AASF
Data Ecosystem Project

Stage 2+ Report Update

December 2025

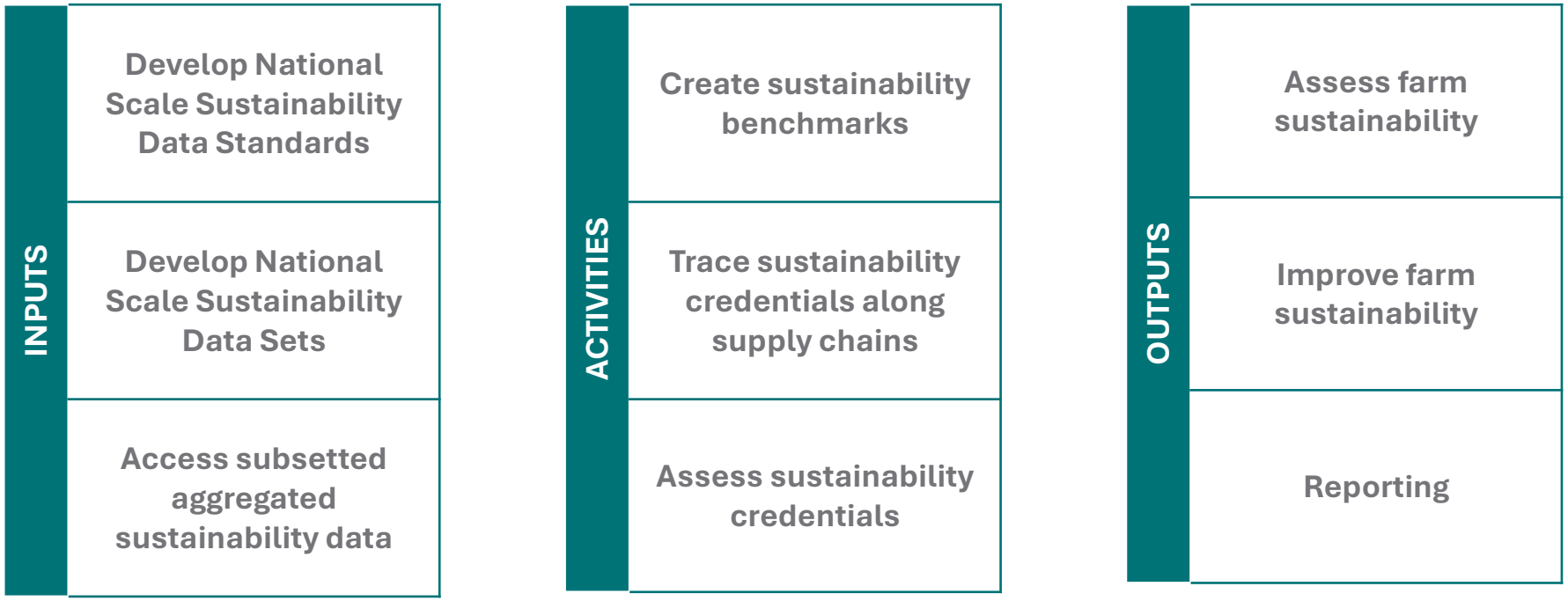
Australia’s National Science Agency

Previously ...

Current State – *Insights*

Different drivers are informing how organisations develop their data practices, frameworks and governance arrangements	Data sharing within the agricultural sustainability sector is undertaken on an ad-hoc basis	The current agriculture sustainability data ecosystem is anarchic in nature	In general, stakeholders can see a range of benefits coming from the AASF Data Ecosystem	Different users will engage with and use the AASF and hence the AASF Data Ecosystem in different ways	The greatest opportunity of, and the greatest risk to, the data ecosystem is trust

Current State – *Use Cases*



Current State – *Stakeholder Cohorts*

Primary Producers and Processors

Are at the forefront of producing data and information about sustainability practices within their operations; use a diversity of digital services to manage operations and communicate with evidence requestors; and, have variable levels of digital literacy and knowledge of the AASF

Data and Digital Service Providers

Provide digital systems, analytical tools and/or value-added datasets for a range of agricultural and sustainability related sectors; and, enable multiple connection points between Primary Producers & Processors with Evidence Requestors

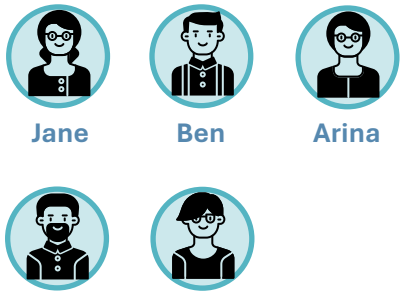
Evidence Requestors

Require data and information about agricultural sustainability practices for multiple purposes; use a variety of digital services (including in-house services) to request information, analyse data and communicate findings

Current State – *Personas*

Primary Producers and Processors

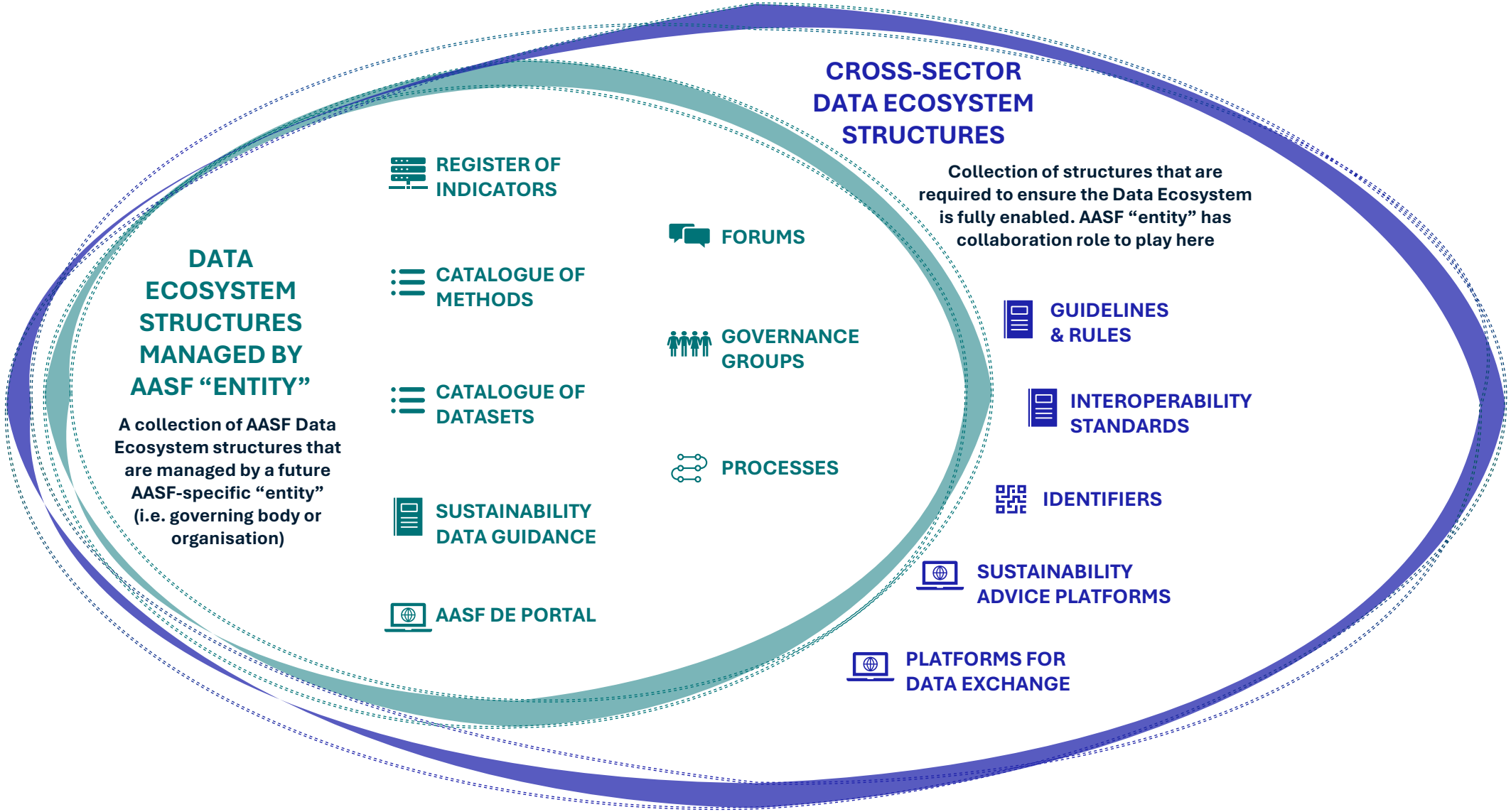
Data and Digital Service Providers



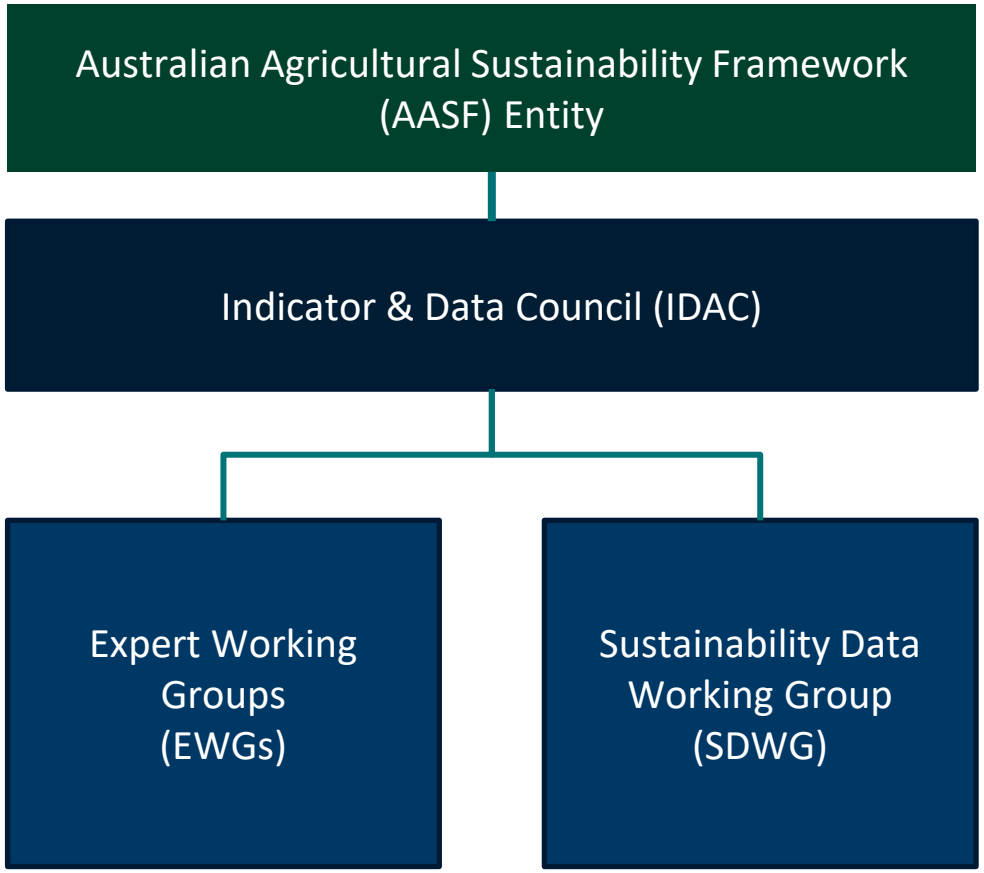
Evidence Requestors

Future State – *Structures*

For the AASF Data Ecosystem to function effectively and meet stakeholder requirements, the following structures are required:



Future State – *Governance Mechanisms*



AASF Data Ecosystem – *Strategy*

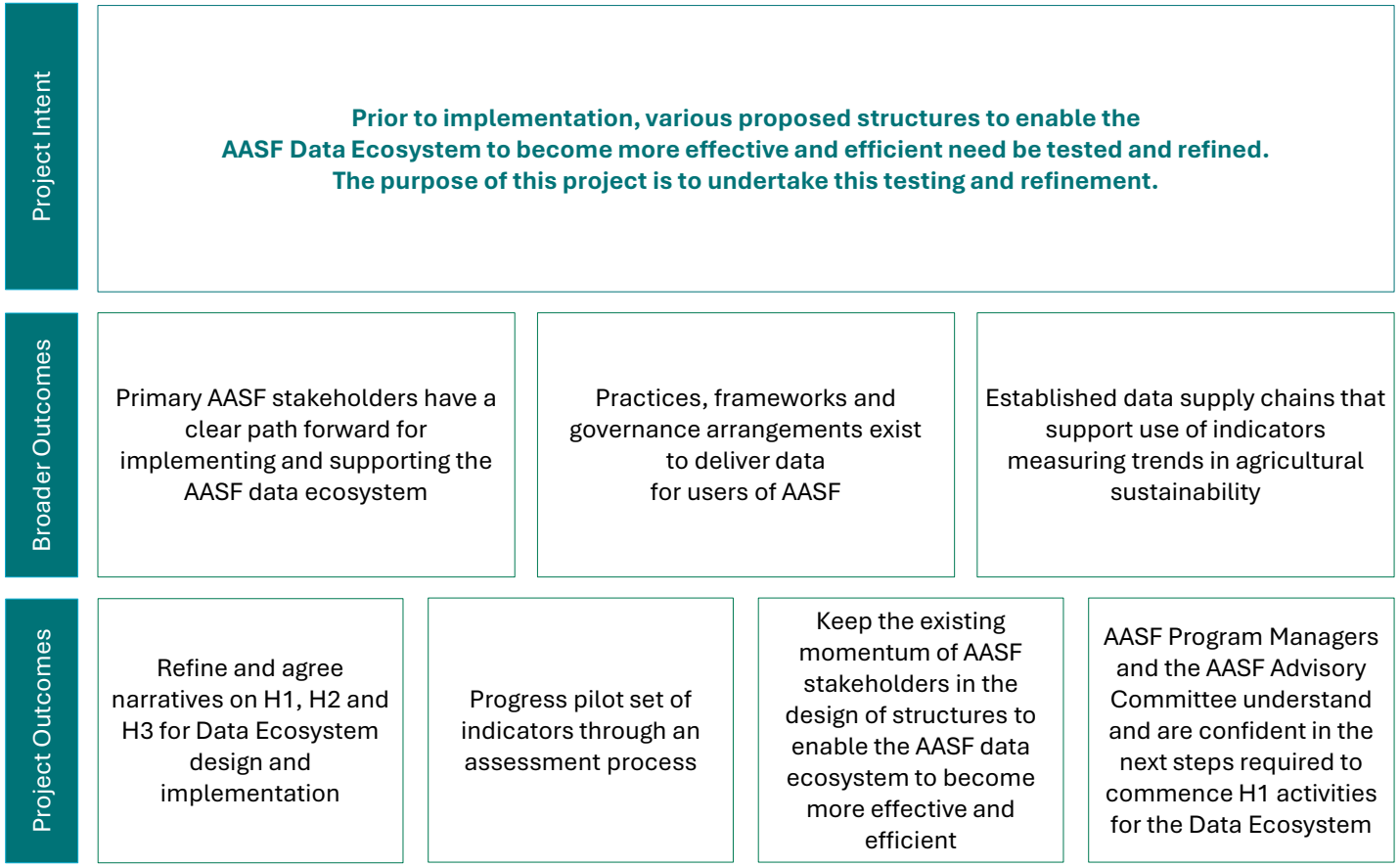
VISION	**Ensure informed decision making, foster continuous improvement and create enduring benefit through a trusted, interoperable agricultural sustainability data ecosystem**					
OBJECTIVES	**Sustainability data is interoperable, used and re-usable**	**Sustainability data is reliable and trustworthy**	**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 the AASF Data Ecosystem will be: ***Trusted & Transparent*** ***Inclusive & Connected*** ***Agile & Responsive***	
STRUCTURES	Register of Indicators	Catalogue of Methods	Catalogue of Datasets	Data Guidance	Forums	Portal
GOVERNANCE	**INDICATOR AND DATA ADVISORY COUNCIL (DAC)**					
	EXPERT WORKING GROUPS (EWGs)					
	SUSTAINABILITY DATA WORKING GROUP (SDWG)					

- A data ecosystem is NOT a database
- The data ecosystem project is not asking for data
- Stakeholders can be active in one or many cohorts
- “Reduction of burden”, “trust and transparency” are two of the eight principles in the data ecosystem strategy
- The data ecosystem strategy has a blueprint which defines three horizons for implementation

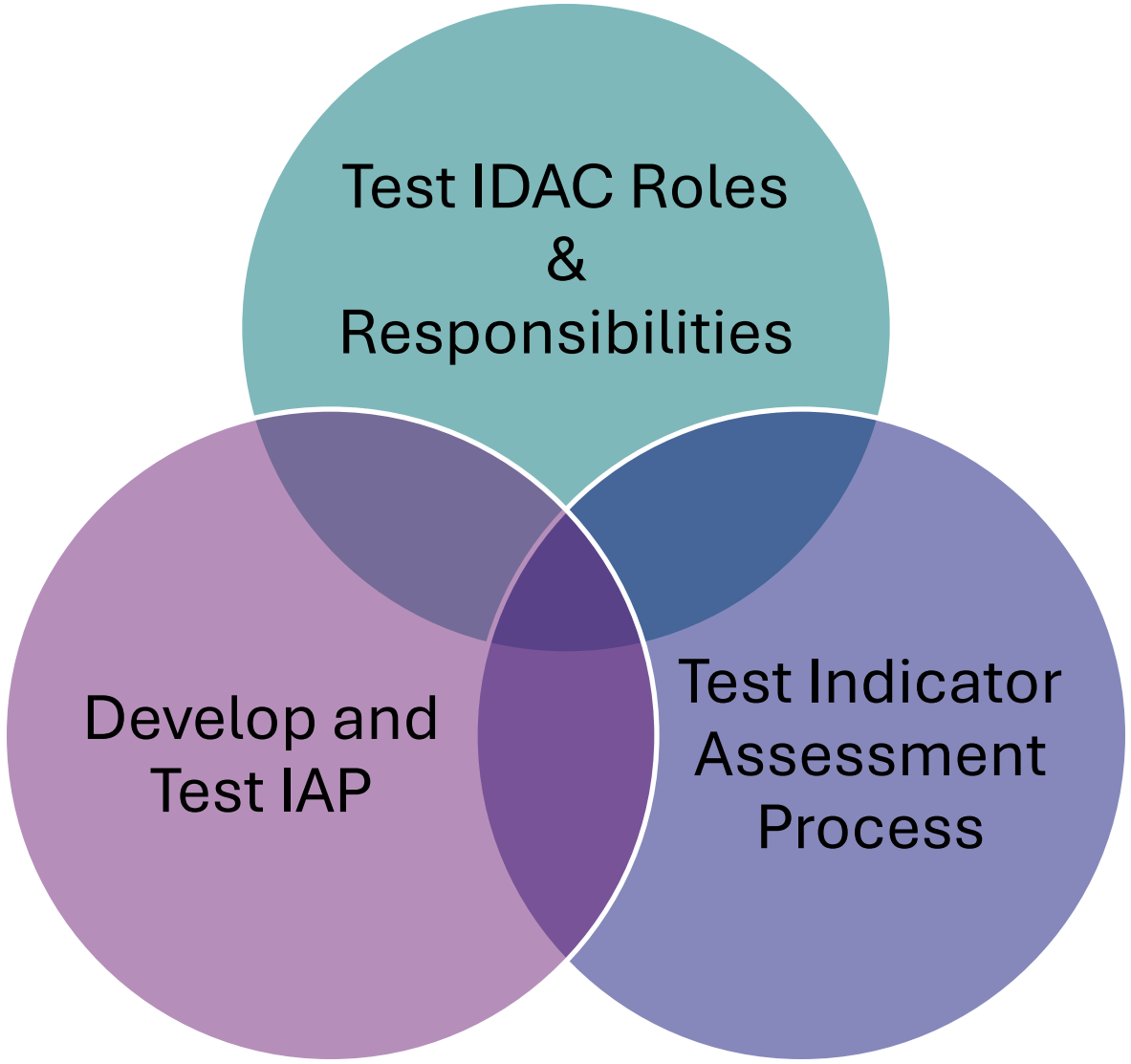
This time ...

Data Ecosystem Project Phase 2+ – *Intent & Outcomes*

Data ecosystem activities for Phase 2+ were conducted between April and September 2025.



Data Ecosystem Project Phase 2+ – *Activities*



Data Ecosystem Project Phase 2+ – *Activities*

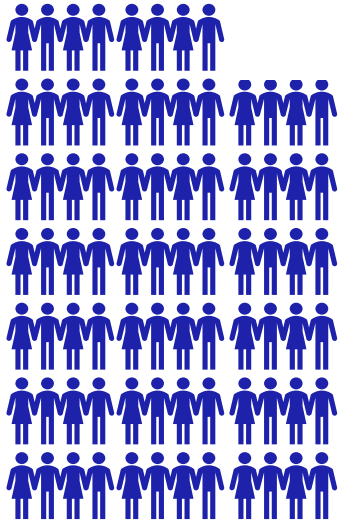
mIDAC met twice in 2025, with a set of pre- and post-meeting homework

	4 – 10 June	11 June	12 June – 19 August	20 August	September
Activities	Pre-Meeting Homework & Briefings	mIDAC Meeting #1	Between-Meeting Homework Moot Expert Working Group	mIDAC Meeting #2	
Outputs	• Meeting Agenda • Draft IDAC and EWG Processes • Draft AASF Indicator Assessment Protocol	• Updated IDAC and EWG Processes for testing • Updated AASF Indicator Assessment Protocol for testing • Updated IDAC role descriptions for ToR	To be confirmed during Meeting #1, will potentially include: • Reviewing the draft IDAC Terms of Reference • Considering the structure of the future Register and Catalogues • Identifying domains or topics of interest for the SDWG to engage with • Draft recommendations from mEWG regarding indicator(s) for selected AASF Principle/Criteria to be tabled at meeting #2 • Reflections on mEWG processes for mIDAC consideration	• Recommendations on preliminary indicators to be referred for inclusion in Register • Updated AASF Indicator Assessment Protocol for testing • Updated IDAC role descriptions for ToR	**OUTCOMES:** Understand the processes and materials which are required to ensure the AASF Data Ecosystem structures, including the IDAC, can be established and commence H1 activities Have preliminary indicators to test in AASF Pilot Studies project

Data Ecosystem Project Phase 2+ – *Participants*

58

Interview Participants



80+

Workshop Participants

38

Working Group Members

20

mIDAC & mEWG Volunteers

Findings ...

Findings - *IDAC*

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

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

All IDAC recommendations must go to public consultation prior to adoption

Findings – *Indicator Assessment Process*

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

Recommendations

Defining Key Terms

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

Defining Key Terms

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.

Defining Key Terms

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.

Defining Key Terms

Purpose & Context

It is essential to understand two key concepts when discussing indicators and metrics:

- **their purpose (i.e., what an indicator and metrics are 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.

Examples

PURPOSE	I WANT TO DEVELOP A SUSTAINABILITY REPORT FOR MY ORGANISATION
CONTEXT	AUSTRALIAN AGRICULTURAL SUSTAINABILITY INDUSTRY FRAMEWORK (BEEF)
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 SUSTAINABILITY REPORT FOR MY ORGANISATION
CONTEXT	AUSTRALIAN AGRICULTURAL SUSTAINABILITY INDUSTRY FRAMEWORK (COTTON)
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 *hectare of crop* produced *per year*

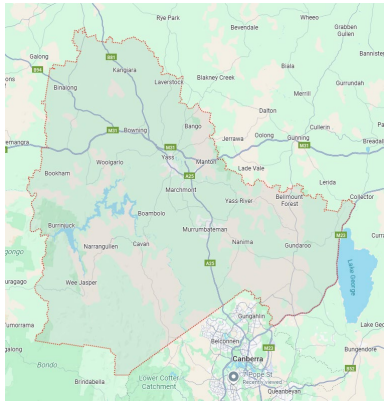
Examples

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* over *time on farm*

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 *ton of fruit* produced *per year*

Examples

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*

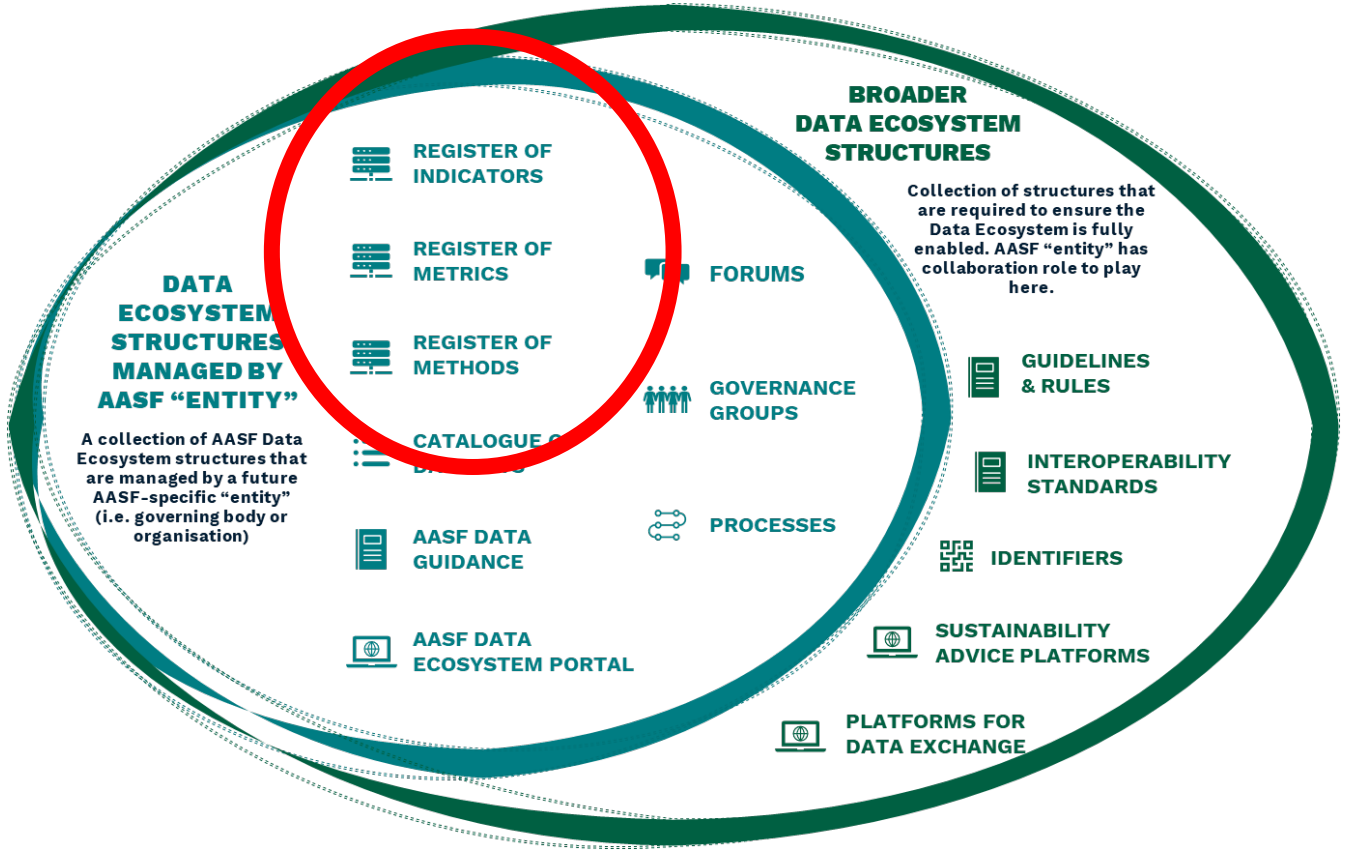


PURPOSE	DEVELOP A SUSTAINABILITY REPORT FOR MY REGION
CONTEXT	YASS VALLEY LOCAL GOVERNMENT AREA OF NSW
AASF PRINCIPLE	P18. The economic viability of agricultural businesses is protected and enhanced
AASF CRITERIA	C49. Agricultural businesses are profitable across varying operating conditions
EXAMPLE 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 SECTOR
CONTEXT	AUSTRALIAN BEEF SUSTAINABILITY FRAMEWORK
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 Structures



Structure	Description
Register of Indicators	Well governed list of indicators aligned with the AASF Principles and Criteria
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

IDAC Roles and Responsibilities

Change of Name

IDAC is not an Advisory group and the term ‘Council’ can be problematic

Suggested alternatives are:

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

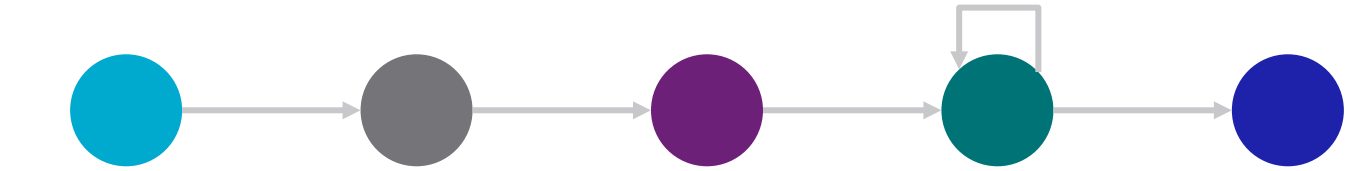
IDAC Accountabilities

- to be the custodian of the AASF Register of Indicators, Register of Metrics, Register of Methods and the Catalogue of Datasets.

IDAC Responsibilities

- 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
- 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); and
  - a Sustainability Data Working Group (SDWG)
- Provide advice to the ASA on identified gaps in national datasets and/or tools for which programmes of work may be required

Indicator and Metric Assessment Process



Initiate

agree terms and scope of assessment

Establish

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

Assess

undertake the assessment

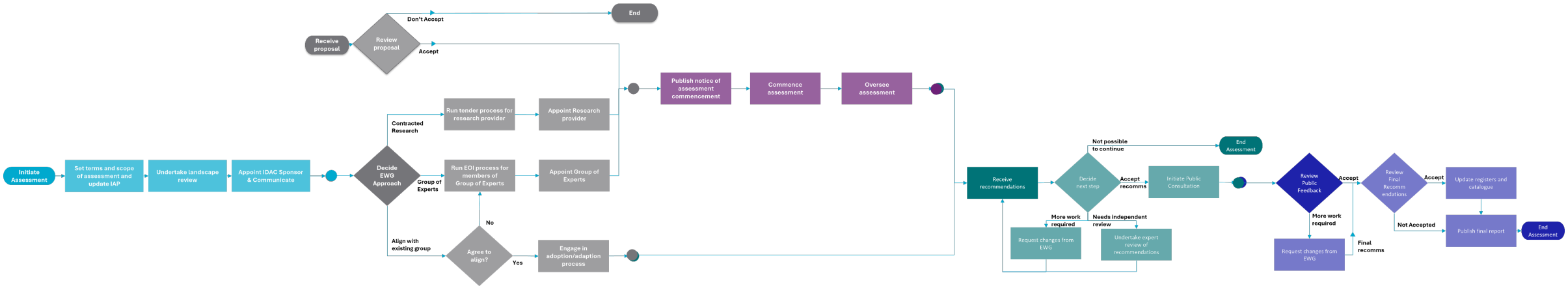
Review

review assessment outputs and decide on next steps

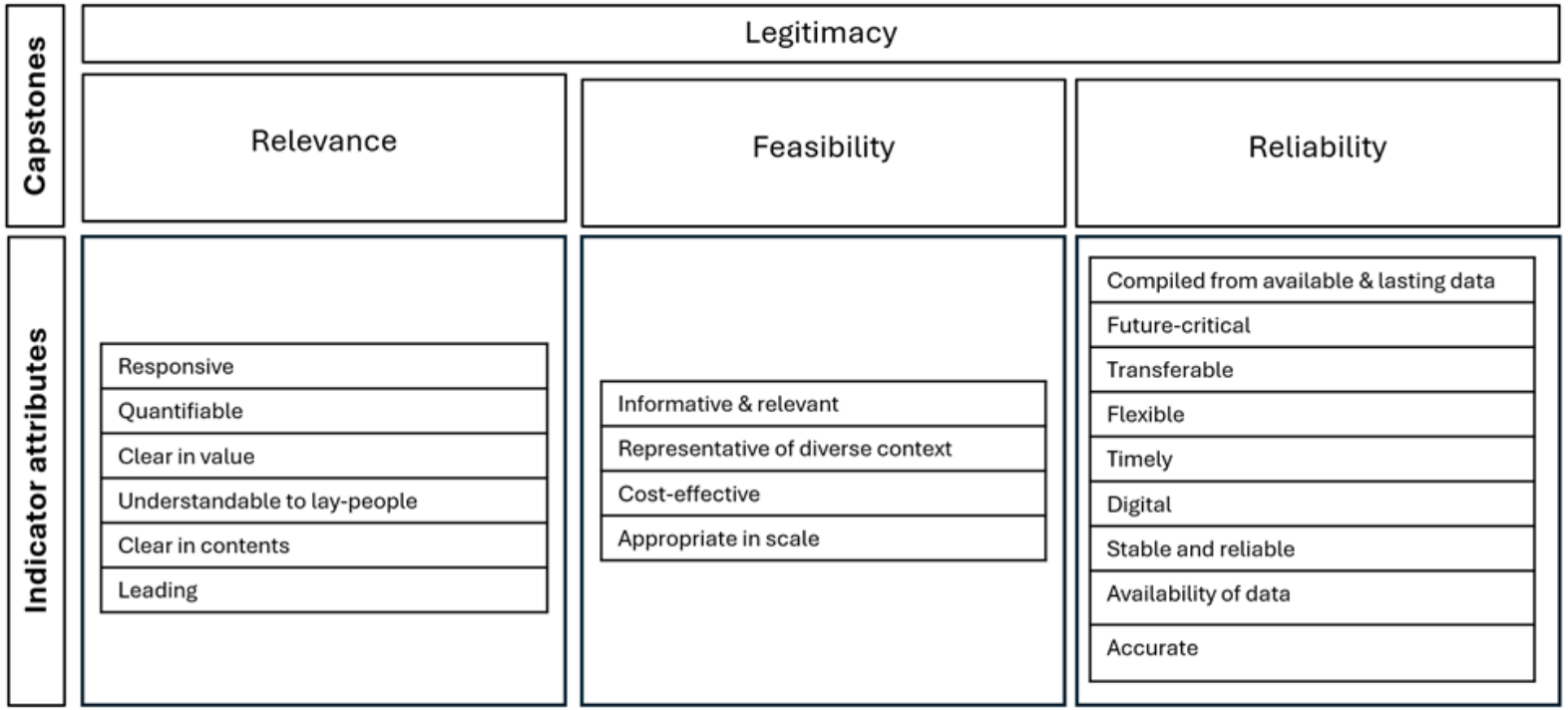
Publish

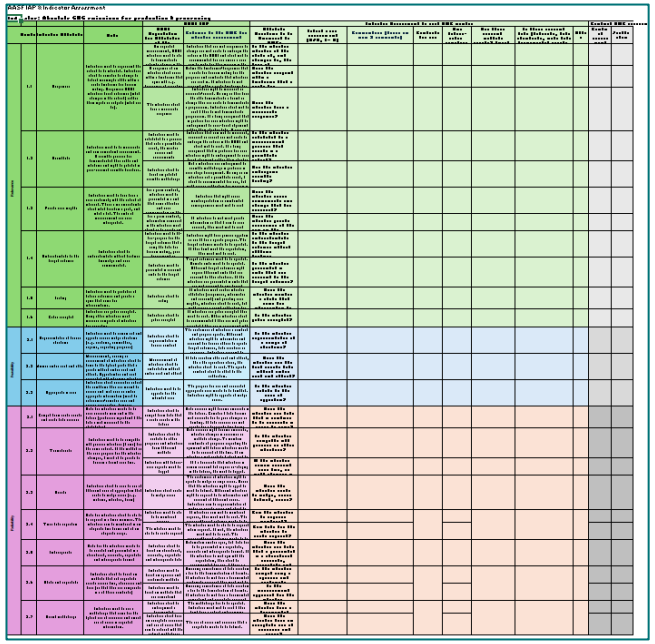
finalise assessment, update the registers and catalogue and publish final report

Indicator and Metric Assessment



Indicator and Metric Assessment Protocol





Expert Working Groups – *Roles and Responsibilities*

Expert Working Groups can have one of two roles:

1. **The primary role –** develop and provide recommendations on changes to the AASF Registers of Indicators, Metrics and Methods and Catalogue of Datasets to IDAC
2. **Secondary role –** 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**
- is **time bound**
- is **open and transparent**
- must **consider the needs** of all stakeholders
- must **provide evidence that they have applied tools/methods**
- must **respond to feedback/suggestions** from IDAC
- will **provide updates** on progress, learnings and outcomes

Expert Working Groups – *Types*

Appointed Groups of Experts

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

Aligned Programmes of Work

- existing programmes of work or activities that are seeking to address related or similar subjects as those that IDAC is seeking to address.
- IDAC should reserve the right to appoint a group of experts to review the work of the aligned programme if necessary.

Contracted Research

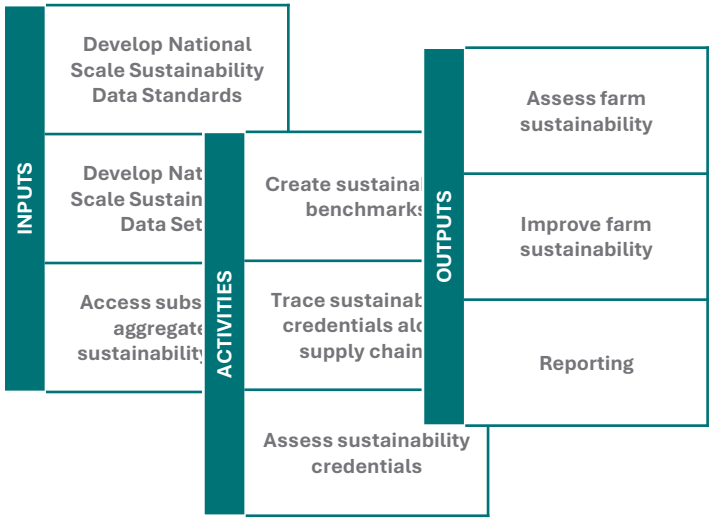
- ASA Alliance entered a contract to complete the work as a research or consultancy activity
- Small number of cases, area is very niche and the expertise required exists within only one or a small number of people, or the work needs to be completed in a short timeframe.

Self-initiated Groups

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

Prioritising IDAC's Effort

X



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Beneficiary

Responsible

Accountable

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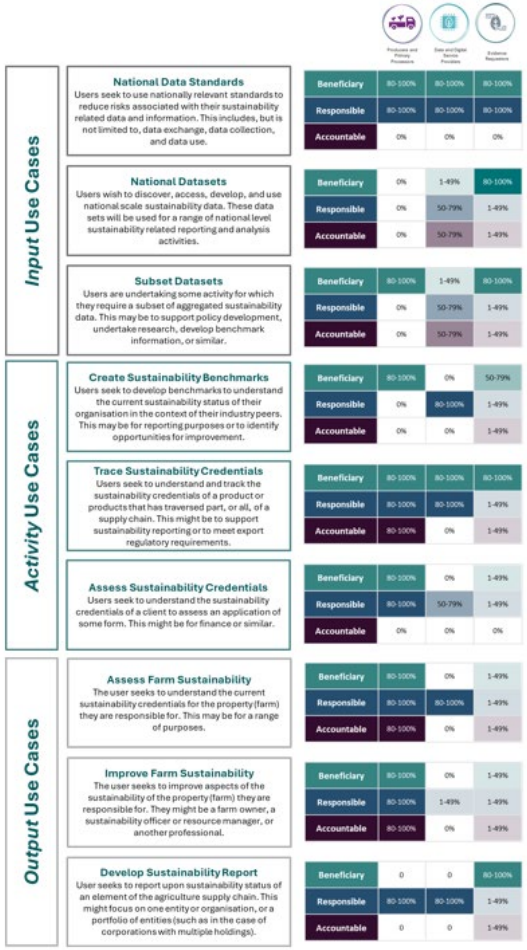

Prioritising IDAC's Effort

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%

Prioritising IDAC's Effort

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.

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.

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%	50-79%
Responsible	0%	80-100%	1-49%
Accountable	0%	0%	1-49%

Beneficiary	80-100%	80-100%	80-100%
Responsible	80-100%	80-100%	1-49%
Accountable	80-100%	0%	1-49%

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

Prioritising IDAC's Effort

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.

	Producers and Primary Processors	Data and Digital Service Providers	Evidence Requestors
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%

Next time ...

As Australia’s national science agency and innovation catalyst, CSIRO is solving the greatest challenges through innovative science and technology.

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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