters to which they belong. Various Māori entities, whether they be localised to a specific *whānau*, or are pan-tribal, will hold distinctive knowledge to that area which can help guide in decision-making. Typically, Māori entities receive their SLO from the people who have *whakapapa* connections to the respective land and waters where it operates, and these constituents will provide guidance, feedback, and acknowledgements dependent on their own unique set of criteria.

In a comprehensive literature review undertaken by Ruha et al. (2021), it was found that there were many factors influencing how *tangata whenua* were historically disadvantaged by colonisation through land alienation, fragmentation, and urbanisation, which has inhibited their ability to act as *tangata whenua* in contemporary contexts. However, the spiritual connection to each *takiwā* (tribal district) through their *tūpuna* (ancestors) means that the core conditions for granting licence to operate are still transmitted through formats such as *pūrākau* (stories), *waiata* (song and dance), *mahi toi* (artistic expression) and *kōrero tuku iho* (knowledge passed down).

The social and environmental ethics guiding many Māori collectives operating in the agriculture sector means that they hold higher environmental, cultural and social wellbeing standards in their operations than what the government policies and regulations have set (Rout et al., 2021). These entities possess organizational structures in which farm management operations are separated from governing bodies elected by their collective owners. It is common for management to not be a member of the collective or Māori. Considerable pressure can be brought to bear on farming operations by governance to operate within the ethical and values-based parameters they set. In essence this entails management needing to continually obtain social license to operate from the broader community of owners. In some ways this is a contemporary reflection of the traditional social license operate granted by hapū.

## Research Method

Six interviews were conducted with decision-makers at a governance level from Māori collectives to determine the key factors in granting social license to operate to farming operations. From this analysis lesson can be drawn, and key themes extracted, regarding the terms of Māori SLO. Each of the governors selected for interviews governed entities that were unique in genesis, history, and operations. The interviewees were selected through the network of contacts known by the researcher and while most were governors of entities in Te Ika a Māui (the North Island) a governor of Te Waipounamu (the South Island) was also included. These entities undertake operations involving:

- Whānau, Hapū, Iwi Engagement and Wellbeing
- Environmental Enhancement
- Agriculture
- Food Processing
- Electricity Generation
- Engineering Services
- Horticulture
- Education
- Funding of Environmental Kaupapa

These interviews were casual in the style of kaputī (having a sit down and a tea/coffee) as well as through a quick catch up online via Zoom call. Notes were taken on a laptop while a set of questions formed the foundations of conversation, but all interviews were left to be flexible and free flowing. For genuine whakaaro (thoughts) to be expressed, there was no limit on time put in place, nor boundaries or scope for what triumphs, challenges, or content each interviewee would like to articulate during the kaputī.

## Results

The notes taken from these interviews were synthesised and aligned to the themes exhibited in Table 3.2 below. These themes are a reinterpretation of Table 3.1 and were contextualised to suit the composure, values and morals of the Māori entities which seemed to better harmonise through a Māori lens. The themes were rearranged in an order that made sense for Māori processes. Two additional were rows included to account for some of the kōrero which needed to be privileged within this piece. The themes have been reinterpreted to account for the Māori worldview which had a greater focus on whānau with whakapapa to the place of operations and the interconnectedness of all things.

*Table 3.2 SLO in the context of assurance systems – through a Māori lens.*

SLO factor	Corresponding Assurance aspect	Kaupapa – Themes with Māori lens	Whakamārama ki te kaupapa – the conditions for Māori farming operations to gain SLO from governors and owners
Trust	Trust	Pono: transparency, truth and conviction are fundamental to developing trust with whānau.	There is genuine and sincere relationship building with the collective owners while supporting their aspirations.
Procedural fairness	Inclusiveness	Mōhio: Wisdom, knowledge and expertise amongst whānau is recognised and empowered.	There must be a clear path for collective owners to give directive on values and goals to strengthen whakapapa connections through systems and operations.
Distributional fairness	Impact	Mārama: clarity, insight and understanding to empower whānau and enhance connection to whakapapa at place.	Entities must effectively measure and disclose the impact of operations on collective owners and clearly communicate how these enhance their connection to all things at place.
Confidence in governance	Integrity	Tupu: whānau are given opportunities to nurture the seeds of growth and navigate the path that the collective are travelling.	There is a feedback loop available within the governance processes for collective owners to ensure that the threats, gaps and weaknesses of operations are addressed and improved.
Priorities addressed	Action	Aroha: whānau are living the benefits of the work being undertaken that aligns with their values and aspirations.	Through the development of a meaningful relationship connected in with collective owners, Māori entities evidently meet goals set by tangata whenua.
Adaptability	Innovation	Te Ao Hou: a new and emerging world blended with Te Ao Māori and innovations in any format.	Collective owners, and their management, are looking to adapt new ways of thinking through a Māori lens utilising innovative systems and technology.
International application	Indigeneity	Te Ao Māori ki Te Ao Whānui: integrating kaupapa Māori approaches into a national and international context	All entities both nationally and internationally are able to create meaningful relationships and outcomes alongside the people and place that operations are undertaken.

These conditions for gaining SLO are process oriented and focused on generating interconnected relationships between the collective owners/ tangata whenua, farm management, and the environment, all mediated by whakapapa. This emphasis on personal relationship development, formation of mutual respect, the development of trust, the acknowledgement of mana whenua authority, are crucial elements of gaining SLO from tangata whenua. From this finding insights can be drawn regarding the importance of a relational approach to assurance system development from a Māori position through the development and maintenance of personal trusting relationships. This relational approach extends beyond just the social to incorporate the ecological, as is stated in various writings and interview statements by tangata whenua – *“Ko au te whenua, ko te whenua ko au. I am the land, and the land is me”* (Ruha et al., 2021).

This is reiterated by many hapū in reference to various features of the landscape such as rivers, oceans, and mountains. The strong spiritual and cultural connection to the natural world is what Māori entities commonly aim to enhance as an acknowledgement towards the interconnectedness of everything. If the people are well, the environment is well and vice versa. Therefore, since the wellbeing of tangata whenua is directly proportional to the wellbeing of the environment, and the wellbeing of the environment is beneficial for all people living within Aotearoa New Zealand, then it can be expressed that the wellbeing of tangata whenua positively influences the wellbeing of all people who call the land home.

## Aroha – Action

While the emphasis is placed on relationship building and maintenance, the research results also reveal several actions, or land management approaches and practices, that were considered important for maintaining social license. There is an inherent obligation for the researcher to highlight these so that others may draw from the Māori lens and potentially align their outputs to some of these which may be called for by whānau. These practices include:

- Ensuring the planting of native plants with respect to what the whenua needs and that historically flourished within a certain ecotype.
- Safe, green, clean initiatives should be undertaken to ensure a respectful use of resources and whenua so that mokopuna (future generations) will inherit taonga (resources of value) that is regenerative and enhanced.
- Following collaborative and collective approaches to any initiative.
- Continual development and improvement in the capability and capacity of MACs to work better with their owner-collectives and whānau at the flaxroots scale.

- Continually developing and improving the capability and capacity of owner-collectives, whānau, communities. As stated by one research participant: *“We are limiting ourselves by not doing enough wānanga (learning seminars). We need more sharing of knowledge in the right ways in the right spaces to kia wehe i te kūare [‘remove uncertainties or expel doubt’].”*
- Ensuring that the entity is not there simply to make a profit and fill the pockets of select few but is there to ensure the people and the environment are cared for.
- Ensuring that MACs are considering the wide community in which they operate, and feel accountable to that community, as outlined by one participant: *“We [including Māori entities] are a part of a community and need to be held accountable for our actions. If a person behaved as some companies behaved, then they would be locked up.”*
- Thinking of the broader socioeconomic needs of those employed by MACs and the broader community through, for example, the provision of housing on Māori land and in rural areas in the face of the housing crisis and rising costs of living. Living in clean, healthy homes were considered a human right and commercial entities should be striving to support this.

There was one instance where an interviewee stated they received a standing ovation at their last annual general meeting. This is an example of both Tupu and Aroha where an entity is evidently meeting whānau needs and is performing to the standards of whānau. They then received the SLO where the assurance system was inherently present within the relationships developed between tangata whenua and the decision-makers of the entity.



**“We [including Māori entities] are a part of a community and need to be held accountable for our actions. If a person behaved as some companies behaved, then they would be locked up.”**

## Te Ao Māori ki Te Ao Whānui – International application

It is uncertain whether applying a Māori lens on non-Māori entities domestically and abroad can improve outputs and outcomes socially, culturally, environmentally, and economically. However, what is central to retaining the SLO among Māori communities is by ensuring that there are meaningful relationships developed between tangata whenua and operators within the rural sector. Through a flourishing and genuine relationship doors are opened, and a journey established, to understanding how people and place are integrated and that all decisions are framed using a mokopuna (grandchildren) and future generation orientation.

Comments made by interviewees in regard to applying a Māori lens at an international scale are provided below:

- *“There are some commonalities internationally but even they will look different across a spectrum. We must all acknowledge and enact to a strong sense of community. Pollution, environmental, economic issues has [sic] derived from the destruction of the sense of community and responsibility to each other. Māori companies that I’m involved in believe in a sense of community. What does that mean for you and your organisation?”*
- *“Those without whakapapa, connection and depth of understanding and who don’t embrace indigenous culture need to reflect the understanding of what are some fundamental indigenous principles... With permission of indigenous culture it is ok to adapt tikanga or mātauranga but we must acknowledge the risk of stealing our indigenous identity. There is also the fact that each place harmonises to a unique cultural code. Every place is different so the cultural codes shifts. The deeper principles may be the same but the practices undertaken by the people there surely differ.”*
- *“We are perhaps not in a state to share Te Ao Māori when we haven’t understood it well enough ourselves.”*
- *“Perhaps our scorecard could be applied internationally but half of the points in the criteria are scores set by indigenous peoples.”*

As Māori entities continue to aim to balance environmental, cultural, social and economic benefits, in future there may be hope that collaboration with international partners can support the enhancement of indigenous connections to their respective people and places abroad.

## 4. SLO AND ASSURANCE SYSTEMS – THE STATUS QUO

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In this section, we utilize the analytical framework (Figure 3.2) to investigate the status of farm assurance from the viewpoint of SLO. The discussion in this section is grounded in the evidence that we have collected through the literature review, interviews, cases studies and our survey of NZ public.

### 4.1 Impact – benefits to farmers and public perceptions regarding farm monitoring

#### Background

Farm assurance is a part of the New Zealand conformity assessment system – a system that plays a significant role in international trade and NZ economy. The impact can be illustrated through the activity of IANZ, one of the two accreditation bodies in NZ. IANZ supports production in sectors that employ over 357,700 workers, up from 305,800 in 2000. These workers account for 17% of all employment in New Zealand. Through its accreditation activities, IANZ also plays a valuable role in supporting New Zealand's exports. The total value of these IANZ-facilitated exports was \$27.6 billion in the year to June 2016, or 56.5% of New Zealand's total merchandise exports (NZIER, 2017). IANZ supports industries that produce \$35.8 billion of GDP. Economic modelling demonstrates that IANZ secures a \$4.5 billion export premium for accredited exporters.

Global studies, such as the UK report on the value of conformity assessment argue that conformity assessment delivers an average of 8% price premium over products that are not accredited (Swann, 2010). This finding provides an indication of the additional value generated by conformity assessment of the type that IANZ delivers, though the premium could be considerably higher in New Zealand given NZ's reliance on primary exports that need to be accredited. However, the economic, social and environmental impact of conformity assessment sector (as well as of farm assurance that we discuss in this report) is poorly monitored and communicated. This issue seems to be common across the globe and is not necessarily specific to New Zealand.

The impact measurement is relatively underdeveloped and so is the communication of the results. The use of the impact data to communicate the value of assurance systems is also rare. Yet there are opportunities to address this matter. For example, the assurance schemes have an enormous amount of data available (i.e., non-compliance). There is little done to leverage the value of this data. This is seen by some assurance practitioners as a missed opportunity.

#### SUMMARY:

Farm assurance provides a fundamental “social license to operate” for farmers and other food system actors. However, farmers are also questioning the efficacy of assurance processes, as the requirements are becoming increasingly complex and burdensome for organizations. They are sometimes sceptical about the impact of these systems on farm management and the environment and are thus promoting a transformation towards impact-based approaches. Public perceptions of farm monitoring and accountability for farming practices are generally positive. Nevertheless, increased activism from non-governmental organizations (NGOs) and criticism from independent studies are tarnishing the value of assurance systems globally. From a Māori perspective, value and impact monitoring can be enhanced through high-resolution monitoring, improved practices, and the engagement of whānau to weave tikanga and mātauranga throughout all systems.



#### BOX 4.1. EXAMPLES OF NEGATIVE IMPACTS OF ASSURANCE SYSTEMS ON FARMERS

- **Administrative requirements create high workload: for example, the need to obtain and hold a wide range of information to provide verification for compliance with assurance requirements. These requirements create a significant demand on time for those responsible for managing compliance – and some farmers have limited skills to support this (for example, computer literacy).**
- **Number or and scope of requirements: there are over 200 criteria that are assessed as part of one assurance system audit (a farm maybe be subject to multiple audits).**
- **Frequency of measurement.**
- **Using a high-level indicator rather than measuring a wide range of practices**
- **Potential duplication for data collection and reporting.**

### Case study findings

Farmers gain multiple benefits from assurance: results from assurance are used for reporting for regulatory purposes, provide access to markets and can also assist farmers in increasing the value of their products. At the same time, there are also many negative impacts of farm assurance (see Box 4.1 for exemplary issues). It should be also noted that farmers actually have limited choice in regard to farm assurance as they are directly (mandatory assurance) or indirectly (access to supply networks and global markets could be conditional on stamps of approval from assurance systems) coerced to comply with regulations and standards.

There was a general support for the measurement of the actual impacts of farming (as opposed to a focus on monitoring of farm management practices) for example this information could be useful for monitoring the overall farm operation and help inform strategic and operational decisions. It could also be used for regulatory compliance reporting as well as to other stakeholders such as investors and banks.

However, it was also suggested that this was not always feasible – a hybrid approach – using the most appropriate and easily accessible indicators were suggested as an option.

### Public perceptions regarding farm monitoring

In our survey, we have asked for responses to the following question: “Based on your perception about farm monitoring in NZ, how strongly do you agree or disagree with the following statements?”. The statements were drawn from the SLO literature and reflected the key components of the SLO construct. The results (Figure 4.1) suggest that the NZ farm monitoring system is generally viewed as positive or slightly positive. About half of the respondents have a positive view on NZ farm monitoring across all questions (scoring 5,6, or 7). About 10% of respondents do not know or do not have an opinion about farm monitoring. The NZ public perceives that the monitoring ensures that farms are held accountable (highest score); the lowest scores were on the perception of whether monitoring systems were influenced by or reflected community and societal opinions. These low scores suggest that there is a room for improvement in engaging public in farm monitoring.



Figure 4.1 Current perceptions of farm monitoring in NZ.

The survey also asked respondents to indicate their confidence in assurance systems, based on the specifics of their oversight and governance. In the survey, we asked *‘What level of confidence do you have for assurance programs and associated product labels from the following organizations and businesses?’*. The results are presented in Figure 4.2. There is a degree of positive confidence associated with all the organisations included in the list, yet none of these stands out significantly – apart from private companies (ranked the lowest).

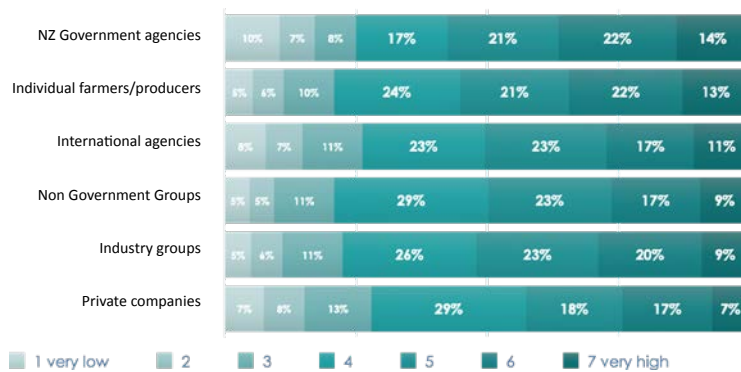
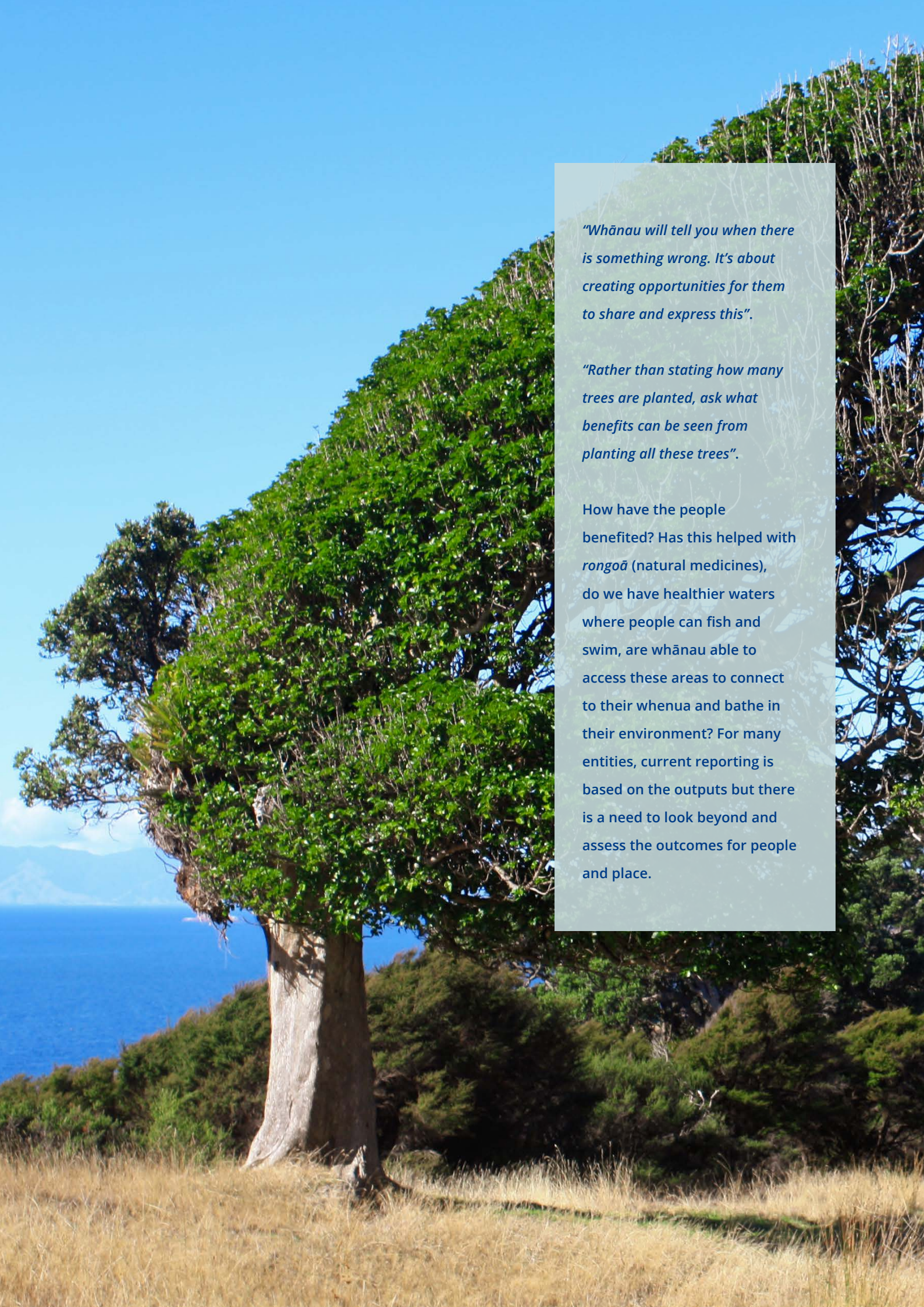


Figure 4.2 Confidence in assurance systems.



*“Whānau will tell you when there is something wrong. It’s about creating opportunities for them to share and express this”.*

*“Rather than stating how many trees are planted, ask what benefits can be seen from planting all these trees”.*

How have the people benefited? Has this helped with *rongoā* (natural medicines), do we have healthier waters where people can fish and swim, are whānau able to access these areas to connect to their whenua and bathe in their environment? For many entities, current reporting is based on the outputs but there is a need to look beyond and assess the outcomes for people and place.



## Mārama – Māori perspectives on Impact

It was expressed in all the interviews undertaken with Māori entities that it takes a range of expertise to understand, monitor and communicate the impact of operations and how they affect those who are connected to the respective people who whakapapa to that place. Māori entities have a range of self-developed and adapted frameworks to draw from, but each should be unique as values, criteria and goals are specific for each. A key quote from one research participant states *“we need to account for resources and understand the value and worth of these with respect to your takiwā. This is whakaaro Rangatira [the idea and concepts of leadership].”*

Many use monitoring through the voice of the people. *“Whānau will tell you when there is something wrong. It’s about creating opportunities for them to share and express this”*. Often this is done at a flaxroots level through having a kaputī with kaumātua (elders), aunties, uncles, cousins and other tribal members or it is also often expressed at AGMs and wānanga. However, there are a plethora of monitoring methods utilised by Māori entities including reports, environmental scorecards, use of technology and digital platforms, Western science and mātauranga (specialised intergenerational knowledge around a local area). The employment of the method must best suit the intent, the user, the analyst and then aligned to values agreed upon by *tangata* whenua.

There are key reporting values that have been adapted into frameworks which include *tino* rangatiratanga (self-determination), *manaakitanga* (upholding the mana of a person or place), whānaungatanga (strength of relationships) and *kaitiakitanga* (ensuring that the spiritual and cultural relationship to people and place is enhanced). It was mentioned that these could be improved by high resolution monitoring, enhanced practices and employing whānau to weave tikanga and mātauranga throughout all systems. *Tangata* whenua also need to know the impact of operations and how this will enhance their connection to each other and their place. One of the interviewees mentioned, *“Rather than stating how many trees are planted, ask what benefits can be seen from planting all these trees”*. How have the people benefited? Has this helped with *rongoā* (natural medicines), do we have healthier waters where people can fish and swim, are whānau able to access these areas to connect to their whenua and bathe in their environment? For many entities, current reporting is based on the outputs but there is a need to look beyond and assess the outcomes for people and place.

Despite work done to measure, monitor and feed the information back to the people, there is still room for improvement across how Māori entities can measure, monitor and communicate impacts. It was mentioned in some cases that operational performance did not meet the expectations of whānau. *Tangata whenua* often have much higher standards set for the wellbeing of the environment and their connection to it in comparison to what is set through government policy and regulation to mitigate harm on land and water. This pressure from the people of the land is the SLO; creating comprehensive, transparent systems that effectively exhibit how operations align with their expectations is the assurance system. Navigating the path of creating assurance systems can only be formed through having a meaningful relationship with *whānau*, *hapū* and *marae*.

## 4.2 Innovation – reinventing farm assurance

### SUMMARY:

The innovation of assurance systems must involve all aspects of the assurance process, including setting standards for new approaches in assurance, qualifying personnel, and developing the quality infrastructure. Although farmers are supportive of innovative approaches, they are cautious about investing in new technologies. The New Zealand public supports the use of technology for farm assurance however traditional methods, such as on-site visits are still preferred as the cornerstone of assurance practice in the public's view. Māori entities invest in technologies and use them for assurance, such as in the Our Land and Water project's Kaitiaki Intelligence Platforms. The use of technology supports the monitoring of farms in line with Māori world perspectives.

### Background

Historically, New Zealand has been at the forefront of innovation in conformity assessment. Research studies often categorize NZ as an 'early adopting country' (Corbett, 2006) and NZ maintains a high reputation for credibility of its quality infrastructure. NZ continues its active involvement in many international initiatives (e.g., APEC Sub-Committee on Standards and Conformance; International Organization for Standardization and many others).

The COVID-19 pandemic has accelerated the digitalization of conformity assessment. The 2021 report on the impact of COVID-19 on conformity assessment in NZ showed evidence that the sector handled the crisis well and has rapidly adopted remote techniques to deliver the services in difficult times (Koch et al., 2021). Subsequent investigation in the food sector (inclusive of farm assurance) also demonstrated a rapid uptake of remote methods and continuous acceptance of new and innovative ways for provision of assurance services (Castka et al., 2021).

The assurance sector (globally as well as in NZ) is however slow in adopting more advanced technology – such as drones, remote sensors, satellite imaging. The respondents in our study raised several reasons for the slow uptake:

- complexity of approval processes
- lack of understanding of the technologies and its fit with assurance practices
- lack of rules and guidance on the use of data, data security and data sharing
- availability of skills/expertise, confidence, capacity
- lack of a 'mindset' shift, a tipping point that would accelerate the innovation in the sector

There are a range of new tools that can support auditing processes such as those identified by Information Systems Audit and Control Association (ISACA)<sup>4</sup>. Likewise, IAASB<sup>5</sup> are also active in leading the analysis of opportunities for incorporating technology to support auditing and the development of international auditing standards on their use. As detailed in Figure 4.3., IAASB see a potential in a wide range of technologies however have identified some barriers to the adoption. AI and machine learning are consistently identified as the most revolutionary and used new technologies while the potential of blockchain and related digital assets were subject to more diverse views on their potential. Locally the Australian Government Auditing and Assurance Standards Board (AUASB)<sup>6</sup> are reviewing the potential for new technology to enhance auditing processes. Its 2023 Technology Update<sup>7</sup> details AUASB activities in this area as well as guidance on the use of automated tools or techniques (ATT) for auditing in Australia. In addition, the External Reporting Board<sup>8</sup> (XRB) is also providing insights on its potential use in New Zealand. Table 4.1 presents various technologies that can be used at various stages of the assurance processes.

## Technology Maturity Model – 2022 Research DRAFT

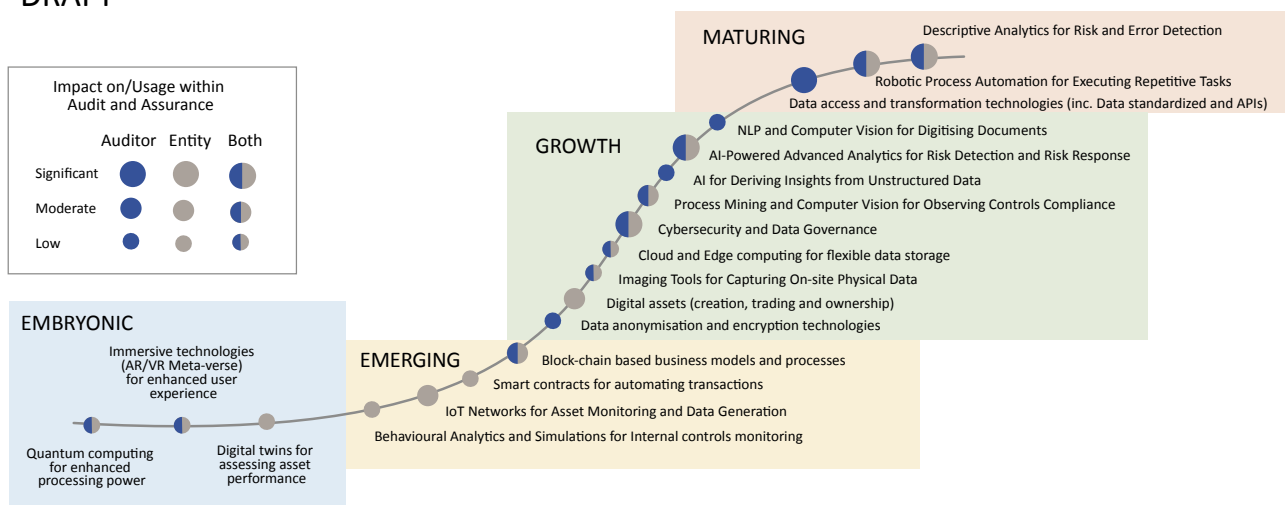


Figure 4.3 Audit Technology Maturity Model (Source: IAASB, 2023)<sup>9</sup>

4 <https://www.isaca.org/resources/news-and-trends/newsletters/atisaca/2022/volume-1/new-re-sources-address-evolving-challenges-on-the-audit-landscape>

5 <https://www.iaasb.org/focus-areas/technology>

6 <https://www.auasb.gov.au/implementation-support/technology/>

7 <https://www.auasb.gov.au/media/ctriaepa/technology-update-february-2023.pdf>

8 <https://www.xrb.govt.nz/insights/latest-insight/>

9 <https://www.iaasb.org/news-events/2023-03/iaasb-digital-technology-market-scan-digital-assets>

**Table 4.1 Representative technologies to address veracity and timeliness in assurance processes (Source: Castka et al. (2020))**

Auditing Process – Key Steps	Technological Solutions – Example	Technological Solutions – Description	Examples from Industry	Example Application
1. Data Collection	Satellite imaging	Example	SAFARI Programme Global Forest Watch Global Fishing Watch NASA Worldview NOAA View CubeSats	Global Forest Watch monitors forests around the world to highlight deforestation and identify sustainably sourced goods, among other uses. The FSC is also piloting the use of satellite imaging in its certification schemes. Monitoring of fish stocks or large-scale spills are just two of the many other possibilities.
	Chemical fingerprinting	Use of mass spectrometry to measure the concentrations of chemical elements.	The Chemical Footprint Project Project Orbitain	Oritain Labs uses concentrations of trace elements and isotopes to identify the origin of food products, with applications for businesses and consumers. There are potentially wide-spread applications for chemical fingerprinting in agribusiness, particularly with respect to chain of custody certifications.
	Social media platforms	Collection of perceptual data by providing unrestricted communication platform for all.	LaborLink LaborVoices Ushahidi	Over 400 suppliers use LaborVoices to identify fire hazards, child labour, etc., which can help identify key areas of focus for SEA.
	Sensors / RFID	Intermittent or real-time monitoring of site-specific temporal and spatial data.	Indoor air quality Air emissions RFID Drone-based monitoring	Sensors are widely used to collect objective data on environmental performance (such as on air emissions or discharges to bodies of water). Newer applications include embedding sensors in products (for example, to detect missing or non-functional components) and wearable technologies that enable direct monitoring of employees (such as collecting data on movements, productivity, and stress levels).
	2. Data recording and sharing	Audit cloud applications	A new generation of audit systems that improve efficiency of audits by providing an on-line platform for data recording and analytics.	Inspectorio Ecovadis Amazon Web Services
Blockchain		Blockchain provides access to unalterable evidence.	Financial services Shipping Insurance Smart contracts Product traceability Cryptocurrency	The application of blockchain technology is rapidly expanding in SEA. For example, it is widely used in the diamond industry to track product provenance (e.g., to avoid “blood diamonds”) and limit counterfeiting. Many other pilots are being reported throughout the certification industry (e.g., Fair Trade).
3. Data analysis	Advanced machine learning	Technologies that identify relevant information, identify patterns, make predictions, provide advice, and make decisions intermittently and in real-time.	“Big 4” auditing companies (Deloitte, Ernst & Young, PwC, KPMG)	KPMG leverages data analytics to assist in problem identification, strategy development, and making predictions.

Some new technologies however present a growing risk to the sovereignty of NZ assurance systems – especially regarding geospatial monitoring of sustainability indicators such as biodiversity, water quality, animal welfare or carbon management. The cost and availability of spatial data means that various stakeholders groups (activists, NGOs) can monitor NZ farms independently. The results of such monitoring can be used to challenge the environmental credentials of NZ farming industry (see Box 4.2 'The impact of Remote sensing on assurance systems').

#### BOX 4.2 THE IMPACT OF REMOTE SENSING ON ASSURANCE SYSTEMS

Remote sensing technologies used for surveillance to monitor the environment bring new levels of transparency, surpassing existing monitoring practices.

A transformational change is needed to align conformance systems with the digital economy, considering the technological, actor, task, and structural components:

- **Technology:** Development of prioritizations methodologies to assess the suitability of remote sensing for purposes of conformance systems; development of compliance algorithms that can automate (fully or in part) compliance processes.
- **Actors:** Identification and development of new products/ services in conformance systems to fill critical skill gaps for new services; involvement of multiple stakeholders in technology enhanced conformance systems to assist with monitoring and reporting.
- **Task:** Supporting collaboration between actors and across the subsets of conformance systems (i.e., sharing of monitoring and reporting results; data sharing; sharing of remote sensing technologies).
- **Structure:** Determination of standards and guiding principles and recognition mechanisms for the use of remote sensing in domestic systems and as part of international trade.

A detailed analysis of the impact of remote sensing on assurance systems is provided in Reid and Castka (2023).



Digitalization (and forms of innovation) in the assurance sector are evolving rapidly. Recent report on the digitalization of conformity assessment provides first indications into the digitalization across the globe (see BOX 4.3).

The risk to NZ Sovereignty is also posited by other forms of remote techniques. In March 2021, Chinese Customs Office remotely inspected a Sanford facility in NZ<sup>10</sup> and determined that the facility did not meet international standards. This remote audit resulted in discontinued export of seafood to China for this company.

## Case study findings

New Zealand farmers are in general recognised as being innovative as reflected in the comparatively rapid increase in farm productivity over the last 40 years, much of this generated through technology and management systems innovations.

Recent innovations such as individual animal monitoring, soil/water monitoring, precision farming can all provide data that can be used to enhance farm assurance systems. Technologies can streamline existing processes and can also facilitate the measurement of impact. Box 4.4 provides an overview of farmers' views on technologies and their role in assurance. In general, innovation in assurance would be supported by farmers – especially if it addresses the inefficiencies of the existing system and results in an positive environmental and social impacts.

### BOX 4.3 GLOBAL SURVEY ON DIGITALIZATION OF CONFORMITY ASSESSMENT

The QI-FoKuS (Quality Infrastructure – Research for Conformity Assessment and Safety) initiative was launched in autumn 2019 by BAM together with the TU Berlin and is supported by the Federal Ministry of Economics and Climate Action. The scientific concept and evaluation are carried out by BAM together with Prof. Knut Blind from the TU Berlin and Prof. Pavel Castka from the University of Canterbury (New Zealand). As of March 2023, studies from 16 countries were conducted. The results are available at <https://netzwerke.bam.de/Netzwerke/Content/EN/Standard-Articles/Networks/Qi-Fokuqi-fokus-studies.html>

The initiative provides insights into digitalization of conformity assessment results in NZ and other countries. In the future, benchmarking across the countries will be provided. Such analytics can assist in drafting strategic plans for technology adoption in NZ.

<sup>10</sup> Chinese Customs Office remotely inspected Sanford facility in NZ.

#### BOX 4.4 FARMERS' VIEWS ON TECH AND ITS POTENTIAL USE FOR ASSURANCE PURPOSES

Assurance schemes, such as Synlait's Lead with Pride (LWP), invest in software solutions to store data that are needed for assurance. Synlait has recently established a partnership with FarmIQ <https://farmiq.co.nz> and promoted this as a tool to help LWP suppliers store and manage information to support LWP. In addition to the above – some farmers have made large investments in technology that though may not be a requirement of compliance with LWP however they may provide information to support compliance and reporting. Examples include:

- Animal ID and monitoring systems for example the *Halter*, *Allflex*, *Cow manager*, *Smaxtec*
- Integrated data management systems such as *HALO Dairy Systems*, *Harvest*
- Use of cameras, for example on the backing gate and in the dairy shed to help with recording potential animal welfare issues.

There however was some caution about the adoption of technology by some of those interviewed. Issues included:

- Technology may not live up to what was promised – for example some had used a satellite pasture growth service and had subsequently dropped it as it did not work in cloudy conditions. Alternative simpler technology worked better.
- The use of technology was perceived to remove some of 'art of farming' – 'you can't manage a farm from a computer – you need to be hands-on'. It was suggested that monitoring information helped inform management but should not be solely relied on.
- In some situations, a commercial technology solution had not become available or was not seen as being economically viable.
- Concerns about the access to, and the use of, monitoring information.
- The accuracy and relevance of the data collected in relation to the assessment of impacts associated with the assurance programme area of focus.



## Public perceptions regarding the use of technologies for farm monitoring

Based on the survey results the NZ public regards on-site inspections as an essential part of farm monitoring. In our survey, we asked “In your view, how important are on-site audits and inspections at farms?”. In this block of questions, we contrasted on-site visits with public’s views on the use of technologies in farm assurance (Figure 4.4).

78% of respondents agree that on-site visits cannot be replaced. Importantly, the NZ public is aware of the shortcomings of on-site visits (73% of responded agree that on-sites visits only provide a snapshot of what happens). Support for the use of technologies to complement on-site visits is also high (70% agree), even though public agrees less on whether technologies can be used as a justification for reduced on-site visit. Still, 64% agree that such a reduction could be considered.

It should be noted that the more knowledgeable the respondents are in relation to assurance, the more likely they support the use of monitoring technologies to support assurance processes.

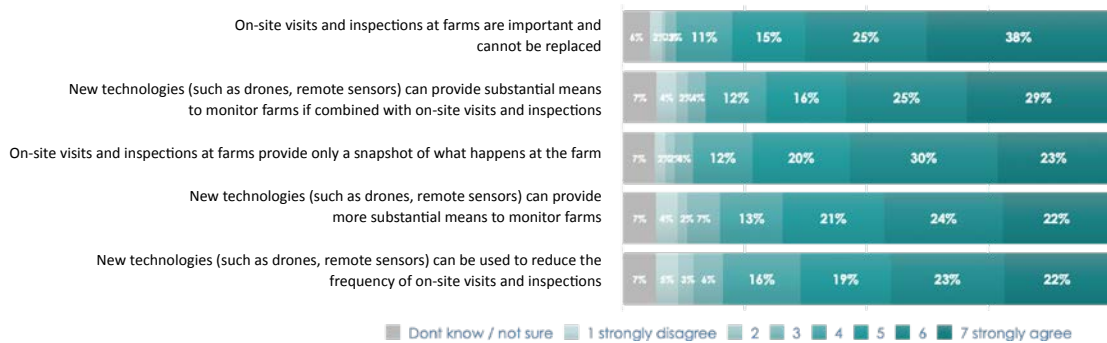


Figure 4.4. Importance of on-site audits and inspections at farms.

In the next question, we asked “what should farm monitoring include?”. The set of questions included various aspects of monitoring (Figure 4.5): from how auditors should be selected and approved, to the use of technologies. The results demonstrate a high support for ‘traditional’ approaches (i.e. independency in governance, in person approaches). The public also supports unannounced visits (63% of respondents support this practice). Somewhat surprisingly, the use of technologies is seen as less important – even though the support of these approaches is still high. Out of all farm monitoring approaches, continuous monitoring has the lowest support (still, 55% of respondent agree with this approach). Again, the support is higher from groups of respondents with high level of knowledge about farm assurance.

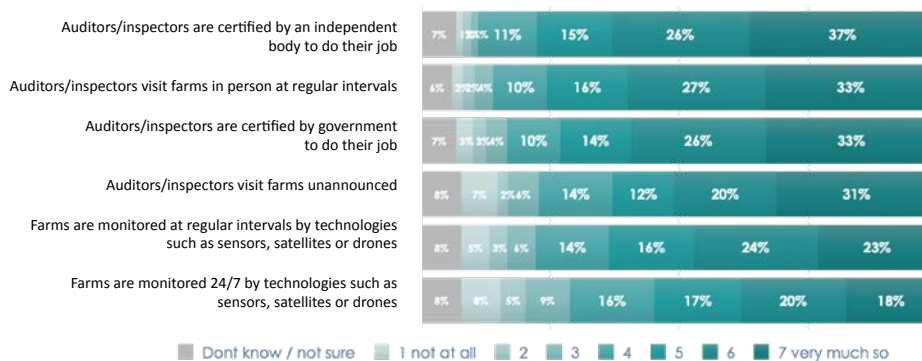


Figure 4.5 Farm monitoring approaches.

## Te Ao Hou – Māori perspective on innovation

The only interviewees who spoke on the ability to invest in innovative systems and technology were those involved in entities with the money available to invest in such capability and capacity. They express that current reporting has gaps in the information, which cannot detail a comprehensive picture of the health and wellbeing of a system. This diminished confidence in the reporting and resulted in large investment towards monitoring equipment for the health of ecosystems such as surface and groundwater. This is to meet the standards set by whānau, hapū and iwi. One interviewee also notes that *“regenerative practices are trending up”* and that we need to embrace our mātauranga from whānau to work in synergy with our environment.

Research projects and investment into areas of interest in alignment with aspirations of our whānau will also be key to further develop the integration of innovative systems and technology with the unique cultural coding of *tangata whenua*. An interviewee suggests that they have the data to track the state of social and environmental wellbeing over time but need to form a strategy around measuring the impact and outcomes. They have stated in one instance that *“every dollar on grants is a \$2 return socially. Every dollar spent on a programme run for connecting people to each other, whenua and marae is a \$7 return”*. This is an example of innovative data which can help to shape the types of investments made by entities to support the enhancement of people and place.

An associated OLW project *‘Katitiaki Intelligence Platforms Positioning Māori as first movers in next-generation environmental intelligence’* aims to provide land managers and policy makers with the real-time feedback needed to adapt land management and land use practices to enhance the mauri and mana of land and water. The project recognises that Post Settlement Governance Entities and Māori Land Incorporations and Trusts with the necessary financial and human capital have proven to be national/business leaders in the agricultural economy through the creation and adoption of innovative commercial, operational, and technological solutions. These entities see the potential for the adoption of new monitoring technologies to address the critical information gap limiting the development of land management practices and supply chains that operate within the Māori ethical framework called tauututu. Tauututu demands that land management practices support mana and mauri enhancing relationships between humans and their non-human relations.

## 4.3 Inclusiveness – broadening the scope of stakeholders’ involvement practices.

### Background

Stakeholder engagement and development of relationship with stakeholders is at the heart of the Social Licence to Operate concept. Assurance systems have been working on relationship development with stakeholders for a long time. For example, many assurance programs invited stakeholders to participate in the development of standards (for instance, Forestry Stewardship Council (FSC) certification). Such efforts have led to inclusion of secondary stakeholders, such as NGOs and environmental activists. This has become a mainstream practice in voluntary assurance systems (especially in the sustainability domain). In fact, many global assurance systems are referred to as multistakeholder standards initiatives.<sup>11</sup> Likewise, regulators consult new regulatory frameworks through public consultation. For example the development of the Freshwater Farm Plan regulations provided a number of opportunities for public and stakeholder input – including in the development of the Essential Freshwater package supported through the circulation of a consultation document and subsequent public submissions in 2021. Subsequently stakeholders have been included into reference groups to guide the development of the Freshwater Farm Plan regulations as well provide feedback on drafts of the regulations.

There is however disagreement about the effectiveness of the inclusiveness of multiple stakeholders. Academic literature questions the equity within the process. For example, the development of ISO 26000 guidance standard on social responsibility was deemed as driven by industry despite the involvement of multiple stakeholders (Balzarova and Castka, 2012; Helms et al., 2012). Moreover, stakeholders’ involvement is also used to legitimize assurance systems (Boiral, 2007). Stakeholder involvement is however viewed positively by the media – even though the actual engagement can be symbolic (Castka and Corbett, 2016).

### Case Study Findings

Generally, those interviewed recognised the value of building better relationships between local communities, NZ public and farmers. Some recognised a negative narrative about dairy farming and were concerned about the implications of this continuing (or degrading). This was especially a concern if it results in increased constraints on farming. Most seemed to agree with the suggestion that assurance programs (such as Synlait’s Lead with Pride) could be potentially useful for helping to address this divide through its illustration of best practices and accountability in farming (see Box 4.5).

#### SUMMARY:

Farm assurance can serve as a foundation for cultivating relationships with stakeholders. Farmers value feedback mechanisms, but have expressed concerns regarding the extent to which their opinions are taken into account and their limited resources that impede their full participation. Farmers support greater involvement of the New Zealand Public in farm monitoring and, to some extent, support data sharing to foster trust (although with some reservations). The New Zealand Public is interested in assessing farm performance with a focus on food safety, animal welfare, and food quality. The public is also interested in benchmarking, gathering general data (such as the number of non-compliant issues in the sector), and monitoring trends. From a Māori perspective, experts in various cultural domains can contribute to decision-making processes to ensure that aspirations align with the needs of tangata whenua.

<sup>11</sup> *ISEAL Codes of Practice to guide the development and management of sustainability standards supports involvement of stakeholders in assurance and can be used as a guide for inclusiveness.*



## BOX 4.5 FARMERS' VIEWS ON THE USE OF ASSURANCE SYSTEMS TO BUILD RELATIONSHIPS WITH CONSUMERS

(Examples from Synlait's Lead With Pride (LWP) assurance system)

- It was recognised that a key use of LWP was to manage supply chain risks and meet the expectations of the buyers of Synlait products (Business to Business assurance). It was recognised that Synlait was mainly marketing ingredients and only had limited branded consumer products in the market so LWP had limited potential to be used as a branded – Business to Consumer assurance programme. The company does produce some consumer products and there would be value in these products using the LWP logo and provide information on the programme.
- Promoting LWP to rural professionals and input suppliers. This could help for example in being able to get records from suppliers to meet LWP audit requirements – currently it was reported that many companies were not familiar with LWP requirements relating to the service they provide to farmers.
- Increase the level of public awareness of LWP and its positive impacts – such as promoting the LWP awards – and encourage LWP farmers to enter into other farm awards programmes such as the Balance Farm Environment Awards, which have more profile.
- Promote more strongly the character of NZ farming systems vs the more industrial feedlot approach used in many other countries – NZ had a comparative advantage in this space.

Farmers recognise that the development and operation of assurance systems did provide mechanisms for their input. Some farmers are active in this feedback process through farmer reference groups or through advocacy in relation to addressing specific issues in the design and operation of assurance programmes. However, participation is not widespread, and some groups choose to stay away i.e., new entrants to assurance programmes report to have limited time to provide this type of input.

Generally, farmers were open to sharing data with their peers (other farmers) and potentially with public (hence assisting with building relationships with NZ public). There has been a long history of farmers sharing knowledge and this was seen to have been a key factor for the development of the NZ agricultural sector. There was, however, mixed feedback on the wider sharing of data – some of the concerns included:

- The potential use of the data – could it be used against them – i.e., presented in a way that was negative to the farmer and the industry; would the people who had accessed it, understand the information; why should farmers be open to this level of scrutiny when others are not. In addition, it seems that some were uncomfortable in being able to maintain continually a high standard in relation to all the assurance practices – considering natural adverse events etc. It seems that some farmers spend significant effort for preparation for annual audits – and could not sustain these levels of presentation.
- It was however recognised that there were limits to stopping some types of remote sensing for example satellites occurring now.
- The issue of anti-farm/anti farming activists was raised and their use of social media to promote a negative – and sometimes an incorrect image of farming. There is a risk that providing greater transparency of information may create more fuel for their causes.

The Freshwater Farm Plan regulations are still under development however it is recognised that agricultural industry stakeholders have had opportunities to provide input into the development of the regulations. The impact from their input will not be clear until the regulations are finally released.

## Public perceptions regarding importance of different sustainability aspects of farming

The inclusion of the NZ public can have many forms. We have firstly attempted to establish what areas of interest are the most important. We asked “Monitoring of farms covers a number of aspects of a farms’ operations. In your opinion, what is the relative importance of the following aspects?” (see Figure 4.6). In line with other studies, for example in other Our Land and Water funded research and summarised in the Matrix of Drivers<sup>12</sup>, food safety<sup>13</sup> was identified as the most important aspect of farm monitoring. Animal welfare and water quality follow. The survey also established that only 11% of respondents did not see it as being important to monitor Māori values and land practices, while 54% did.

<sup>12</sup> <https://ourlandandwater.nz/project/the-matrix-of-drivers/>

<sup>13</sup> <https://drive.google.com/drive/folders/1Q7a3KWaoUBmxFmTwbag6Z5TfDPDFSLtQ>

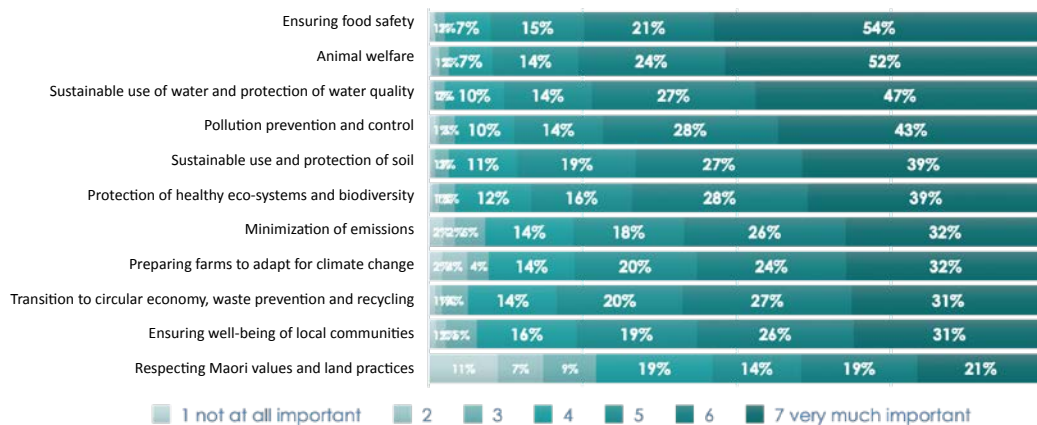


Figure 4.6 Relative importance of the monitoring of different aspects of farms' operations.

A part of the inclusiveness debate (as well as the debate on impact) is the issue on the use of data and disclosure of this information on farms' performance. From the results we can see that the public supports the sharing of the performance, in particular through mechanisms such as benchmarking, audits grades or disclosure of non-compliance. The results thus show that the public is interested in knowing more about the impact of farming – overall with about 50% of survey respondents supporting all propositions about performance sharing (Figure 4.7). However, notable is the number of respondents that do not have an opinion about these matters. In regard to data sharing, the public is however largely in disagreement: 34% support it whilst 36% do not. Despite this disagreement, it is clear that performance of farms would play a significant role in building of the relationships with the public.

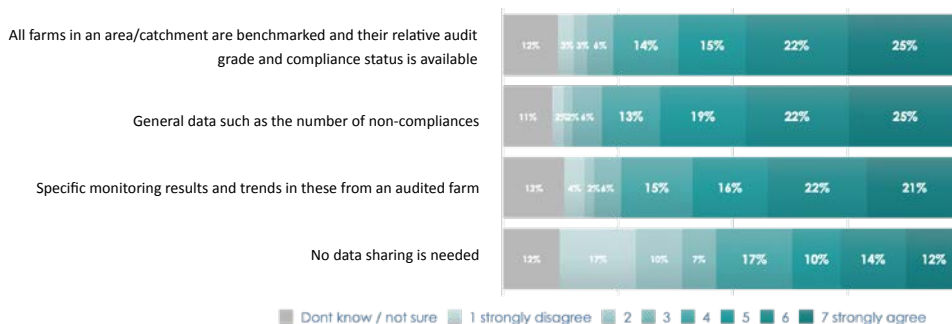


Figure 4.7 Public perceptions on data and performance sharing.



## Mōhio – Māori perspectives on inclusiveness

Ensuring that the values are aligned to the wisdom of *tūpuna* is the responsibility of all people that *whakapapa* to a particular place. Understanding the values in which all operations are undertaken, as well as behaviour and methods in the past, should be used to inform what is done in the present and in the future. As stated by one research participant, *“Whakapapa korero, whakataukī and waiata inform us from our past. That is what’s important. Then technical advice can tell us the state of our environment”*. However, whānau need to be on board and take ownership of the intent and direction for these entities to be enhanced sustainably. An interviewee addresses that there is a need to *“make space for people to feel a part of this. You can’t just give people a story but make them a part of the story. Make them feel welcomed and loved. Go out of your way to dispel the effects of colonisation through manaaki. They will never engage if they don’t feel they belong”*.

Whānau can engage with decision-makers in Māori entities through the same methods that are supported through the building and enhancing of relationships stated above in Pono. There is also the recognition from interviewees that when representatives of various cultural expertise can contribute at the decision-making level, this enables a more comprehensive approach to ensure aspirations are aligned with the needs of *tangata whenua*. These people include *kaumātua*, *rangatahi* and those *whānau* or individuals who hold mātauranga in certain disciplines. One interviewee stated that *“everything is intergenerational. We can’t just sell our land. We have to think long term”* so that the decisions made today are in the benefit of those that receive this *taonga* in the future.

## 4.4 Integrity – strengthening confidence in farm assurance governance

### Background

The integrity of assurance systems has been under scrutiny for a while. Especially, consumer facing assurance schemes have been subject to ‘impact studies’<sup>14</sup> and placed under the scrutiny of investigative journalists. For example, studies into FairTrade (an assurance scheme with one of the highest brand recognitions in the world<sup>15</sup>) provide a mixed results in terms of Fairtrade’s impact of farmers’ well-being (Griffiths, 2012). Forest Stewardship Council (FSC) – the most prominent assurance scheme for sustainable forestry in the world – has been heavily criticized for malpractices in their audits<sup>16</sup>. Although these examples are only related to some assurance systems (and in particular related to assurance systems with high consumer visibility), there is a reputational risk to all assurance schemes and a need to be mindful of such risks.

The integrity of assurance systems has been questioned for multiple reasons. For example, lack of independence and conflict of interest dominate the current discourse. As Prajogo et al. (2021) assert, auditors, inspectors and assessors may not be independent and free from external pressures, which can compromise their impartiality. Inadequate competence is also a factor and auditors and auditees often have different perception of what constitutes a ‘good auditor’ (Power and Terziovski, 2007). Inadequate resources (such as time, staff, or funding), may also compromise audit quality (Castka et al., 2015). In farm assurance, the integrity can be also affected by other reasons, such as the accuracy and completeness of farm data (errors, omissions, or deliberate misreporting), monitoring technologies may not be able to accurately measure certain aspects of farming practices or may be subject to errors or malfunctions or lack of transparency.

#### SUMMARY:

**Assurance systems’ integrity is compromised by several factors, such as audit fatigue, lack of adequate resources, conflicts of interest or doubt regarding the value of the assurance services. Farmers acknowledge that assurance systems’ integrity levels vary; some may be manipulated. Cynicism toward assurance exists, which undermines farmers’ trust. The public acknowledges the significance of highly qualified auditors with industry expertise and personal integrity. Moreover, the public supports the government and regulators’ oversight of the development of key indicators.**

<sup>14</sup> For example, ISEAL impact studies.

Available at <https://www.isealalliance.org/impacts-and-benefits/case-studies>

<sup>15</sup> <https://www.fairtradecertified.org/what-we-do/brands/>

<sup>16</sup> <https://www.icij.org/investigations/deforestation-inc/audit-firms-kpmg-environmental-sustainability-logging/>

## Case study findings

The Synlait Lead with Pride assurance scheme was perceived as robust, the auditors were recognised as having an understanding of dairy farming and this assisted with ensuring the audit process was professional. Some issues identified with audits included:

- The audit process seemed to create a significant level of stress for many of those interviewed in the case study with preparation for the audit taking a lot of energy and the audit day being a challenge.
- Some assurance systems only allow for any noncompliance issue that were identified in the audit to be addressed within the day of the audit
- It was recognised that an audit is not an easy thing to happen – farmers don't like being judged – especially in relation to aspects of their farm management.
- It was also suggested that physical audits only provided a snapshot from a 1-day inspection of the farm – it was expected that farmers would be sure to have everything perfect for that day – but what about the other 364 days? The LWP program is however clear that LWP requirements are expected to be maintained 365 days a year and that is the basis for the paid incentives.

There are some farm assurance programmes however where people are able to cheat the system. Cheating is the most extreme form of deception. However, even the relatively robust Synlait's LWP assurance system was perceived by some of the case study farmers to have gaps with the following observations and suggestions of potential issues with its integrity:

- Some participants may just be ticking boxes but may not have addressed the requirements.
- Farmers were struggling to participate in assurance systems; for example due to a lack of time available to adequately manage the administration (especially related to small farmers with limited administrative support).
- Some farmers had limited 'ownership' or interest in some aspects of the farm assurance programme for example for some of the environmental or social components.

## Public perceptions regarding the integrity of farm assurance

Our survey provides insights into specific practices of assurance – as perceived by the public (the overall integrity of the farm monitoring has been covered in Section 4.1, Figure 4.1.). These insights can be utilized to focus on certain practices that have the highest recognition by the public.

Figure 4.8 provides the response to the question “There are number of practices that are used in farm monitoring. In your opinion, what is the relative importance of the following practices?” The most important practices identified were ‘inspections were undertaken by qualified personnel’ and involving ‘on-site visits’. The practices with the lowest level of support were related to farms ‘monitoring by commercial partners’ and ‘use of modern technologies’.



Figure 4.8 Relative importance of farm monitoring practices.

Insights on who was perceived as the most appropriate people for the role of auditors and inspectors are illustrated in Figure 4.9. We asked “Who should audit/inspect farms?”. The public perception indicates that the auditors and inspectors should possess high integrity, have substantial industry experience, and be approved by independent certifying bodies. There was the strongest disagreement with the use of internal audits as well as organisations that have existing relationships with farmers.

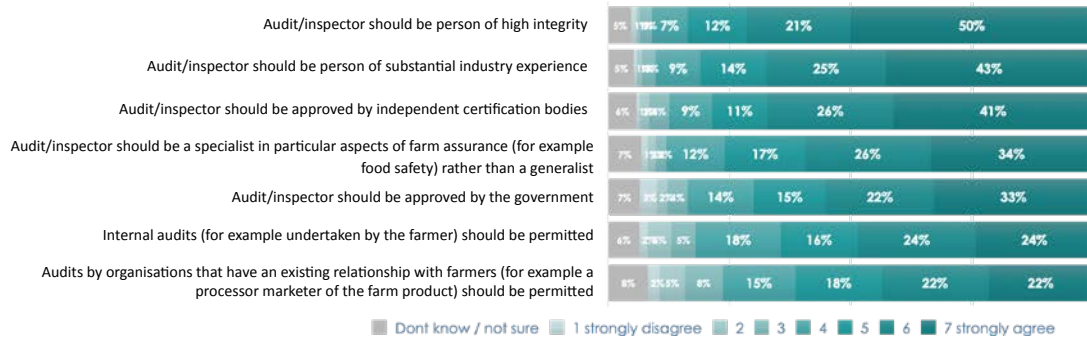


Figure 4.9 Who should audit/inspect farms?

The importance of independence of the actors involved in monitoring of farms was also provided in the survey and illustrated Figure 4.10. We asked, “How important is the independence of actors involved in monitoring of farms?”. There was higher levels of agreement that assurance rules and performance indicators should be defined by and aligned with international standards or government regulations. A relatively high proportion of respondents indicated they did not know whether auditors and inspectors should be paid by organisations that they inspect (the last question in Figure 4.10).

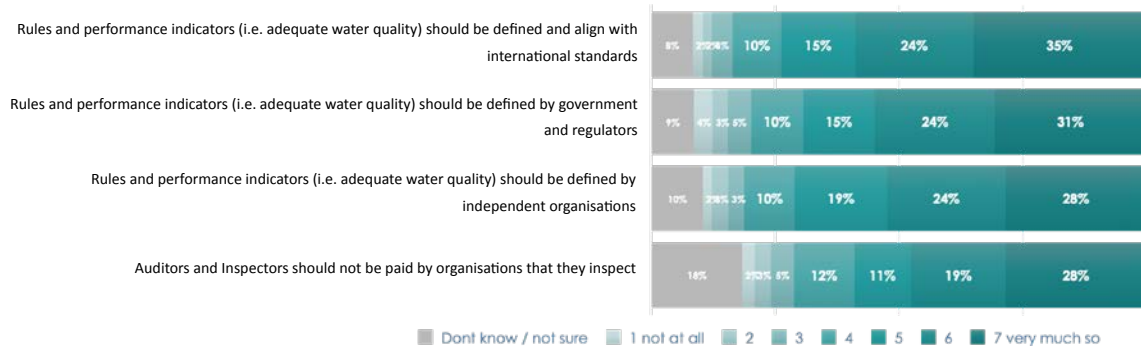


Figure 4.10 Importance of the independence of actors involved in farm monitoring.

## Tupu – Māori perspectives on integrity

Currently, the capacity and capability for feedback systems from the experiences of our Māori interviewees is through personal connections with whānau, hui, wānanga, annual general meetings and reviews undertaken. Access for whānau to speak on how operations track in their alignment to values, focuses and goals is significant to the undertaking of an entity's responsibility back to people, place and the connection between them. Two interviewees highlight that a review is undertaken on the respective entity's performance on a scheduled timeframe to measure economic performance against social and environmental outcomes and the purpose for which the entities were created for. Some entities are obligated under legislation to undertake these types of review.

Interviewees mentioned monitoring frameworks and scorecards that have been developed to understand how well projects have improved the wellbeing of the environment, people, cultural factors, spiritual wellbeing and other attributes which are subject to definition by the assessor. Awatere & Harmsworth (2014) also reference several mātauranga-based monitoring frameworks and models which could help entities and whānau align their aspirations and indicators to wellbeing as defined by them. Although this has been highlighted as a significant component to align operations with values of whānau, there is still much work to be done to optimise the process of feedback from whānau. It is also important to note that the ineffectiveness of feedback systems is compounded when there is little to no relationship between whānau and decision-makers. As one interviewee outlines, *“feedback and direction for these targets and values comes from our people. We need to create space for participation”*. They also emphasised the need for us to move as one, at the same pace – *“if you wanna go fast, go alone, if you wanna go far go together”* – which identifies the fundamental nature of kotahitanga (togetherness), being transparent and being open to feedback.



**“Feedback and direction for these targets and values comes from our people. We need to create space for participation”.**

**They also emphasised the need for us to move as one, at the same pace –**

**“if you wanna go fast, go alone, if you wanna go far go together” –**

**which identifies the fundamental nature of kotahitanga (togetherness).**



RECOMMENDATION:

Develop and fund the implementation of a comprehensive farm assurance strategy that aligns and supports the New Zealand quality infrastructure in continuously improving its role in building trust. A strategic approach to transforming the New Zealand quality infrastructure is essential. This will require investment in further research and planning for the transition, public engagement, involvement in international standards development, and training of auditors and other areas. Failure to do so puts the New Zealand economy at significant risk.



## 5. RECOMMENDATIONS

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The following recommendations to enhance the role of assurance to build the social licence to operate have been identified. The recommendations are organised into five categories – each category containing a set of next steps and recommendations for further work. We would like to stress that the scope of this report is to provide an overall direction of future activity and further work is needed to develop concrete plans to operationalize these recommendations.

### 5.1 Leadership and Strategy for a robust quality infrastructure

New Zealand has a well-established quality infrastructure (see Figure 6.1)<sup>17</sup> and is globally recognised for the quality of its conformance system. At the same time, the Treasury acknowledges that “New Zealand’s infrastructure faces a number of challenges, including the need to renew ageing infrastructure, the pressures of an aging and urbanising population, tight fiscal constraints, changing technology, the effects of climate change, and the increased pressure on our natural resources.”<sup>18</sup> Respondents in our study agree with this assessment and raised similar concerns regarding the future of NZ assurance.

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<sup>17</sup> Detailed insights into operation of NZ’s conformance system are provided at <https://www.mbie.govt.nz/assets/3e2e6a332a/insights-into-the-operation-of-nz-conformance-system.pdf>  
<sup>18</sup> <https://www.treasury.govt.nz/information-and-services/nz-economy/infrastructure#:~:text=New%20Zealand's%20infrastructure%20faces%20a,pressure%20on%20our%20natural%20resources>



A number of recent reviews and initiatives have outlined the future direction of the system, for example:

- **Policy and strategy settings.** The 2018 Conformance Policy and Infrastructure Review stresses that “MBIE, government agencies and the conformance sector need to remain vigilant and keep up to date with change” with “increasing digitalisation and automation probably creating challenges for the current manual conformity assessment techniques” (MBIE, 2018). The Conformance System Strategy<sup>19</sup> outlines four “focus areas” (Organisational performance and governance; Regulatory quality and practice; Partnerships for skills and value; International connections)
- **Export assurance.** New Zealand has well established policy settings and regulations to provide assurance for food and fibre exports. In 2022, MPI<sup>20</sup> started a review to update export legislation for food and fibre products. A catalysts for the review is ‘We are seeing trading partners change their import conditions for food and other primary products, in response to emerging or perceived threats. Food safety, biosecurity, and sustainability concerns have been cited as reasons for these adjustments. Changes in market access requirements are also occurring within a backdrop that includes a global health crisis, increasingly complex supply chains, shifts in consumer preferences and expectations, and the introduction of novel products and production systems’. This review provides an opportunity to future proof the export assurance system and more strongly embed assurance systems around sustainability attributes and impacts.
- **Audit oversight.** New Zealand has well established legislative and organisational systems in place with an oversight and responsibility for the development and monitoring of auditing and report centred around the External Reporting Board (XRB). This organisation is an independent Crown Entity with continued existence under section 11 of the Financial Reporting Act 2013 and subject to the provisions of the Crown Entities Act 2004. The organisation has broadened its scope of activity to include the development of standards for non-financial auditing and engagement.
- **Relationship development, enhancement and maintenance with tangata whenua.** The research clearly indicates that the development of robust quality infrastructure, if it is to obtain social license from tangata whenua, needs to focus on strong relationship development which is being enhanced through trust building with mana whenua. Mana whenua emphasize the need to recognize the important role of local insight and knowledge, and an emphasis on the interconnectivity between people and their environment, and an intergenerational focus. Such elements need to be taken into account in infrastructure thinking and design and empowered by entities providing meaningful opportunities and addressing and focussing on the challenges and issues expressed by mana whenua.

<sup>19</sup> <https://www.mbie.govt.nz/dmsdocument/5773-conformance-system-strategy#:~:text=New%20Zealand's%20conformance%20system%20plays,and%20supports%20globally%20competitive%20trade>

<sup>20</sup> <https://www.mpi.govt.nz/export/exporting-from-nz-how-it-works/mpis-role-in-exporting/modernising-our-export-legislation-for-food-and-fibre-products/>

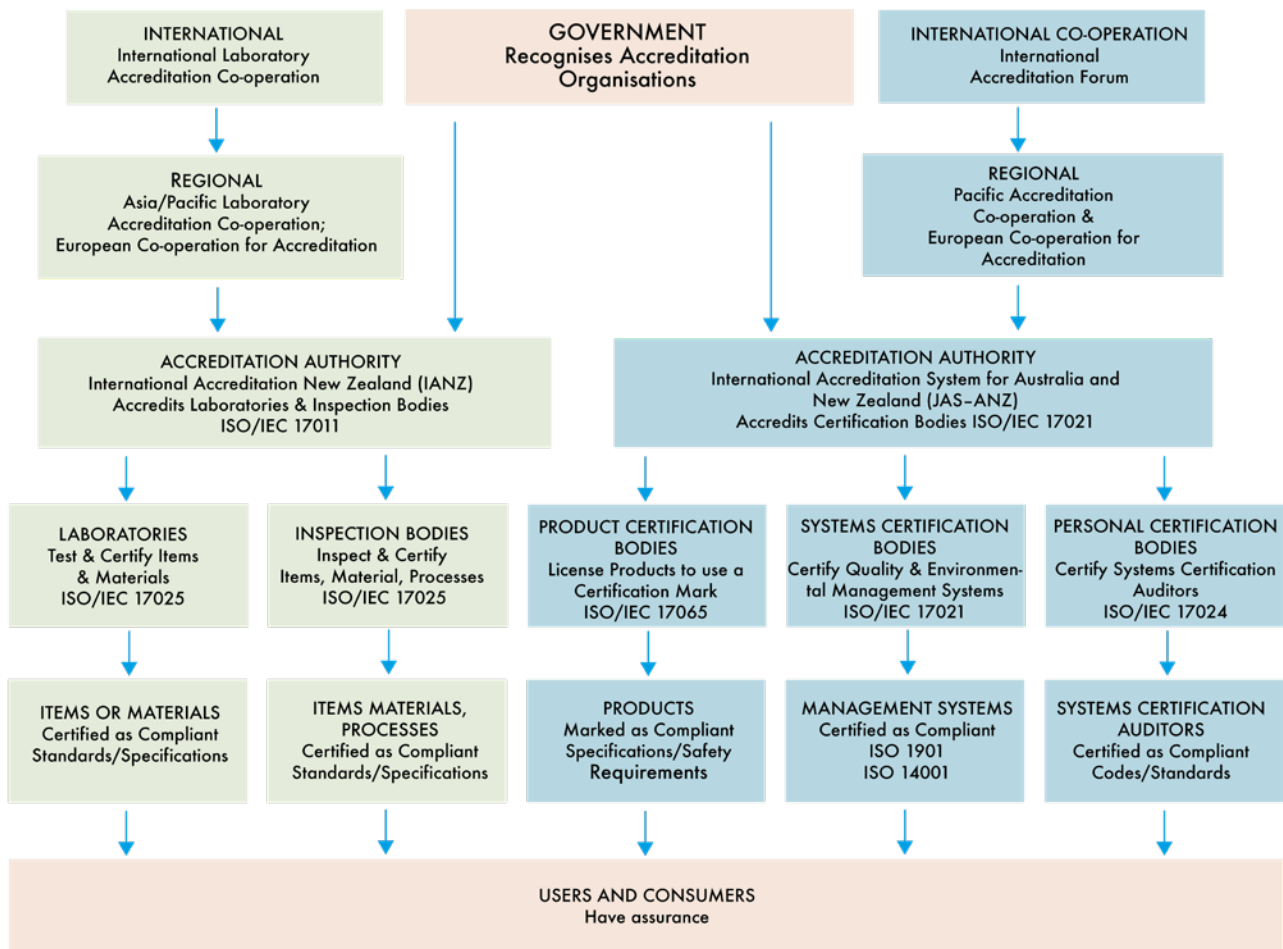


Figure 6.1 New Zealand quality infrastructure.

Clearly, there is growing recognition of the changing nature of assurance and plans to address the threads. The various initiatives seem however fragmented with a lack of integration. Lack of integration of various initiatives is not necessarily a unique problem for NZ: similar issues are common across the world. NZ thus has an opportunity to stay ahead of the developments by developing a forward-looking innovative strategy for the development of the next generation of quality infrastructure. To address the shortcoming, we propose the revision of the NZ Conformance Strategy. The review should consider the following:

- Provision of detailed plan for a transition of the NZ quality infrastructure.**  
 The current strategy provides a useful foundation yet it lacks details on how the key focus areas can be developed. The strategy should be based on a thorough analysis of existing projects to avoid duplication of efforts. For example, the Our Land and Water funded project “Kaitiaki Intelligence Platforms” will provide assessment of remote sensing technologies and the use of remote sensing for assurance. The project “Matrix of Drivers” provides insights into consumer preferences for assurance of a set of sustainability practices in farming and the

`Freshwater Improvement Actions'<sup>21</sup> project provides insights into the effectiveness of interventions and mitigation actions on freshwater improvement. These, and many other projects provide in-depth understanding of NZ based competencies that can be used to leverage the NZ quality infrastructure.

- **Leadership is essential due to fragmentation of the initiatives.** There is a plethora of initiatives that need to be aligned and which integration can be leveraged for the benefits of farm assurance and the NZ Conformity System. A review of the NZ Standards and Accreditation Bill and related Acts should be considered to establish the extent to which the existing legislation aligns with the NZ quality infrastructure needs. Alignment and harmonisation of various sustainability assurance initiatives that are being developed by the financial sector (as reflected in the work of XRB), ISO, IAF and ISEAL should be also considered.
- **Learning from indigenous leadership.** Māori entities are building and developing their own assurance systems that align with their values and worldview. These systems draw upon both mātauranga Māori and a plethora of new and innovative technologies. Building partnership with leading Māori entities, and consortiums of these entities, in the development and implementation of any conformance strategy would be fundamental.
- **Research and innovation.** Allow for and allocate resources to support the development and research into innovations to enhance the veracity and timeliness of the NZ Conformance System.
- **Visibility and Public engagement.** As outlined in this White Paper, there is a need for a greater level of public awareness and understanding of the importance of assurance processes and their role in providing trust in relation to sustainability assessment. This is critical for example if farm assurance systems can be used more effectively to build social licence to operate of farming (see Section 5.4. for further guidance).
- **Auditor capacity and capability.** There is a need to recognise the critical shortage for well-trained auditors if effective assurance programmes are to operate. This will require strategies to attract and retain auditors as well as to train them to enable them to use auditing innovations that promise significant opportunities for improving the efficiency, effectiveness and impact of assurance systems.

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<https://ourlandandwater.nz/project/monitoring-freshwater-improvement-actions/>

- **Digitization and the sharing of data.** Internationally there are initiatives to establish protocols for developing standardised unique identifiers for farms, products and supply chains. It will be important that any NZ development aligns with these (a point also supported by the NZ public – see Figure 4.10). There are several initiatives worth noticing. Trust Alliance NZ (TANZ) (a non-profit membership consortium for New Zealand producers, growers, exporters, retailers & service providers to easily share trusted data) is facilitating collaboration in this area while the NZ Farm Data Code of Practice and the associated Farm Data Accreditation Ltd (FDAL) have been established to own and manage the Code of Practice. Other initiatives include the development of a standardised platform for the sharing of data such as the Integrated National Farm Data Platform (INFDP)<sup>22</sup> and the MPI project Kēti Pāmu, which plans to offer a centralised data architecture that enables the real-time sharing of data by allowing farmers to connect who they are, the business they represent and the land (farm operations) in the form of identifiers which then, through permissions, allow others to access that data.

## 5.2 Focus on Impact Measurement

Assurance systems need to look beyond practice-based indicators (also called process-based indicators). These indicators prescribe tools, systems, procedures to ensure best practice yet often lack a focus on outcomes and impact. Farmers and other actors involved in assurance support this trend and would benefit from a performance-based assurance, for example, duplications of audits and audit fatigue can be avoided; firms can use the impact data from assurance for multiple purposes (i.e., in their internal decision making and/or for communication of their performance to investors and their stakeholders). Such improvements would lead to increased satisfaction of actors with assurance and enhancement of SLO for assurance systems.

### RECOMMENDATION:

**Develop and allocate resources to the development and adoption of performance-based indicators for assurance practices. The introduction of impact-based approaches and performance-based indicators has significant implications for all aspects of the assurance process, from how requirements and regulations are put into operation to how the results of assurance are disclosed, shared, and communicated.**

To enable a shift toward performance-based indicators, assurance systems should revisit their processes:

- Standard setting: do the standards and requirements consider the impact? Can some requirements be replaced and instead, can compliance be achieved by monitoring the impact? Examples include sustainability indicators that are discussed in **Appendix 4**.
- Monitoring practice: can in-person audits/inspections be replaced by other means (remote audits, automated monitoring)? Which requirements can be monitored? General public is in favour of more focus on remote monitoring (albeit with still strong support for in-situ approaches). See a full report on public's perception of farm monitoring in **Appendix 6** and Section 4.2.
- Reviewing practice: can the impact of assurance system be reviewed at a national level? In what way can the measurement of impact be used across multiple assurance schemes? Or for NZ-wide purposes – i.e., how can measurement of impact from assurance contribute to measurement of NZ SDGs?
- Quality of evidence<sup>23</sup> and Benchmarking: What are the mechanisms to enhance the credibility of data and its use for assurance? How can data be triangulated? The process can be guided by ISEAL's Credibility Principles that are applicable across all benchmarking exercises and programmes and can be used as a point of reference for guiding such benchmarking exercise.<sup>24</sup>
- Scope of assurance practice: There is a need to broaden the scope of assessment and management of environmental risks and impacts from an individual farm to a landscape/catchment level. A farm centric approach overlooks some area of importance (i.e., if only based at a farm level – it misses public land etc) and this approach can be irrelevant to addressing larger issues such as climate change and measurement of NZ progress against UN SDGs <sup>25</sup>
- While many Māori entities are focused on impact measurement and are developing their own systems to provide high-resolution monitoring in this regard, there is also a strong focus on elements that are difficult to measure and quantify. This mostly involves determining the quality of relationships in regards to trust-building, respect for local authority and knowledge, and collective action and behaviours. These social factors may present challenges in the development of performance based metrics.

<sup>23</sup> Evidensia was founded in 2019 by ISEAL Alliance, Rainforest Alliance and WWF with the support of the Global Environment Facility. It is an open portal that shares credible evidence on the impacts of sustainability systems

<sup>24</sup> Other notable benchmarking initiatives include World Benchmarking Alliance (WBA), which introduced Food and Agriculture Benchmark (updated methodology for public consultation July 2022) or Nature Benchmark 2022 (for example, Fonterra is benchmarking with this as is Woolworths Australia, and Zespri). Food safety benchmarking is also gaining prominence, i.e., GFSI or Consumer Goods Forum

<sup>25</sup> It could be useful to look at some of the models for the management of fisheries – i.e., the interactions between aquaculture operations – these could provide some models that could be reviewed. – See Sustainable Fisheries Partnership (USA) – collaboration models maybe <https://sustainablefish.org/how-we-work/collabo-rate-for-impact/> or zonal approach to management of water quality <https://sustainablefish.org/success-stories/zonal-aquaculture-hainan/>. This ISEAL document may also explore this <https://www.isealalliance.org/get-involved/resources/making-credible-jurisdictional-claims-good-practice-guide-v11-2022>

## 5.3 Investments in Innovation and in capability for the NZ quality infrastructure

The obsolete nature of many current monitoring and control systems leads to inefficiencies, increased cost and frustration – often leading to unnecessary duplication of efforts of involved actors. Although the industry is relatively slow in adopting new approaches, innovations in quality infrastructure are accelerating across the world (Koch et al., 2022).

During the COVID-19 pandemic, for instance, the conformity industry adopted rudimentary ICT to conduct remote audits and inspections – leading to about 10% cost savings – with increased efficiencies expected to materialize in the future as the workforce get adequate training.<sup>26</sup> More importantly though, further shifts towards the automation of monitoring and control processes can rapidly decrease the compliance costs as these processes can be scaled-up through automation. A comparison to other countries is provided in a global survey on digitalization of conformity assessment (see Box 4.3. for more details).

There are number of efforts underway nationally attempting to integrate new technologies into monitoring and reporting activities. Apart from the 2018 Conformance System Strategy transformation agenda, various industry sectors (i.e., Agritech in New Zealand: Industry Transformation Plan, Strategy for New Zealand Food Safety) and many Māori institutions and businesses are also leading the development of ESG reporting systems through the adoption of state-of-the-art technologies (i.e., as part of the development of Kaitiaki Intelligence Platform funded by Our Land and Water National Science Challenge). Large investments also went into projects that use technologies to enhance competitiveness of NZ enterprises (i.e., remote sensing to monitor water quality and use) yet such technological advancements have not translated into a systematic national approach of using such advancements for monitoring and control for the benefit of NZ public and to increase the competitiveness of NZ economy.

### RECOMMENDATION:

**Due to the decreased cost of technologies, the digitalization of international trade, and the increased competition from new entrants such as ESG reporting and the Big 4, innovation in farm assurance has become essential. Technology offers opportunities to improve the accuracy and timeliness of the system. Innovation must encompass all aspects of the assurance process, including but not limited to, establishing standards for new approaches to assurance, qualifying personnel, and developing quality infrastructure.**

<sup>26</sup> A report produced by Castka et al is available from NZ China Food Protection network.

**BOX 5.1  
REVISING AUDITING PRACTICES**

The implementation of new technologies demands a complete reassessment of how auditing services are provided. The emergence of new technological options has consequences for five other auditing components, which facilitate a transition from the traditional to the modern auditing approach. These five components are actors, processes, spaces, training and skills development, and services (Castka and Searcy, 2023).

*Table 5.1 Non-financial Auditing Practices – old and new paradigms*

	Old paradigm – Focus on	New paradigm – Focus on
Technologies	Using rudimentary ICT technologies to facilitate audits	Using a broad set of technologies to enhance veracity and timeliness of audits
Human-Machine Interaction	Human activities	Human activities as well as autonomy of robots/automated systems
Processes	Determining compliance through auditing	Determining compliance through investigating & scenario testing
Spaces	Auditing in the real world (in-person or remotely)	Auditing in real world & of digital twins
Training and skills development	Training auditors in real world	Training of auditors in augmented reality and through simulations of critical scenarios
Services	Determining compliance	Compliance and predictive analytics

The transformation to more 'digitalized' assurance processes has numerous implications for the assurance sector:

- **Assurance Governance.** The international agencies such as IAP/ISO that develop and harmonise the rules governing assurance practices have been comparatively slow in establishing policies in relation to the use of new technologies. This is partially in response to the need for any new monitoring technology to be tested, validated, and approved by assurance professionals. There does seem to be greater engagement and recognition for the incorporation of new technologies in assurance processes. Active participation by NZ in the development of these rules will ensure that the NZ conformity assessment sector can rapidly adopt and retain its leadership in this area.
- **Supporting capability.** The introduction of new technologies and assurance systems into the NZ conformity system needs to be supported such as the role of NZ Measurement Standards Laboratory<sup>27</sup> in standardising the calibration of environmental monitoring equipment.
- **Data sharing.** The adoption of new technology would support the integration of assurance systems and the sharing of information between programmes. This will decrease the need for duplication of assurance processes saving time and costs. As detailed in 5.2 there are established NZ initiatives to support the development of rules and the systems for data sharing. In addition to these there are other possible opportunities for the interlinkage of monitoring and reporting systems enabled through the use of new technologies. Issues around data governance and ownership need to be addressed effectively through broad stakeholder engagement and alignment.
- **Digitalization of documents** (from paper to digital form): the digitalization of international trade is progressing rapidly and many markets (i.e., EU) now accept both paper and digital documents. Support to equitably build the capability of both small and large NZ businesses to access these and other systems will help ensure that they can minimise potential barriers to market access.
- **Attractiveness of assurance as a career:** The assurance industry is struggling to attract new people into the profession partially due to the perception that traditionally auditing was repetitious work associated with compliance. There are however a wide range of new innovations that can be used to support the role of auditors, remove some of the repetition and provide more exciting investigative analysis. These developments provide a more attractive career proposition especially for those with an interest in the use of new technologies.
- **Training of personnel:** Coupled with the need for new expertise within the assurance sector is the need to develop new ways to train staff—especially recognising the needs for future use of technologies (see Box 5.1 for more details).





**RECOMMENDATION:**

Develop and resource strategies to increase public awareness about assurance and the important role conformity assessment has for the NZ economy and public wellbeing. Failing to address the engagement will likely lead to increased mistrust in assurance (especially assurance for sustainability) and contribute to increased staff shortages in the sector.



## 5.4 Development of relationships and outreach

The survey and case studies undertaken as part of this project established that there was often a limited understanding of assurance processes and the relative importance they have for providing confidence in the integrity of everything from providing assurance to protect societal value to accessing high value markets for New Zealand exports.

Potentially, the inclusion of stakeholders can be established at various stages of an assurance process (the key stages were discussed in Section 3.2 and Figure 3.2). The depth of inclusion is however highly contextual and depends on the nature of any given assurance system. For example, it is highly desirable to closely include and develop relationships with farmers for very specific farm assurance systems (see for example, Section 4.3 for examples from our case study). Involvement and relationship building with the public might focus on awareness development about the assurance system (see farmers' viewpoints in Box 4.5). Importantly, the involvement with the public could be also established national level (e.g., building awareness about assurance in general rather than focusing on individual assurance systems, in this case Synlait's Lead with Pride).

It should be noted that the inclusiveness of stakeholders in farm assurance can fundamentally change as new technologies, data availability on organisations and citizen activism increase. For example, citizen science or web trawling are used as secondary assurance practices. Although such approaches are only emerging, these practices will continue to be adopted in near future.

We recommend that NZ develops a nation-wide strategy for raising public awareness of assurance systems. As part of this ‘assurance awareness’ strategy:

- **Education on the role of assurance for NZ economy and society** should be also part of a curriculum at secondary schools, tertiary education and part of vocational training. Such approach could address the shortage of personnel that is increasingly becoming a problem for the assurance industry. We note that EU is similarly supporting assurance sector in EU countries and ISO has been developing education materials.<sup>28</sup> An illustrative example of the role of assurance for NZ economy and the international trade is demonstrated in Figure 5.1.
- **Build awareness on product labelling and how to assess the integrity of an assurance process.** Greenwashing is an issue that labelling regulations as well as greater public awareness can help combat.
- **Simplifying messaging** – the provision of effective assurance is complex with language that can be difficult to understand. The suggested increased focus on the measurement of impacts does provide a pathway for simplifying communication and understanding. The presentation of assurance results through traffic light or similar presentations such as those used by *Land, Air, Water Aotearoa* (LAWA) are good at communicating results.

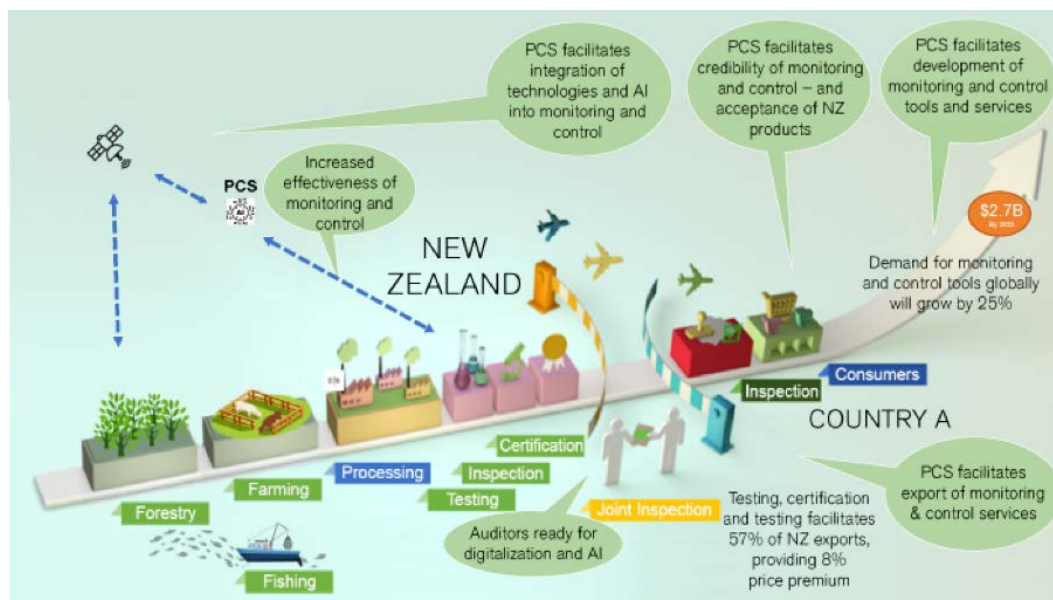


Figure 5.1 Illustrative example of the role of assurance in NZ economy (PCS = Pilot Compliance System)

## 5.5 Incorporating Māori world view into assurance practice

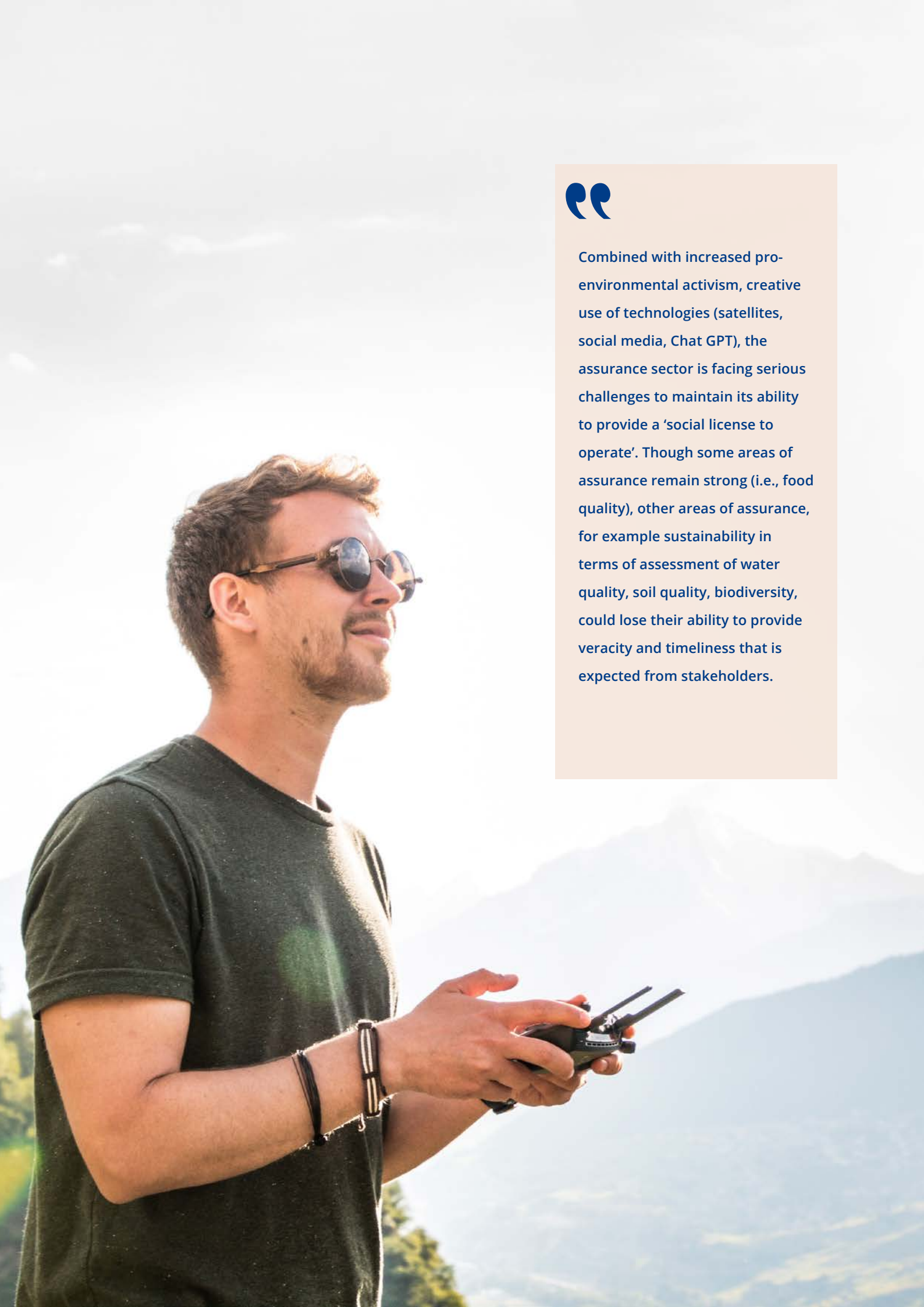
Māori concepts and approaches are now underpinning and guiding a range of assurance related national policies and regulations – particularly regarding the environment. These approaches entail interpreting and understanding the environment in a relational manner, and in particular emphasizing the formation of reciprocal and symbiotic relationships between humans and the environmental entities (i.e., land and water) on which they depend. This thinking generates an intergenerational holistic way of approaching assurance, and in particular draws attention to the interdependencies between different standards criteria, and how such standards are developed in a way that ensures synergy between them rather than friction.

It has been illustrated within this report that many leading Māori farming collectives are undertaking their own intensive monitoring of operations to provide assurance to owner-collectives, that they are operating within environmental limits, and ideally in a synergistic manner with the non-human person community. Some are heavily investing in a suite of environmental sensing technologies to improve reporting on the impact of their operations and expand their monitoring capacity and capabilities. The uptake of these technologies is being guided by their values and framed using mātauranga Māori. In addition, many are using outside voluntarily ESG reporting systems to guide and improve governance and operations and a range of compulsory assurance systems associated with regulators, industries, and market access.

The innovation and development of internal assurance systems by Māori collectives, the adoption of cutting-edge technologies for high-resolution impact monitoring, and the framing using Māori values and mātauranga Māori, offers those developing assurance systems and improving assurance practice innovative insights into novel and alternative approaches. However, the analysis in this report also reveals that the incorporation of Māori worldviews into assurance practices requires significant investment in relationship development, and in particular the formulation of reciprocal, trusting, and empowering relationships with tangata whenua. It is also highlighted that while there are commonalities in approaches between various manawhenua, there are also distinct differences, and that thought should therefore be given to the development of assurance practices that recognizes local context, characteristics, and authority whilst recognizing commonalities.

### RECOMMENDATION:

**Draw on wisdom from Māori indigenous perspectives that offer alternative ways for ascertaining impacts drawing on reciprocal human environmental relationships. Leading Māori agribusinesses operating in the farming sector that have built comprehensive monitoring systems for reporting to their collective owners provide clues into how such wisdom might be operationalized.**



Combined with increased pro-environmental activism, creative use of technologies (satellites, social media, Chat GPT), the assurance sector is facing serious challenges to maintain its ability to provide a 'social license to operate'. Though some areas of assurance remain strong (i.e., food quality), other areas of assurance, for example sustainability in terms of assessment of water quality, soil quality, biodiversity, could lose their ability to provide veracity and timeliness that is expected from stakeholders.



## 6. CONCLUSIVE POINTS

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As detailed previously the provision of assurance systems is critical for New Zealand, in 2016 assurance systems facilitated over 60% of NZ exports at a value of 27.6 billion NZD and the IANZ economic modelling demonstrates that IANZ alone secured a \$4.5 billion export premium for accredited exporters. However, globally there is a continued decline in trust and a lack of faith in societal institutions as reported in the Edelman 2023 Trust Barometer report <sup>29</sup> which it reports are triggered by economic anxiety, disinformation, mass-class divide and a failure of leadership. The report identified that business was often seen as the trusted institution with government and the media seen as been less trustworthy and often the facilitators of distrust and misleading information. In this world, the provision of accurate, objective information is critical and highlights the importance of an effective quality infrastructure.

Hand in hand with this general mistrust, even the most trustworthy assurance schemes (such as members of the ISEAL Alliance) are finding it difficult to maintain their credibility. For example, a recent report by International Consortium of Investigative Journalists concluded that “a lightly regulated sustainability industry overlooks forest destruction and human rights violations when granting environmental certifications.” <sup>30</sup> Combined with increased pro-environmental activism, creative use of technologies (satellites, social media, Chat GPT), the assurance sector is facing serious challenges to maintain its ability to provide a ‘social license to operate’. Though some areas of assurance remain strong (i.e., food quality), other areas of assurance, for example sustainability in terms of assessment of water quality, soil quality, biodiversity, could lose their **ability to provide veracity and timeliness that is expected from stakeholders.**

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<sup>29</sup> <https://www.edelman.com/trust/2023/trust-barometer>

<sup>30</sup> <https://www.icji.org/investigations/deforestation-inc/auditors-green-labels-sustainability-environmental-harm/>

Empirical evidence of public's perception of assurance systems is scarce. To fill this gap, we have conducted a nation-wide survey of general public and investigated their perception of:

- Areas of importance – which environmental, social and other issues should assurance systems address?
- Governance practices – how should assurance systems go about monitoring.
- Assurance systems' SLO – in terms of fairness, quality of governance and other criteria that are associated with SLO.

The results of the survey can serve all actors who are involved in assurance to improve their SLO by addressing the needs of stakeholders. Assurance systems can, for example, improve their communication with the public by disclosure and transparency in areas that matter to general public. Likewise, regulators can similarly enhance their SLO by providing further details in areas of concern to the public.

The recommendations provided in this report are primarily based on discussions with relevant stakeholders. The recommendations are also underpinned by a NZ-wide survey of the public and their perceptions regarding farm assurance and farm monitoring. Furthermore, the relevance and practical utility of the 4 I's was tested in a case study setting. Further empirical work is needed to deepen our understanding of 4I's. This report and its recommendations thus should be understood with such limitations in mind. This White Paper thus outlines the first steps of the development cutting edge farm assurance and NZ quality infrastructure. The authors hope that this report will assist with future efforts to enhance social licence to operate of assurance systems in New Zealand and internationally – for the benefit of all stakeholders. The future work should focus on:

- Integrating assurance systems and monitoring system with data platforms and using assurance mechanisms as measuring/monitoring platforms to contribute to NZ well-being (i.e., linking assurance with national SDGs)
- Prioritizing technologies – such as remote sensing, satellite imaging, AI and Machine Learning in Assurance – and incentivizing investments into the uptake of technologies for assurance purposes
- Developing career pathways and training platforms for the future generation of auditors
- Developing strategies for public engagement (i.e., raising awareness of the role of assurance). Underpinning work, such as such surveys of general public and establishing the value of assurance systems for NZ economy and well-being, is necessary.
- Bringing a Māori world view into assurance systems and promoting 'Māori enhanced assurance,' globally.

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## 8. APPENDICES

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### Appendix 1: List of Respondents

*Table A1 List of respondents*

Date of interview	Organisation	Number of interviewees	Form
11.07.2022	Accreditation body	1	ZOOM
	Accreditation body	1	ZOOM
	Assurance provider	1	ZOOM
3.08.2022	Accreditation body	2	In-person
3.08.2022	Government	1	In-person
3.08.2022	Government	5	Hybrid
3.08.2022	Assurance provider	2	In-person
3.08.2022	Assurance provider	1	In-person
12.08.2022	Government	1	In-person
22.08.2022	Regional Council	4	ZOOM
24.08.2022	Regulatory Agency	1	In-person
24.08.2022	Accreditation Body	1	In-person
7.12.2022	Retailer	1	ZOOM
		TOTAL = 22	

## Appendix 2: Desktop Analysis of Māori Entities

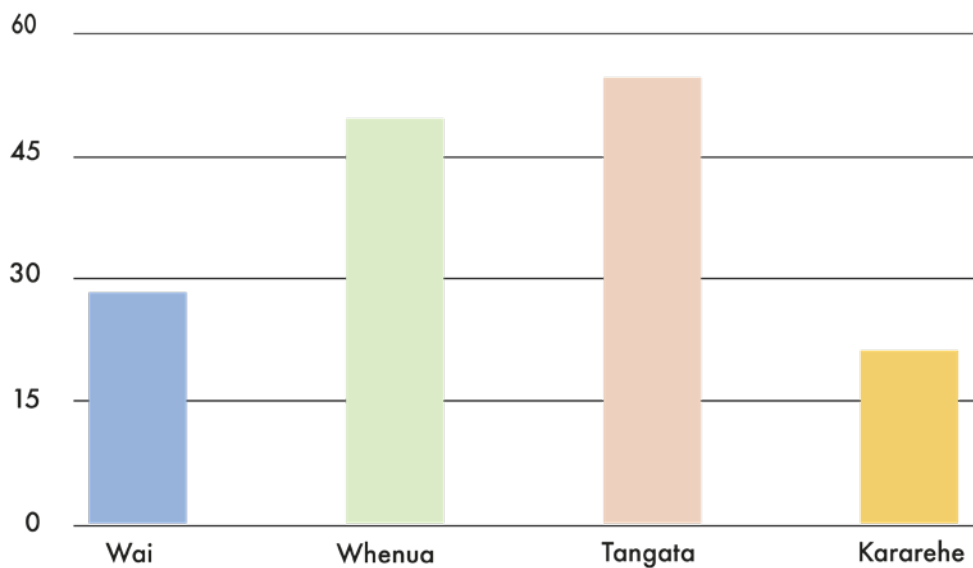
For this Think Piece, a desktop analysis of assurance schemes in publicly available domains was undertaken. The desktop analysis reviewed 47 Māori entities from across Aotearoa and identified values and goals through review of websites, reports, certifications, programmes, schedules, newsletters and plans. These reviewed entities were operational in industries such as:

- Agriculture i.e., beef, sheep, dairy
- Horticulture i.e., kiwifruit, tomatoes, capsicums
- Apiculture
- Forestry
- Tourism
- Energy generation
- Milk Processing

The data on the next page indicates findings from the desktop analysis under-taken to exhibit values and goals identified from various programmes. Throughout the analysis of 60 programmes there were many associated to product/service quality assurance, certification, management practices and principles, transparency, incentivising excellence, wellbeing, values, goals and sustainability. It was difficult to analyse how programmes link to values and goals without having a deeper understanding of the people and place linked to each respective entity. A light overview was undertaken to show findings that are mentioned in their publicly available online materials.

Attribute of desktop	Value														
Number of Māori entities reviewed	47														
Number of Māori programmes reviewed	60 (some entities had multiple programmes)														
Common values stated (in no order)	<table border="0"> <tr> <td>Whakapapa</td> <td>Tangata</td> </tr> <tr> <td>Tika</td> <td>Community wellbeing</td> </tr> <tr> <td>Whanaungatanga</td> <td>Transparency</td> </tr> <tr> <td>Rangatiratanga</td> <td>Manaakitanga</td> </tr> <tr> <td>Kaitiakitanga</td> <td>Aroha</td> </tr> <tr> <td>Environmental welfare</td> <td>Kotahitanga</td> </tr> <tr> <td>Whakapono</td> <td>Wairuatanga</td> </tr> </table>	Whakapapa	Tangata	Tika	Community wellbeing	Whanaungatanga	Transparency	Rangatiratanga	Manaakitanga	Kaitiakitanga	Aroha	Environmental welfare	Kotahitanga	Whakapono	Wairuatanga
Whakapapa	Tangata														
Tika	Community wellbeing														
Whanaungatanga	Transparency														
Rangatiratanga	Manaakitanga														
Kaitiakitanga	Aroha														
Environmental welfare	Kotahitanga														
Whakapono	Wairuatanga														

### Number of programmes showing Māori entity focuses



*Figure A1. Tangata – people, whānau, hapū, marae, iwi and community – is the most mentioned focus in all the programmes reviewed.*

Although there was diverse wording for what was to be achieved, many of the values stated above in Table A2 as well as the focuses in Figure A1 aligned programmes to similar outcomes pursued through different pathways. Some of the common goals noted for these programmes include better outcomes for:

- Climate Action and GHG Emissions
- Biodiversity
- Future Generation Thinking
- Cultural Vitality and Customary Rights
- Whānau, Hapū, Marae Wellbeing
- Energy Optimisation
- Ecosystem and Habitat Enhancement
- Clean Water
- Nutrient Management
- Tikanga
- Protection of Wāhi Tapu
- Animal Welfare
- Ethics and Buyer Expectations
- Market Demands
- Employee Wellbeing
- Waste Management
- Financial Gains and Losses
- Disaster Management

It was exhibited in this desktop analysis that the common values across the breadth of various entities are synonymous with the noted focuses and goals. The programmes reviewed are evidently focussed on cultural, environmental, social and economic wellbeing, however, majority were focussed on these factors at a local scale. There were statements of dedication to the local marae or to whānau support for those who have whakapapa to the entity. Māori entities were also committed to financial wealth and asset management but would often link back to how it serves as benefits to the shareholders and beneficiaries i.e., whānau. In the values, focuses and goals there is direct alignment to the five actions expressed in the literature review completed by Ruha et al. (2021). The highlighted factors in the data above also support that Māori entities are focussed on the intergenerational effects of their decisions; what happens in the present will affect mokopuna and those who will inherit the outputs of these decisions in the coming generations.

## Appendix 3: Stakeholders involved in assurance

### Primary stakeholders

Primary stakeholders are required to operate based on international standards. In practice, it means that these actors need to be 'approved' to be eligible to operate in the quality infrastructure. For example, conformity assessments bodies are approved by accreditation bodies. Another example, auditors/inspectors' competence is certified by independent accreditation body. The following primary stakeholder groups include:

### Retailers

- Retailers are amongst the most influential actors in assurance. They provide an important bridge between consumers and suppliers by keeping track on consumer preferences (and translating these preferences into their requirements). Often, retailers act ahead of consumer demand to develop capabilities in their supply chains and secure supply for expected demand. For example, the demand of certified organic produce has been lagging behind supply for various food products (UNFSS, 2018). Retailers thus provide useful insights into the future share of assurance systems. Some key international initiatives active in promoting and harmonising the use of assurance programmes include:
- **Consumer Goods Forum** (CGF) <sup>31</sup> This international organisation for consumer goods retailers and manufacturers aims to collaborate to secure consumer trust and drive positive change, including addressing issues such as environmental and social sustainability, health and food safety. GCF activities include:
- **Global Food Safety Initiative** (GFSI) GFSI's works to benchmark and harmonize mutual acceptance of GFSI-recognized certification programmes across the industry with the ambition to enable a "once certified, accepted everywhere" approach. **Certification programmes recognized by GFSI** include those operated by; **Brand Reputation through Compliance** <sup>32</sup> (BRC), **Freshcare**; FSSC 22000; GLOBALG.A.P; International Featured Standards IFS; Japan Food Safety Management Association; SQF Safe Quality.
- **Sustainable Supply Chain Initiative** (SSCI) This initiative currently focuses on benchmarking social compliance programmes under three sectoral scopes and will later expand its benchmark to environmental compliance programmes as well.
- **The Sustainability Consortium** (TSC) (In 2021 they had over 1,700 manufacturers representing almost US\$1 trillion of consumer products annual sales who used their Sustainability Insight System).

<sup>31</sup> GCF member companies have combined sales of EUR 4.6 trillion and directly employ nearly 10 million people, with a further 90 million related jobs estimated along the value chain.

<sup>32</sup> This is a globally recognised UK trade organisation. Which established a series standard to help companies comply with food safety legislation, and to provide guidelines for the manufacture of safe, quality food products.

In New Zealand there are two main retail operators – Woolworths and Foodstuffs Group who have a combined approx 80% market share of grocery sales.<sup>33</sup> They both have sustainability policies and assurance programmes with a specific focus on their ‘own’ brand products. These programs are often linked to international assurance programs such as GLOBALG.A.P and share their requirements.

- **Accreditation Bodies (ABs) and Conformity Assessment Bodies (CABs).** ABs and CABs serve as service providers in the assurance system. The role of these actors is to provide an independent oversight of the entire system. In NZ, there are two main accreditation bodies: JAS-ANZ and IANZ. JAS-ANZ focuses solely on certification services of conformity assessment; IANZ on the remaining parts (testing, inspections, etc.). Some Accreditation bodies operate across the globe. For example, Exemplar Global certifies auditors in multiple countries. Similar services are also provided by various associations; i.e.; Association of Social Compliance Auditors (ASCA). Auditors/Inspectors are employed by CABs to conduct audits or the services can be subcontracted (i.e.; freelance auditors work for multiple CABs). ABs and CABs operations have to comply with various voluntary as well as mandatory regulations to be eligible to provide their services. There are international bodies that support the harmonisation of assurance processes and standards
- ***International Accreditation Forum* (IAF)** The IAF is the world association of Conformity Assessment Accreditation Bodies and other bodies interested in conformity assessment. Its primary function is to develop a single worldwide program of conformity assessment which reduces risk for business and its customers by assuring them that accredited certificates may be relied upon.
- **The International Auditing and Assurance Standards Board (IAASB)** sets international standards for auditing, assurance, and quality management. In 2013 it issued the *International Standard on Assurance Engagements 3000* (Revised) which applies to assurance engagements on sustainability reporting. In 2021 it released *guidelines* to support the use of this Standard.

<sup>33</sup> <https://www.rnz.co.nz/news/business/462908/foodstuffs-and-countdown-dominate-market-but-commerce-commission-stops-short-of-radical-shake-up>

## Regulators (governmental agencies)

The government develops regulations with the Ministry of Primary Industry (MPI) and Ministry for the Environment especially active in the development of regulations related to agriculture for example those related to FWFP. The government is also a key actor in facilitating international trade and establishing Mutual Trade Agreements (MTAs) as well as assurance systems to support international trade. Mutual recognition of assurance systems enables and also streamlines the trade. Governments are also responsible for managing assurance programs; such as MPI Official Organic Assurance Programme (OOAP) that provides market access for New Zealand organic exports. Service providers (ABs and CABs) as well as monitoring agencies are involved in monitoring the uptake and effectiveness of any given legislation. In some cases, over governmental agencies (i.e.; regional councils are involved).

Government also develops strategies for growth and development such as the MPI [Fit for Better World](#): which identifies the importance of assurance – *“There are opportunities to fast-track solutions to support verification and e-certification as part of the Government’s role in digital supply chain solutions, and the development of modern legislation for both our import and export systems will enable easier access for our products and maintain confidence in them”*. Other agencies such as TradeNZ also support a range of trade development initiatives such as the current [NZ Chinese Coalition](#) that could be possibly linked with a project to explore enhancements to supply chains – sustainability attribute communication.

Other organisations with a traditional oversight role for financial auditing are expanding their activity to also include oversight of non-financial environmental and sustainability audit and assurance. The External Reporting Board (XRB) <sup>34</sup> is an independent Crown Entity and the legislated New Zealand organisation that develops and issues reporting standards on accounting, audit and assurance, and climate, for entities across the private, public, and not-for profit sectors. These define what and how entities must report including to meet regulatory requirements. The New Zealand Auditing and Assurance Standards Board <sup>35</sup> (NZAuASB) has delegated authority from the XRB Board to develop or adopt, and issue auditing and assurance standards, including professional and ethical standards for assurance practitioners. The XRB Au1 standard is the overarching standard covering the application of audit and assurance standards issued by XRB including non-financial assurance engagement standards (NFAES). XRB NFAES include [ISAE NZ 3000](#) update in 2022 (which aligns with the IAASB *International Standard on Assurance Engagements 3000*);

<sup>34</sup> <https://www.xrb.govt.nz>  
<sup>35</sup> <https://www.xrb.govt.nz/standards/assurance-standards/how-we-set-our-standards/audit-and-assurance-standard-board/>



- **Farmers, Producers and other firms in the supply chain.** Businesses (along any given supply chain) need to comply with the regulations. Such compliance gives an organization a license to operate in the market. For exporters, compliance with NZ legislation can also enable access to the markets (if the markets recognize the legislation). Voluntary assurance systems also provide a license to operate. Many supply chains in fact require compliance with 'voluntary' standards for a company to be part of the network of firms (order qualifier). Voluntary assurance is in particular important in international supply chains. Mandatory and voluntary systems overlap in the requirements – often leading to multiple audits for any given organisation.
- **Māori.** – A SLO and assurance systems that feed into that notion is an ancient concept within Māori culture by ensuring they work as a collective, for the benefit of the collective. Tangata whenua (indigenous people of the land) and their right to self-determination over themselves as hapū (tribal members) and the land and water that they have whakapapa (a deeply intrinsic ancestral connection) to is acknowledged in Article 2 of Te Tiriti o Waitangi. This resonates with their ability and prerogative to ensure all that is done on the land and water benefits both people and place in a reciprocal relationship. Ruha et al. (2021) have explored the transient evolution of what this means for Māori across time into a modern context. Through that investigation, many of the same indigenous terms have carried through from pre-colonial times to the present. Some of these terms include Mana, Tapu, Mauri, Rangatiratanga, Whakapapa, Whānau, Hapū, Iwi, Tangata Whenua, Kaitiaki. These terms may also arguably carry across to non-Māori systems and approaches in a pragmatic sense and the physical undertaking; however, Māori systems are completely their own as they pertain to the Māori worldview with spiritual connections that are unique to each hapū. Various Māori entities, whether they be localised to a specific whānau or are pan-tribal, will hold distinctive knowledge to that area which can help guide in decision-making. Māori entities often receive their SLO through the people who have whakapapa connections to the respective entity and this demographic will provide guidance, feedback and acknowledgements dependent on unique sets of criteria.

## Secondary stakeholders

Secondary stakeholders could also be involved in assurance systems yet the practice is less coordinated and open to various types of engagement. For example, secondary stakeholders have an option to submit comments on proposed regulation (i.e.; freshwater farm plan). In other instances, stakeholders are invited to directly participate at assurance systems (i.e.; many voluntary assurance programs involve stakeholders in the governance – so call 'multistakeholder initiatives'). This is determined by the context (i.e.; the governance of any particular assurance program). Types of secondary stakeholders include:

Consumers and the general public – consumers are beneficiaries of assurance systems. The consumer awareness of assurance systems is generally low. More recently, however, consumers show increased interest in assurance. For example, recent studies assert that consumers awareness about voluntary sustainability standards (such as FairTrade or FSC) is increasing. This is in particularly significant for consumers that value sustainability and social responsibility. Such interest is also apparent in consumer activism as part of NGOs (i.e.; Greenpeace) as well as their participation in monitoring activities.

Organizations also turn to assurance programs to provide backing of their claims. For example, claims on provenance or when promoting cultural attributes of products. Hence, one can distinguish between domestic consumers (or general public) and consumers abroad.

- **Investors.** Though investors are typically not a part of assurance systems, they have been using assurance systems as a proxy for determining organizational maturity. Through compliance with any given assurance system, a company signals to the market its values and capabilities. However, the signalling value of assurance is not very clearly established. More recently, increased attention to ethics, sustainability and social responsibility has led into more involvement of investors into the design of assurance systems. Environmental, Social and Governance (ESG) reporting is the most prominent example. ESG frameworks, national and global initiatives networks include – [Toitū Tahu - Centre for Sustainable Finance](#) (which includes The Sustainable Agriculture Finance Initiative (SAFI) and its member banks) RIAA (the Responsible Investment Association of Australasia), GIIN (Global Impact investment network, WBCSD (World Business Council for Sustainable Development), Scaling Positive Agriculture network, Task force for scaling Voluntary Carbon Markets, TNFD & TCFD (Task Forces for Nature and Climate Related Financial Disclosures), Ministries of Environment and Agriculture and Fisheries, (XRB–NZ) External Reporting Board, NZ Green Investment Finance, NZ Superannuation fund, NatureVest, NZ Impact Investing Network.
- **Media** Assurance systems do not tend to be the mainstream topics in the media. In part, the lack of media attention to assurance systems is attributed to the B2B nature of assurance, which is off the radar from the general public. The research shows that media are incapable of providing a nuanced oversight over assurance and in general, assurance programs that involve multiple stakeholder tend to have more favourable media coverage (irrespective of their actual performance) (Castka and Corbett, 2016). However, media do focus on controversies and cover topics that affect general public. For example, topics such as water quality or modern slavery in supply chains attract the attention of media (especially if popular brands are involved). Assurance scheme however might not be central to the story.





## Appendix 4: Examples of farm indicators

The first column in Table A2 (page 86) includes assessment criteria that are often included in assurance standards in relation to the assessment of example sustainable focal areas – biodiversity, carbon and water. The selection of the criteria was informed from the UN [International Trade Centre – Standards Map tool](#) for the comparison of assurance systems. Column 2 provides examples of indicators used in some key assurance programmes.

**Table A.2 Data on the 60 programmes linked to 47 Māori entities showed several common values and focuses which link to overall wellbeing of people and place.**

Assurance Standards Criteria <b>Biodiversity</b>	Example indicators
Criteria to ensure adherence to international conventions on biodiversity and best practices (CITES, CBD, CMS, CCD, among other)	<p><b>Rainforest Alliance</b></p> <ul style="list-style-type: none"> <li>• 6.4.1 Threatened animals and plants are not hunted, killed, fished, collected or trafficked.</li> <li>• 6.1.3 Management includes the mitigation measures from the Risk Assessment Tool in 1.3.1 with regard to High Conservation Values in the management plan (1.3.2). Management implements these measures. (RAMSAR).</li> </ul> <p>6.4.3 Producers do not intentionally introduce or release invasive species. Producers do not dispose of existing invasive species or their parts in aquatic ecosystems.</p>
Criteria on habitat/eco-system restoration/ rehabilitation	<p><b>Rainforest Alliance</b></p> <ul style="list-style-type: none"> <li>• 6.2.3 Producers maintain and management monitors natural vegetation cover and reports annually on the indicator from year one onwards. If there is less than 10% of the total area under natural vegetation cover or less than 15% for farms growing shade-tolerant crops, management sets targets and takes actions for farms to reach these thresholds as required in 6.2.4. Natural vegetation is vegetation made up predominantly of native or locally adapted species, resembling in species composition and structure the vegetation that occurs or would occur in the absence of human interference. Natural vegetation can include one or more of the following (not exclusive):</li> </ul> <ul style="list-style-type: none"> <li>• Riparian buffers</li> <li>• Conservation areas within the farm</li> <li>• Natural vegetation in agroforestry systems</li> <li>• Border plantings, live fences and barriers around housing and infrastructure, or in other ways</li> </ul> <p>Conservation and restoration areas outside the certified farm that effectively provide for long-term protection of the subject areas (for at least 25 years) and yield additional conservation value and protection status relative to the status quo</p>
Criteria on habitat/eco-system restoration/ rehabilitation	<p><b>SAI</b></p> <p>The reporting organization shall report the following:</p> <ol style="list-style-type: none"> <li>a. Size and location of all habitat areas protected or restored, and whether the success of the restoration measure was or is approved by independent external professionals.</li> <li>b. Whether partnerships exist with third parties to protect or restore habitat areas distinct from where the organization has overseen and implemented restoration or protection measures.</li> <li>c. Status of each area based on its condition at the close of the reporting period.</li> <li>d. Standards, methodologies, and assumptions used.</li> </ol>
Criteria on maintaining, restoring, prioritizing native species	<p><b>GRI</b></p> <p>The reporting organization shall report the following:</p> <ol style="list-style-type: none"> <li>a. Size and location of all habitat areas protected or restored, and whether the success of the restoration measure was or is approved by independent external professionals.</li> <li>b. Whether partnerships exist with third parties to protect or restore habitat areas distinct from where the organization has overseen and implemented restoration or protection measures.</li> <li>c. Status of each area based on its condition at the close of the reporting period.</li> <li>d. Standards, methodologies, and assumptions used.</li> </ol>
Requirements for no net loss in biodiversity	<p><b>SAI</b></p> <p>Ecosystem Enhancing Practices:</p> <ul style="list-style-type: none"> <li>• Land-cover and land use change to more structurally complex and species-diverse systems, such as agroforestry, mixed crop-livestock systems, mixed rice-fish systems, intercropping, perennials, forest gardens, etc.</li> </ul> <p>The net LULCC caused by the enterprise is positive (more “upgrading” than “downgrading” of habitat) and the enterprise has not caused any ecologically degrading LULCC off-site.</p>
Criteria for the monitoring and protection of High Conservation Value Areas	<p><b>The Sustainability Consortium (TSC)</b></p> <p>% of production (including feed inputs) from HVC areas – by % of production/inputs</p>

Assurance Standards Criteria Carbon	Indicator examples
GHG policies: general principle	<p><b>TSC</b></p> <ul style="list-style-type: none"> <li>• Producer’s document net Greenhouse Gases (GHG) emissions from main sources in production and processing operations. This includes emissions from use of fossil fuels and electricity, fertilizer, waste and wastewater and land use change.</li> </ul> <p><b>GRI</b></p> <ul style="list-style-type: none"> <li>• The reporting organization shall report its management approach for emissions</li> </ul> <p>When reporting on GHG emissions targets, the reporting organization shall explain whether offsets were used to meet the targets, including the type, amount, criteria or scheme of which the offsets are part.</p>
Requirements to perform analysis of possible alternatives to reduce GHG emissions	<p><b>TSC</b></p> <ul style="list-style-type: none"> <li>• Amounts of renewable and non-renewable energy used, by type (e.g., volume of fuel, kWh electricity, quantity of biomass energy)</li> <li>• Total energy use</li> <li>• Total energy use per kg of product</li> </ul> <p>Identify measures to reduce energy demand and consumption with reduced dependency on non-renewable energy sources for production and processing.</p>
Criteria on quantifying GHG emissions	<p><b>TSC</b></p> <ul style="list-style-type: none"> <li>• Total annual net GHG emissions from sources (tons of CO<sub>2</sub>e)</li> <li>• Net GHG emissions from the above indicated sources per unit of the final product (tons of CO<sub>2</sub>e per unit)</li> <li>• Calculation of GHG emissions intensity by product volume/farm area</li> <li>• The average GHG emissions intensity associated with transportation of product from distribution facilities to downstream retailers: grams CO<sub>2</sub>e per tonne-km of transported product</li> </ul> <p><b>GRI</b></p> <ul style="list-style-type: none"> <li>• The reporting organization shall report the following information:</li> <li>• GHG emissions reduced as a direct result of reduction initiatives, in metric tons of CO<sub>2</sub> equivalent.</li> <li>• Gases included in the calculation; whether CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs, SF<sub>6</sub>, NF<sub>3</sub>, or all. Base year or baseline, including the rationale for choosing it.</li> <li>• Scopes in which reductions took place; whether direct (Scope 1), energy indirect (Scope 2), and/or other indirect (Scope 3).</li> </ul>
Criteria for reducing GHG emissions	<p><b>GRI</b></p> <p>The reporting organization shall report the following information:</p> <ol style="list-style-type: none"> <li>a. GHG emissions reduced as a direct result of reduction initiatives, in metric tons of CO<sub>2</sub> equivalent.</li> <li>b. Gases included in the calculation; whether CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs, SF<sub>6</sub>, NF<sub>3</sub>, or all.</li> <li>c. Base year or baseline, including the rationale for choosing it.</li> <li>d. Scopes in which reductions took place; whether direct (Scope 1), energy indirect (Scope 2), and/or other indirect (Scope 3).</li> <li>e. Standards, methodologies, assumptions, and/or calculation tools used.</li> </ol>

Assurance Standards Criteria Water	Indicator examples
Water resources monitoring, use and consumption	<p><b>GlobalGAP</b></p> <ul style="list-style-type: none"> <li>• 5.2.1 (major) Has a risk assessment been undertaken that evaluates environmental issues for water management on the farm and has it been reviewed by the management within the previous 12 months?</li> <li>• 5.2.2 (major) Is there a water management plan available that identifies water sources and measures to ensure the efficiency of application and which management has approved within the previous 12 months?</li> <li>• 5.2.3. (min) Are records for crop irrigation/fertigation water usage and for the previous individual crop cycle/s with total application volumes maintained?</li> </ul> <p><b>TSC</b> Water use intensity – cubic m per kg of product;</p>
Water management plan	<p><b>GlobalGAP</b></p> <ul style="list-style-type: none"> <li>• 5.2.2 (major) Is there a water management plan available that identifies water sources and measures to ensure the efficiency of application and which management has approved within the previous 12 months?</li> </ul> <p><b>TSC</b></p> <ul style="list-style-type: none"> <li>• Presence of a verified nutrient management plan</li> </ul> <p>An irrigation management plan that optimises crop productivity and water use efficiency, based on: a Crop water needs? b Water availability? c Irrigation equipment calibration and maintenance? d Duration and frequency of application?</p>
Criteria on water usage records keeping	<p><b>GlobalGAP</b></p> <p>Control Points: CB 5.2.3 (minor) Are records for crop irrigation/fertigation water usage and for the previous individual crop cycle/s with total application volumes maintained?</p>
Wastewater quality management and treatment	<p><b>TSC</b></p> <p>The average biological oxygen demand (BOD) and chemical oxygen demand (COD) of directly discharged wastewater – (mg per litre of wastewater or by product mass)</p>