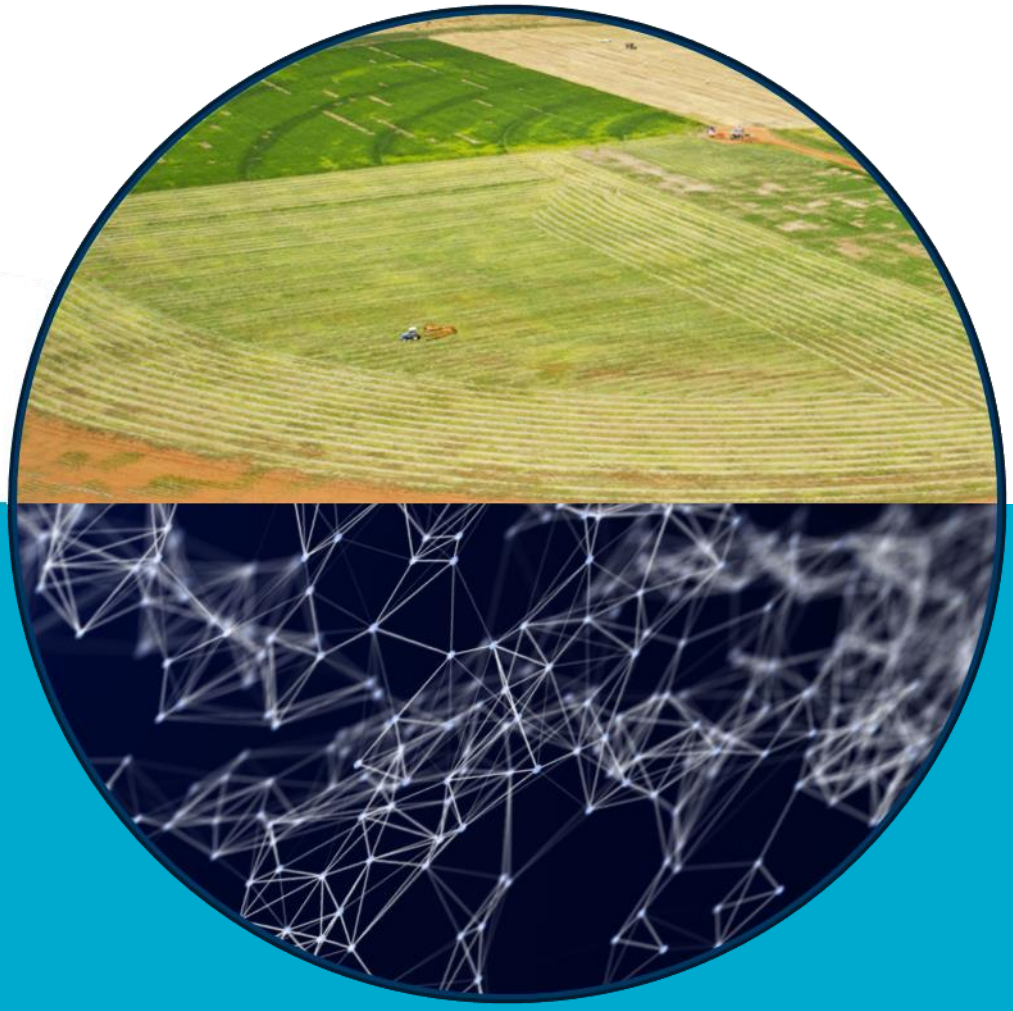
Australia's National
Science Agency

Australian Agricultural Sustainability Framework (AASF)



Recommendations for Initial Implementation

AASF Data Ecosystem Design Project

David Lemon, Laura Kostanski, Alyce Lythall, and Sonja Dominik

December 2025 v1.1

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About this document

Purpose

This report builds on the work reported in *From Anarchy to Order: AASF Data Ecosystem Design Project – Final Report*[1] and should be read in conjunction with that report.

Its purpose is to detail findings from a set of activities designed to test key aspects of the structures and processes proposed enable and govern the proposed AASF Data Ecosystem. The report provides details on the context in which the project was established, It describes the approaches taken and explains what was found as result of testing.

The final section of the report links these findings to the Horizon 1 Implementation Strategy for the AASF Data Ecosystem (described in AASF Data Ecosystem Design – Final Report) and reconfirms the value proposition for the AASF Data Ecosystem.

Audience

The immediate audience for this report are the AASF stakeholders who have generously donated their time and knowledge to the development of the ideas which underpin the content contained herein.

This report, along with the AASF Data Ecosystem Design – Final Report, have been written as a guidebook for people who are positioned to enable the realisation of an effective and efficient AASF Data Ecosystem.

Finally, the report has also been written to document the outcomes of the activities conducted by the CSIRO research team during their delivery of the Stage 2 AASF Data Ecosystem Project. The AASF is a joint initiative led by the National Farmer's Federation (NFF) and supported by the Australian Government Department of Agriculture, Fisheries and Forestry through the Agriculture Traceability Grants Program.

Contents

1. Kostanski L., Lemon D., and Lythall A. (2024). From Anarchy to Order: AASF Data Ecosystem Design Project – Final Report. CSIRO, Australia. http://hdl.handle.net/102.100.100/701548?index=1

Acknowledgements

This research project has benefitted immeasurably from the contributions of many people involved in research interviews, co-design workshop activities and working group sessions. The project team are grateful for the time, knowledge, and insights they provided as we collaboratively explored and tested the proposed data ecosystem governance structures and processes. Many of those involved in these activities, and their organisations, are listed below as an acknowledgement of their participation and to thank them for their contributions. Some have chosen to stay anonymous. To all, we say thank you.

Note: listing here does not indicate that the individual or organisation has been involved in the writing of this report nor that they endorse the findings.

- Angela Schuster *(Schuster Consulting Group)*
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- Warwick Ragg *(National Farmers' Federation)*
- University of Melbourne

Also, thanks to our funding partners, the other project teams and colleagues involved in the development of the AASF. Your knowledge, guidance and collaboration have been invaluable.

The Australian Agricultural Sustainability Framework (AASF) is a joint initiative led by the National Farmer's Federation (NFF) and supported by the Australian Government Department of Agriculture, Fisheries and Forestry (DAFF) through the Agriculture Traceability Grants Program.

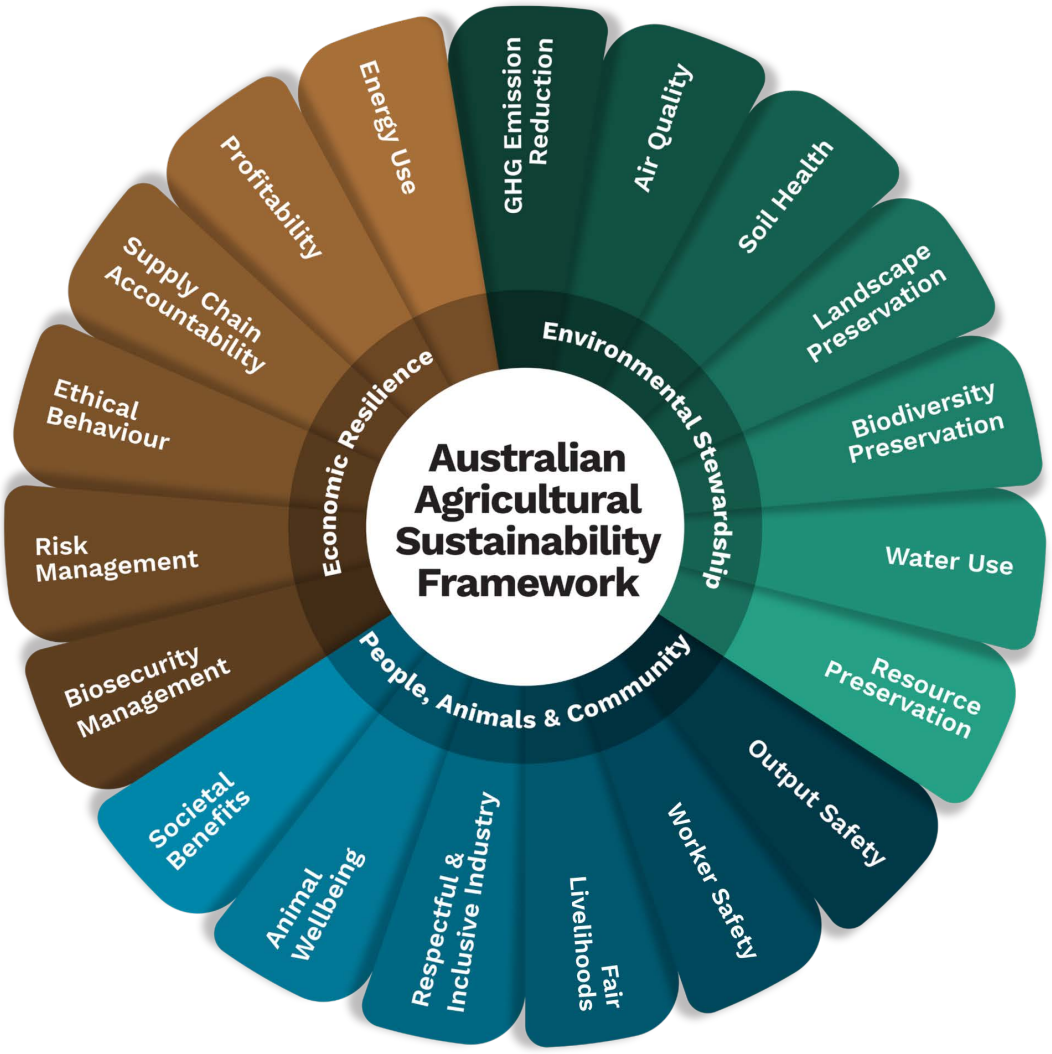
1.0 Introduction

1.1 Background
1.2 About this Project
1.3 About this report
1.4 Mythbusting

1. Background

1.1 The Australian Agricultural Sustainability Framework

The Australian Agricultural Sustainability Framework (AASF) is the first country-specific framework to address sustainability from a whole-of-agriculture perspective. It is being developed by the National Farmer's Federation (NFF) to provide benefits to farmers and the community by promoting best practice in agricultural sustainability and ensuring these efforts can be recognised by international markets and the community.



Version 5 of the AASF[2], released during this project, identifies **19 principles of sustainability for Australian agriculture** under the themes of environmental stewardship, people, animals and community, and economic resilience. To operationalise these principles, the framework introduces **52 criteria that detail the conditions necessary for sustainability.** These criteria translate the high-level principles into clear, actionable areas that define sustainable practice across the agriculture sector. Each criterion represents a specific condition or requirement that must be met to align with the relevant principle, providing structure and clarity for implementation.

Together, **the framework's principles and criteria describe the Australian agriculture industry's sustainability status and goals**, offering a robust, transparent continuum that enables the industry to document and report on sustainability outcomes in a way that is consistent, credible, and adaptable to future challenges.

2. Australian Agricultural Sustainability Framework (AASF) (https://aasf.org.au/)

1.2 Previous Data Ecosystem project activities

In 2023, the initial **AASF Data Ecosystem Design** project set out to explore the current agricultural sustainability data ecosystem in Australia and to propose structures (technical and social) needed to support application of the AASF as well as a strategy for their implementation. This work was published in *From Anarchy to Order: Data Ecosystem Design Project – Final Report*[3] (hereafter referred to as the "AASF Data Ecosystem Design – Final Report").

Project activities were conducted over 2023 – 2024 and:

- Found the current agricultural sustainability data ecosystem in Australia is anarchic in nature and that stakeholders are seeking change
- Identified a set of stakeholder cohorts and related personas and defined their initial data-related use cases for the AASF Data Ecosystem
- Recommended an initial set of technical infrastructure components, organisational practices, and governance structures and processes that will enable these use cases to be achieved over three horizons of activities

Data Ecosystem Insights

The discovery phase of this project found that the current agricultural sustainability data ecosystem in Australia lacks any form of coordination or organisation. There is no single driver that is influencing all agriculturally focussed organisations in their activities around sustainability. The system is truly anarchic in nature.

As a result, individual organisations, whether they be commodity specific sustainability frameworks, supply chain participants, or others with a need to access and use sustainability data are acting unilaterally with respect to data collection and management activities. The result is significant costs across the ecosystem due to duplicative data collection, lack of consistency around what is being collected and asked for, and an increasing burden on those being asked to provide data with a subsequent degradation in data quality.

Six key insights were derived from information gathered during research activities into the current state of the existing Australian agricultural sustainability data ecosystem. Each of these insights, and their nuances, informed the design of the future state structures and the broader data ecosystem strategy.

Data Ecosystem strategy

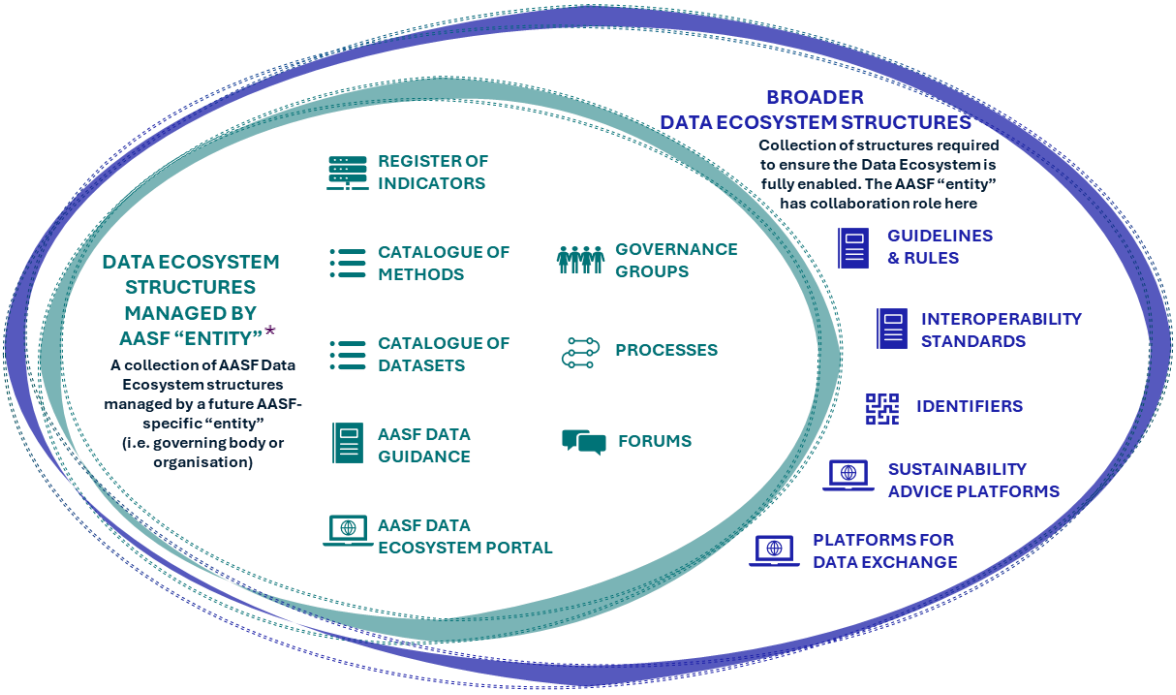
The AASF Data Ecosystem Design – Final Report includes a strategy which describes AASF stakeholder ambitions for the future of the data ecosystem. It outlines where the data ecosystem needs to be in 5 years' time, and the benefits stakeholders will derive from new structures being implemented over the years ahead. Importantly, it defines the values which must be reflected in all structures (data, processes and governance) to ensure that the data ecosystem is trusted and interoperable for all stakeholders in the future.

The strategic vision describes the benefits which will be delivered for all stakeholders through development of the structures which embed the principles in their design, and ultimately through achievement of the objectives. The four strategic objectives describe the goals the stakeholders of the data ecosystem want to achieve over the next 3-5 years, on the pathway to achieving the vision. Supporting the vision and objectives of the AASF Data Ecosystem, a set of principles define the rules, patterns, and boundaries for how structures of the AASF Data Ecosystem need to be designed to ensure they meet stakeholder requirements. These principles act as a "rules list" for designing as well as reviewing and endorsing the final designs of any new structures or changes to them. Thus, these principles are intended to be a reference tool for future governance groups and the AASF managing entity when developing, implementing and maintaining the AASF Data Ecosystem structures and components.

3. Kostanski L., Lemon D., and Lythall A. (2024). From Anarchy to Order: AASF Data Ecosystem Design Project – Final Report. CSIRO, Australia. http://hdl.handle.net/102.100.100/701548?index=1

Data ecosystem structures and processes (technical)

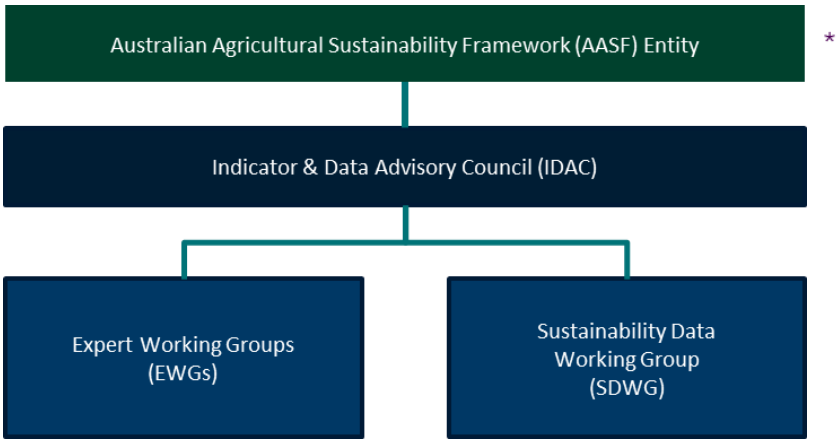
Core to the recommendations in the AASF Data Ecosystem Design – Final Report was a *Register of Indicators* that was proposed to list sustainability indicators approved by an independent body – a AASF Indicator and Data Advisory Council (IDAC). This register was proposed to provide confidence to producers and processors, digital and data service providers, and evidence requestors on "what data" should be collected, and can be asked for, in relation to Australian agricultural sustainability activities * .



Proposed AASF Data Ecosystem Structures from the AASF Data Ecosystem Design – Final Report

Data ecosystem structures & processes (governance)

It was proposed that a future AASF managing entity (now know as Agricultural Sustainability Australia Alliance – ASA Alliance) establish an Indicator and Data Advisory Council (IDAC) to be responsible for decisions relating to the AASF Data Ecosystem. The IDAC was proposed to be responsible for the AASF register of indicators, catalogues of methods and datasets, have a role in appointing Expert Working Groups (groups of experts responsible for proposing recommendations on AASF indicators) and a Sustainability Data Working Group (single group of experts responsible for representing AASF interests in broader cross-sector data activities) for specific activities.



Proposed AASF Data Ecosystem governance structures from the AASF Data Ecosystem Design – Final Report

** in the AASF Data Ecosystem Design – Final Report, the term "AASF Entity" is used to describe the entity proposed to manage the AASF. This entity is now known as 'Agricultural Sustainability Australia Alliance (ASA Alliance)'* and will be referred to as the ASA Alliance for this report.

1.2 This Project

This project continues from the AASF Data Ecosystem Design Stage 2 project and sets out to test and refine aspects of the governance structures and processes proposed the AASF Data Ecosystem Design – Final Report. In particular, the project was established to explore the roles and mechanisms of the proposed Indicator and Data Advisory Council (IDAC) and the processes for assessing indicators for inclusion in the Register of Indicators. The intent and outcomes defined for this project are listed below.

Project Intent	**Prior to implementation, various proposed structures to enable the AASF Data Ecosystem to become more effective and efficient need be tested and refined. The purpose of this project is to undertake this testing and refinement.**			
Broader Outcomes	Primary AASF stakeholders have a clear path forward for implementing and supporting the AASF data ecosystem	Practices, frameworks and governance arrangements exist to deliver data for users of AASF	Established data supply chains that support use of indicators measuring trends in agricultural sustainability	
Project Outcomes	Refine and agree narratives on H1, H2 and H3 for Data Ecosystem design and implementation	Progress pilot set of indicators through an assessment process	Keep the existing momentum of AASF stakeholders in the design of structures to enable the AASF data ecosystem to become more effective and efficient	AASF Program Managers and the AASF Advisory Committee understand and are confident in the next steps required to commence H1 activities for the Data Ecosystem

This project was divided into 3 distinct activities each with their own outputs:

1. **Testing of IDAC roles and processes** – *further develop and test the processes of the Indicator and Data Advisory Council through facilitation of a moot IDAC.*

2. **Indicator Assessment Protocol** – *fast-track development of, and test a tool for, assessing sustainability indicators for adoption*

3. **Test Indicator Assessment process** – *using the Indicator Assessment Protocol, test the process of assessing a set of sustainability indicators through facilitation of a moot Expert Working Group*

1.3 This Report

This document reports on the findings of the project activities. It should be considered a companion to AASF Data Ecosystem Design – Final Report (published in February 2025) and should be read in conjunction with that document.

The report is divided into 4 sections:

Section 2 describes the activities undertaken within the project. Specifically, how these activities were structured, what was done in each activity, and, most importantly, the lessons learned from them that are relevant to the implementation of the AASF Data Ecosystem structures and processes.

Section 3 takes the lessons learned in the project activities and describes how they impact the governance structures and processes of the AASF Data Ecosystem. This includes:

- *updates to recommendations on required registers and catalogues to support the data ecosystem along with definitions of some key terms*
- *further details on some of the roles and processes of the IDAC.*
- *greater definition of the indicator assessment processes that result in updates to the content of the AASF Data Ecosystem registers and catalogues*
- *a description of IDAC's expectations of Expert Working Groups in terms of their roles and responsibilities, the types of working groups that might be formed, and the circumstances in which each type might be formed.*
- *an analysis of the AASF Data Ecosystem cohorts mapped against the AASF Data Ecosystem use cases to identify areas of greatest need/opportunity for implementation*
- *recommendations for the technical design of the AASF Data Ecosystem registers and catalogues based on a short user analysis undertaken in this project as well as experience from previous work*

Section 4 concludes the report providing a summery of the project's findings, an update to the Horizon 1 Implementation Strategy, and a restatement of the value statement for the AASF Data Ecosystem and how it will address the 6 key findings of the Discovery Phase of the AASF Data Ecosystem Design project.

The report's **Appendices** contain other outputs from the project that may be of interest to readers or use during the AASF Data Ecosystem Implementation phase.

Stakeholders and ethics

Research activities were conducted in line with CSIRO's *Human Ethics Research Procedures* and complied with requirements of the *National Statement on Ethical Conduct in Human Research (*2023), *The Australian Code for the Responsible Conduct of Research*, and the *Privacy Act* (1988).

Throughout the course of the project, multiple participants were engaged in a range of research activities. These included a series of exploratory research interviews, and face to face working group sessions. All information provided by participants in these activities has been de-identified and all reports contain anonymised quotes.

In all, around 20 individuals have participated in one or more of the project activities, including:

- *9 members of the moot IDAC working Group (2 x face to face meetings)*
- *8 members of the moot Expert Working Group (individual interviews and a half day online group meeting)*
- *A small number of observers for full day meetings*

Further to this, the research team presented at and participated in numerous AASF Community of Practice events throughout 2025, interacting with up to 300 people in each of these activities.

1.4 Mythbusting

In presenting and discussing the AASF Data Ecosystem Design – Final Report to various of audiences in 2025 (See Appendix A.1), questions and misconceptions commonly arose regarding the scope, purpose, contexts and applicability of the project's explorations and recommendations. It was noted that these questions were an indication of confusion regarding the definition of the term 'data ecosystem' and other aspects of the project and this hindered stakeholder understanding of the relevance and applicability of the report recommendations.

Readers are reminded of the following when reading this report:

A data ecosystem is NOT a database

This project defines a data ecosystem as an interconnected, dynamic system comprising technical components and actors that collectively engage in the production, management, exchange, and consumption of data. Data ecosystems function through the interaction between data owners, users, and producers within a framework designed to facilitate data availability, reliability, and integrity for specific or broad purposes.

Wherever data is being exchanged between actors, a data ecosystem exists. An **effective data ecosystem** emphasises collaboration, sharing, and governance, enabling data to flow efficiently between different entities for mutual benefit.

Thus, while a data ecosystem might include one or more databases, a database alone can not and should not be considered a data ecosystem. Similarly, while a data ecosystem might include digital information systems, a digital information system or computer or data exchange mechanisms should not be considered equivalent to a data ecosystem.

The data ecosystem project is not asking for data

The project team are not designing a mechanism by which existing data holders will be required to "hand their data over to the AASF". The AASF itself is a framework, not an organisation and the Data Ecosystem Design project has focused on developing the structures and processes by which existing and new sustainability data can be exchanged between multiple stakeholders effectively, efficiently and without additional burden (even reduced burden) to support use cases identified by these stakeholders. As above, the project is not building a database.

Stakeholders can be active in one or many cohorts

The AASF Data Ecosystem Design project identified 3 cohorts of stakeholders within the Australian agricultural sustainability data ecosystem. These are producers and processors (data collectors/creators), evidence requestors (data users), and data and digital service providers (data facilitators). Which cohort a stakeholder is aligned with is completely determined by the activity(ies) they undertake within the data ecosystem and informs their decision making and interaction activities.

Therefore, it is quite possible, in fact likely, that some stakeholders will be aligned with more than one cohort. For example, an organisation that aggregates sustainability data for its own purposes and supplies this data to others will be aligned with both the evidence requestor and data service provider cohorts. For the purposes of clarity in reporting, we simply assigned personas to individual cohorts, but this should not be taken as a final and singular allocation.

"Reduction of burden", "trust and transparency" are two of the eight principles in the data ecosystem strategy

The Discovery Phase of the AASF Data Ecosystem Design project found that these two principles "Reduce the Burden" and "Trust and Transparency" were the highest priority to all stakeholders. As such, they underpin the proposed structures for the AASF Data Ecosystem, and they are prominent in the AASF Data Ecosystem strategy. They need to be reflected in all decisions regarding the design, development, implementation and maintenance of data ecosystem structures.

The data ecosystem strategy has a blueprint which defines three horizons for implementation

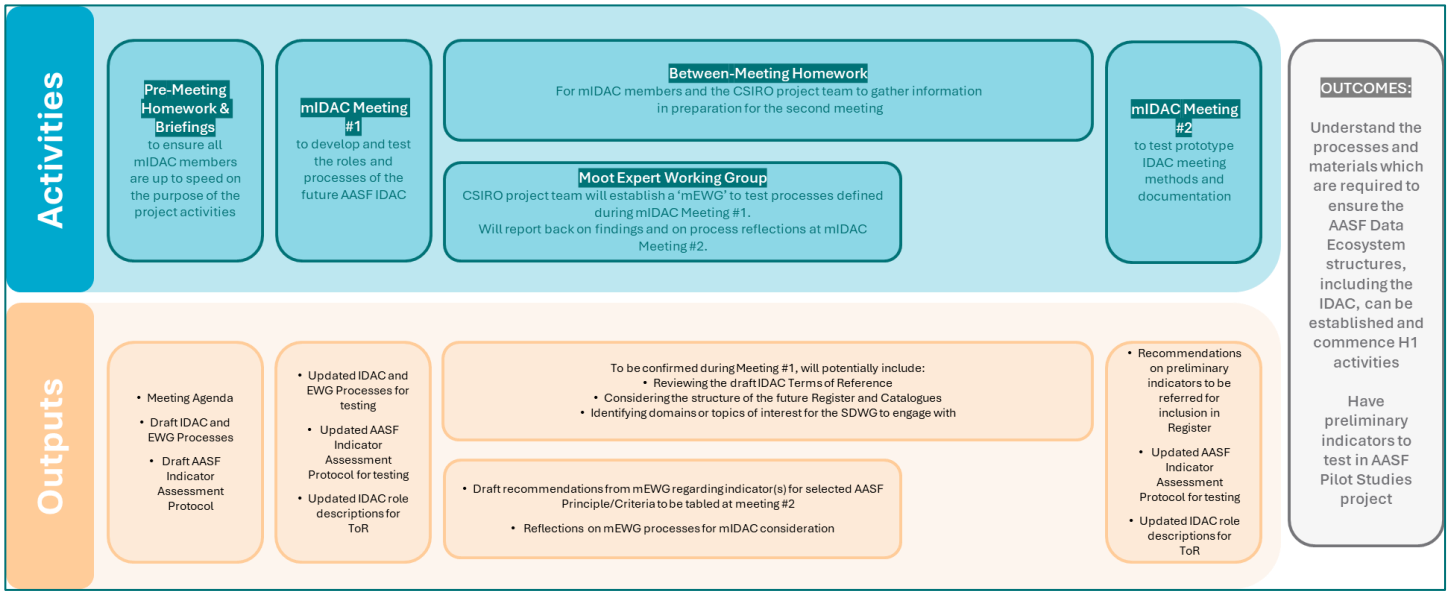
Like any systems-level transition, the shift from the current anarchic data ecosystem to an ordered ecosystem that is trusted, transparent and reduces the burden on producers needs to undertaken in a staged approach. A transition strategy was delivered as part of the ASF Data Ecosystem Design project. This strategy has three stages which shift through **establish**ment of key structures to **grow**ing tools and capability and finally **maintain**ing a thriving Australian Agricultural Sustainability Data Ecosystem.

2.0 How did we arrive here?

2.1 Overview

The purpose of this project was to test key aspects of the governance structures and processes proposed in the AASF Data Ecosystem Design – Final Report. This section describes the streams of activities undertaken for the project and the lessons learned from each.

The primary approach of the project was to convene a moot Identifier and Data Advisory Council (mIDAC) and have it meet twice over the period of the project. In between sessions, a moot Expert Working Group (mEWG) was formed to assess a list of draft indicators and provide recommendations to mIDAC. An overview of the activities undertaken for the project along with proposed outputs and outcomes is shown in the figure below.



Section 2.2 – mIDAC Activities provides a description of mIDAC activities to test the roles and processes of the proposed Identifier and Data Advisory Council (IDAC)

Section 2.3 – moot Assessment Activities describes the activities specifically undertaken to test the AASF identifier assessment process, and develop the AASF Indicator Assessment Profile (IAP).

Lessons learned

The activities undertaken in this project yielded several critical insights which informed the development of recommendations, updated structure designs and materials for the AASF Data Ecosystem.

Each of the lessons learnt is described in further detail in this section and can be summarised as:

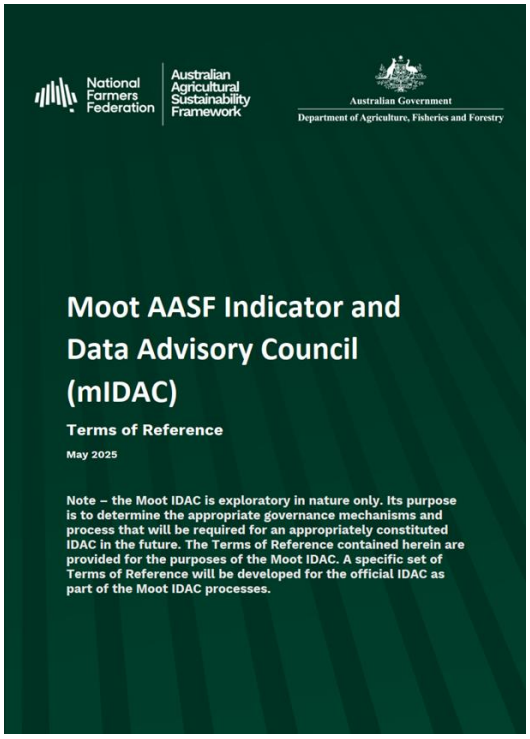
Name, role and scope of decision rights for IDAC require clarification	Diversity of knowledge and experience for IDAC members is critical	IDAC processes will continue to evolve and require appropriate resourcing	IDAC needs a strategy for prioritising indicator assessments	All IDAC recommendations must go to public consultation prior to adoption	The principles and objectives of the AASF Data Ecosystem strategy need to be reflected in IDAC decisions
AASF Indicator Assessment Protocol is generally useful	Diversity of knowledge and experience for indicator assessment is critical	Context and purpose are essential for meaningful indicator assessment	Agreed definitions of "indicator", "metric" and "method" are essential	Register and Catalogue content needs to be useful, timely and comprehensive	Indicator assessment processes will continue to evolve and require appropriate resourcing

Solutions and recommendations developed in response to these insights are provided in Section 3 of this report.

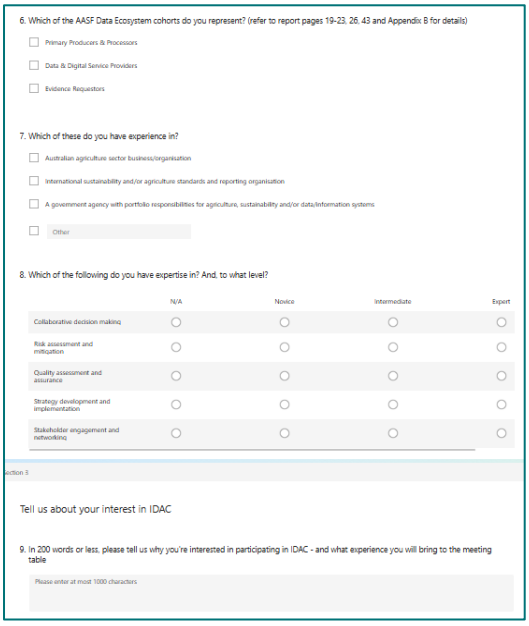
2.2 mIDAC Activities

Background

To prototype and test some of the structures recommended in the AASF Data Ecosystem Design - Final Report, the project team proposed to establish a "moot (test/mock) AASF Indicator and Data Advisory Council (mIDAC)". The purpose was to determine appropriate governance mechanisms and processes required for an appropriately constituted IDAC in future. It was proposed that nominations would be sought, 8-10 people would be appointed, and they would meet twice to test and refine a set of prototype governance processes. The learnings from the development, testing and refinement of materials in these activities have informed the content of this report and associated updated recommendations.



Terms of Reference for mIDAC



Information requested of nominees for mIDAC

Appointment

In May 2025, the project team sought nominations, via Expressions of Interest, from stakeholders who had participated in and were familiar with the activities of the Stage 2 Data Ecosystem project. The rationale was that these participants would have enough familiarity with the purpose and contexts within which mIDAC activities would operate – and thus save time with onboarding. The requirements to nominate included the following

- Participants needed to be representatives of one (or more) of the following cohorts:
  - the 3 AASF Data Ecosystem cohorts (primary producers and processors; data and digital service providers; or evidence requesters)
  - Government agencies with portfolio responsibilities for agriculture, sustainability, and data/information systems
  - the Australian agriculture industry
  - International sustainability and agriculture standards and reporting organisations
- Able to attend in person 2 x 1 full day meetings (the first in mid-June and the second in early August)
- Committed to reading pre meeting papers and homework

In total 9 volunteers were appointed to mIDAC. At commencement, members were provided a Terms of Reference (an adapted version of the draft ToR for IDAC), and other reference materials which were described to them in an onboarding session held online a week before the first meeting.

The pre-meeting reading materials included:

- CSIRO Research Consent Form
- AASF Data Ecosystem Design – Final Report
- AASF Indicator Assessment Protocol (draft)
- mIDAC Terms of Reference
- Agenda for first meeting
- IDAC draft role, requirements and process overview diagram
- High-level indicator assessment workflow

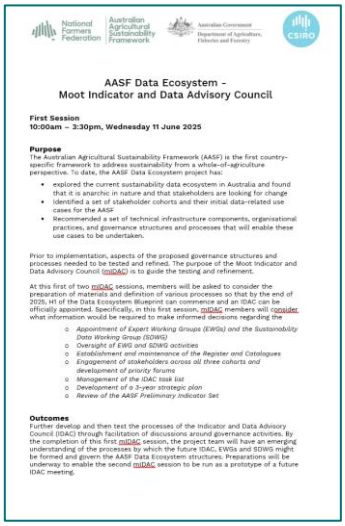
mIDAC Meeting #1

Held in Canberra on Wednesday 11 June 2025, the first mIDAC meeting was designed to enable development and testing of prototype IDAC processes. By the completion of this first session, it was anticipated the information generated would enable the project team to build a deeper understanding of the processes by which the future IDAC, EWGs and SDWG might be formed and govern the AASF Data Ecosystem structures.

This session was also designed to ensure the project team could undertake further development and testing activities before the second session, which would be run as a prototype of an IDAC meeting.

Members were asked to consider the preparation of materials and definition of various processes so that by the end of 2025, H1 of the Data Ecosystem Blueprint can commence and an IDAC can be officially appointed. Specifically, in this first session, mIDAC members were asked to consider:

- *what types of requests can be anticipated, what will be responded to by IDAC, and what is required to make this transparent and trusted for all stakeholders?*
- *what types of responsibilities should IDAC have, what information and processes will they require to do this effectively and efficiently, what considerations and risks will need to be managed to ensure Data Ecosystem principles are upheld by IDAC?*
- *what accountabilities should IDAC have as compared to the ASA Alliance, and how will reporting and communications processes be managed to ensure Data Ecosystem principles are upheld?*
- *How might IDAC members select the type of EWG to be appointed, and what types of information would be required to ensure this decision was trusted by AASF stakeholders?*
- *What might be included in all EWG terms of reference, to ensure that their activities uphold the principles of the AASF Data Ecosystem?*
- *What information might EWG members need to ensure they can effectively complete their duties, and how might IDAC provide oversight of their activities?*
- *What information might IDAC require to be provided in recommendations formulated by EWGs?*
- *How might IDAC guide the public consultation process and respond to feedback?*
- *How might AASF Principles/Criteria be prioritised for appointment of EWGs?*



AASF Data Ecosystem -
Moot Indicator and Data Advisory Council

First Session
10:00am – 3:30pm, Wednesday 11 June 2025

Purpose
The Australian Agricultural Sustainability Framework (AASF) is the first country-specific framework to address sustainability from a whole-of-agriculture perspective. To date, the AASF Data Ecosystem project has:

- explored the current sustainability data ecosystem in Australia and found that it is anarchic in nature and that stakeholders are looking for change
- identified a set of stakeholder cohorts and their initial data-related use cases for the AASF
- Recommended a set of technical infrastructure components, organisational practices, and governance structures and processes that will enable these use cases to be undertaken.

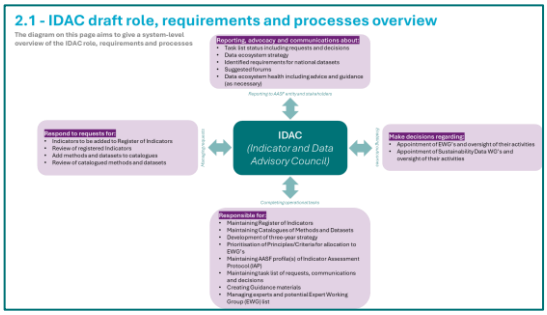
Prior to implementation, aspects of the proposed governance structures and processes needed to be tested and refined. The purpose of the Moot Indicator and Data Advisory Council (mIDAC) is to guide the testing and refinement.

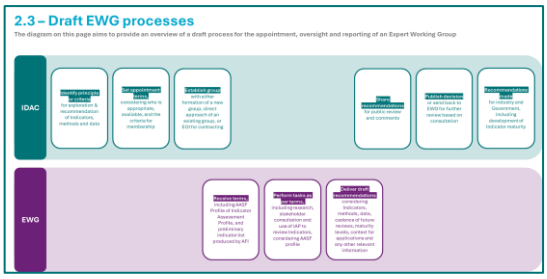
At this first of two mIDAC sessions, members will be asked to consider the preparation of materials and definition of various processes so that by the end of 2025, H1 of the Data Ecosystem Blueprint can commence and an IDAC can be officially appointed. Specifically, in this first session, mIDAC members will consider what information would be required to make informed decisions regarding the

- *Appointment of Expert Working Groups (EWGs) and the Sustainability Data Working Group (SDWG)*
- *Oversight of EWG and SDWG activities*
- *Establishment and maintenance of the Register and Catalogues*
- *Engagement of stakeholders across all three cohorts and development of priority forums*
- *Management of the IDAC task list*
- *Development of a 3-year strategic plan*
- *Review of the AASF Preliminary Indicator Set*

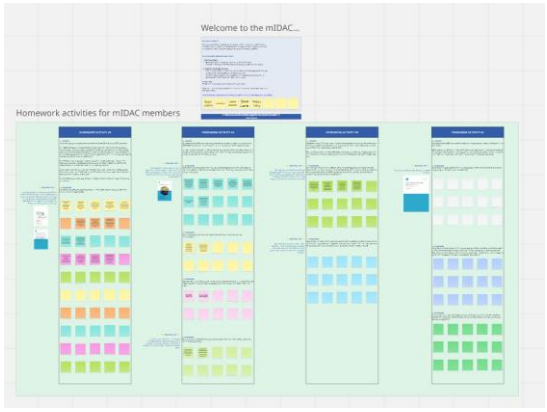
Outcomes
Further develop and then test the processes of the Indicator and Data Advisory Council (IDAC) through facilitation of discussions around governance activities. By the completion of this first mIDAC session, the project team will have an emerging understanding of the processes by which the future IDAC, EWGs and SDWG might be formed and govern the AASF Data Ecosystem structures. Preparations will be underway to enable the second mIDAC session to be run as a prototype of a future IDAC meeting.

Agenda for mIDAC Meeting 1





Materials used in mIDAC Meeting 1



Homework on miro board

The knowledge generated in this session was captured by the project team, and a series of homework tasks were assigned to both mIDAC members and the project team. The mIDAC member homework activities were posted onto a Miro board and focused on review of EWG processes and IDAC ToR.

The main focus for the project team was to test processes and methods which could be used by EWGs to review and provide recommendations to IDAC on indicators, methods and data. These are described in Section 3.4

Insights from mIDAC meeting #1

During the course of the first mIDAC meeting, the following items were articulated and discussed by members and meeting observers:

- There was general agreement on the need for the industry to be able to agree on what indicators to use and hence what data should be collected.
- There was general concern raised about the volume of indicators, and methods which need to be reviewed and registered for AASF data ecosystem purposes
- Suggestions for dealing with the volume and moving towards an ordered system from the existing chaos, included:
  - IDAC, with approval from ASA Alliance, should prioritise AASF Principles and Criteria (PxCx) to be pursued each year and publish a schedule of timings so that all stakeholders can be aware and plan
  - Potentially use the AASF double-materiality assessment to set initial priority AASF PxCx for indicator research, review and assessment purposes
  - Clearly articulate to AASF stakeholders what submission topics will be prioritised and when they will be addressed
  - Consider "surge capacity" allocations for resourcing IDAC and EWG activities in H1, as this is where the heavy bulk of exploratory and assessment work will be concentrated
- For establishment of EWGs, suggestions included:
  - Ensuring representation is diverse and includes experts in indicators, methods, data and sustainability frameworks
  - Skills on EWGs are reflective of the principles and criteria being researched, and representative of the stakeholders who will benefit from/impacted by decisions made
  - Include a good geographical spread relevant to the PxCx, with regional and international perspectives included
  - Ensure representation and/or engagement with relevant sectors (agricultural commodities, sustainability domains, environmental and financial and/or other relevant sectors)
  - Need to uphold principles of Data Ecosystem strategy – ie be transparent and inclusive, reduce the burden
  - Keep in mind that representation might not be static but evolve as more is understood about the relevant indicators and metrics
- For researching and reviewing indicators, it was suggested that a tool such as the Indicator Assessment Protocol be tested for utility in the AASF context.

"how do we balance the priorities asked by IDAC versus who is asking? Where is the balance of power going to be?"

"there is a risk of too many indicators and too many data scenarios"

"I am curious about the role of the 'entity' and who owns the administration function"

"who is going to be involved? Are there groups that shouldn't be involved?"

"I really like how the personas resonate with my direct experience (both current and future state)"

"I am relieved at the longer time frame for implementation and maturity. I would like to see indicators that are quick wins for stakeholders"

"I am excited and looking forward to providing greater certainty and direction to data collectors"

"will this be commercially viable?"

"there is potential here for this to become a global model for collaboration and doing something good"

"software companies are looking for guidance from the industry as to what would add value to their service offering and are unlikely to move until they get a clear signal"

mIDAC Meeting 2

The second mIDAC session was to further develop and test the processes of the proposed Indicator and Data Advisory Council (IDAC) through facilitation of, and discussion about, governance activities. The aim was to gain a deeper understanding of the processes by which the future IDAC and EWGs might be formed and govern the AASF Data Ecosystem.

At the session, members were asked to consider process and structure information so that by the end of 2025, H1 of the Data Ecosystem Blueprint could commence and an IDAC be officially appointed.

Specifically, in this second session, mIDAC members:

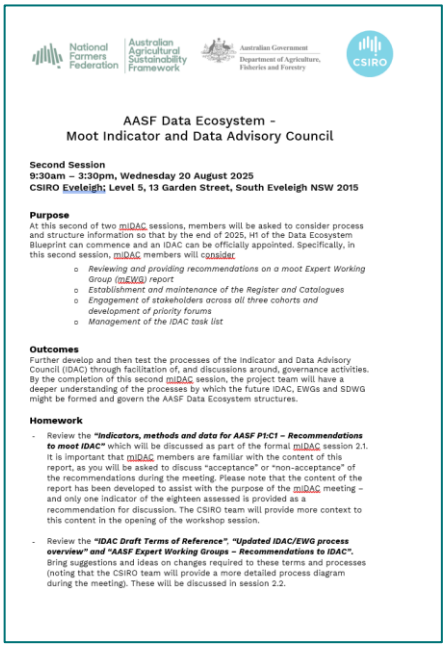
- participated in a moot IDAC meeting. This included reviewing and providing recommendations on a moot Expert Working Group (mEWG) report and other moot materials
- considered the processes involved in the moot meeting and made recommendations for future improvements to ensure appropriate governance mechanisms are designed for IDAC
- considered the high-level design of the future Register and Catalogues and detailed expectations from different stakeholder perspectives.

For the first part of the session – the moot meeting – a meeting agenda and series of moot reports were developed for mIDAC to consider and respond to. These reports included:

- Moot Secretariat Report – *which provided moot EWG and SDWG updates, descriptions of key engagements and progress, and outlined next steps to be considered*
- Moot P1:C1 EWG Report – *which provided details of the indicator review undertaken by the mEWG, with supplementary information included by the project team*
- Moot proposal for initiation of P17:C41-43 Review – *with a description of the purpose and context for the indicators and a request for agreement to initiate the review*

As a result of the discussions, the mIDAC members recommended that:

- Secretariat Report item responses – *Secretariat to implement a standardised status dashboard with information about EWG activities and where they are behind schedule/blocked (red); on track but with risks (orange); on schedule/completed (green).*
- P1:C1 EWG Report recommendations – *Secretariat to go back to the EWG and provide them a tighter brief to respond to, which clarifies the purposes and contexts for which the indicators, metrics, methods and data need to be identified and agreed.*
- Mock proposal for initiation of P17:C41-43 Review – *Secretariat needs to undertake a review of organisations which might have a particular legislative or policy authority in the domain and advise IDAC of whether to include them as observers to the EWG process.*



AASF Data Ecosystem –
Moot Indicator and Data Advisory Council

Second Session
9:30am – 3:30pm, Wednesday 20 August 2025
CSIRO Eveleigh; Level 5, 13 Garden Street, South Eveleigh NSW 2015

Purpose

At this second of two mIDAC sessions, members will be asked to consider process and structure information so that by the end of 2025, H1 of the Data Ecosystem Blueprint can commence and an IDAC can be officially appointed. Specifically, in this second session, mIDAC members will consider

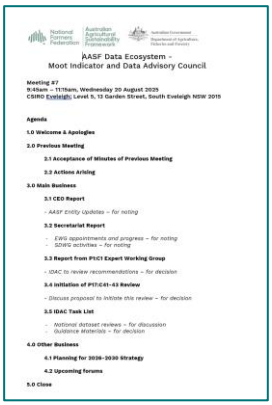
- *Reviewing and providing recommendations on a moot Expert Working Group (mEWG) report*
- *Establishment and maintenance of the Register and Catalogues*
- *Engagement of stakeholders across all three cohorts and development of priority forums*
- *Management of the IDAC task list*

Outcomes

Further develop and then test the processes of the Indicator and Data Advisory Council (IDAC) through facilitation of, and discussions around, governance activities. By the completion of this second mIDAC session, the project team will have a deeper understanding of the processes by which the future IDAC, EWGs and SDWG might be formed and govern the AASF Data Ecosystem structures.

Homework

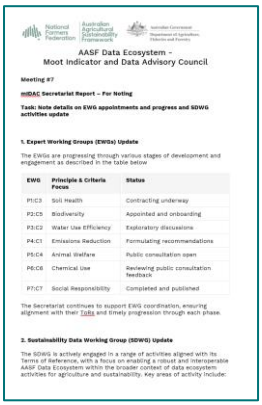
- Review the ***"Indicators, methods and data for AASF P1:C1 – Recommendations to moot IDAC"*** which will be discussed as part of the formal mIDAC session 2.1. It is important that mIDAC members are familiar with the content of this report, as you will be asked to discuss "acceptance" or "non-acceptance" of the recommendations during the meeting. Please note that the content of the report has been developed to assist with the purpose of the mIDAC meeting – and only one indicator of the eighteen assessed is provided as a recommendation for discussion. The CSIRO team will provide more context to this content in the opening of the workshop session.
- Review the ***"IDAC Draft Terms of Reference"***, ***"Updated IDAC/EWG process overview" and "AASF Expert Working Groups – Recommendations to IDAC"***. Bring suggestions and ideas on changes required to these terms and processes (noting that the CSIRO team will provide a more detailed process diagram during the meeting). These will be discussed in session 2.2.



AASF Data Ecosystem –
Moot Indicator and Data Advisory Council

Meeting #7
9:45am – 11:15am, Wednesday 20 August 2025
CSIRO Eveleigh; Level 5, 13 Garden Street, South Eveleigh NSW 2015

Agenda
1.0 Welcome & Apologies
2.0 Previous Meeting
2.1 Acceptance of Minutes of Previous Meeting
2.2 Actions Arising
3.0 Main Business
3.1 CEO Report
- AASF Entity Updates – for noting
3.2 Secretariat Report
- EWG appointments and progress – for noting
- SDWG activities – for noting
3.3 Report from P1C1 Expert Working Group
- IDAC to review recommendations – for decision
3.4 Initiation of P17:C41-43 Review
- Discuss proposal to initiate this review – for decision
3.5 IDAC Task List
- National dataset reviews – for discussion
- Guidance materials – for decision
4.0 Other Business
4.1 Planning for 2030–2030 Strategy
4.2 Upcoming forums
5.0 Close



AASF Data Ecosystem –
Moot Indicator and Data Advisory Council

Meeting #7

mIDAC Secretariat Report – For Noting

Task: Note details on EWG appointments and progress and SDWG activities update

1. Expert Working Groups (EWGs) Update

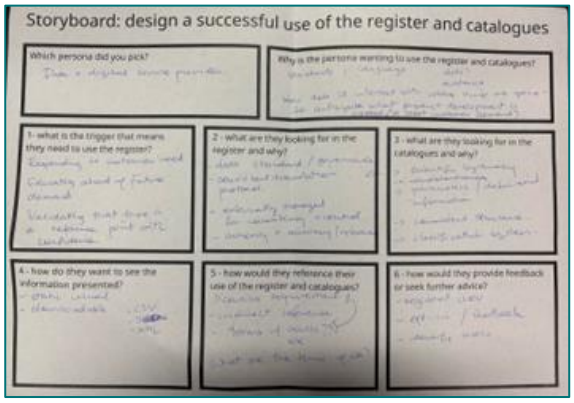
The EWGs are progressing through various stages of development and engagement as described in the table below

EWG	Principle & Criteria Focus	Status
P1:C3	Soil Health	Contracting underway
P2:C5	Biodiversity	Appointed and onboarding
P3:C2	Water Use Efficiency	Exploratory discussions
P4:C1	Emissions Reduction	Formulating recommendations
P5:C4	Animal Welfare	Public consultation open
P6:C6	Chemical Use	Reviewing public consultation feedback
P7:C7	Social Responsibility	Completed and published

The Secretariat continues to support EWG coordination, ensuring alignment with their ToRs and timely progression through each phase.

2. Sustainability Data Working Group (SDWG) Update

The SDWG is actively engaged in a range of activities aligned with its Terms of Reference, with a focus on enabling a robust and interoperable AASF Data Ecosystem within the broader context of data ecosystem activities for agriculture and sustainability. Key areas of activity include:



Materials used during mIDAC Meeting 2

Detailed reflections on the mock session process and lessons learnt, in addition to the register design activity conducted during the session, are provided overleaf.

Meeting agenda and moot reports can be found in Appendix 4

Insights from mIDAC meeting #2

During the course of the second mIDAC meeting, the following items were articulated and discussed by participants:

- The role of IDAC within the proposed structure of the ASA Alliance. The necessity of IDAC maintaining a credible, trusted and independent role for AASF stakeholders is of paramount importance. Delegation of authority will be required from the ASA Alliance to ensure IDAC can competently fulfill its obligations to the AASF community.
- IDAC needs to have authority to decide and publish AASF indicators, metrics, methods and associated datasets and/or information. This is similar to being a "custodian of AASF indicators".
- It was agreed that, while indicators and metrics need to be in scope of IDAC decision making authority, the setting of AASF Principles and Criteria (PxCx) is out of scope. With this in mind, IDAC will need authority for engagement, communications, strategy and decision making as it relates to indicators, metrics, methods and structures of the data ecosystem
- The name of the IDAC needs to reflect the role and scope of decision-making authority it has.
- In reviewing the mEWG report
    - it was agreed that the indicator assessment process was flawed due to there being no constraints, contexts or purposes defined.
    - discussions included consideration of whether AASF use-cases could be referenced as a boundary-object, and whether IDAC could direct EWGs to focus on farm-level, nation-wide or whole-of-supply chain indicator assessments.
    - Need to consider including reference to AASF personas in the application and use of indicators selected for registration
    - The terms "indicator" and "metric" need to be defined for whole-of-AASF application
    - There was no consensus on the Likert-scale responses from mEWG members – it needs to be acknowledged that the decision-making processes and outcomes of EWGs in future will need to be well documented so that stakeholders can understand and trust the results
- In considering other reports tabled
    - IDAC needs a step before "issue a call for interest" to set expectations and contexts for the review process.
    - IDAC representation needs to be carefully considered so that members are aware that there are organisations with particular processes, responsibilities, authority etc when they're considering which assessments to undertake.

"We need a description of why we're looking at a particular indicator – we need to understand the context of the indicator"

"it's not the ASA Alliance that gives credibility to IDAC, IDAC gives credibility to the ASA Alliance"

"You need to define who is going to use these [indicators], so if someone is doing a national assessment as compared to a farm-level assessment the indicators will be different."

"Couldn't get a sense from the report on what level of reporting would be done with these indicators, so couldn't understand the data needed or if it is available at a state or national level. An indicator is only good if you know how it will be used, and how you will assess the outputs of it."

"P1C1 is unique in that there's a lot of interest and indicators being developed or used already. But other PxCx will not have many if any indicators available. Perhaps "expectation setting" is needed from IDAC regarding providing purposes and contexts where there is a well-developed field, but where there is a dearth of indicator work then maybe EWGs are asked to come back to IDAC with the purpose and context descriptions?"

"A range of industries are producing their own indicators, aligned to AASF, it is a question of thinking how much can we align them and bring them into the fold and get them to go further"

"In looking at the spreadsheet column k – everything was heavily qualified. Why is this? Have they been given the right why, the right context? Based on this, I couldn't make a decision or recommendation based on this report. I feel like I am missing something."

"At what point would IDAC approach other authorities with more legitimacy in this domain ... the ones that have greater agency than IDAC do to define these terms, and a landscape scan might have picked this up and it might be referred to in this report. We would at least want their advice, as they are agencies already involved in the process. Maybe not as formal members of an EWG – but using ISO process"

Lessons learned from mIDAC activities

Name, role and scope of decision rights for IDAC require clarification

The relationship between IDAC and the ASA Alliance is critical and needs to be well defined from implementation.

To be trusted IDAC must have delegated decision making rights with respect to the management of the content of the AASF Data Ecosystem registers and catalogues.

Also, the words 'advisory' and 'council' within the name are problematic. The name should be changed to something that reflects its role, scope and authority.

Diversity of knowledge and experience for IDAC members is critical

To be productive, members need to understand the roles and responsibilities of IDAC clearly. Diversity of knowledge and experience in the membership of IDAC is essential.

It is imperative that the perspectives of all three AASF Data Ecosystem cohorts are represented. Broad knowledge and understanding of local, national and international activities and directions are also required.

IDAC processes will continue to evolve and require appropriate resourcing

The roles and processes of IDAC will evolve over time as different aspects of both are tested within the developing agriculture and sustainability domains. It is essential that IDAC be able to evolve as these domain contexts change.

IDAC members need to be adequately resourced for the time required to complete thorough assessments which consider the needs of many stakeholders. IDAC and EWGs will also need be supported by a well-resourced secretariat.

IDAC needs a strategy for prioritising indicator assessments

There are numerous purposes and contexts within the agriculture domain for which sustainability indicators, metrics and methods are required.

IDAC needs to determine which purposes and contexts are relevant to AASF and will inform EWG exploratory activities. Being too strict or too loose on these priorities will impact the usefulness of the registers and catalogues. A prioritisation of the AASF Data Ecosystem use cases should provide guidance.

All IDAC recommendations must go to public consultation prior to adoption

The integrity of the IDAC and its decision-making processes are paramount. To this end, public consultation is an important aspect of the decision–making process. **It is essential that, before any decision on the adoption of indicators, metrics and methods is taken, those with an interest in the purposes, contexts and applications have had a chance to contribute. What defines the scope and boundaries of 'public consultation' for AASF indicators remains to be explored.**

The principles and objectives of the AASF Data Ecosystem strategy need to be reflected in IDAC decisions

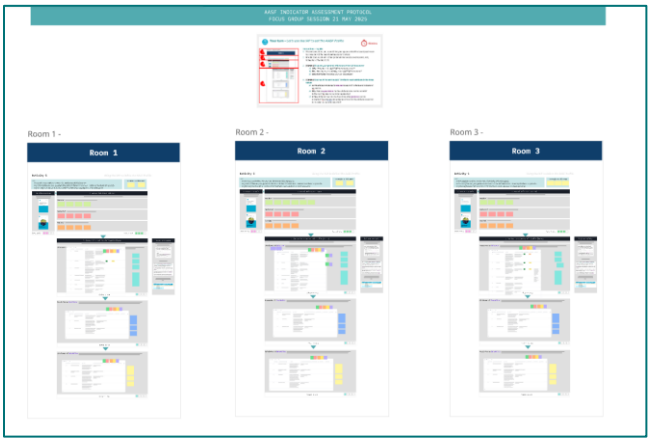
It is important that IDAC members regularly remind themselves of the objectives and principles of the AASF Data Ecosystem and that they have certain responsibilities and accountabilities with respect to them.

In their decision-making activities the principles of 'reducing the burden', 'trusted and transparent', and 'inclusive and connected', need to be front of mind for IDAC members.

2.3 Moot Assessment Activities

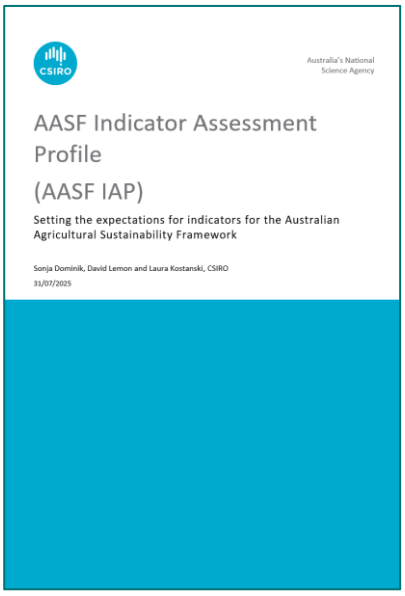
Background

To develop a robust process for reviewing AASF indicators and test prototype processes for Expert Working Groups, the project team ran a series of design activities with members of mIDAC and a group of volunteer indicator experts. In these processes, an AASF-profile of CSIRO's Indicator Assessment Framework (IAF) was developed, potential indicators for AASF Principle 1, Criteria 1 (P1:C1) were reviewed by a moot Expert Working Group (mEWG), and a report was drafted for mIDAC consideration.



Miro board for first workshop

Miro board for second sub-group workshop



AASF IAP document

AASF Profile of the IAF (AASF IAP)

The CSIRO Indicator Assessment Framework (IAF)[4] was developed to provide a framework to assist users to identify relevant, feasible, and reliable indicators for their purposes. It consists of an assessment framework (a set of indicator attributes with predefined questions about each) and a process for use.

The IAF requires users develop a profile specific to their purposes prior to use. This profile captures which indicator attributes are relevant to the activity and the expectations the activity will have of these attributes. A report describing the process to develop the AASF profile of the IAF along with the resultant AASF Indicator Assessment Protocol (AASF IAP) can be found in Appendix A2. This profile was used for moot assessment activities.

Assessment volunteers

The project team considered who to approach to undertake an assessment of the draft P1:C1 indicators provided to the project. The goal was to ensure diversity of expertise as well as representation of the three AASF Data Ecosystem cohorts.

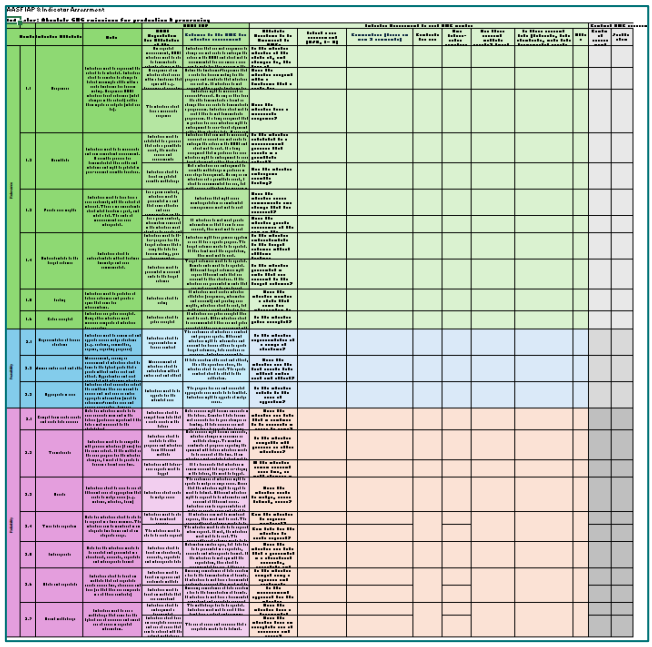
In total eight experts volunteered their time to join the moot Expert Working Group (mEWG). They were asked to:

- Participate in a 30min briefing with the project team to describe the activity
- Undertake exploratory investigations and, using the AASF IAP, provide an assessment of each of the potential AASF P1:C1 indicators
- Debrief, on the experience, individually with the project team
- Meet collectively to debrief about:
  - What was discovered and what might be relevant to put forward in the moot-report to mIDAC
  - The processes involved in identifying indicators for AASF P1:C1 (ie issues, risks, advantages etc)

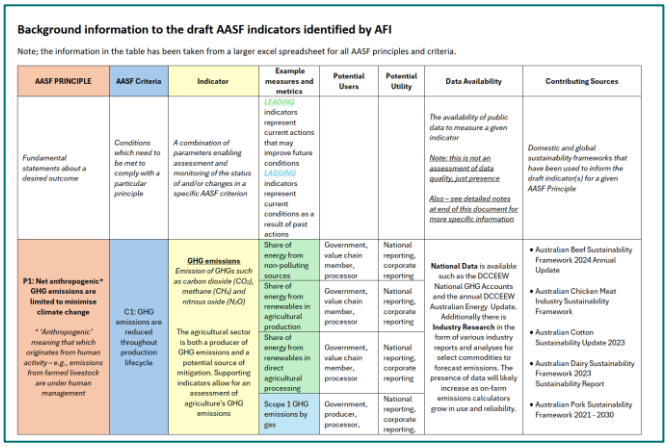
4. See Dominik, Sonja; Lemon, David; Kostanski, Laura. Indicator Assessment Framework and Process: A Framework for assessment and review of sustainability indicators . Brisbane: CSIRO; 2025. csiro:EP2025-4562.

mEWG Individual & Group Assessments

- mEWG members were provided with presentation materials, the AASF Data Ecosystem Design – Final Report, an assessment worksheet, and the draft IAP report. They were asked to consider Data Ecosystem cohorts and personas in their deliberations
- The mEWG was then provided 18 potential indicators from Foundational AASF Indicators Project Stream: Final Report. Specifically indicators aligned with AASF Principle 1 *(Net anthropogenic GHG emissions are limited to minimise climate change)*: Criteria 1 *(GHG emissions are reduced throughout production lifecycle)* (AASF P1:C1).
- The indicators were:
    1. *Absolute GHG emissions for production & processing*
    2. *Absolute scope 1 GHG emissions*
    3. *Absolute scope 2 GHG emissions*
    4. *Absolute scope 3 GHG emissions*
    5. *Nitrous oxide emissions*
    6. *Indirect soil emissions including atmospheric deposition, fertiliser and nitrogen leaching and run-off fertiliser*
    7. *Net GHG emissions for production & processing*
    8. *Net scope 1 GHG emissions*
    9. *Net scope 2 GHG emissions*
    10. *Net scope 3 GHG emissions*
    11. *GHG emissions intensity for production & processing*
    12. *Emissions per kg liveweight livestock*
    13. *Emissions per tonne Hot Standard Carcase Weight (HSCW) livestock*
    14. *GHG emissions intensity (e.g., kg CO2 equivalent) per unit of crop yield (e.g. grain, cotton, horticultural, sugar etc)*
    15. *Carbon footprint (e.g., kg CO2 equivalent) per unit of milk produced*
    16. *Share of energy from non-polluting sources*
    17. *Share of energy from renewables in agricultural production*
    18. *Share of energy from renewables in direct agricultural processing*
- Briefing sessions with individual mEWG members were critical because they enabled volunteers to familiarise themselves with AASF Data Ecosystem Design project as well as the draft indicator assessment processes
- Mid-way through the assessment process, some mEWG members requested further background information about the draft indicators being assessed. They were provided with Foundational AASF Indicators Project Stream: Final Report describing the processes used for gathering the indicators information.
- At the completion of the assessment, individual feedback sessions with all eight volunteers gathered information on the processes and tools used for the activity and provided feedback on the outcomes of the assessments. These assessments were then aggregated by the project team into a single spreadsheet (Appendix A2.2).



Assessment Framework Spreadsheet

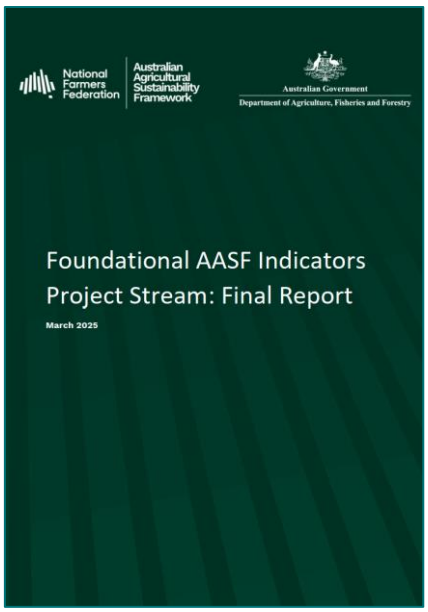


Background information to the draft AASF indicators identified by AFI

Note; the information in the table has been taken from a larger excel spreadsheet for all AASF principles and criteria.

AASF PRINCIPLE	AASF Criteria	Indicator	Example measures and metrics	Potential Users	Potential Utility	Data Availability	Contributing Sources
Fundamental statements about a desired outcome	*Conditions which need to be met to comply with a particular principle*	*A combination of parameters enabling assessment and monitoring of the status of and/or changes in a specific AASF criterion*	LEADING indicators represent current actions that may improve future conditions LAGGING indicators represent current conditions as a result of past actions			*The availability of public data to measure a given indicator* *Note: this is not an assessment of data quality, just presence* *Also – see detailed notes at end of this document for more specific information*	*Domestic and global sustainability frameworks that have been used to inform the draft indicator(s) for a given AASF Principle*
P1: Net anthropogenic* GHG emissions are limited to minimise climate change ** 'Anthropogenic' meaning that which originates from human activity – e.g., emissions from farmed livestock are under human management*	C1: GHG emissions are reduced throughout production lifecycle	**GHG emissions** *Emission of GHGs such as carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O)* The agricultural sector is both a producer of GHG emissions and a potential source of mitigation. Supporting indicators allow for an assessment of agriculture's GHG emissions	Share of energy from non-polluting sources	Government, value chain member, processor	National reporting, corporate reporting	**National Data** is available such as the DCCEEW National GHG Accounts and the annual DCCEEW Australian Energy Update. Additionally there is **Industry Research** in the form of various industry reports and analyses for select commodities to forecast emissions. The presence of data will likely increase as on-farm emissions calculators grow in use and reliability.	• Australian Beef Sustainability Framework 2024 Annual Update • Australian Chicken Meat Industry Sustainability Framework • Australian Cotton Sustainability Update 2023 • Australian Dairy Sustainability Framework 2023 Sustainability Report • Australian Pork Sustainability Framework 2021 - 2030
			Share of energy from renewables in direct agricultural production	Government, value chain member, processor	National reporting, corporate reporting		
			Share of energy from renewables in direct agricultural processing	Government, value chain member, processor	National reporting, corporate reporting		
			Scope 1 GHG emissions by gas	Government, producer, processor,	National reporting, corporate reporting,		

Draft Indicator List Background Information



Indicators report provided to volunteer assessors

mEWG Individual Feedback & Group Assessment

Individual feedback sessions were conducted with the project team prior to the group assessment session. In these interviews, participants reflected the following:

- The IAP is robust for assessing indicators in a repeatable way
- The IAP tool was seen as comprehensive and helpful for preparing for future group discussions, but impractical for individual use
- Indicator assessment should not occur in isolation. Instead, it should be preceded by a clear understanding of the purpose for indicator will be used and the context of this use.
- In the context of GHGs, indicators are often outputs of accounting tools or models, but in other contexts indicators can be a direct variable
- Indicators are not raw measurements but can be derived outputs from models or tools. These types of indicators are typically calculated using surrogate data and reflect broader system-level outcomes
- Indicators must be able to reflect change resulting from management actions or interventions. Static indicators were seen as insufficient for tracking progress or informing decisions.

The group assessment session reviewed individual feedback insights and discussed what would be required to undertake this process effectively in future, including:

- In this specific case, the work being done by DCCEEW (VEERS program) might be the preferred reference point for future AASF P1:C1 indicators.
- Absolute emissions and emissions intensity were consistently supported as foundational indicators, provided they are well-defined and context-aware.
- Given the evolving nature of sustainability metrics and methodologies, several participants recommended establishing standing committees to oversee ongoing indicator development and refinement
- Indicators should not only describe current state but also demonstrate responsiveness to change. This is essential for tracking progress and validating sustainability claims.
- Concerns were raised about the reliability of self-reported data. Participants advocated for independent verification methods and the use of surrogate data where direct measurement is impractical.

Post the group session two volunteers contributed additional materials regarding the GHG indicators selected for assessment and a suggested format for the EWG report. These are provided in Appendix A2.3

From these discussions and reflections, the project team then developed a mEWG report for mIDAC session #2.

"You need to know what the indicator is for before you can assess it."

"Same indicator can yield very different outcomes if applied in different context."

"In somewhere as complex as emissions, I can see an expert work group taking two years to actually get through it."

"We need to have an ongoing research project... the world's not static."

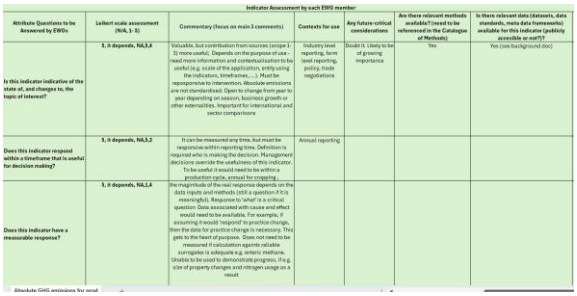
"Indicators need to evolve with changing standards."

"Need an independent measuring method rather than something farmers will collect themselves."

"Need to bridge gaps between agricultural and environmental data systems."

"Indicators must be able to speak across sectors."

"Not a practical process to go through – due to having 7 columns by 20 rows – way too much to be practicable into future"



Aggregated assessment spreadsheet – selection of feedback for "absolute GHG emissions for production"

Lessons learned

AASF Indicator Assessment Protocol is generally useful

The tool (spreadsheet) was too detailed for individual use, with many participants remarking on how they were giving similar answers to many questions. Some of the requested information is relevant to all questions, so consideration needs to be given to streamlining the tool – perhaps as an interactive assessment wizard.

Retain this tool for group discussion and review of indicators. Potentially provide a high-level summary version for individual use.

Diversity of knowledge and experience for indicator assessment is critical

Each participant approached the assessment process differently, which provided a diversity of recommendations. It was the range of perspectives and knowledge of the AASF stakeholder landscape which brought most benefit to the group discussions around indicator relevance, feasibility and reliability. The different perspectives also enabled the group to ensure that their assessment outcomes could be trusted.

It is important that EWGs maintain diversity of representation in future.

Context and purpose are essential for meaningful indicator assessment

The AFI list of indicators, provided to EWG members for assessment, is missing detail on purpose, context, and methods Those assessors that had a purpose and context in mind, found undertaking the assessment easier than those who had not made assumptions.

Any assessment of indicators, metrics and methods, must include information regarding their intended purpose of use and the context of use. These are necessary boundaries for EWG explorations and assessments.

Agreed definitions of "indicator", "metric" and "method" are essential

Terms such as "indicator", "metric", "method" and "data" are not used consistently when discussing the assessment of indicators for use.

For clarity and utility, definitions of these terms need to be adopted by IDAC and used consistently across the AASF community.

These definitions must also include the relationships between each concept. That is, describing how each concept relates to others.

Register and Catalogue content needs to be useful, timely and comprehensive

This process found that range of competing metrics and methods for nominally the same purpose and context is overwhelming for many users and results in an inability to compare like activities.

EWGs need to be prepared for robust discussions about competing approaches and be support to make required recommendations.

Information included in the Registers and Catalogue needs to provide clarity to the diversity of AASF stakeholders and not add confusion to an already anarchic space.

Indicator assessment processes will continue to evolve and require appropriate resourcing

The approach of supplying a list of indicators/metrics to an EWG is limited to a one-off assessment. It is possible that assessments may return indicators and metrics which are not yet available for use but will be required in future. Assessments may also detail where indicators and metrics are not suitable for application (ie scope boundaries).

Indicator assessment process outputs need to include when the assessment should be revisited and recommend metrics and data development needs in the intervening period

3.0 What needs to be done now?

3.1 Overview

The activities described in Section 2 were designed to test key aspects of the governance structures and processes proposed in the AASF Data Ecosystem Design Final Report. The following provides updated guidance and recommendations for the implementation of the AASF Data Ecosystem in response to the lessons learned from these activities.

Section 3.2 provides updates to the recommendations on required registers and catalogues to support the data ecosystem along with definitions of some key terms.

Section 3.3 describes, in further detail, some of the roles of IDAC

Section 3.4 describes, in further detail, the the process to assess required changes to the content of the AASF Data Ecosystem registers and catalogues

Section 3.5 provides an overview of the expectations of Expert Working Groups, the types of Expert Working Groups that might be formed and the circumstances in which each might be formed.

Section 3.6 presents an analysis of the different AASF Data Ecosystem cohorts mapped against the AASF Data Ecosystem use cases to identify areas of greatest opportunity for implementation

Section 3.7 provides recommendations for the technical design of the AASF Data Ecosystem registers and catalogues based on a short user analysis undertaken in this project as well as experience from previous work

3.2 Registers and Catalogues

Key Definitions

In agricultural sustainability, as in many fields, language is very important and, in some cases, can cause confusion. In particular, the terms *indicator*, *metric*, *measure*, and *variable* can, and often do, mean different things for different people and shift meanings in different contexts. Over the course of this project, the team has regularly found itself having to reconcile these different purpose-defined, context-driven meanings.

In an ideal world, there would exist widely agreed and well understood definitions of these terms and the relationships between them. These definitions might even be captured in a standard or similar. Unfortunately, attempts to find widely used and accepted definitions with the agriculture and sustainability sectors have uncovered an array of, sometimes seemingly contradictory, definitions and uses.

For the purposes of this report, and the AASF Data Ecosystem, it is necessary to have defined meanings for frequently used terms. The following definitions were created using Microsoft CoPilot using the request "Can you provide definitions of the terms: 'indicator', 'metric', and 'method', with examples and sources, in the context of agricultural sustainability?" They have been tested with a small number of people and then adopted for use. They are recommended for use within the context of the AASF more broadly.

Indicator

Definition:
Indicators in agricultural sustainability are **variables – either qualitative or quantitative – that provide information about complex sustainability criteria**. In the context of the AASF they are used to assess environmental, economic, and social dimensions of agricultural systems and guide decision-making.

Key Points:
- Indicators act as proxies for broader sustainability goals.
- Indicators provide meaning to stakeholders (they have a purpose within a context)
- They are selected by stakeholders for specific purposes based on relevance, feasibility, and reliability[4].
- Indicators can be individual or composite.

Examples:
- Soil erosion rate as an indicator of land degradation
- Farm profitability as an indicator of economic sustainability
- Freedom from pain, injury, or disease as an indicator of animal welfare

Metric

Definition:
Metrics are the **quantitative expressions of indicators**. In the context of AASF, they provide the numerical values that allow for tracking, comparison, and evaluation of sustainability performance over time or across systems.

Key Points:
- Metrics are used to quantify indicators.
- They enable benchmarking and monitoring of progress.
- Metrics, like indicators, must be relevant, feasible, and reliable.

Examples:
- Tonnes of soil lost per hectare per year
- Annual farm profit as a percentage of net income
- Percentage of animals receiving relevant vaccinations; percentage of workforce trained in best practices pain management techniques; number of reported injuries during transport.

4. See Dominik, Sonja; Lemon, David; Kostanski, Laura. Indicator Assessment Framework and Process: A Framework for assessment and review of sustainability indicators . Brisbane: CSIRO; 2025. csiro:EP2025-4562.

Method

Definition:
A **method** refers to the **systematic approach or procedure** used to **collect, analyse, and interpret data** related to sustainability metrics. In the context of AASF, methods define *how* sustainability is assessed, often incorporating scientific, technical, or participatory techniques.

Key Points:
- Methods guide the selection and application of indicators and metrics.
- They may include qualitative, quantitative, or mixed approaches.
- Common methods include life cycle assessment (LCA), multi-criteria analysis (MCA), indicator-based frameworks, and participatory rural appraisal.
- Methods must be scientifically valid and/or have widespread industry acceptance.
- Methods must be cost-effective for those using them

Examples:
- Using **soil sampling and lab analysis** as a method to measure soil organic carbon.
- Review of ATO annual farm income records
- Conducting **farmer surveys** to assess vaccination rates; review of Registered Training Organisation records on complete training; review of transport logs.

Purpose and **Context**

It is essential to understand two key concepts when discussing indicators and metrics: their **purpose** (i.e., what an indicator and metrics is being used for, and by whom) and the **context** of use (i.e., the circumstances in which the indicator or metric is being used).

To determine whether an indicator is fit for purpose – or to identify appropriate metrics for quantifying it – stakeholders must clearly understand both their intended purpose and the specific context in which the indicator and metrics will be used.

For example, commodity sustainability frameworks in livestock-related industries often include indicators related to animal welfare in their annual sustainability reports. However, the metrics used to quantify these indicators can vary depending on the type of livestock being referenced. Thus, while it might be agreed that 'freedom from pain, injury, or disease' might be used as an indicator across livestock industries, the metrics used to quantify this indicator will differ greatly between, for example, chickens and sheep.

Similarly, in some commodities total NO_2 emissions might be used as an indicator of greenhouse gas emissions. Whereas, for other commodities, CH_4 emissions might be used.

As a rule of thumb, the purposes for which indicators and metrics might be used will be related to the AASF Data Ecosystem use cases (e.g. sustainability report, assessing sustainability credentials, assessing farm sustainability). The context of use will relate to the scale at which the purpose is being undertaken (eg whole of nation, region, individual farm) and the commodity(ies) of interest (e. whole of agriculture, all grains industries, or a single commodity).

The following pages provide some examples showing how different purposes and contexts can influence the indicators and metrics used for the same AASF principle and criteria

PURPOSE	I WANT TO DEVELOP A SECTOR SUSTAINABILITY REPORT
CONTEXT	BEEF SECTOR
AASF PRINCIPLE	P6. Water resources are used responsibly and equitably
AASF CRITERIA	C11. Water is used efficiently in agricultural systems
EXAMPLE INDICATOR	Water use as an indicator of improved efficiency
EXAMPLE METRIC	*Volume of water (in megalitres)* used *per kilogram* of *liveweight* for *raising cattle* over *lifetime*

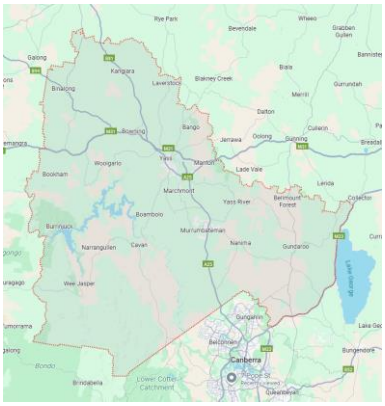
PURPOSE	I WANT TO DEVELOP A SECTOR SUSTAINABILITY REPORT
CONTEXT	COTTON SECTOR
AASF PRINCIPLE	P6. Water resources are used responsibly and equitably
AASF CRITERIA	C11. Water is used efficiently in agricultural systems
EXAMPLE INDICATOR	Water use as an indicator of improved efficiency
EXAMPLE METRIC	*Volume of water (in megalitres)* per *bale* produced *per year*

PURPOSE	I AM APPLYING FOR A GREEN LOAN AND NEED TO SUPPLY SUSTAINABILITY CREDENTIALS TO MY BANK
CONTEXT	SHEEP PROPERTY IN WESTERN AUSTRALIA
AASF PRINCIPLE	P6. Water resources are used responsibly and equitably
AASF CRITERIA	C11. Water is used efficiently in agricultural systems
EXAMPLE INDICATOR	Water use as an indicator of improved efficiency
EXAMPLE METRICS	*Volume of water (in litres)* used *per kilogram* of *wool sold per year*

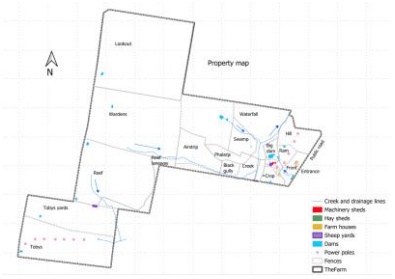
PURPOSE	I WANT TO ASSESS MY ACTIVITIES AGAINST A BENCHMARK
CONTEXT	WANT TO IMPROVE MY WATER USE EFFICIENCY ON MY CITRUS CROPS
AASF PRINCIPLE	P6. Water resources are used responsibly and equitably
AASF CRITERIA	C11. Water is used efficiently in agricultural systems
EXAMPLE INDICATOR	Water use as an indicator of improved efficiency
EXAMPLE METRICS	*Volume of water (in megalitres)* per *tonne of fruit* produced *per year*

PURPOSE	DEVELOP A SUSTAINABILITY REPORT FOR THE NATION
CONTEXT	ALL OF AUSTRALIAN AGRICULTURE
AASF PRINCIPLE	P18. The economic viability of agricultural businesses is protected and enhanced
AASF CRITERIA	C49. Agricultural businesses are profitable across varying operating conditions
EXAMPLE INDICATOR	Farm profitability as an indicator of economic viability
EXAMPLE METRIC	*Average annual farm profit* as a *percentage* of *net income*

PURPOSE	DEVELOP A SECTOR SUSTAINABILITY REPORT
CONTEXT	BEEF SECTOR
AASF PRINCIPLE	P18. The economic viability of agricultural businesses is protected and enhanced
AASF CRITERIA	C49. Agricultural businesses are profitable across varying operating conditions
EXAMPLE INDICATOR	Farm profitability as an indicator of economic viability
EXAMPLE METRIC	*Average annual farm profit* as a *percentage* of *net income*



PURPOSE	DEVELOP A SUSTAINABILITY REPORT FOR MY REGION
CONTEXT	YASS VALLEY LOCAL GOVERNMENT AREA OF NSW
AASF PRINCIPLE	P18. The economic viability of agricultural businesses is protected and enhanced
AASF CRITERIA	C49. Agricultural businesses are profitable across varying operating conditions
EXAMPLE INDICATOR	Farm profitability as an indicator of economic viability
EXAMPLE METRIC	*Average annual farm profit* as a *percentage* of *net income*



PURPOSE	DEVELOP A SUSTAINABILITY REPORT FOR MY PROPERTY
CONTEXT	WOOL GROWER IN SOUTHERN NSW
AASF PRINCIPLE	P18. The economic viability of agricultural businesses is protected and enhanced
AASF CRITERIA	C49. Agricultural businesses are profitable across varying operating conditions
EXAMPLE INDICATOR	Farm profitability as an indicator of economic viability
EXAMPLE METRIC	*(Average) annual farm profit* as a *percentage* of *net income*

Updated Registers and Catalogues

There exists a close relationship between the concepts defined in the previous section. That is:

- For a specific **purpose** and within a defined **context** an **indicator** provides information about a complex sustainability criteria;
- A **metric** provides a quantification for the indicator;
- A **method** is the process by which this quantification is generated (ie. how the metric is measured); and
- **Data** results from the application of the method.

In some domains the terms 'variable' and 'measure' might also be used. These terms are considered to be variations of terms listed above and therefore have not used in this report and not been defined for AASF purposes.

The objectives of the AASF Data Ecosystem, as defined in AASF Data Ecosystem Design – Final Report, are that:

- Sustainability data is interoperable, used and usable
- Sustainability data is reliable and trustworthy
- Stakeholders are collaborating across the value chain
- The value of sustainability data is realised by "investors"

The help realise these objectives a Register of Indicators and two associated catalogues were proposed to guide stakeholders to understand 'what data?'. That is:

- What data should be collected by producers and processors, and
- What data can be asked for by evidence requesters

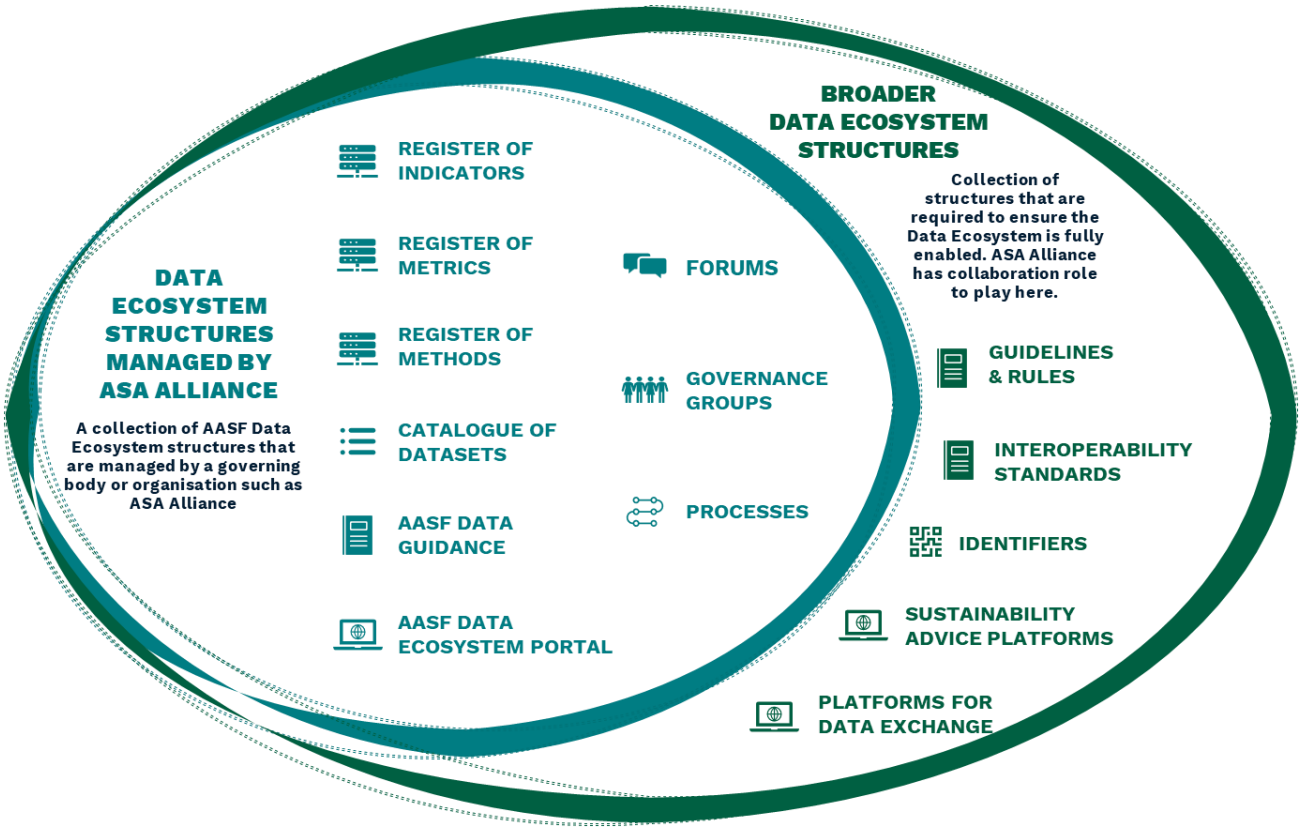
Given the new understanding that the relationship between indicators and data includes knowledge of the metric(s) being used to quantify the indicator, the methods by which that metric is being measured, the purpose(s) for which the indicator will be used, and the context(s) in which it will be used, it is necessary that this information also be included within the registers and catalogues. Furthermore, this information needs to be considered as part of the indicator review process.

As a result, the following new structures and qualifications are proposed for the AASF Data Ecosystem (below and over):

- a **register** of AASF Indicators.
- a **register** of associated metrics
- a **register** of associated methods
- a **catalogue** of datasets which contain observations of these indicators and that can be utilised to support sustainability related activities

These are described further on the following page.

Updated Structures of the AASF Data Ecosystem



Structure	Description	Considerations
Register of Indicators	Well governed list of indicators aligned with the AASF Principles and Criteria	These three registers are the core of the data ecosystem structures. They provide guidance and confidence to all stakeholders on what indicators metrics and methods have been endorsed for use in specific contexts and for specified purposes. Governance of these registers needs to reflect the principles of the AASF Data Ecosystem. In particular, the principles of Trust and Transparency (see AASF Data Ecosystem Design – Final Report Page 46). Careful consideration needs to be given to how purpose(s) and context(s) will be reflected in these registers. In some cases, a single indicator might be used for more than one purpose and in multiple contexts whereas the metric being used will be purpose and context dependent. To be useful, the registers need to capture and reflect this information as well as the linkages between indicators, metrics and methods clearly and accurately to potential users.
Register of Metrics	Well governed list of approved metrics associated with AASF Indicators	
Register of Methods	Well governed list of context-specific methods for measuring AASF Metrics	
Catalogue of Datasets	Maintained list of datasets (and their locations) that contain data related to specific AASF metrics	A service for users enabling them to identify existing datasets and encouraging data reuse. Includes access information and/or reference to locations of data available for purchase/provision through licencing agreements. This is not a definitive list, it is guidance material for AASF stakeholders.

3.3 IDAC Roles

The Identifier and Data Advisory Council (IDAC), is proposed as the peak authority with respect to the indicators, metrics and methods to support AASF endorsed sustainability activities. Its decision rights and responsibilities, described below and in the proposed Terms of Reference (Appendix A3.1), are delegated from the ASA Alliance.

The form, skills, roles, and other considerations for the IDAC are described on Page 40 of the AASF Data Ecosystem Design – Final Report. For this project, activity focussed on the roles and functions of the IDAC. Based on review of project activity insights (refer to Section 2 in this report) the following recommendations are made.

Change of Name

It was found that the word 'advisory' in the name is confusing as IDAC is (for its most important functions) a decision-making body. Further, the term 'council' is widely used with agriculture and can, for some, have negative connotations.

Suggested alternatives are:

- Indicator, Metrics and Data Committee (IMDC)
- Australian Agricultural Sustainability Metrics Committee (AASMC)
- Indicators and Data Assessment Panel (IDAP)

A final decision on the preferred name will need to be made by ASA to ensure the language suits the role, scope and context of the governance arrangements.

IDAC Accountabilities

The primary role of IDAC is to be the custodian of the AASF Register of Indicators, Register of Metrics, Register of Methods and the Catalogue of Datasets. IDAC is accountable to the ASA Alliance to ensure that these structures contribute to realising the vision and objectives of the AASF Data Ecosystem and to ensure their work aligns with the principles of the AASF Data Ecosystem (see below).

VISION	**Ensure informed decision making, foster continuous improvement and create enduring benefit through a trusted, interoperable agricultural sustainability data ecosystem**			
OBJECTIVES	**Sustainability data is interoperable, used and re-usable**	**Sustainability data is reliable and trustworthy**	**Stakeholders are collaborating across the data value chain**	**The value of sustainability data is realised by "investors"**
PRINCIPLES	Data for the AASF Data Ecosystem will be designed to ensure it is: ***Secure & Private*** ***Usable & Value Additive***	Processes of the AASF Data Ecosystem will be designed to ensure they are: ***Equitable*** ***Ethical*** ***Reducing the burden***	Governance of AASF Data Ecosystem will be: ***Trusted & Transparent*** ***Inclusive & Connected*** ***Agile & Responsive***	

IDAC Responsibilities

A proposed Terms of Reference for the AASF Indicator and Data Advisory Council is provided in Appendix A2.1. This proposes IDAC's roles to include (but not be limited to):

AASF Data Ecosystem Strategy

- Develop and oversee implementation of the 3-year strategy for the AASF Data Ecosystem
- Undertake 6 monthly reviews of the strategy and adjust as needed

AASF Data Ecosystem Registers

- Review and endorse recommended changes to AASF Data Ecosystem Registers of Indicators, Metrics and Methods, the Catalogue of Datasets, and Guidance materials
- Establish:
    - Expert Working Groups (EWG) – tasked with undertaking Indicator Assessments to recommend updates to the content of the AASF Data Ecosystem Registers and Catalogue; and
    - a Sustainability Data Working Group (SDWG) – tasked with providing guidance and leadership to the AASF Community with respect to data exchange
- Oversee the work of EWGs and the SDWG and resolve issues where necessary
- Oversee community consultation processes as part of Indicator Assessment activities – ensuring all relevant stakeholder contexts have been accounted for and/or considered

Provide Advice

- Provide advice to the ASA Alliance on identified gaps in national datasets and/or tools for which programmes of work may be required
- Present, at relevant AASF fora, on both activities completed and the forward workplan (as agreed with the Chair)

IDAC Decision Rights

To meet the responsibilities, IDAC needs to be delegated, from the ASA, key decision rights. In particular, it must be delegated the ability to make decisions regarding the management of the AASF Data Ecosystem Registers and Catalogues including:

- Setting the AASF Data Ecosystem Strategy
- Prioritising IDAC activities with respect to Indicator Assessments
- Appointing, endorsing and disbanding Expert Working Groups
- Appoint and disbanding the Sustainability Data Working Group
- Endorse recommendations pertaining to changes (inclusions, exclusions and updates) to content of the AASF Registers of Indicators, Metrics and Methods, and Catalogue of Datasets.

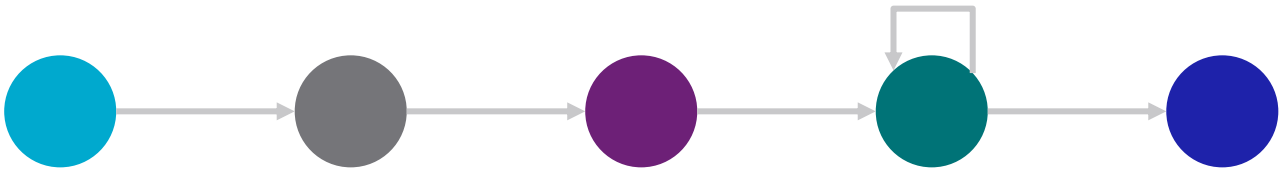
Without decision-making authority, trust in the AASF Registers and Catalogues is at risk. A core principle of the AASF Data Ecosystem is governance that is **trusted and transparent**. For this to hold true, stakeholders must have confidence in the processes used to manage register content. If IDAC is not granted this authority, it may create the perception that decisions lack openness and transparency. This would undermine trust in the endorsement process for indicators and metrics. Ultimately, stakeholders could lose confidence in the registers and revert to fragmented, uncoordinated approaches.

A full list of proposed IDAC decision rights is given in the proposed Terms of Reference for IDAC (Appendix A2.1)

3.4 Indicator and Metrics Assessment Workflow

The most important function of the IDAC is the oversight of the registers of indicators, metrics and methods. As noted in Section 2.3, these registers are the core of the data ecosystem. They provide guidance and confidence to all stakeholders on what has been endorsed by IDAC for use within specific contexts and for specified purposes.

As per the principles of the AASF Data Ecosystem strategy, trust in the content of these registers is paramount and so the processes to add, update, and deprecate this content must be transparent, consultative, and thorough. The following five-stage process (below and following) is recommended:



Initiate

agree terms and scope of assessment

Establish

decide upon the approach for the assessment and establish Expert Working Group

Assess

undertake the assessment

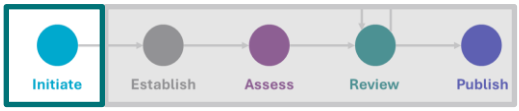
Review

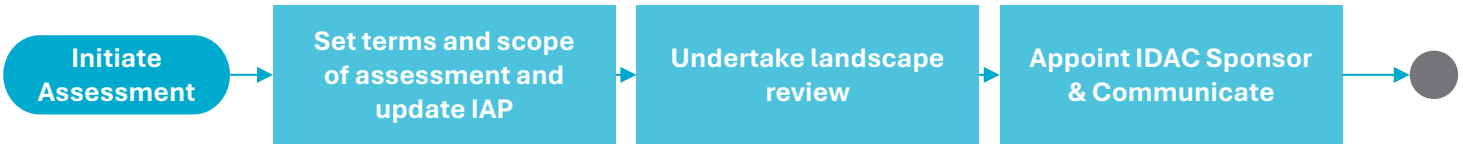
review assessment outputs and decide on next steps

Publish

finalise assessment, update the registers and catalogue and publish final report

Step 1 - Initiate the Assessment





IDAC will initiate an assessment:

- as the result of a request from a key stakeholder (note IDAC is not compelled to respond to such requests); or
- as part of its strategy; or
- when an assessment is due.

The initial tasks for IDAC for an assessment are to:

- **Set the terms and scope for the assessment**
  - Identify AASF principle(s) and criteria in scope
  - Purpose(s) for which the indicators, metrics and methods will be used
  - Context in which they will be used
  - Timeframe for the assessment

- **Update the Indicator Assessment Protocol** – this tool captures IDAC's expectations with respect to the various attributes of indicators (see Appendix A2.1)

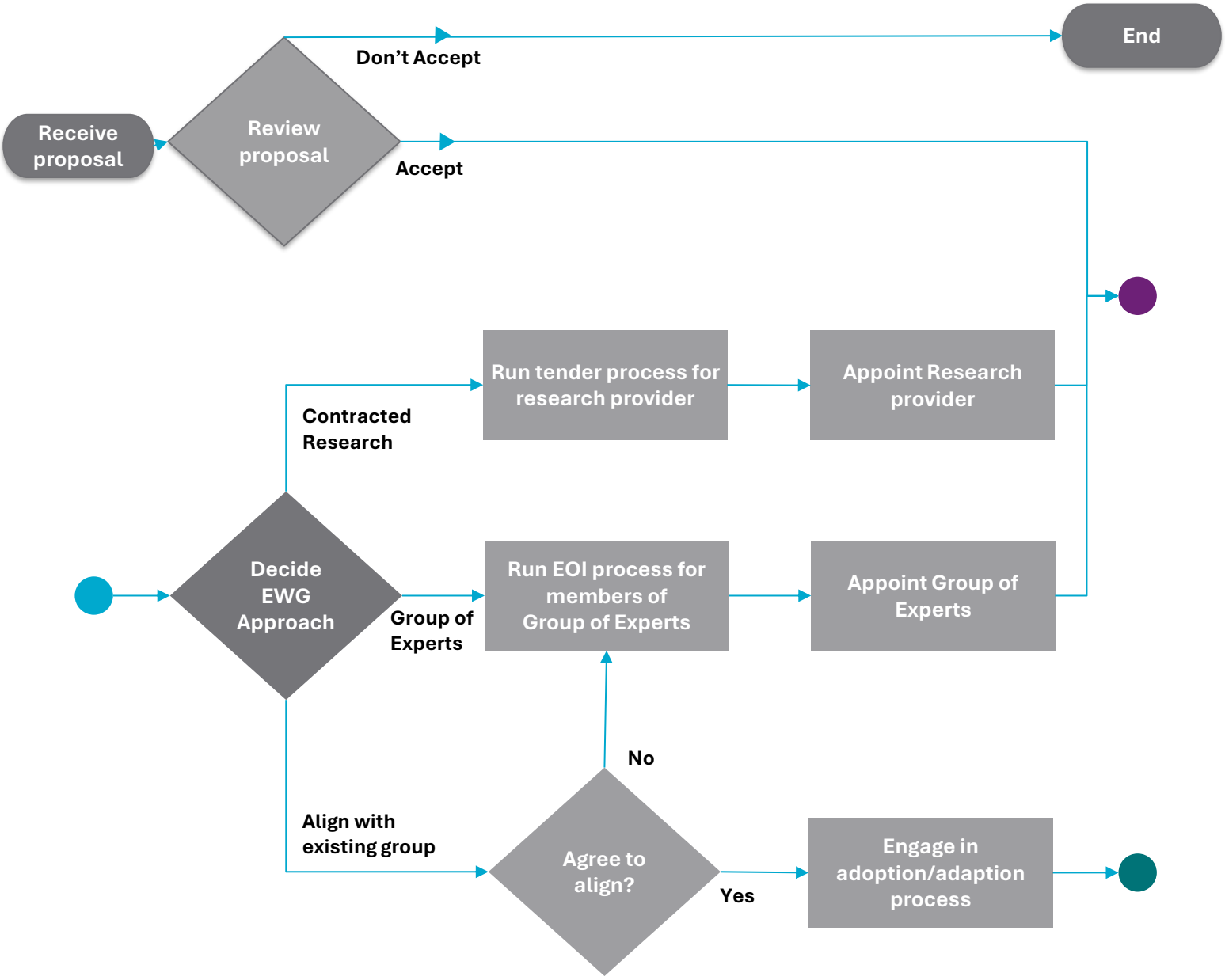
- **Perform a landscape scan** – determine if there are existing activities (recently complete or ongoing) that have or are delivering outputs that might be adopted/adapted to meet the needs of the assessment (IDAC may outsource this task to an appropriately resourced and skilled provider.)

Appoint IDAC Sponsor for assessment – this individual will be the point of contact for those undertaking the assessment and will represent the assessment, when necessary, at IDAC meetings.

Communicate to stakeholders – once all of the initiation steps have been completed, IDAC should communicate, in appropriate fora, that the assessment is about to commence along with the assessment terms and scope.

Once complete, the assessment moves to the next phase: **Establish**

Step 2 – Establish the Assessment



At the Establish stage, IDAC will either

- Receive a proposal from self-initiated groups; or
- Continue a proposal from the **Initiate** stage and decide on an EWG Approach

Receive Proposal from Self-initiated Groups

From time to time, it is likely that groups will approach IDAC requesting to undertake an assessment of indicators, metrics and methods related to a purpose and context of interest to them. In these situations, IDAC must seek information from the group regarding their proposed activities, including the rationale for the work, the proposed program of work, timeframes, and how their work will benefit users of the AASF.

IDAC's roll is to ensure that the proposed work will deliver a benefit the AASF and deliver towards the AASF Data Ecosystem Strategy. To this end, IDAC will ensure that the activity will meet the expectations of a AASF Data Ecosystem Working Group (see Section 3.5).

Once IDAC has satisfied itself that the work will add value to the AASF, it will proceed as per other the **Group of Experts** and **Contracted Research** assessment processes (see **Assess** stage for details).

For proposals being continued from the **Initiate** step, it is necessary to decide on the approach to be taken for the assessment. There are three options available:

Aligned Activity

If an aligned activity (complete or ongoing) has been identified during the previous phase's landscape scan, the IDAC may determine to approach the owners of that activity to negotiate involvement in the activity or adoption/adaption of the activity's outputs for the purposes of the assessment.

If agreement is found, the IDAC will agree on a process to engage in the aligned activity. This may involve membership of the activity management group, participation in working groups or similar. Once this activity is completed the process can move to the **Review** stage.

If agreement cannot be found, IDAC will employ one of the other two options.

Group of Experts

IDAC may decide to appoint a Group of Experts in the field to come together to undertake the assessment. Here IDAC is of the opinion that a broad range of experts meeting the expectations of an Expert Working Group (See Section 3.5) can be assembled to undertake the required work.

The initial task in appointing a Group of Experts is to issue a request for Expressions of Interest. This request should provide the terms and scope of the proposed assessment as well as expectations of members in terms of workload and remuneration. Notification of the request should be published in appropriate fora.

Once the EOI process is complete, IDAC will meet to select and appoint the Group of Experts. In this process, IDAC will ensure that the Group will meet the requirements and expectations of Expert Working Groups and Groups of Experts (Section 3.5)

Once the Expert Work Group is appointed, the process can move to the **Assess** stage.

Contracted Research

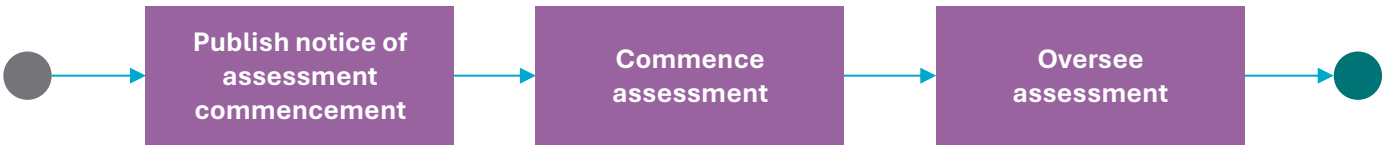
If IDAC determines that there is limited capability available to undertake the assessment and there are appropriate resources available, they may decide to contract a single supplier.

If following this path, the initial task is to issue a Request for Tender (or similar). This request should provide the terms and scope of the proposed assessment. Notification of the request should be published in appropriate fora.

Once the RFT process is complete, IDAC will meet to select and appoint a supplier. In this process, IDAC will ensure that the supplier will meet the requirements and expectations of Expert Working Groups and Contracted Researchers (Section 3.5)

Once the Supplier is appointed, the process can move to the **Assess** stage.

Step 3 – Undertake the Assessment



Once the relevant Expert Working Group (Group of Experts, Contracted Research Supplier or Self Initiated Group) has been engaged, the **Assess** stage can commence.

The task here for **IDAC is to publish, in appropriate fora, notice that the assessment** has commenced. This notification will include the terms and scopes of the assessment, relevant contact details and expected completion dates.

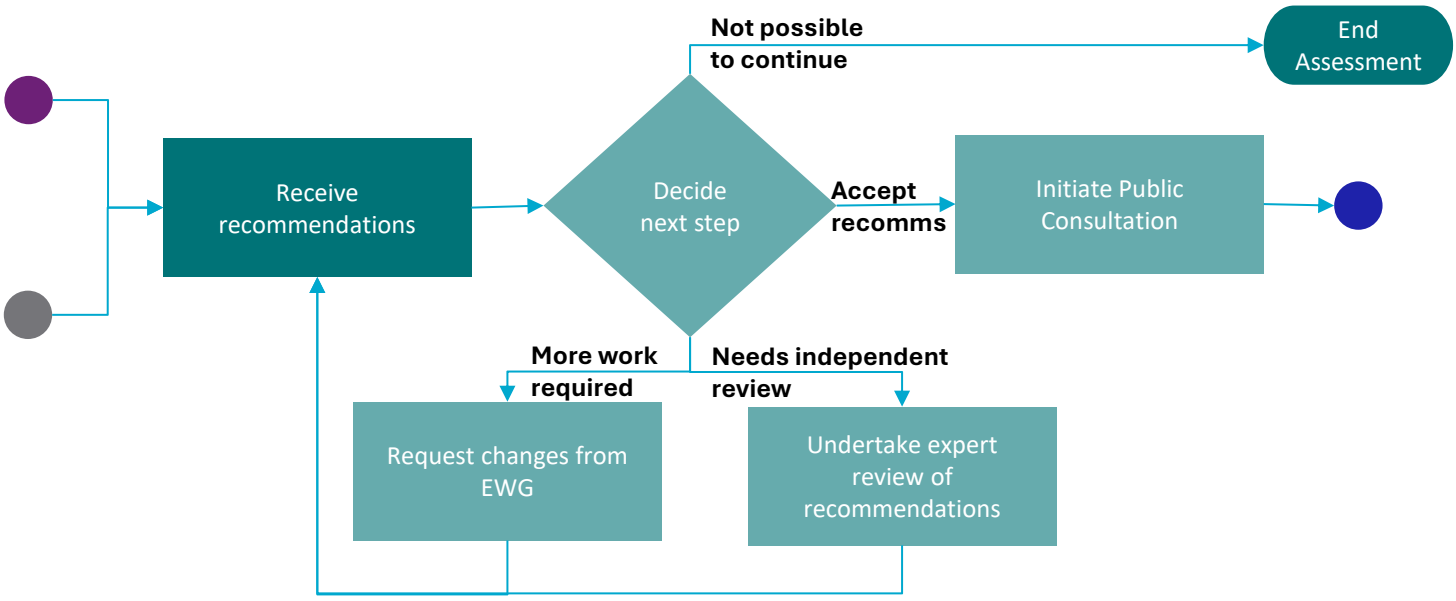
IDAC's role during the assessment process is limited. The appointed **IDAC Sponsor should remaining engaged** with the assessment process and observe its activities, providing guidance where appropriate as should the IDAC Secretariat.

A report on progress of each ongoing assessment will be prepared by the IDAC secretariat and presented at each IDAC meeting for discussion and noting.

IDAC may, during this phase, alter the terms and scope of an assessment or cease an assessment if it feels this is necessary. This may because of changes in the external environment or the IDAC loses confidence in the Expert Working Group.

Once assessment by the relevant Expert Working Group (Group of Experts, Contracted Research Supplier or Self Initiated Group) has been completed, the **Review** stage commences.

Step 4 - Review Recommendations



On completion of an assessment, the Expert Working Group will deliver its recommendations to the IDAC. This report will include proposed changes to AASF Data Ecosystem register and catalogues as well as list candidate changes that were considered but not recommended as part of the group's deliberations. A template for this report is provided in Appendix A3.3.

IDAC now needs to decide on the next step for **review of the assessment** and has four options:

1. Firstly, IDAC can, after its own review, **request that the submitting Expert Working Group make changes to their recommendations** and resubmit. This may because the recommendations do not meet the terms and scope of the assessment.

2. IDAC might **seek an independent expert review of the recommendations**. Here IDAC is seeking independent advice/confirmation on some, or all, of the submitting Expert Working Groups recommendations. IDAC will set the terms and scope of these reviews.

   Note: this is a mandatory step for submissions received from Self-Initiated Expert Working Groups (see **Assess**).

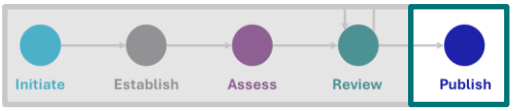
3. IDAC may decide to **cease the assessment**. This will only be undertaken in extreme circumstances where IDAC decides, with justification, that it is not possible to continue the assessment.

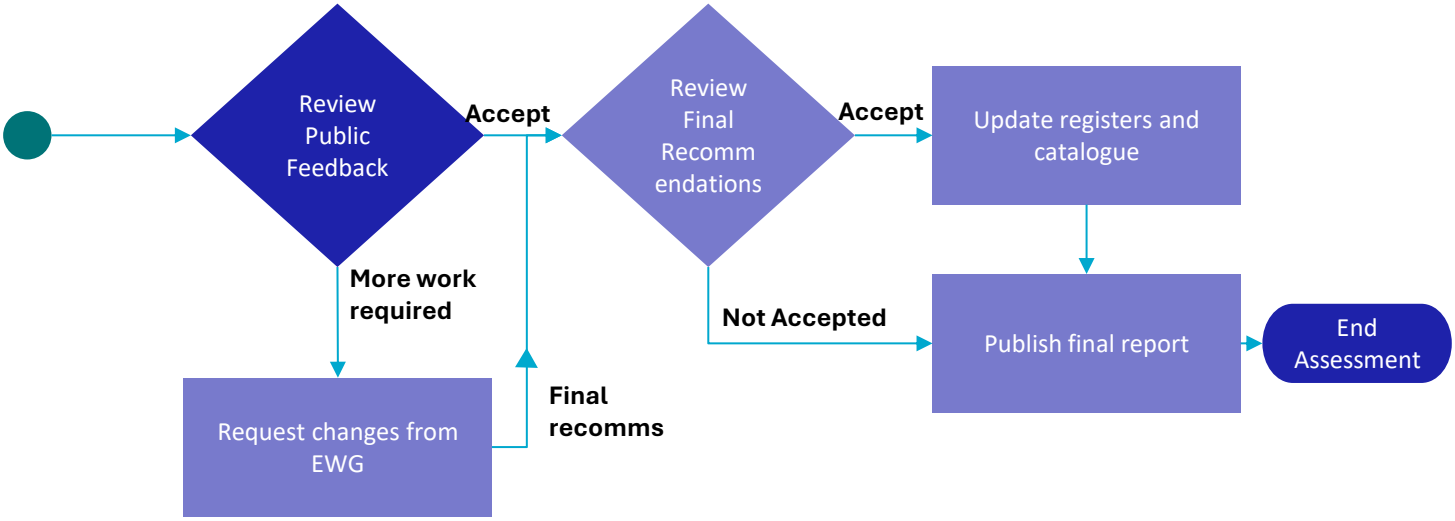
4. Or, if IDAC feels the recommendations are ready to progress to the next step, they will **initiate the Public Consultation** phase. Here the recommendations are published for a defined timeframe and feedback sought from interested parties. It is important that key stakeholders in the recommendations (those impacted by them) as well as the broader AASF and agricultural sustainability community are made aware that the public consultation phase has commenced.

   It is required that all recommendations go through a public consultation phase prior to adoption.

Once the public consultation phase is complete, the assessment can move to the **Publish** phase.

Step 5 – Complete and Publish Results





Once the public consultation period closes, IDAC will review all feedback received and can then decide to:

1. **Ask the submitting Expert Working Group** to address one or more of the comments received. This may require changes to recommendations.
2. Alternatively, **IDAC may address feedback itself** and then move to the final steps of the assessment.

The final decision point in the assessment process is for IDAC to consider all recommendations and decide which, if any, it will endorse. **IDAC is not compelled to endorse any recommendations if it feels this is the appropriate action to take.** In this case it must **publish a final report** which describes the rationale for not endorsing any recommendations received.

For endorsed recommendations, **required changes (additions, removals, updates) to the AASF Data Ecosystem Registers (Indicators, Metrics and Methods) and Dataset Catalogue** are made.

Finally, IDAC **produces and publishes a report** on the assessment which describes:

- the process undertaken
- the final recommendations received and considered
- the reasoning behind decisions made
- considerations of the Expert Working Group that did not result in a recommendation and reasoning; and
- recommended review period

At this point, the **Assessment ends**.

3.5 Expert Working Groups

Responsibilities of EWGs

Expert Working Groups can have one of two roles:

1. **The primary role** of an Expert Working Group is to develop and provide recommendations on changes to the AASF Registers of Indicators, Metrics and Methods and Catalogue of Datasets to the Indicator and Data Council (IDAC) for their consideration.

   These changes might include:

   - New Indicators, Metrics , Methods, and/or Datasets for inclusion
   - Updates to existing Indicators, Metrics, Methods, and/or Datasets
   - Removal/deprecation of existing Indicators, Metrics, Methods, and/or Datasets

2. **A secondary role** for one type of EWG (an appointed Group of Experts – see over page) is to review recommendations made by other working groups at the request of IDAC.

In all cases, an Expert Working Group (EWG):

- **works within the scope agreed** with IDAC – the EWG will develop and provide recommendations only within the scope agreed with IDAC. This scope will include the AASF Principles and Criteria the indicators and metrics will relate to; the purpose(s) the indicators and metrics will be used for; and the context(s) in which the indicators, metrics and methods are to be used.

  These contexts might include:
  - Agricultural sectors(s) – the agricultural commodity(ies) the indicator, metric, method and/or data are relevant for
  - Region – the geographic region(s) the indicator, metric, method and/or data are relevant for
  - Scale – the level of granularity (farm, region, industry, nation) the indicator is going to be used at.

- is **time bound** – the work must be completed within a set time frame to give confidence to AASF stakeholders and enable these stakeholders to anticipate changes to the AASF Registers

- is **open and transparent** – IDAC will ensure that the scope, timeframes and membership of current and future EWGs are published

- must **consider the needs** of all stakeholders and ensure different contexts of application are considered. This includes ensuring all stakeholder groups are identified and consulted as part of their work (as a starting point, EWG's should refer to the Data Ecosystem personas as described in the AASF Data Ecosystem Design – Final Report)

- must **provide evidence that they have applied tools/methods** as directed by IDAC

- must **respond to feedback/suggestions** from IDAC

- will **provide updates** on progress, learnings and outcomes at relevant AASF fora

Types of Expert Working Groups

Appointed Groups of Experts

From time to time, IDAC will appoint an appropriately sized committee with recognised skills and tasks to either:

- develop recommendations on appropriate indicators, metrics and methods for one or more AASF criteria, for one or more purpose, within one or more contexts; or,
- review recommendations proposed by another working group

Membership of the group will be drawn from a public Expression of Interest process run by IDAC. Members of the group must:

- be representative of one or more of the follow groups:
  - Expert in the field of interest
  - Data collectors – those who will be expected to collect data to support the use of the indicator/method
  - Data users – those who have an interest in using the indicator and associated data
- must declare any conflicts of interest and ideally be independent from groups or organisations that may benefit (financially or otherwise) from the outcomes of the group's activity
- be prepared to commit to and contribute to the work of the Group

In some cases, the IDAC may wish/need to remunerate members of such a group. This is expected to be the exception rather than rule and dependent upon the availability of resources.

Aligned Programmes of Work

Prior to appointing a group of experts, IDAC will undertake a landscape scan to identify existing programmes of work or activities that might address related or similar subjects as those that IDAC is seeking to address. If such a group is found, IDAC should assess the opportunity to align with this group. This assessment should include consideration of:

- Does, or could, the work of the programme meet AASF's representation and consultation expectations?
- Do, or could, the outputs of the programme meet AASF needs?
- Would alignment with the programme benefit Australian agriculture?

Should this assessment be positive, IDAC should approach the programme and explore alignment opportunities.

IDAC should reserve the right to appoint a group of experts to review the work of the aligned programme if necessary.

Contracted Research

In a small number of cases, an area of priority for IDAC will not be able to be addressed by another form of Expert Working Group. This may be because the area is very niche and the expertise required exists within only one or a small number of people, or the work needs to be completed in a short timeframe.

In these cases, IDAC might consider recommending to the ASA Alliance that a contract be entered into to complete the work as a research or consultancy activity.

As with other types of Expert Working Group, it will be expected that the contractor meet the representation and consultation expectations of IDAC.

Self-initiated Groups

It is likely that there will be groups (of individuals and/or organisations) with an interest in having indicators, metrics, methods and/or datasets added to the AASF Registers and Catalogues and who are prepared to provide recommendations to IDAC for their endorsement. In these cases, IDAC should:

- Seek assurance from the group that they are able and willing to meet all expectations of an AASF Data Ecosystem Expert Working Group. In particular, the consultation requirements.
- Ensure that the group's proposed activities and outputs will align with the expectations and needs of the AASF Data Ecosystem
- Ensure that the outputs of the work will benefit Australian agriculture

It is highly recommended that the work of such groups be reviewed by an Appointed Group of Experts.

3.6 Prioritising Effort

The AASF Data Ecosystem comprises a diverse range of stakeholders, each with varying capabilities, goals, and requirements. While the breadth of stakeholder types and activities is vast — almost defying simple categorisation — the distinct patterns in their motivations and needs can be identified.

As outlined in the AASF Data Ecosystem Design – Final Report (pages 18 and 43), initial research activities identified three key stakeholder cohorts based on their descriptions of shared experiences and roles within the data ecosystem:

Primary Producers and Processors – *who want to realise benefits from their data collection activities*

Data and Digital Service Providers – *who enable the ecosystem to thrive*

Evidence Requestors – *who require confidence they can access evidence of Australia's agricultural sustainability practices*

These cohorts reflect common roles found in analogous data ecosystems and can be broadly summarised as: "people who make the data," "people who provide systems for the data," and "people who need to use the data."

Within these cohorts, the AASF Data Ecosystem Design – Final Report (Page 19 and Appendix B) **described 30 distinct personas**. These were developed to describe those who currently engage with agricultural sustainability data, the challenges they have now and how they might benefit in the future if changes are introduced to structures in the data ecosystem.

The AASF Data Ecosystem Design – Final Report **also described nine priority use cases** for the AASF Data Ecosystem (Page 24 and Appendix A) that had been identified in earlier phases of the project by members the AASF Community.

As part of the current project activities, the data ecosystem personas have been assessed for the potential role they have with respect to these data ecosystem use cases. These roles are:

Beneficiary	*The persona **directly benefits** from the outputs and outcomes of the use case. IDAC should include them in consultations as they plan an assessment.*
Responsible	*The persona is **directly responsible** for some or all aspects of achieving the use case. The use case cannot be achieved without their contribution. IDAC **must** include them in consultations as they plan an assessment.*
Accountable	*The persona **is accountable** for ensuring the use case can be achieved. The use case cannot be achieved without their contribution. IDAC **must** include them in consultations as they plan an assessment*

An assessment of use case benefits, responsibilities and accountabilities for data ecosystem personas was undertaken to provide insight into where indicator assessments might be prioritised for Data Ecosystem strategy H1 implementation purposes. The result of this assessment is provided in summary overleaf, with further details described thereafter.

Identifying priority use cases

The diagrams to the right (and in greater detail on the following pages) map each of the AASF Data Ecosystem cohorts against the 9 AASF Data Ecosystem use cases with respect to their role(s) in that use case.

The process mapped each persona within a cohort against the use case, identifying which, if any role(s) the persona had.

Colour intensity within the tables represents the percentage of personas within the cohort that have that role. For example, if all personas within a cohort were deemed to benefit from a use case, a high intensity colour has been used. Whereas, if only a small number will benefit, a lower intensity has been used. White cells indicate that no persona was found to have the role.

The purpose here is twofold:
1. identify where the greatest gains might be made and hence where to prioritise effort for the initial implementation. Use cases with the largest number of beneficiaries represent an opportunity for initial focus. For example, the analysis shows that most, or all, personas, across all cohorts will benefit from the ability to use standards for data collection, exchange and use.

2. help identify gaps where no or only a small number of people have a role. For example, the analysis shows that there is no organisation within the Australian agriculture sector accountable for the development of standards. That is, there is no organisation whose role is to ensure these standards are developed.

The following pages provide a complete assessment of the input, activity and output use cases mapped against AASF Data Ecosystem cohorts. The priority use cases for H1 strategy implementation include:

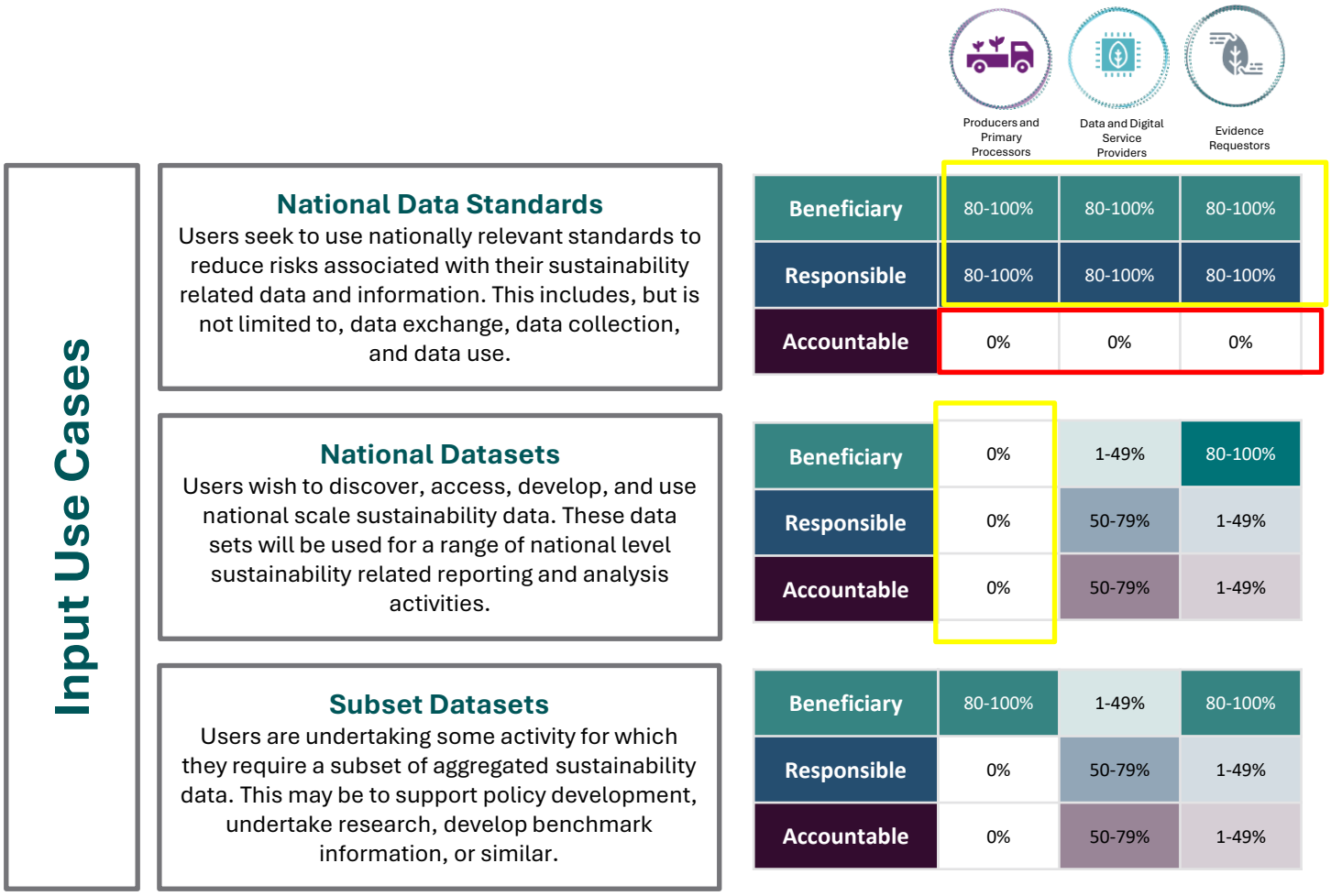
- National Data Standards (input)
- Trace Sustainability Credentials (activity)
- Assess Farm Sustainability (output)

It is important to note that the **Develop Sustainability Report** use case (output) is the one most often discussed and referred to in agricultural sustainability forums and strategies. However, the sole direct beneficiaries here are the evidence requestors themselves, with the producers, processors and data and digital service providers bearing the burden of responsibility for developing and transferring data. Other use cases demonstrate where and how benefits can flow back to other stakeholders. Thus, while this use case is a focus in the broader stakeholder ecosystem, the priority for the data ecosystem in H1 is on input use cases which will enable output use cases and activities.

		Producers and Primary Processors	Data and Digital Service Providers	Evidence Requestors
Input Use Cases	**National Data Standards** Users seek to use nationally relevant standards to reduce risks associated with their sustainability related data and information. This includes, but is not limited to, data exchange, data collection, and data use.	Beneficiary	80-100%	80-100%	80-100%
		Responsible	80-100%	80-100%	80-100%
		Accountable	0%	0%	0%
	National Datasets Users wish to discover, access, develop, and use national scale sustainability data. These data sets will be used for a range of national level sustainability related reporting and analysis activities.	Beneficiary	0%	1-49%	80-100%
		Responsible	0%	50-79%	1-49%
		Accountable	0%	50-79%	1-49%
	Subset Datasets Users are undertaking some activity for which they require a subset of aggregated sustainability data. This may be to support policy development, undertake research, develop benchmark information, or similar.	Beneficiary	80-100%	1-49%	80-100%
		Responsible	0%	50-79%	1-49%
		Accountable	0%	50-79%	1-49%
Activity Use Cases	**Create Sustainability Benchmarks** Users seek to develop benchmarks to understand the current sustainability status of their organisation in the context of their industry peers. This may be for reporting purposes or to identify opportunities for improvement.	Beneficiary	80-100%	0%	50-79%
		Responsible	0%	80-100%	1-49%
		Accountable	0%	0%	1-49%
	Trace Sustainability Credentials Users seek to understand and track the sustainability credentials of a product or products that has traversed part, or all, of a supply chain. This might be to support sustainability reporting or to meet export regulatory requirements.	Beneficiary	80-100%	80-100%	80-100%
		Responsible	80-100%	80-100%	1-49%
		Accountable	80-100%	0%	1-49%
	Assess Sustainability Credentials Users seek to understand the sustainability credentials of a client to assess an application of some form. This might be for finance or similar.	Beneficiary	80-100%	0%	1-49%
		Responsible	80-100%	50-79%	1-49%
		Accountable	0%	0%	0%
Output Use Cases	**Assess Farm Sustainability** The user seeks to understand the current sustainability credentials for the property (farm) they are responsible for. This may be for a range of purposes.	Beneficiary	80-100%	0%	1-49%
		Responsible	80-100%	80-100%	1-49%
		Accountable	80-100%	0%	1-49%
	Improve Farm Sustainability The user seeks to improve aspects of the sustainability of the property (farm) they are responsible for. They might be a farm owner, a sustainability officer or resource manager, or another professional.	Beneficiary	80-100%	0%	1-49%
		Responsible	80-100%	1-49%	1-49%
		Accountable	80-100%	0%	1-49%
	Develop Sustainability Report User seeks to report upon sustainability status of an element of the agriculture supply chain. This might focus on one entity or organisation, or a portfolio of entities (such as in the case of corporations with multiple holdings).	Beneficiary	0	0	80-100%
		Responsible	80-100%	80-100%	1-49%
		Accountable	0	0	1-49%

Key:

Beneficiary	80-100% of cohort	50-79% of cohort	1-49% of cohort	0% of cohort
Responsible	80-100% of cohort	50-79% of cohort	1-49% of cohort	0% of cohort
Accountable	80-100% of cohort	50-79% of cohort	1-49% of cohort	0% of cohort



Critical use case priorities for Horizon 1

As can be seen above, the input use case which will deliver the most benefit to all three cohorts is **National Data Standards**. This is also the use case where every cohort has a responsibility to be involved. However, it is also recognised that currently there are no cohorts who have any level of accountability for design, implementation, and maintenance of national data standards for agricultural sustainability purposes. This issue is at the core of the current anarchic state of the AASF data ecosystem – in that no-one is currently leading and taking accountability for development of standards to reduce risks associated with agricultural sustainability related data and information. To move from anarchy to order, it is recommended that the proposed SDWG are appointed and directed to engage with government, industry and community to establish accountabilities and develop standards which will benefit all three cohorts.

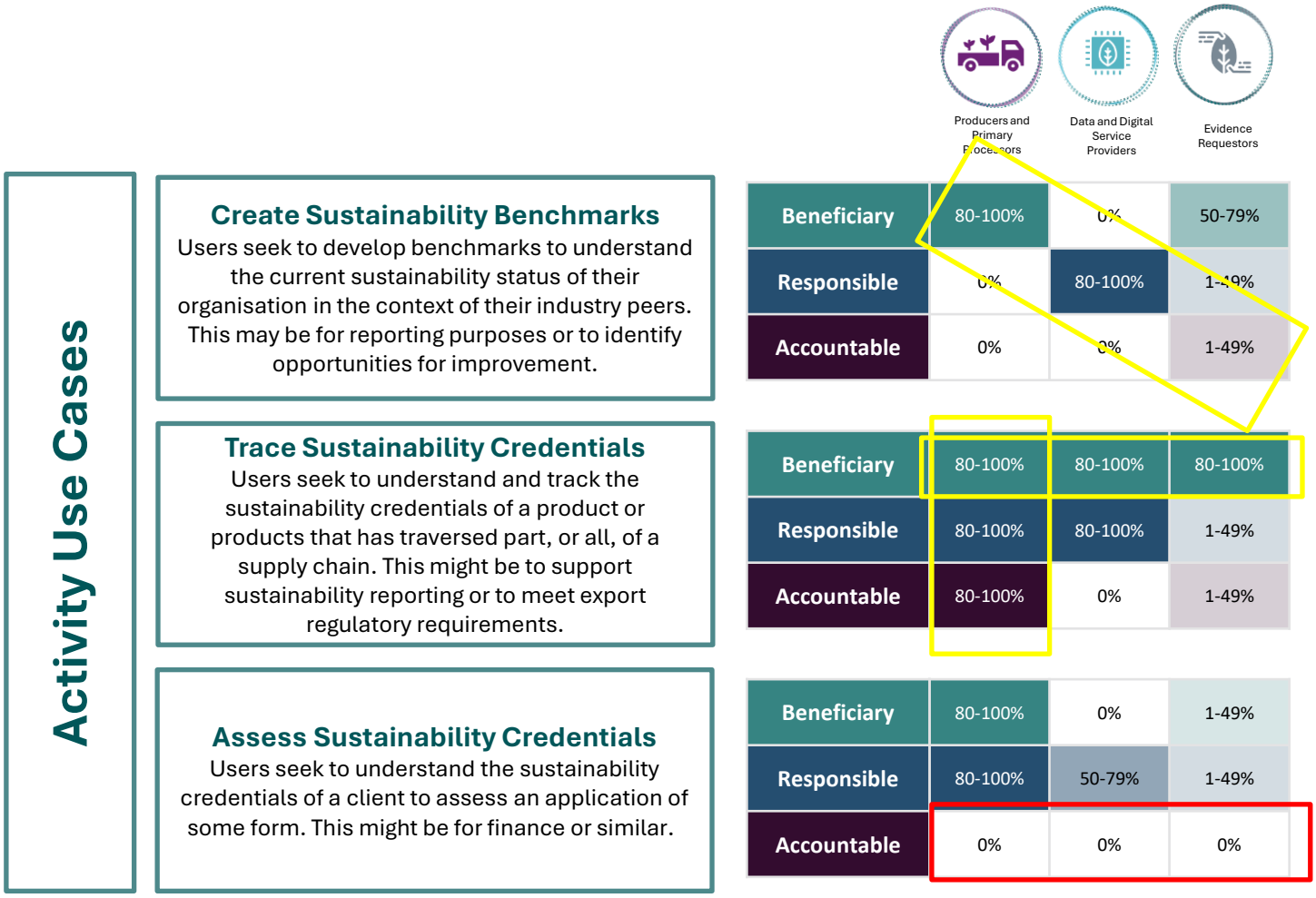
Other observations

Note also that, for the input use cases, it is solely **evidence requestors** who will consistently directly benefit. However, they currently lack limited accountability or responsibility for their development and maintenance.

Data and digital service providers benefit ro these use cases too, from the standards to inform their system designs and agreement on priority dataset requirements for agricultural sustainability.

It is also apparent that the **creation of national datasets** provides no clear benefits directly **to producers and processors** – they would actually be burdened with contributing data for which they derive no direct benefits – but they would directly benefit from associated **subset datasets**.

Therefore, there is an imperative for the AASF data ecosystem strategy to consider how to prioritise development of national data standards, while also ensuring that this development consistently enables creation of subset datasets which producers and processors can directly benefit from. This connection between creation of national datasets and ensuring development of relevant subset datasets is where the data ecosystem strategy principle of "reducing the burden" would be realised.



Critical use case priorities for Horizon 1

As can be seen above, the activity use case which will deliver the most benefit to all three cohorts is **Trace Sustainability Credentials.** This is also the use case where some responsibilities and accountabilities have been identified for the majority of cohorts. It is recognised that this particular use case for the AASF data ecosystem is already being covered by the Australian Agricultural Traceability Alliance. Therefore, it is strongly recommended that, with the benefits to be realised for AASF data ecosystem stakeholders, the SDWG should be directed to engage with the Traceability Alliance. This would ensure momentum with these activities are maintained and the specifics of this AASF data ecosystem use case is reflected in Traceability Alliance outputs and outcomes. Further, this would also ensure that information can be fed back to IDAC about emerging traceability-related contexts and purposes for future indicator assessments.

Other observations

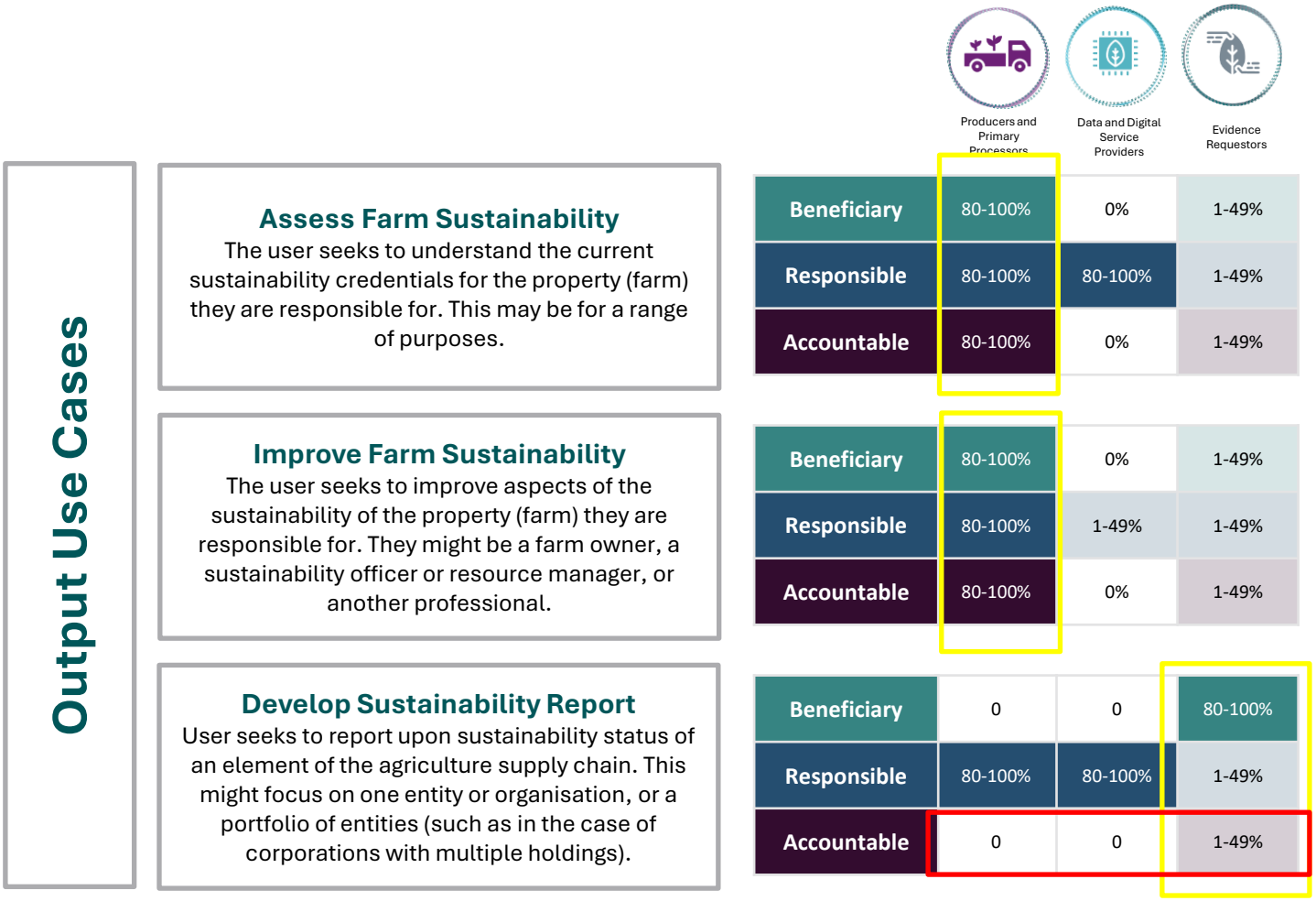
Evidence requestors will benefit from all activity use cases and have a role to play in ensuring all three come to fruition.

Data and digital service providers will benefit from confirmation of traceability requirements to inform their system designs and currently have no accountabilities for any of the activity use cases.

Producers and processors will benefit from all three activity use cases and have a role to play in the development and use of credentials.

Overall, it is important to note that no-one is currently accountable for **assessment of sustainability credentials** – in terms of ensuring it can be done and maintained. There is an opportunity here for the ASA Alliance to consider and assist in resolution of this issue for all AASF stakeholders.

In addition, it is clear that the **creation of benchmarks** by evidence requestors can deliver immense direct benefits to producers and processors. This is where the data ecosystem strategy principle of "reducing the burden" would be realised – by providing clear lines of sight between producers, processors and evidence requestors – with returns on investment for the former to supply data and receive useful information and advice back in return.



Critical use case priorities for Horizon 1

The output use cases that will deliver the most benefit to producers and processors are **Assess Farm Sustainability** and **Improve Farm Sustainability.** The former is a critical use case to deliver direct benefits back to producers and processors for their collection and sharing of data with evidence requestors. Ultimately, the ability to assess farm sustainability and make decisions regarding the findings, will enable farmers to receive a return for their data related on-farm activities. The latter use case is important as a follow-on from the capabilities which will be enabled by data which can support farmers and processors to assess farm sustainability. It needs to be emphasised here that the latter use case was described by data ecosystem stakeholders as an example of what could be done with data in the ecosystem to best assist farmers and processors – this is not a mandatory expectation nor is it a requirement of AASF for this use case to be practiced or engaged with by all stakeholders. Improvement is an option only, as for those who want to improve and want to know how, the data ecosystem has a role in helping them attain this information.

Other observations

Evidence requestors will partly benefit from all output use cases and have a role to play in ensuring all come to fruition.

Data and digital service providers will not directly benefit from these output use cases but do have some responsibility for ensuring their services can enable these use cases to function appropriately.

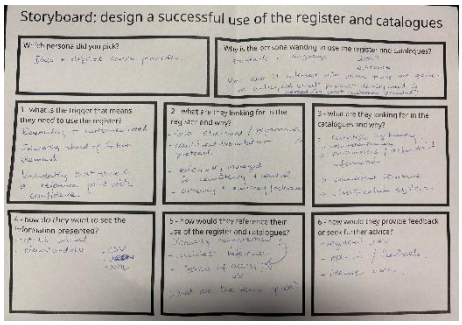
Producers and processors will benefit from everything except the Develop Sustainability Report use case and have roles to play in the other use cases.

Overall, it is important to note that the **Develop Sustainability Report** use case is the one most often discussed and referred to in agricultural sustainability forums and strategies. However, it has been demonstrated in this project that the sole direct beneficiaries are the evidence requestors themselves, with the producers, processors and data and digital service providers bearing the burden of responsibility for developing and transferring the data. Other use cases demonstrate where and how benefit can flow back to producers and processors, and it is these connections which should be prioritised by the AASF data ecosystem.

3.7 Designing the Registers and Catalogues

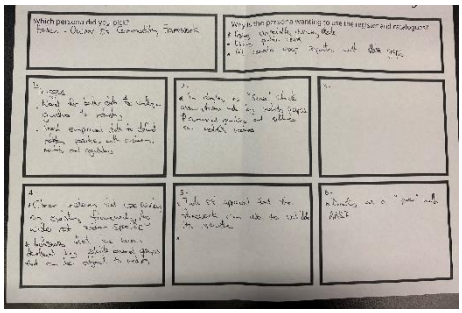
User Specified Requirements

As part of the project activities, core user requirements for the AASF Data Ecosystem registers and catalogues were elicited from mIDAC members to support their design in a future activity. These requirements have been overlaid with considerations for data system design as well as general usability and accessibility considerations.



Summary of Registers and Catalogue use cases:

- Seeking language and terminology definitions for harmonisation
- Learning about standards
- Gain confidence in metrics to inform future product development investment and meet customer demands
- Keep current and know what is coming soon
- Understand licence and reference requirements
- Become a certified provider/registered user of AASF content



Summary of user requirements:

- Usable and consumable information
- User registration to enable access
- Plain English descriptions to complement technical language
- Implementation and/or application notes
- Examples of use or other resources
- Currency, including versions and scheduled future updates
- Citation or reference guidance
- Contact details
- Feedback mechanism

Design Recommendations

The recommendations listed here are a synthesis of both the user specified requirements above as well as general data system design best practice principles. The design recommendations cover core structural recommendations, security and access and content aspects of the AASF Data Ecosystem registers and catalogue.

Core structural recommendations

Registers and catalogues lend themselves to linked data platforms; a system that enriches data with structured information about the subject using an established metadata framework. This model is often seen in open data portals (i.e. data.gov.au) or research data repositories and can make searching and locating specific information simple for the user due to the flexibility and scalability of the approach.

Key components of the linked data model include:

- **Rich, structured metadata***:* A key requirement is a well-structured and standardised metadata vocabulary to define various properties about each registered item, including aspects such as the title, author, description and keywords, access information (such as a hyperlink or API key), usage including copyright or licence details, geographic or temporal coverage, and relationship to other datasets, indicators and metrics.

  This metadata vocabulary could build on established tools such as the Data Catalogue Vocabulary (DCAT) to enrich data with specific information relevant to sustainability to create a novel vocabulary specifically for the AASF. Using a standard vocabulary and format enhances the ability for the user to query the content through a variety of semantic terms and supports various user personas and their different levels of familiarity with the AASF.

- **Standard format***:* By using a standard, web-native format, information can then be easily surfaced on an interface or integrated programmatically through applications for compliance reporting or similar.

- **Linked relationships***:* By utilising a rich metadata schema, greater linkages between data can be easily made via concepts, geographical locations and more. This could enable discovery of both metrics and associated datasets by allowing flexible user-centric search queries, and relationships across indicators, metrics and datasets to be easily surfaced. This model supports scenarios where individual metrics may be applied to various indicators and can help the user quickly locate their desired context of use. This is important to support the variety of expertise and technical knowledge amongst the persona cohort.

Security and access

Considering the sensitive content, as well as some requested foundational functionality (e.g. a feedback mechanism), it is highly advisable that the registers and catalogue are secured via an appropriate authentication mechanism. This would allow for control of access, curation of user groups, and ensure greater accountability where indicators, metrics and methods are implemented.

Content recommendations

Content creation and design are best guided via usability testing however the following initial recommendations can be made:

- **Non-technical language:** Given the variability of expertise with the AASF and technology more generally across the user cohort, best practice dictates non-technical language be used to enable greater accessibility for all user types. By utilising a descriptive controlled metadata schema that supports multiple keywords or similar, queries for both technical and non-technical terms can be easily supported.

- **Implementation information, links and examples**: Implementation information, including relevant links to resources or similar, will be a critical tool for those users seeking to implement AASF indicators, metrics and methods on the ground. There are established patterns for this type of additional information; a simple Github style repository is an easy way to collate this information.

- **Equivalency matrix***:* It was noted that users would like to be able to understand the relationship between global standards, other sustainability frameworks and the AASF. Simple equivalency matrices can quickly highlight where indicators or metrics overlap with other standards and would allow users to more quickly understand if their practices have overlap with AASF, or if there are gaps.

  Various patterns for this type of comparison tool exist; the European Qualifications Framework (example below) provides a simple example of a multi-column comparison tool, which could be adapted for more than two frameworks via detailed vertical and horizontal axis and clear intersection cells showing both equivalency or gaps.

Finland	EQF Levels	Austria
NQF 8	EQF Level 8	NQF 8
Universities' and National Defence University scientific and artistic postgraduate degrees (licentiate and doctor degrees) (Yliopistojen ja Maanpuolustuskorkeakoulun tieteelliset ja taiteelliset jatkotutkinnot (lisensiaatin tutkinnot ja tohtorin tutkinnot		Doctorate (Doctorgrade)
General staff officer degree (yleisesikuntaupseerin tutkinto, generalstabsofficersexamen)		Clinical Psychology
Specialist degree in veterinary medicine (erikoiseläinlääkärin tutkinto, specialveterinärexamen)		Healthcare Psychology
Specialist training in medicine (erikoislääkärikoulutus, specialistläkarexamen)		Specialised doctor (medical)
Specialist training in dentistry (erikoishammaslääkärikoulutus, specialisttandläkarexamen)		
NQF 7	EQF Level 7	NQF 7
Master degrees at universities (ylemmät korkeakoulututkinnot, högre högskoleexamina)		Master Degree (Master -bzv.diplomegrade)
Master degrees at universities of applied sciences (ylemmät ammattikorkeakoulututkinnot, högre yrkeshögskoleexamina)		Qualifying examination for the regulated trade of building construction and civil engineering
Professional specialisation programmes provided by universities and universities of applied sciences intended for holders of a Master's degree or a UAS Master's degree (Yliopistojen ja ammattikorkeakoulujen erikoistumiskoulutukset, joiden kohderyhmänä ova		Zahnärztin/Zahnarzt (Diplomstudium der Zahnmedizin)
Advanced pastoral qualification (Ylempi pastoraalitutkinto, Högre pastoralexamen)		Musiktherapeutin/ Musiktherapeut (Master-eigenverantwortliche Berufsausübung)
Senior staff officer course (Esiupseerikurssi, Stabsofficerskursen)		Trainingstherapeutin / Trainingstherapeut (Master)
Further studies in war economy and technology (Sotatalouden ja tekniikan lisäopinnot, Tilläggsstudier i krigsekonomi och i teknik)		
Specific qualification on prescribing medicines (Rajatun lääkkeenmääräämisen erikoispätevyys, Specialistkompetensen för begränsad förskrivningsrätt)		

4.0 Summary

4.1 Project Findings
4.2 Horizon 1 Implementation
4.3 Current AASF Environment
4.4 AASF Data Ecosystem Value Proposition Update
4.5 Recommendations

4.1 Project Findings

The purpose of this project was to test key aspects of the governance of the AASF Data Ecosystem proposed in the AASF Data Ecosystem Design – Final Report. This has been done by creating moot versions of key data ecosystem structures and testing their form and key processes.

The intended outcomes from the project were to:

- Refine and agree narratives on Horizons 1, 2, 3 for the AASF Data Ecosystem design and implementation
- Progress a pilot set of indicators through an indicator assessment process
- Demonstrate continued progress and maintain momentum in the design of structures to enable the AASF data ecosystem to become more effective and efficient.

To achieve these outcomes and, as a result of, project activities, the project has:

- Developed and tested an **Indicator Assessment Protocol (IAP)** to guide the assessment of indicators and metrics for inclusion on AASF Data Ecosystem registers (Appendix A2)
- In assessing 18 indictors/metrics associated AASF Principle 1, Criteria 1 (*GHG emissions are reduced throughout the production* lifecycle), found that the **purpose** for which indicators/metrics are to be used and the **context** in which this use will take place, is required knowledge for the indicator assessment process.
- Developed definitions for the terms: indicator, metric, and method
- Updated the proposed AASF Data Ecosystem Registers and Catalogues by including a Register of Metrics and a Register of Methods (and replacing the Catalogue of Methods)
- Developed an Indicator Assessment Workflow for use by IDAC with multiple pathways to be used depending on the context of the assessment
- Described the different types of Expert Working Groups that IDAC might use as part of an Indicator Assessment as well detailed the expectation that IDAC must have of an Expert Working Group in terms of roles and responsibilities.
- Provided guidance on some key issues (usability, security) to be considered when designing the physical implementation of the proposed registers and catalogues.

In general, the project has found that the structures (social and technical) and processes proposed in the report AASF Data Ecosystem Design – Final Report remain valid with only minor changes required as a result of testing.

4.2 H1 Implementation

The AASF Data Ecosystem – Final Report proposed a three-horizon blueprint for effecting change in the AASF Data Ecosystem. Horizon 1 was proposed as the starting point for building trust through implementation of a set of structures which would deliver benefits to priority stakeholders. Specifically, it was proposed that in Horizon 1, the following value would be achieved through design and development of these structures:

- Evidence Requestors starting to deliver AASF-aligned and consistent reporting with reliable and trusted data and methods starting to appear (by first-movers)
- Some major datasets beginning to align with AASF Indicators
- Data and Digital Service providers engaged and investing in initial updates to tools (first movers)
- Language of agricultural sustainability aligning across AASF stakeholders
- Community building confidence and trust in AASF Data Ecosystem structures

To achieve this value, a set of activities were defined for the ASA Alliance, IDAC, Expert Working Groups and the Sustainability Data Working Group to ensure the following structures were delivered to various levels of capability:

- AASF Data Portal - *setup*
- Registers Of Indicators, Metrics and Methods, and Catalogue of Datasets - *setup with initial content*
- Guidance Materials - *commenced*
- Governance Structures - *initial governance bodies and processes established*
- Task List - *commenced*
- Forums - *established*

This project has undertaken a review of governance processes for IDAC and Expert Working Groups and considered the requirements for designing and implementing the proposed Register and Catalogues. As a result, updates to the guidance and details for design and delivery of these structures for H1 are provided.

In general, most recommendations from the Final Report remain valid, with some minor modifications. A few recommendations have been adapted to suit the evolving contexts of the AASF data ecosystem, and one recommendation has been rescinded based on new evidence. A summary of the updated advice is provided below and over, with further details contained in sections of this report as referenced.

	Original Recommendations	Still relevant?
ASA Alliance	Register, Catalogues and Guidelines & Task List instantiated	Yes. Refer to Sections 3.2 and 3.7
	Data Ecosystem Portal established	Yes. Not tested in this project
	Priority forums established	Yes. Not tested in this project
	Appoint IDAC	Yes. Refer to Sections 3.3 and 3.4
	Establish secretariat and other support services for IDAC	Yes. Not tested in this project
	Identify and establish support services for SDWG and EWGs	Yes. Not tested in this project
	Identify funding needs and opportunities for H2 activity resourcing	Yes. Not tested in this project

	Original Recommendations	Still relevant?
INDICATOR & DATA ADVISORY COUNCIL (IDAC)	Develop initial 3-year strategy	Yes. See Proposed Terms of Reference (Appendix A3.1)
	Initiate review of AASF Preliminary Indicator Set	No. The AASF Preliminary Indicator Set does not include the purpose for which the indicators are to be used nor their context of use. This project has found that without this information, such an assessment is moot.
	Appoint priority EWGs & SDWG members	Yes. See Sections 3.4 and 3.5 and Proposed Terms of Reference (Appendix A3.1)
	Implement EWG identification, monitoring, community consultation and approval processes	Yes. Refer to section 3.5
	Stand-up SDWG through appointments from cross-sector representatives	Yes. Not tested in this project
	Recommend priority inclusions on Registers & Catalogues	Yes. See Sections 3.2 and 3.4
	Develop Task List items to keep track of additional requests not currently prioritised	Yes. Not tested in this project
EXPERT WORKING GROUPS (EWGs)	Explore options, undertake first round consultations, finalise and submit recommendations to IDAC for endorsement	Yes. See Section 3.4
	Respond to feedback on recommendations from IDAC and prepare final submissions	Yes. See Section 3.4
SUSTAINABILITY DATA WORKING GROUP (SDWG)	Engage with design of priority cross-sector structures	Yes. Not tested in this project
	Inform IDAC strategy on priority cross-sector structures to engage with	Yes. Not tested in this project

4.3 Current AASF Environment

In the time since the publication of the AASF Data Ecosystem Design – Final Report in March 2025, the AASF environment has evolved. From a data ecosystem perspective, a number of these evolutions are important.

ASA Alliance

Within the AASF Initiative, the AASF Strategy and Operations project has recommended that the future governance and maintenance of AASF be undertaken by a new coordinating entity to be known as The Agricultural Sustainability Australia Alliance (ASA Alliance). The purpose of the ASA Alliance will be to bring together industry, supply chains, government, the finance sector and researchers to:

- Align sustainability terminology, indicators and data across commodities and sectors
- Harmonise sustainability reporting and reduce duplication
- Support credible, trusted sustainability claims for Australian agriculture; and
- Maintain and strengthen market access, investment and global competitiveness.

Importantly, for the AASF Data Ecosystem:

- The data ecosystem governance structures (IDAC, SWDG and EWGs) would be accountable to the ASA Alliance; and
- ASA Alliance would provide the necessary secretariat and other support services

Australian Agriculture Traceability Governance Group (AATGG)

The activities of the AATGG's Data Standards Working Group were reported on in the AASF Data Ecosystem Design – Final Report. This work remains relevant.

Another working group of the AATGG is about to deliver its final report. The Assuring Sustainability Claims Working Group (ASCWG), has, in its work, referenced the AASF Data Ecosystem working recognising that the process of assuring a sustainability claim requires access to verifiable evidence and that evidence is often data. In its recommendations, the ASCWG has proposed governance structures and processes aligned with and designed to complement those proposed for the AASF Data Ecosystem.

AgTrace

The National Traceability Strategy funded AgTrace project has concluded and demonstrated technology capable of tracing many forms of credentials along agricultural supply chains to support a range of purposes. Case studies have bee published for EUDR compliance, Beef Sustainability, Cherries cold chain integrity and Canola Biofuel market.

This work has also recognised the need for governance, in particular of the standards at its core and also of the indicators and metrics being used. They have further recognised that governance structure proposed for the AASF Daat Ecosystem have the potential to meet some or all of their requirements.

The reason for drawing attention to these developments is twofold:

1. Firstly, it shows that there are funded projects underway within the agriculture sector that have recognised the value and need of for AASF Data Ecosystem technical and governance structures and are building their plans to align with it.

2. Secondly, it demonstrates that the time is right for implementation and that any investment in implementation will not be wasted as it will help ensure that these other projects are successful.

4.4 Value of the Data Ecosystem

The discovery phase of the AASF Data Ecosystem Design project found that the current agricultural sustainability data ecosystem in Australia lacks any form of coordination or organisation. There is no single driver that is influencing all agriculturally focussed organisations in their activities around sustainability. The system is truly anarchic in nature.

As a result, individual organisations, whether they be commodity specific sustainability frameworks, supply chain participants or others with a need to access and use sustainability data were found to be acting unilaterally with respect to data collection and management activities. This resulted in significant costs across the ecosystem due to duplicative data collection, lack of consistency around what is being collected and asked for, and an increasing burden on those being asked to provide data with a subsequent degradation in data quality.

Stakeholders in the initial project stages indicated that the AASF Data Ecosystem can potentially be used as a vehicle for building trust within the sector as stakeholders will need to work together to achieve the collective benefits on offer.

The structures initially proposed for the AASF Data Ecosystem responded to the six key insights gathered during the exploratory research activities. Reflections on these insights, the initial structures proposed, and the lessons learned in this current project phase are provided below as an indication of the broad value that can be achieved from increased harmonisation across the data ecosystem:

The current agriculture sustainability data ecosystem is anarchic in nature

Exploratory Research found: the existing data ecosystem consists of multiple states of anarchy – ie. stakeholders are unclear on what systems and processes to invest in, what data to collect, which tools to use, and how to exchange data and information up and down and around the supply chain. The state of anarchy is perpetuated through proliferation of additional data, systems and tools for multiple purposes. This leaves all cohorts asking "What Data?" should they be collecting, exchanging and using for AASF-aligned activities.

Initial proposal suggested: implementation of the Register of Indicators will answer the primary question of "What Data?" for all AASF stakeholders, and the two Catalogues will enable the collection and use of this data in consistent and trusted ways throughout the ecosystem and beyond.

This current project phase has identified: this proposal remains valid and needs to add registers of metrics and methods because they are both closely tied to indicators. There is also a need to capture the purpose(s) for which indicators, metrics and methods might be used and context(s) in which they might be used as this information is vital for answering the "what data" question.

Different users will engage with and use the AASF, and hence the AASF Data Ecosystem, in different ways

Exploratory Research found: the data ecosystem needs to support a wide range of use cases, which will inevitably grow and evolve over time. Further to this, stakeholders articulated a need for the data ecosystem governance to be clearly linked to, but distinguished from, the governance of the AASF itself. Critically, stakeholders identified that a high priority for the data ecosystem is to agree on a standard set of AASF indicators that can be adopted by users in their various contexts and for their different use cases.

Initial proposal suggested: The design of the AASF Data Ecosystem structures responded directly to the existence of multiple use cases and requirements of stakeholders. The design of the Register was iterated to ensure that AASF Indicators can be standardised and maintained for multiple contexts. Catalogues were designed to enable consistency within and across multiple stakeholder use cases; the Data Guidance materials were designed to support a variety of implementation options for stakeholders; the processes of the IDAC and EWGs were designed to enable delivery of benefits for a wide range of contexts and use cases; and, the SDWG activities were designed to provide opportunity for AASF Data Ecosystem stakeholders to engage with and connect to broader cross-sector standards and materials.

This current project phase has identified: this proposal remains valid with the inclusion of two new registers (Metrics and Methods) and the capture of purpose(s) and context(s) where their use is valid. The work has further tested and refined IDAC processes and clarified priority use cases for personas.

Different drivers are informing how organisations develop their data practices, frameworks and governance arrangements

Exploratory Research found: one of the important drivers of the anarchic nature of current data practices, frameworks and governance arrangements across the existing AASF Data Ecosystem is the availability (or not) of data to support reporting. Other important drivers of this anarchy include the lack of consistent ongoing dialogue between government and industry about data collection and usage requirements for agricultural sustainability purposes (beyond reporting); and the fact that most existing sustainability frameworks focus on a single commodity with minimal ability to account for data use and re-use on multi-commodity farms.

Initial proposal suggested: The AASF Data Ecosystem structures were designed to account for and support existing data practices, frameworks and governance arrangements – while also filling gaps and ameliorating current issues experienced by stakeholders. In particular, the Principles of the AASF Data Ecosystem Strategy emphasised the importance of ensuring future data ecosystem processes are equitable and ethical. This means that existing practices will need to be accounted for. Ensuring consistency of dialogue between stakeholders will also be enabled through the work of the SDWG and the AASF Data Ecosystem forums.

This current project phase has identified: no change to this proposal.

Data sharing within the agricultural sustainability sector is undertaken on an ad-hoc basis

Exploratory Research found: there was a proliferation of data collection methods across the data ecosystem, with many approaches of lower quality and value. It was observed that some stakeholders have been making assumptions about the roles of others within the existing data ecosystem, particularly with respect to "fixing" gaps in data availability and quality; and solving issues stakeholders experienced with mechanisms for data sharing across and along the supply chain. Further to this, it was apparent that data collectors - particularly primary producers and processors – received regular ad hoc requests for their data without a clear line of sight to the benefits associated with responding (ie. little to no obvious return on investment).

Initial proposal suggested: The proposed Data Ecosystem structures and Strategy were specifically designed to address these concerns. The structures proposed consistency to move the ecosystem from anarchy towards order, while the strategy provides assurance to stakeholders about the goals and plans for the future. In addition, the Strategy Principles also required future Data Ecosystem processes to reduce the burden currently experienced by all stakeholders, particularly primary producers and processors, when responding to different and uncoordinated requests for their data – a situation caused by the ad hoc nature of existing requests.

This current project phase has identified: proposal remains valid. The identification of the importance of understanding purpose and context when using indicators, metrics and methods provides a focal point around which standards can be developed.

Use case prioritisation remains an important issue. This prioritisation needs to focus on meeting the objectives and principles of the AASF Data Ecosystem. Focussing on use cases that address the needs of producers and processors will ensure reduction of burden on this group and improve the ability to repurpose data for actionable on-farm purposes.

In general, stakeholders can see a range of benefits coming from the AASF Data Ecosystem

Exploratory Research found: This project commenced on the hypothesis that a data ecosystem ***may*** OR ***may not*** be required for the AASF. That is, it was not a given that the final report would contain recommendations to develop structures for the AASF Data Ecosystem - it was possible that this report could state "nothing required, move on". Through the research enquiry activities, it was identified that, not only did a data ecosystem already exist, but that stakeholder cohorts had a tremendous amount of interest and goodwill to coordinate the implementation of changes which would mutually benefit all involved. Key benefits envisaged included the ability to provide consistency, clarity and ultimately efficiencies around data collection and sharing; provision of mechanisms through which the community could identify and address gaps in national data sets and infrastructure; enablement of greater engagement across the industry to address myths and misconceptions, and collaborate to solve problems; an opportunity for stakeholders to benchmark themselves against their peers; and, ultimately, the data ecosystem may also enable the community to find ways to return value to data producers.

Initial proposal suggested: The proposed Data Ecosystem structures respond to, and will enable, all of the benefits initially envisaged by stakeholders. The Strategy provides for regular review of plans, and Forums to engage with community members, which will ensure that structures remain relevant to emergent stakeholder requirements into the future.

This current project phase has identified: the proposal remain valid. Testing of the IDAC structure process has shown the opportunity it provides and how it will bring integrity to the sustainability data.

The greatest opportunity of, and the greatest risk to, the data ecosystem is trust

Exploratory Research explored: what "trust" means to stakeholders. It was identified that getting the leadership of the data ecosystem right is essential, and that key characteristics of any leading organisation would be: *trusted, reputable, respected, independent, apolitical* and *having expert understanding of the problem*. Without these leadership elements being apparent in the AASF Data Ecosystem, it would not receive stakeholder support and engagement.

Initial proposal suggested: The proposed Governance structures and mechanisms for the AASF Data Ecosystem have been defined and described to ensure trust is embedded in the fabric of the design. Further, the Strategy Principles define all of the essential elements that stakeholders expressed would enable them to trust the structures, use the materials and participate in the ecosystem.

This current project phase has identified: remains very important. Appointments to the IDAC and Expert Working Groups as well ensuring public consultation and transparency are vital to maintaining trust.

Initial proposal suggested:

In summary, the structures and mechanisms proposed in this report have been specifically co-designed, iterated and reviewed to ensure that they address, respond to and encapsulate the ambitions, requirements and concerns of AASF Data Ecosystem stakeholders.

This current project phase has identified: For the most part, the recommendations from the AASF Data Ecosystem Design: Final Report have been confirmed, and this work has provided greater detail for their implementation.

The most significant finding from this work has been the identification of the importance of purpose and scope for selecting identifiers and associated metrics and methods. This has resulted in the recommendation to include a register of metrics and associated register of methods as part of the AASF Data Ecosystem Structures.

The work has also demonstrated the importance of creating the IDAC and the necessity that this be an open, transparent body making decisions to endorse sustainability indicators, metrics and methods. This is important for AASF and for Australian agriculture more broadly.

4.5 Recommendations

A series of insights and corresponding solutions have been documented throughout this report. This section summarises the 6 key recommendations for implementation by the AASF program group and priority stakeholders.

Recommendation 1: Adopt standardised AASF definitions for the terms: indicator, metric and method

The following definitions are recommended for adoption across AASF activities (Section 3.2)

- **Indicator -** Indicators in agricultural sustainability are **variables – either qualitative or quantitative – that provide information about complex sustainability criteria**. In the context of the AASF they are used to assess environmental, economic, and social dimensions of agricultural systems and guide decision-making.

- **Metric -** Metrics are the **quantitative expressions of indicators**. In the context of AASF, they provide the numerical values that allow for tracking, comparison, and evaluation of sustainability performance over time or across systems.

- **Method -** A **method** refers to the **systematic approach or procedure** used to **collect, analyse, and interpret data** related to sustainability metrics. In the context of AASF, methods define *how* sustainability is assessed, often incorporating scientific, technical, or participatory techniques.

Purpose and Context

It is essential to understand two key concepts when discussing indicators and metrics: their **purpose** (i.e., what an indicator and metrics is being used for, and by whom) and the **context** of use (i.e., the circumstances in which the indicator or metric is being used). To determine whether an indicator is fit for purpose – or to identify appropriate metrics for quantifying it – stakeholders must clearly understand both their intended purpose and the specific context in which the indicator and metrics will be used.

There exists a close relationship between the concepts defined. That is:

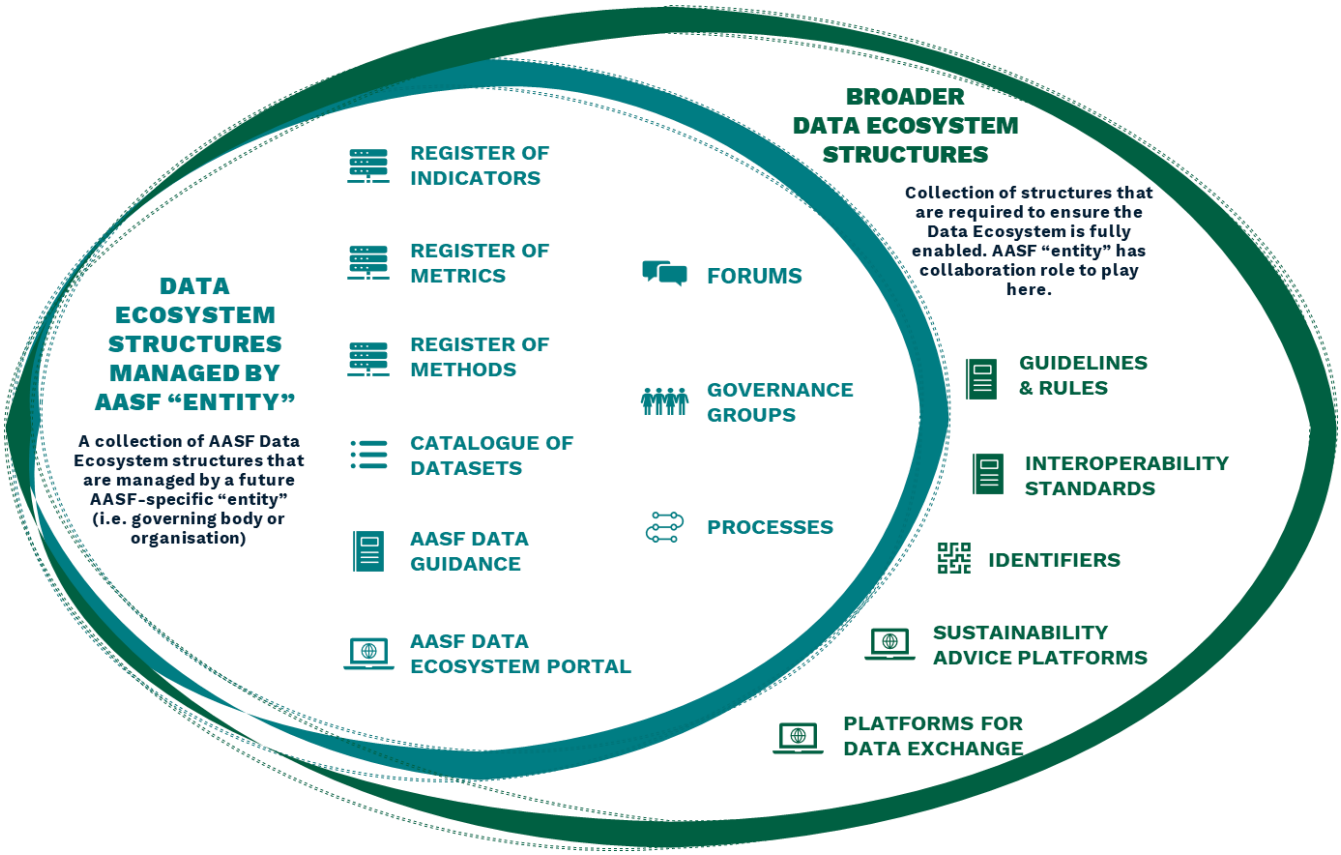
- For a specific **purpose** and within a defined **context**, an **indicator** provides information about a complex sustainability criteria;
- A **metric** provides a quantification for the indicator;
- A **method** is the process by which this quantification is generated (ie. how the metric is measured); and
- **Data** results from the application of the method.

Recommendation 2: Design and implement a series of registers and a catalogue for the AASF data ecosystem

Through testing of the indicator assessment processes and IDAC processes, new understandings of the definitions of indicators, metrics and methods were developed. Given the new understanding that the relationship between indicators and data includes knowledge of the metric(s) being used to quantify the indicator, the methods by which that metric is being measured, the purpose(s) for which the indicator will be used, and the context(s) in which it will be used, it is necessary that this information also be included within the AASF Data Ecosystem registers and catalogues. Furthermore, this information needs to be considered as part of the indicator assessment process.

As a result, the following new structures and qualifications are proposed for the AASF Data Ecosystem (below and over):

- a **register** of AASF Indicators.
- a **register** of associated metrics
- a **register** of associated methods
- a **catalogue** of datasets which contain observations of these metrics that can be utilised to support sustainability related activities



These proposed structures supersede those previously defined in the Final Report. Full descriptions of the structures can be found Section 3.2.

Recommendation 3: IDAC name needs to change and appropriate delegations need to be established

A proposed Terms of Reference for the AASF Indicator and Data Advisory Council is provided in Appendix A3.1 (also summarised in Section 3.3 of this report). This proposes IDAC's roles to include (but not be limited to):

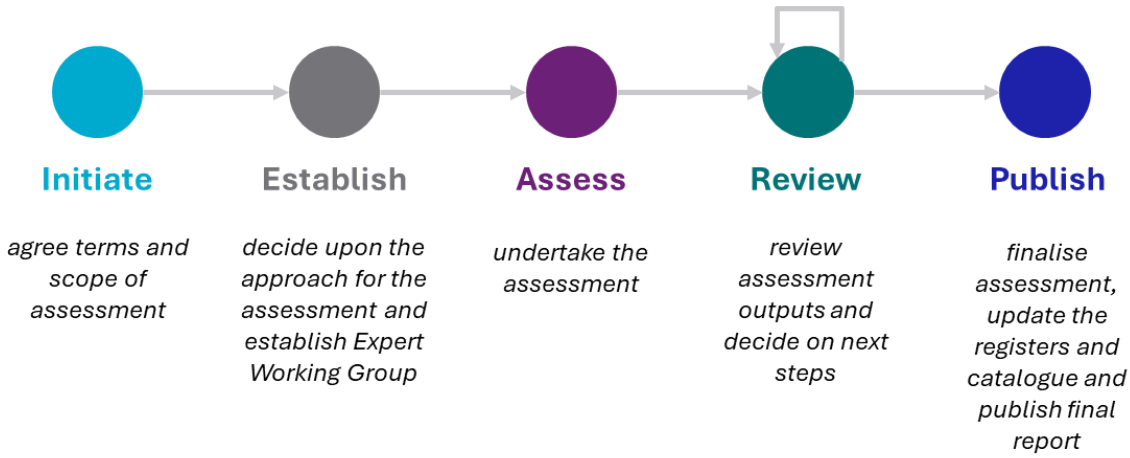
- Development and oversight of 3-year strategy for AASF Data Ecosystem
- Review and endorse recommended changes to AASF Data Ecosystem Registers and Catalogue
- Establish and oversee the work of EWGs and SDWG and associated community consultation processes
- Provide advice to the ASA Alliance on identified gaps in datasets and/or tools
- Present at relevant AASF for a (as agreed with the Chair)

The primary role of IDAC is to be the custodian of the AASF Register of Indicators, Register of Metrics, Register of Methods and the Catalogue of Datasets. IDAC is accountable to the ASA Alliance to ensure that these structures contribute to realising the vision and objectives of the AASF Data Ecosystem and to ensure their work aligns with the principles of the AASF Data Ecosystem.

Recommendation 4: Processes of managing the Registers and Catalogue must be trusted and transparent

The most important function of the IDAC is the oversight of the AASF Data Ecosystem registers. As noted in Section 3.2, these registers are the core of the data ecosystem. They provide guidance and confidence to all stakeholders on what has been endorsed by IDAC for use within specific contexts and for specified purposes.

As per the principles of the AASF Data Ecosystem strategy, trust in the content of these registers is paramount and so the processes to add, update, and deprecate this content must be transparent, consultative, and thorough. The following five-stage process (below and described in detail in Section 3.4) is recommended:



Recommendation 5: Prioritise use cases to set contexts for indicator assessments

Of the nine initial use cases described for the AASF Data Ecosystem (see AASF Data Ecosystem Design – Final Report for full details), analysis in this project suggest the priority use cases for H1 implementation should include:

- National Data Standards (input)
- Trace Sustainability Credentials (activity)
- Assess Farm Sustainability (output)

Full details on how these use cases have been prioritised can be found in section 3.6.

It is important to note that the **Develop Sustainability Report** use case (output) is the one most often discussed and referred to in agricultural sustainability forums and strategies. However, the only direct beneficiaries of this use case are the evidence requestors, with the producers, processors and data and digital service providers bearing the burden of responsibility for developing and transferring data. Other use cases demonstrate where and how benefits can flow back to other stakeholders. Thus, while this use case is a focus in the broader stakeholder ecosystem, the priority for the data ecosystem in H1 is on input use cases which will enable output use cases and activities.

Recommendation 6: Future Work

This project has explored the high priority structures and processes proposed in the AASF Data Ecosystem Final Report. There remain, however, other proposed structures that have not been tested, or further refined. These were not explored in this project because of limited resources and the higher priority structures and processes need to be settled first.

The following describes other groups, processes and structures that need exploration

Designing the Sustainability Data Working Group

The AASF Data Ecosystem Design – Final Report describes the Sustainability Data Working Group (SDWG) as a group of experts responsible for representing AASF interests in broader cross–sector data activities. Its purpose is to engage with broader activities within the agriculture sector related to data rules/policies, standards and identifiers, represent AASF interests/requirements in these initiatives and translate outputs back into AASF Data Ecosystem.

At present, many of the broader activities that the SDWG might engage in are nascent or do not exist. This includes activities to develop data interoperability standards, projects to develop rules for data sharing, activities to adopt system wide identifiers, and more. Further developing the SWDG, at present, would be premature until these broader activities are initiated

Technical Design of the Registers and Catalogues

Work to date has identified the need for these registers and undertaken some initial user analysis of the functions and tasks they might need to support. This report also includes advice on other considerations for inclusion in the design process. However, no technical design (information modelling, systems design, user experience design) has been undertaken. This will be necessary prior to implementation.

Building support

While numerous stakeholders have been engaged in this and previous projects, and a significant amount of good will developed, this project has not sought to engage these stakeholders in an ongoing sense.

Furthermore, there are a number of projects underway within Australia agriculture, at present, that could, if aligned, benefit from the structures proposed for the AASF Data Ecosystem. This project has engaged with some of these but not in a sustained manner.

Ongoing engagement with these initiatives is needed. However, more importantly, visible progress to deliver the AASF Data Ecosystem structures is needed to give these initiatives confidence to align and realise the many benefits the Data Ecosystem promises.

Appendices

A.1 List of Presentations
A.2 AASF Indicator Assessment Protocol
A.3 IDAC/EWG ToR and Templates
A.4 Materials used for project

A.1 Presentations

Overview

Between February and September 2025, the AASF Data Ecosystem Design -Final Report was presented and discussed at the following meetings/workshops:

Date	Audience	Presentation Context
6 Feb	Ministerial advisor	Report recommendations as relevant to Ministerial activities and planning
10 Feb	AASF Advisory Committee	Report findings & recommendations as relevant to ASA Alliance planning
11 Feb	AASF Program Teams	Report recommendations as relevant to AASF projects and plans
25 Mar	Industry Frameworks & Schemes	Report findings & recommendations as relevant to current and planned frameworks
26 Mar	DAFF staff	Report methods, findings and recommendations as relevant to DAFF activities and plans
3 Apr	CSIRO staff	Report methods, findings and recommendations as relevant to CSIRO research activities
14 Apr	AASF Community of Practice	Report methods, findings and recommendations as relevant to AASF community members
30 Apr	DAFF senior staff	Report methods, findings and recommendations as relevant to DAFF activities and plans
19 May	ARDC Indicators workshop participants	Report methods, findings and recommendations as relevant to ecologist research activities
23 May	NFF Members Council	Report methods, findings and recommendations as relevant to NFF members council activities
26 May	Pacific Week of Ag and Forestry, Tonga	Report methods, findings and recommendations as a workshop and capability building activity
22 Sept	Australian Agricultural Sustainability Exchange	Report methods, findings and recommendations as relevant to conference attendees

A2 AASF Indicator Assessment Protocol

A2.1 AASF Indicator Assessment Protocol

(See document attached. Filename: Appendix A2-1 AASF IAP v1.0.pdf)

A2.2 AASF IAP Worksheet

(See document attached. Filename: Appendix A2-2 AASF IAP & Indicator Assessment worksheet.xlsx)

A2.3 Feedback from mEWG Members

(See document attached. Filename: Appendix A2-3 mEWG Member Feedback.pdf)

A3 AASF IDAC/EWG

A3.1 Draft IDAC Terms of Reference

(See document attached. Filename: Appendix A3-1 AASF IDAC Terms of Reference v1.2.pdf)

A3.2 IDAC Meeting Agenda Template

(See document attached. Filename: Appendix A3-2 AASF IDAC Meeting Agenda Template v2.0.pdf)

A3.3 Expert Working Group Report Template

(See document attached. Filename: Appendix A3-3 AASF Indicator Assessment Report - Template.pdf)

A4 Project Materials

A4.1 mIDAC Meeting Agenda

(See document attached. Filename: Appendix A4-1 AASF mIDAC Meeting Agenda v2.0.pdf)

A4.2 mIDAC Meeting Agenda Item 3.2

(See document attached. Filename: Appendix A4-2 AASF mIDAC Meeting Agenda Item 3.2.pdf)

A4.3 mIDAC Meeting Agenda Item 3.4

(See document attached. Filename: Appendix A4-3 AASF mIDAC Meeting Agenda Item 3.4.pdf)

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Contact us
1300 363 400
+61 3 9545 2176
csiro.au/contact

For further information
Environment Research Unit:

Dr Laura Kostanski
+61 425 711 094
Laura.Kostanski@csiro.au

Dr David Lemon
+61 417 880 758
David.Lemon@csiro.au