

Integrated ESG and Natural Capital Assessment

A Practical Guide for Australian Farmers and Primary Producers

1st Edition

TNQ

Drought Hub



Australian Government
Department of Agriculture,
Fisheries and Forestry



Future
Drought
Fund



JAMES COOK
UNIVERSITY
AUSTRALIA

This program received funding from the Australian Government's Future Drought Fund

Acknowledgement of Country

We acknowledge the Australian Aboriginal and Torres Strait Islander peoples as the Traditional Owners of the lands and waters where we operate our business. We honour the unique cultural and spiritual relationship to the land, waters and seas of First Australian peoples and their continuing and rich contribution to the TNQ Drought Hub, James Cook University (JCU) and Australian society. We also pay respect to Ancestors and Elders past, present and future.

Table of Contents

About this Workbook.....	4
Section 1: Getting Ready	5
What is ESG?.....	5
What is Natural Capital?	6
The integrated assessment on your farm	7
Understanding materiality.....	8
Section 2: How to conduct your assessment?	10
Step 1 – Farm Context	11
Step 2 – Assessment	11
Step 3 – Materiality	13
Step 4 – Baseline	14
Step 5 – Action Plan	14
Section 3: Case Study	16
More information.....	23

About this Workbook

This workbook helps Australian farmers and primary producers integrate Environmental, Social and Governance (ESG) considerations with Natural Capital asset management in everyday farm decision-making. It provides a practical five-step framework to assess sustainability performance, identify material risks, opportunities, impacts and nature-related dependencies, establish a baseline, and develop actions that strengthen productivity, resilience and long-term business performance.

Traditional ESG assessments have primarily focused on understanding and managing the environmental, social and governance impacts of business activities. In agriculture, however, long-term productivity and resilience also depend on healthy natural assets such as soils, water, vegetation, biodiversity and ecosystem services. This workbook expands the Environmental dimension of ESG by incorporating a Natural Capital perspective to assess both environmental impacts and nature-related dependencies, providing producers with a more complete understanding of farm sustainability and supporting better management decisions.

The workbook is organised into three sections. Section 1 introduces ESG, Natural Capital, impacts, dependencies and materiality. Section 2 explains the five-step Integrated Assessment Framework. Section 3 demonstrates how the framework can be applied through a fictional farm case study.

The assessment is designed to support farm-level management and continuous improvement rather than compliance. It does not assess supply chain standards or certification requirements.

The framework draws on internationally and nationally recognised approaches, including the Global Reporting Initiative, International Sustainability Standards Board, TCFD, TNFD, United Nations Sustainable Development Goals and Australian Agricultural Sustainability Framework. These concepts have been adapted to make them more accessible and useful for Australian farming businesses.

Section 1: Getting Ready

What is ESG?

Environmental, Social and Governance (ESG) is a framework that helps farmers and primary producers understand, manage and improve the long-term performance of their farming business. It provides a structured approach to identify the environmental, social and governance issues that influence productivity, profitability, resilience and sustainable farm management.

Traditionally, ESG assessments have focused primarily on understanding and managing the impacts that business activities have on the environment, society and governance. In agriculture, this includes issues such as greenhouse gas emissions, water use, soil management, biodiversity, workplace health and safety, business planning and compliance.

However, farming businesses not only create environmental impacts. They also depend on healthy natural assets and ecosystem services to remain productive and resilient. Healthy soils, reliable water supplies, native vegetation, biodiversity and climate regulation are essential for agricultural production and long-term business performance.



What is Natural Capital?

Natural Capital refers to the natural assets that support farming and provide benefits to both agricultural businesses and society. These assets include soils, water, vegetation, biodiversity, air, and the ecosystem services they provide, such as pollination, nutrient cycling, carbon storage, climate regulation, and water filtration.

Healthy Natural Capital is essential for productive and resilient farming systems. It supports agricultural production, improves resilience to climate variability, reduces environmental risks, and contributes to the long-term productivity and profitability of farming businesses.

Natural Capital helps producers understand the condition of the natural assets their farming business depends on every day. Changes in soil health, water availability, biodiversity, vegetation, and ecosystem services can directly influence farm productivity, business performance, and long-term resilience.

By considering both **environmental impacts** and **nature-related dependencies**, producers gain a more complete understanding of the relationship between farm management, natural assets, and long-term business performance. This integrated approach supports better decision-making, more effective risk management, and continuous improvement.

Understanding the difference

Environmental impacts (ESG)	Nature-related dependencies (Natural Capital)
How does my farming business affect nature?	What natural assets does my farming business rely on?
• Greenhouse gas emissions • Water pollution • Soil degradation • Resource use (inputs)	• Healthy soil • Reliable water supply • Soil fertility • Biodiversity and pollination • Ecosystem services

ESG helps producers understand how farming activities affect the environment, society and business performance. A Natural Capital perspective complements the Environmental dimension of ESG by helping producers understand the natural assets and ecosystem services their farming business depends on. Together, they provide a more complete basis for informed decision-making and long-term farm resilience.

An Integrated Framework

Sustainable farming requires understanding more than environmental impacts alone. Long-term farm performance is influenced by environmental, social and governance issues, while agricultural production also depends on healthy natural assets and ecosystem services.

This framework integrates these perspectives into a single assessment, helping producers better understand their farming business and identify the issues that matter most for long-term productivity, resilience and sustainability.

Integrated ESG and Natural Capital Framework

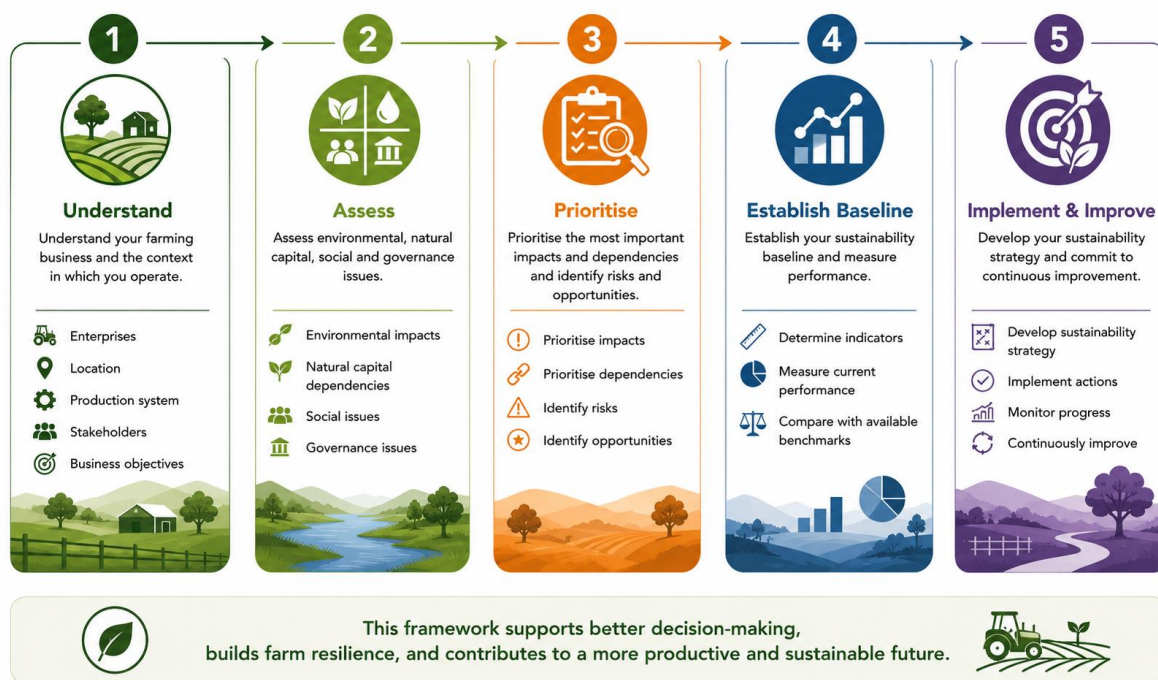


This framework integrates ESG and a Natural Capital perspective to assess four key areas of your farming business. Together, they provide a more complete understanding of sustainability and support better decision-making.



The integrated assessment on your farm

The integrated framework (ESG and Natural capital) provides a practical five-step process to help producers understand the sustainability performance of their farming business. It combines environmental, social and governance issues with a Natural Capital perspective to identify impacts, dependencies, risks and opportunities before developing practical improvement actions.



Understanding materiality

Materiality answers one simple question: What matters most for my farming business?

Not all sustainability issues are equally important. A materiality assessment helps identify and prioritise the environmental, social, governance, and nature-related issues that are most likely to influence the long-term success, resilience, and sustainability of your farming business. By focusing on the most material issues, producers can better allocate resources, manage risks, identify opportunities, and make more informed decisions.

There are three key concepts associated with materiality:

* Financial materiality

Financial materiality considers how sustainability issues affect your farming business. It focuses on the potential impacts that environmental, social, governance, or nature-related issues may have on productivity, costs, revenue, profitability, and long-term business performance.

Example: Water scarcity reduces pasture growth and livestock productivity, affecting farm income.

* Double materiality

Double materiality expands the financial perspective by also considering how your farming activities affect the environment and society. In this workbook, it also

recognises the dependencies your farming business has on natural capital, providing a more complete understanding of sustainability.

Example: Fertiliser runoff may affect water quality (impact), while the farming business depends on clean water and healthy soils to remain productive (dependency).

*** Dynamic materiality**

Materiality is not static. Issues that are less important today may become more significant in the future due to changes in climate, regulations, technology, markets, or community expectations.

Example: Carbon reporting, biodiversity management, or nature-related disclosures may become increasingly important over time.

Materiality helps producers focus on the sustainability issues that matter most by considering how these issues affect the farming business, how the farming business affects the environment and society, and how priorities may change over time.

Section 2: How to conduct your assessment?

You now understand the key concepts behind the Integrated ESG and Natural Capital Framework, including environmental impacts, nature-related dependencies, materiality, and the five-step assessment process.

This section will guide you through applying the framework to your own farming business. The assessment is designed to be completed sequentially, with each step building on the previous one. Together, the five steps provide a practical process for understanding your current sustainability performance, identifying priorities, establishing a baseline, and developing actions for continuous improvement.

Before you begin, take a few minutes to define the purpose of your assessment.

Purpose

Before beginning the assessment, clearly define what you want to achieve. Having a clear purpose will help you focus on the issues that matter most to your farming business and ensure the assessment supports your management and decision-making needs.

The Integrated ESG and Natural Capital Assessment Framework is designed to support better decision-making rather than compliance. It helps producers understand their current sustainability performance, identify risks and opportunities, establish a sustainability baseline, and develop practical actions for continuous improvement.

Ask yourself:

- Why am I undertaking this assessment?
- What do I want to improve?
- Which enterprise or property am I assessing?
- Who will use the results?

Applying the Integrated Framework

The assessment is completed through five sequential steps. Each step is built on the previous one, providing the information needed to understand your farming business, identifying the issues that matter most, establishing a sustainability baseline, and developing a practical action plan for continuous improvement.

Step 1 – Farm Context

- **Why is this step important?**

Every farming business is different. Before assessing sustainability, it is important to understand the context in which your business operates. This provides the foundation for the rest of the assessment and ensures that the results are relevant to your farming system.

- **What will you do?**

In this step, you will describe the characteristics of your farming business, including:

- Farm location
- Enterprise(s)
- Production system
- Farm size
- Natural resources
- Business objectives
- Key stakeholders

Understanding your farm context helps identify the environmental impacts, nature-related dependencies, social and governance issues that are most relevant to your business.

- **Outcome**

At the end of this step, you will have a clear profile of your farming business that will guide the remaining stages of the Sustainability Assessment.

Step 2 – Assessment

- **Why is this step important?**

This step provides a comprehensive assessment of the sustainability issues relevant to your farming business.

Rather than focusing only on the environmental impacts of farming activities, this assessment also considers nature-related dependencies through a Natural Capital perspective, together with social and governance practices. Assessing both impacts and

dependencies provides a more complete understanding of your farm's sustainability performance and long-term resilience.

- **What will you do?**

You will assess your farming business across three areas:

- * **Environmental**

The Environmental assessment considers both the impacts your farming activities have on the environment and the natural assets your farming business depends on.

- a) **Environmental impacts**

Assess how your farming activities affect the environment, including issues such as greenhouse gas emissions, water use and quality, soil condition, waste, chemical use, biodiversity, and resource use.

- b) **Nature-related dependencies (Natural Capital)**

Assess the condition of the natural assets and ecosystem services that support your farming business, including healthy soils, reliable water resources, native vegetation, biodiversity, pollination, climate regulation, and other ecosystem services.

- * **Social**

Assess workforce, health and safety, community relationships, animal welfare (where applicable), and social responsibility.

- * **Governance**

Assess business planning, risk management, succession planning, compliance, monitoring and decision-making.

- **Outcome**

At the end of this step, you will have a comprehensive understanding of your farm's sustainability performance, including its environmental impacts, nature-related dependencies, social and governance practices. This information provides the foundation for identifying the issues that matter most in the Materiality Assessment (Step 3).

Step 3 – Materiality

After understanding your farming business and completing the Integrated ESG and Natural Capital Rapid Assessment, the next step is to determine which sustainability issues matter most.

- **Why is this step important?**

Not every sustainability issue has the same importance. Some issues present greater risks to your farming business, while others provide opportunities to improve productivity, resilience, and long-term sustainability. Prioritising these issues helps you focus your time and resources on the areas that will have the greatest impact on your business.

- **What will you do?**

In this step, you will complete the Integrated Rapid Assessment, an automated decision-support tool designed to help Australian farmers and primary producers identify and prioritise material Environmental, Social and Governance (ESG) and Natural Capital issues relevant to their farming business.

The assessment brings together the information collected in Steps 1 and 2 to evaluate the relative importance of sustainability issues and generate a prioritised overview of key risks, opportunities, environmental and social impacts, and nature-related dependencies. This will help you identify which issues are most relevant to your farm and where management actions may need to be prioritised.

The Integrated Rapid Assessment is available for both sugarcane and beef production.

Select the assessment that is relevant to your farming system.

<https://www.tnqdroughthub.com.au/esg-on-farm/>

- **Outcome**

At the end of this step, you will have a prioritised list of the Environmental, Social, Governance and Natural Capital issues that are most significant to your farming business. These results will provide the foundation for establishing your sustainability baseline (Step 4) and developing your Action Plan (Step 5).

The Integrated Rapid Assessment is an automated spreadsheet that analyses information from your farm assessment and helps you:

- * **Prioritise material sustainability issues**
- * **Identify key risks and opportunities**
- * **Understand environmental impacts and natural capital dependencies**
- * **Establish a sustainability baseline**
- * **Support practical decision-making and continuous improvement**

Step 4 – Baseline

- **Why is this step important?**

A sustainability baseline provides a starting point for measuring progress over time.

Without a baseline, it is difficult to determine whether improvements have been achieved.

- **What will you do?**

- select relevant sustainability indicators;
- measure your current performance;
- compare results with available benchmarks where appropriate;
- identify strengths and areas for improvement.

- **Outcome**

At the end of this step, you will have established the current sustainability performance of your farming business.

Step 5 – Action Plan

- **Why is this step important?**

The Integrated Rapid Assessment is intended to support continuous improvement.

The final step translates assessment results into practical actions.

- **What will you do?**

Using the results from the previous steps, you will:

- identify priority improvement actions;
- develop your sustainability strategy;
- assign responsibilities;
- monitor progress;
- review performance over time.

The Action Plan should be reviewed regularly as business priorities, markets and environmental conditions change.

- **Outcome**

At the end of this step, you will have a practical roadmap for improving the sustainability and resilience of your farming business.

To illustrate how the framework can be applied in practice, Section 3 presents a fictional case study following the same five-step process.

Section 3: Case Study

Applying the Integrated ESG and Natural Capital Rapid Assessment Framework

This section demonstrates how the Integrated Assessment Framework can be applied using a fictional Australian farming business. The case study illustrates each step of the framework and provides practical examples to help producers understand the assessment process before completing their own farm assessment.

Green Valley Farm - Farm Profile

Enterprise	Mixed beef and dryland cropping
Location	Central Queensland
Property size	2,100 ha
Annual rainfall	620 mm
Employees	Family + 3 staff
Key natural assets	Grazing land, native vegetation, creek, productive soils
Business objectives	Improve productivity, strengthen drought resilience, enhance biodiversity, prepare for future sustainability reporting



Step 1 - Understanding farm context

Before assessing sustainability, the owners of Green Valley farm identified the context in which their business operates by answering the following questions.

What are your business objectives?	• Improve profitability • Improve pasture condition • Increase carrying capacity • Reduce drought risk • Protect biodiversity
What are your main stakeholders?	• Family • Employees • Meat processor • Bank • Local community • Regional NRM
What are your business strengths?	• Strong financial records • Well-managed grazing • Good safety culture
What are your main challenges?	• Weed pressure • Variable rainfall • Succession planning

Step 2 – Integrated ESG and Natural Capital Rapid Assessment

Following the Farm Context assessment, the owners of Green Valley farm wanted to better understand the sustainability of their farming business.

They considered four key questions:

- How does our farming business impact the environment?
- Which natural assets does our business depend on?
- Are there any social issues that could affect our business?
- Are our governance systems strong enough to support long-term success?

Those four questions considered environmental, natural capital, social and governance issues.

2.1. Environmental - the family identified several environmental issues associated with their farming activities.

Topic	Observation
Soil health	Some paddocks show early signs of erosion after heavy rainfall
Water management	Stock water is reliable, but some riparian areas require protection
Greenhouse gas emissions	Enteric methane is the main source of emissions
Energy use	Diesel is used across most farm operations
Biodiversity	Native vegetation has been retained across parts of the property

2.2. Natural Capital - the family then considered the natural assets their farming business depends on every day.

Natural asset	Why is it important?
Healthy soils	Support pasture growth and crop production
Water	Essential for livestock, crops and farm operations
Native vegetation	Provides shade, habitat and erosion control
Biodiversity	Supports ecosystem health and resilience
Riparian areas	Improve water quality and reduce erosion

2.3. Social - the family assessment identified several strengths together with some opportunities for improvement.

Strengths	Opportunities
• Strong commitment to workplace health and safety • Good relationships with neighbours and the local community • Family members actively involved in the business	• Formalise staff training • Improve succession planning

Governance - Green Valley Farm already had several good management practices in place.

Existing practices	Areas for improvement
• Farm business plan • Production records • Financial records • Biosecurity plan	• Develop a formal sustainability strategy • Introduce annual sustainability monitoring • Record environmental indicators consistently

Summary

At the end of Step 2, Green Valley Farm had a much clearer understanding of:

- the environmental impacts of its farming activities;
- the natural assets the business depends on;
- key social strengths and opportunities; and
- governance practices that support long-term success.

This information provides the foundation for the next step: identifying the issues that matter most through the Materiality Assessment

Step 3 – Materiality

After completing Steps 1 and 2, the owners of Green Valley Farm entered their information into the Integrated ESG and Natural Capital Rapid Assessment spreadsheet.

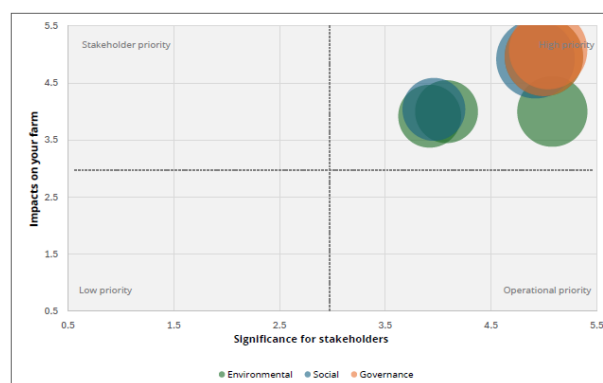
The tool helped them identify and prioritise the ESG and Natural Capital issues most relevant to their farming business by considering risks, opportunities, impacts and nature-related dependencies.

Integrated ESG and Natural Capital Rapid Assessment

Beef production

Materiality matrix - Farm assessment

Top material issue	Category	Impact	Stakeholder
Land use and landscape condition	Environmental	5	5
Use of freshwater ecosystem (rivers, creeks, and \	Environmental	5	4
Reduce GHG emissions	Environmental	4	4
Biodiversity conservation	Environmental	4	4
Animal health and welfare	Social	5	5
Training and skills development	Social	4	4
Productivity and efficiency	Governance	5	5
Financial performance and profitability	Governance	5	5



In this example, the Rapid Assessment identified eight priority material issues: four Environmental, two Social and two Governance issues. These represent the issues considered most significant based on their potential impact on the farming business and their importance to stakeholders.

Why does this matter to Green Valley Farm?

The materiality assessment helps the owners move from considering a broad range of ESG and Natural Capital issues to focusing on those that matter most to their farming business. Importantly, these priorities are interconnected. For example, land and landscape condition can influence pasture availability and productivity; freshwater ecosystem condition can affect water resources; animal health and management can influence production efficiency and greenhouse gas emissions; and these factors can ultimately affect financial performance and long-term business resilience.

The results provide a practical basis for deciding where to focus attention and resources and which issues should be explored further through the baseline assessment in Step 4.

Materiality identifies what matters most. It does not indicate whether current farm performance is good or poor.

Step 4 – Establishing the baseline

After identifying the sustainability issues that matter most to Green Valley Farm, the next step was to establish a baseline.

A baseline provides a starting point for understanding current performance and measuring change over time. It does not require producers to measure every possible indicator. Instead, indicators should be selected according to the material issue being assessed, the purpose of the assessment, the farming system, available information and the producer's management priorities.

For each priority material issue, Green Valley Farm considered:

- What do we already know or measure?
- What information is available from existing farm records, maps, assessments or monitoring?
- Which indicators could help us understand our current performance?
- Are reliable benchmarks or reference values available?
- Are there existing tools that can help establish the baseline?
- What additional information, if any, should we start collecting?

The baseline should be established before implementing new management actions where possible, so that future results can be compared with the starting condition. It

should then be reviewed periodically using consistent indicators and methods to assess whether conditions are improving, declining or remaining stable.

Use the information you already have first. Farm records, soil tests, production data, carbon assessments, maps, grazing records, water-quality information and existing environmental assessments may already provide much of the information needed to establish a baseline. Where additional information is required, a range of industry and government tools can support assessment and monitoring.

Step 5 – Action plan

After identifying the priority material issues in Step 3 and establishing the current baseline in Step 4, the final step is to decide what actions, if any, should be taken.

Why is this step important?

A material issue does not necessarily indicate poor performance or require immediate action. The materiality assessment identifies what matters most, while the baseline helps determine the farm's current position.

Together, this information helps producers decide where improvement is needed, where existing good practices should be maintained, and where additional information or monitoring may be required.

What will you do?

For each priority material issue, consider:

- What does the baseline tell us about our current position?
- Is improvement required, or should current practices be maintained?
- Are there important information or data gaps?
- What practical action could be taken?
- Who will be responsible?
- What timeframe is appropriate?
- How will progress be monitored?

Actions may therefore include changing a management practice, maintaining an existing good practice, collecting additional information, establishing monitoring, or investigating an opportunity.

Green Valley Farm example

For Green Valley Farm, the Integrated ESG and Natural Capital Rapid Assessment identified eight priority material issues across the Environmental, Social and Governance categories. The owners then used the baseline information for these priorities to determine where action was needed.

For example, where the baseline identified an area requiring improvement, a management action could be established. Where current performance was satisfactory, the action could simply be to maintain and monitor existing practices. Where sufficient baseline information was unavailable, the first action could be to collect the information needed to better understand current performance.

The Action Plan therefore focuses the farm's time and resources on the issues that matter most, rather than attempting to address every ESG and Natural Capital issue at once.

Outcome

At the end of Step 5, you will have a practical ESG and Natural Capital Action Plan linking your priority material issues with baseline information, management actions, responsibilities, timeframes and monitoring.

The Action Plan should be reviewed periodically as actions are completed, new information becomes available, or farm conditions and business priorities change.

More information

ESG and Sustainability Reporting

- Global Reporting Initiative (GRI)
<https://www.globalreporting.org/standards/>
- IFRS Foundation – International Sustainability Standards Board (ISSB)
<https://www.ifrs.org/groups/international-sustainability-standards-board/>
- Task Force on Climate-related Financial Disclosures (TCFD)
<https://www.fsb-tcfd.org/>
- UN Global Compact
<https://unglobalcompact.org/>
- Global Sustainable Investment Alliance (GSIA)
<https://www.gsi-alliance.org/>
- CFA Institute
<https://www.cfainstitute.org/>

Natural Capital and Nature-related Frameworks

- Taskforce on Nature-related Financial Disclosures (TNFD)
<https://tnfd.global/>
- Natural Capital Protocol (Capitals Coalition)
<https://capitalscoalition.org/capitals-approach/natural-capital-protocol/>
- ENCORE (Exploring Natural Capital Opportunities, Risks and Exposure)
<https://encore.naturalcapital.finance/>
- Integrated Biodiversity Assessment Tool (IBAT)
<https://www.ibat-alliance.org/>
- International Union for Conservation of Nature (IUCN)
<https://www.iucn.org/>

Sustainable Agriculture

- Sustainability Assessment of Food and Agriculture Systems (SAFA)
<https://www.fao.org/3/i3957e/i3957e.pdf>
- Australian Agricultural Sustainability Framework (AASF)
<https://aasf.com.au/>
- Food and Agriculture Organization (FAO)
<https://www.fao.org/>

Sustainable Development Goals

- United Nations Sustainable Development Goals (SDGs)
<https://sdgs.un.org/goals>
- UN SDG Indicators
<https://unstats.un.org/sdgs/indicators/indicators-list/>

Climate Change

- Intergovernmental Panel on Climate Change (IPCC)
<https://www.ipcc.ch/>

- United Nations Framework Convention on Climate Change (UNFCCC)
<https://unfccc.int/>

Biodiversity and Nature

- Convention on Biological Diversity (CBD)
<https://www.cbd.int/>
- Kunming–Montreal Global Biodiversity Framework
<https://www.cbd.int/gbf>

Australian Resources

- National Farmers' Federation (NFF)
<https://nff.org.au/>
- CSIRO Agriculture and Food
<https://www.csiro.au/en/research/plants>
- Department of Agriculture, Fisheries and Forestry (DAFF)
<https://www.agriculture.gov.au/>
- Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES)
<https://www.agriculture.gov.au/abares>

Author

Dr. Ana Carla Leite de Almeida. Senior Research Officer
TNQ Drought Resilience Adoption and Innovation Hub
James Cook University



Australian Government
Department of Agriculture,
Fisheries and Forestry



Future
Drought
Fund



JAMES COOK
UNIVERSITY
AUSTRALIA

This program received funding from the Australian
Government's Future Drought Fund