



Australian Government

Commonwealth Interim Action Plan

National Soil Strategy

Our Vision: Australia's soil is recognised and valued as a key national asset by all stakeholders. It is better understood and sustainably managed, to benefit and secure our environment, economy, food, infrastructure, health, biodiversity, and communities – now and in the future.





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Australian Bureau of Agricultural and Resource Economics (ABARES)

Clean Energy Finance Corporation (CEFC)

Clean Energy Regulator (CER)

CSIRO (Commonwealth Scientific and Industrial Research Organisation)

Department of Defence

Department of Industry, Science, Energy and Resources

Geoscience Australia

The National Drought and North Queensland Flood Response and Recovery Agency

National Indigenous Australians Agency

Office of the National Soils Advocate

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1. Purpose of the Interim Action Plan

On 1 February 2021 the Prime Minister, the Hon Scott Morrison MP, outlined his vision for how the Australian Government should exercise our environmental stewardship – through the concept of caring for country. Increasing soil health will be essential to realising the ambitious goal of growing Australian agriculture to a \$100 billion industry by 2030. Restoring soil health is central to growing our agriculture industry, delivering resilience to climate change, and securing human health, food and water security, biodiversity and economic growth.

The Commonwealth Interim Action Plan outlines the Australian Government's commitment to implementing the National Soil Strategy. The Interim Action Plan outlines high-level actions and their interactions with programs such as the Agriculture Stewardship Package, the Emissions Reduction Fund and the Future Drought Fund.

The National Soil Strategy is a 20-year strategy that sets out how Australia will value, manage and improve its soil. The Strategy has been developed in collaboration with state and

territory governments, the National Soils Advocate and other major stakeholders in soil science and land management.

In June 2022, the Interim Action Plan will be replaced by the National Soil Strategy Action Plan (the National Action Plan). This document will include actions initiated under the Interim Action Plan and detail how the National Soil Strategy will be implemented across state and territory governments. The National Action Plan will specify the programs and activities required to achieve the vision, goals and objectives of the strategy. All programs and activities will meet the SMART criteria: Specific, Measurable, Achievable, Relevant and Time-bound.

The National Action Plan will be reviewed every 5 years to incorporate relevant soil-related priorities and to measure progress against the goals of the strategy. State and territory governments and other stakeholders will continue to be involved in implementing and reviewing the plan.



2. National Soil Strategy goals and objectives



Goal 1: Prioritise soil health

1a: Recognise the value of soil

1b: Strengthen leadership and partnerships to address national soil priorities

1c: Advocate the importance of soil

1d: Improve Australia's international leadership in soil knowledge, awareness and management



Goal 2: Empower soil innovation and stewards

2a: Promote soil stewardship

2b: Optimise soil productivity, sustainability and resilience

2c: Help protect and enhance Australia's environment through effective soil management

2d: Increase and maintain soil organic carbon



Goal 3: Strengthen soil knowledge and capability

3a: Increase soil knowledge for better decisions

3b: Measure benefits of improved soil management

3c: Make Australian soil information and data available

3d: Build and retain diverse soil expertise

Photo: Soil CRC

3. Actions

The Commonwealth Interim Action Plan outlines new initiatives funded as part of the 2021–22 Federal Budget, as well as initiatives already underway.

New actions funded under the 2021–22 Budget

Pilot Soil Monitoring and Incentives Program

\$102 million over 2 years to deliver a Pilot Soil Monitoring and Incentives Program. The pilot aims to capture and make available past and present soil data at a national scale.

This will ensure farmers have the information they need to manage their soils and improve their productivity and profitability. It will help improve participation in programs, such as the Emissions Reduction Fund. Government programs will have the data they need to increase accuracy, forecasting and effectiveness. It will also provide invaluable information to inform agricultural and environmental research.

This program will be guided by 5 key principles:

- 1) **Farmer driven soil monitoring** – to ensure resources are deployed to where they will deliver the greatest benefits to our agricultural sector
- 2) **Private sector-delivered** – to maximise testing through the use of existing networks
- 3) **Credit-linked** – to ensure testing is of a sufficient standard to support access to Australian Carbon Credit Units (ACCUs)
- 4) **Open data** – to ensure that, where the taxpayer pays for historical data and/or incentivises soil testing, this data is made available to researchers, investors and government departments through the Australian Soil Resource Information System (ASRIS)
- 5) **Nationally focused** – to ensure the best available existing and new data is captured and available to inform decision-making and future government investments.

The pilot will include a review of existing soil data to establish the quality, quantity and distribution of soil data across Australia. It will identify gaps in soil knowledge and the areas of the country where there is insufficient available soil data. This will then be used to inform the roll-out of the Pilot Soil Incentives Program.



Incentives will be delivered in 2 components:

- 1) Purchase and capture of historical soil data from farmers and other land managers to feed into and inform preliminary stages of the pilot program.
- 2) A pilot rebate program to provide incentives for farmers to reduce their soil testing costs in exchange for sharing their data with the pilot program. This will:
 - a) help farmers identify areas where changes to farming practices and new technologies could significantly increase agriculture production and store soil carbon
 - b) provide farmers with the soil data required to demonstrate stewardship of their land and earn revenue from carbon trading and potential natural capital initiatives.

ASRIS will be re-developed to make it a fit-for-purpose soil information management system that will store soil data and information, as well as track and report on trends, changes and describe the impact of land management practices and environmental shocks over time. This will include provisions to federate data with relevant existing systems, including capturing and transforming invaluable historical soil data.

The Australian Bureau of Resource Economics and Science (ABARES) will develop a National Land Management Classification System to categorise and explain different land management practices across the country, helping to make the link between the management practice and the effect on soil health. This will provide more easily comparable information for stakeholders and other land users.

Soil Science Challenge

\$20.9 million over 4-years to deliver a Soil Science Challenge grant program to support practical action that achieves the goals and objectives of the National Soil Strategy. Researchers will be able to apply for funding for projects that address priority gaps in fundamental soil-related sciences. Research undertaken as part of this program will aim to solve 'wicked problems' in soil science and deliver benefits to industry, farmers and other land managers.

Enhancing soil education and expertise

\$1.1 million over 2 years to develop the Registered Soil Practitioner Curriculum, a new national accreditation for soil professionals conferred by Soil Science Australia.

The course will be targeted at specialists who provide advice to landholders, including agronomists, farm advisors and extension officers. The course will build on the work of the Cooperative Research Centre for High Performance Soils (Soil CRC) aimed at improving the knowledge base of advisors, and focus on the practical application of skills and knowledge to ensure accredited experts can provide practical and scientifically valid advice to farmers and other land managers.



Food waste for healthy soils

\$67 million over 4 years to establish the Food Waste for Healthy Soils Fund. The fund will expand Australia's organic waste processing infrastructure to increase the quantity and quality of compost available to improve our agricultural soils. The fund will be supported by complementary measures to:

- minimise contaminants in organic waste kerbside bins
- update industry standards to improve compost quality and minimise biosecurity risks
- develop end markets to build demand for high-quality compost.

This program will address Target 6 of the *National Waste Policy Action Plan* to halve the amount of organic waste sent to landfill by 2030, and Target 3 to achieve an 80% average resource recovery rate from all waste streams by 2030.

Soil carbon

Soil carbon has been identified as one of the Australian Government's 5 priority low emissions technologies under the first Low Emissions Technology Statement (LETS) released in September 2020. The Minister for Energy and Emissions Reduction announced 5 priorities for new method development for 2021 under the Emissions Reduction Fund, including soil carbon.

The government has committed \$36.7 million for a competitive innovation challenge to achieve soil carbon measurement at less than \$3 per hectare per year. The Department of Industry, Science, Energy and Resources will provide funding for the development of detailed proposals and on-farm demonstration of technological solutions. This will be supported by improved national data for soil carbon measurement, funded through the 2020–21 Budget. Improved access to low-cost, accurate soil carbon measurement technology will help land managers to better understand, demonstrate and be rewarded for the sequestration potential and productivity gains resulting from their management. New models and approaches for measuring soil carbon will reduce the costs associated with soil carbon projects, leading to an increased uptake.

Innovation and on-ground activities

The final 2 years (\$18 million) of the National Landcare Program's Smart Farms Small Grants Program will be specifically targeted to deliver extension activities that help support farmers to participate in the Pilot Soil Incentives Program, including education activities that explain the benefits of soil testing and help farmers interpret and act on results.

A \$23 million Drought Resilient Soils and Landscapes Program, being delivered under the Future Drought Fund will support on-ground activities that help build and maintain the capacity of soils and agricultural landscapes to underpin farm productivity, even in times of drought. This builds on the Natural Resource Management Drought Resilience Program already being rolled out.

The National Agricultural Innovation Priorities include initiatives to improve climate resilience to increase the productivity, profitability and sustainability of the agricultural sector by 2030. Activities delivered under the National Agricultural Innovation Agenda will enable end-users to put into action practices that protect, manage or enhance Australia's natural capital assets, including soil health.

The Australian Government is also supporting Indigenous Australians to protect and conserve land and sea Country, by providing more than \$761 million over 7 years to 2028 for the Indigenous Ranger Program. This longer-term funding will enable more strategic and effective management of land and sea Country. The extension will have the additional benefit of aligning with the funding cycle for Indigenous Protected Areas to assist organisations to better manage their workforce and the projects that contribute to the National Reserve System. Through these programs, the government recognises ways that Indigenous Australians' connection to country and Traditional Knowledge are helping inform western environmental science to manage our landscapes, protect soil health and adapt to climate change.

Fast Track to Clean Up Antarctica

The Australian Government is committed to the Fast Track to Clean Up Antarctica project, which will address legacy waste and contamination at Australian Antarctic and subantarctic stations. A key component of the project is the assessment, and restoration of Antarctic and subantarctic soils, and the protection of soil biodiversity.



Photo: Soil Sampling in the Vestfold Hills, Antarctica.
2020 © Dr Catherine King / Australian Antarctic Division.



Interim Action Plan builds on existing initiatives

National Soils Advocate

The National Soils Advocate has been supported by the Australian Government since 2014. The Advocate provides strong leadership and advocacy for conserving and improving the health of Australia's soil. As an independent voice for the importance of good soil management and health, the advocate liaises with ministers, industry and senior executives across governments and the private sector. In July 2019, the Prime Minister announced that the role would become a permanent office, supported through the Department of the Prime Minister and Cabinet.

Cooperative Research Centre for High Performance Soils

Since 2017, the government's \$39.5 million investment in the Cooperative Research Centre for High Performance Soils (Soil CRC) has supported bridging the gap between soil scientists and farmers, with a research and innovation program that aims to increase soil performance in the short and long term.

In April 2019, the Soils CRC received supplementary funding of \$450,000, through the Landcare Building Community and Capacity initiative, to undertake extension activities for around 30 grower groups and natural resource management organisations across Australia to improve soil knowledge and technical capacity.

Agricultural Stewardship Package

The Australian Government is investing \$34 million over 4 years (2018–19 to 2022–23) to deliver an Agriculture Stewardship Package, which aims to develop mechanisms to reward farmers for their efforts in delivering biodiversity and sustainability services that benefit their farms and the broader community.

National Landcare Program

The government's investment in the National Landcare Program recognises the important role communities and land managers play in the sustainable management of our natural resources. The Australian Government is investing more than \$1 billion for phase 2 (2017–18 to 2022–23) of the National Landcare Program.

As part of this investment, \$136 million is allocated to the Smart Farms program (2017–18 to 2022–23), which supports the development and uptake of best practice, tools and technologies such as the management of soils. The program focusses on improving land management practices and biodiversity, which will also help land managers adapt agricultural systems to significant changes in climate, weather and markets. The program has supported capacity-building projects through the Soil CRC, Soil Science Australia and Soils for Life.

This investment includes \$450 million for the Regional Land Partnerships Program (2018–19 to 2022–23) to deliver natural resource management at a regional scale. The Regional Land Partnerships Program invests in sustainable agriculture and natural resource management projects that contribute to improving soil health, biodiversity and vegetation, and projects that increase the capacity of farms to adapt to climate change and evolving market demands.

Future Drought Fund

The government's \$5 billion investment in the Future Drought Fund provides secure, continuous funding of \$100 million each year for drought resilience initiatives. It is helping Australian farms and communities prepare for the impacts of drought through mechanisms such as improved soil management. The fund invests in improved agricultural land management practices, development and adoption of new drought-resilient farming technologies and practices, and initiatives that improve our understanding of drought risk and resilience at farm and regional scales.

The Future Drought Fund Natural Resource Management Drought Resilience Program (2 streams: Landscapes and Grants) aims to improve resilience to drought in agricultural and broader landscapes through better management of natural capital, including soils. This program will roll out in 2020–21 and 2021–22.

Research and Development Corporations

The Australian Government supports Research and Development Corporations (RDCs) through levy funds and matching payments. Many RDCs recognise the value of soils and have been promoting the adoption of soil related best management practices to their stakeholders. Many RDCs also have soil specific projects to investigate new or improved land management practices, and support farmers to improve their farm management and increase productivity and profitability. For example Meat & Livestock Australia launched an extensive communications campaign on soil testing in March 2021, alongside an online soils resource hub with tools and training packages. The campaign was designed to encourage producers to use soil testing to inform their management and fertiliser decisions as an efficient and cost-effective way to improve productivity.

Soil erosion and the Great Barrier Reef

The Australian Government has invested in the Reef Trust to address key threats to the Great Barrier Reef. The Reef Trust and the Queensland Government have initiated several projects to help farmers and other land managers reduce soil erosion. This work has reduced sediment run-off into the Great Barrier Reef and improved water quality.

The Australian Government is also supporting sustainable farming practices in Queensland through 6 new water quality projects. Funded through the Reef Trust and worth \$30 million, these projects will significantly reduce run-off into the Great Barrier Reef. The projects will directly benefit cane and grain farmers, graziers, local communities and marine ecosystems by preventing at least 21,000 kg of dissolved inorganic nitrogen and 72,600 tonnes of fine sediment run-off. The projects will be delivered through the National Landcare Program Regional Land Partnerships Program.

Soil carbon

The Clean Energy Regulator has introduced several measures to support participation in soil carbon projects under the Emissions Reduction Fund. Prepayment against carbon abatement contracts is available to help land managers meet the costs of soil carbon measurement requirements. The regulator has also streamlined the registration and reporting process.

There are currently over 130 registered soil carbon projects. The two soil carbon methodologies available in the Emissions Reduction Fund are: *Measurement of soil carbon sequestration in agricultural systems*, which uses direct soil sampling to measure soil carbon increases from new activities; and *Estimating sequestration of carbon in soil using default values*, which uses a model based approach. The Clean Energy Regulator is leading work on a new soil method through a co-design process with industry to reduce costs associated with implementing soil projects and to encourage uptake.

Clean Energy Innovation Fund

The Clean Energy Finance Corporation (CEFC) invests money on behalf of the Australian Government in a range of innovative projects and initiatives. Through the Clean Energy Innovation Fund, the CEFC has already invested \$6.7 million in equity to various soil-related projects and businesses focussed on accelerating technological development in the sector. A further \$38 million has been invested in debt finance to support Melbourne's \$65 million South Eastern Organics Processing Facility, which composts the household garden and food waste from council kerbside green waste collections. The CEFC will continue to use debt and equity finance as a mechanism to support the development of a self-sustaining market.

Soil data

CSIRO maintains the National Soil Archive, a collection of over 71,000 soil samples dating back to 1924. CSIRO also maintains the ASRIS, which contains soil data from across Australia.

The Australian Government is implementing solutions to the findings of the National Drought and North Queensland Flood Response and Recovery Agency's *Review of Australian Government Drought Response* (2020). This includes maintaining and building the National Drought Map and developing a consistent suite of drought indicators that can guide the design of drought support programs across government. These initiatives may benefit from incorporating improved soil data that will be delivered through a national soil monitoring program.

The agency is also exploring the use of satellite imagery to estimate paddock biomass across Australia on the National Drought Map. The application of these information services may enable primary producers and natural resource managers across Australia to manage, predict, and improve production and soil health across their region.

The government has provided \$12 million for the Future Drought Fund, Climate Services for Agriculture program (2020–21 to 2021–22) which will deliver authoritative regional climate information to enable users to plan for future climate risks. The investment will help guide other related Commonwealth resilience building programs through providing access to fit for purpose climate information to base planning and decisions on.

CSIRO and Geoscience Australia

The Australian Government agencies, CSIRO and Geoscience, play critical roles in the assessment and mapping of Australia's landscape.

CSIRO undertakes key soil research to support the design of effective soil monitoring programs and soil management trials. This work contributes to our understanding of soil processes and function, including soil carbon sequestration, accurate economic valuation of soil, and the improvement of technologies to assist with soil measurement, management, mapping and modelling.

Geoscience Australia provides nationally managed datasets used in mapping soil classes and specific soil properties. These data inform our understanding, mapping and management of soil condition.

Australian Government departments as landowners

The Department of Defence recognises that it is a custodian of the environment. It is committed to sustainable environmental management, including the mitigation of soil run-off into the Great Barrier Reef through hazard reduction burn planning, riparian and gully vegetation management, and improved infrastructure development. The Department of Defence has also facilitated sampling by CSIRO for its Australian Microbiome Initiative, as part of the onsite Bush Blitz citizen science program.

Table 1 Measures the Australian Government is implementing in 2021

Initiative	Summary	Funding
Pilot Soil Monitoring and Incentives Program	Combine and build on soil data from across Australia. The program will provide data to inform soil and land management decision-making.	\$62.6 million Pilot Soil Monitoring and Incentives Program \$2.2 million review of soil existing data \$21.3 million capture of historical soil data \$15.3 million Australian Soil Resource Information System \$0.6 million National Land Management Classification System
Soil Science Challenge Grants	Researchers can apply for funding to address gaps in soil knowledge.	\$20.9 million
Enhancing soil education and expertise	New Registered Soil Practitioner Curriculum for a national accreditation for soil professionals.	\$1.1 million
Recycling organics	Food Waste for Healthy Soils Fund will be established to improve organic waste processing infrastructure.	\$67 million
Soil Carbon Innovation Challenge	Deliver a competitive innovation challenge to reduce soil carbon measurement costs to less than \$3 per hectare per year, the goal set by the government's first Low Emissions Technology Statement.	\$36.7 million
Soil Extension	Smart Farms funding will be used for on-ground soil extension services to support the Pilot Soil Monitoring and Incentives Program.	\$18 million
Future Drought Fund: Drought Resilient Soils and Landscapes	Support on-ground activities that help build and maintain the capacity of soils and agricultural landscapes to underpin farm productivity, even in times of drought	\$23 million
Indigenous Ranger Program	Support Indigenous Australians to protect and conserve land and sea Country.	\$761 million
Fast Track to Clean Up Antarctica	Initiative includes the assessment, remediation and restoration of Antarctic and subantarctic soils, and the protection of soil biodiversity. It will support the development and purchase of technologies and tools to measure and monitor soil health, soil contamination and upgrade in-house analytical capability.	\$2.5 million

Table 2 Existing programs that support the National Soil Strategy

Initiative	Summary	Funding
National Soil Advocate	Provides strong leadership and advocacy for conserving and improving the health of Australia's soil.	Details not provided here
Cooperative Research Centre for High Performance Soils	CRC for High Performance Soils bridges the gap between soil scientists and farmers. Undertakes extension activities to improve soil knowledge and technical capacity for grower groups and NRM organisations.	\$39.5 million \$450,000
Agricultural Stewardship	Encourages adoption of improved on-ground land management practices, including soil management.	\$34 million over 4 years
National Landcare Program	Funding includes a range of measures to support natural resource management, sustainable agriculture and protect Australia's biodiversity.	\$1 billion \$136 million to the Smart Farms program \$450 million for Regional Land Partnerships Program
Future Drought Fund	Helping farmers and communities prepare, for the impacts of drought through better practices such as improved soil management.	\$5 billion investment providing \$100 million a year in funding for drought-resilience programs
Research and Development Corporations	The Australian Government supports Research and Development Corporations through levy funds and matching payments.	Details not provided here
Reef Trust	Reef Trust assists farmers and other land managers to reduce soil erosion – improving water quality in the Great Barrier Reef.	\$30 million
Soil carbon	Department of Industry, Science, Energy and Resources is partnering with stakeholders to collect and analyse data to measure soil carbon changes from a range of land management practices.	\$7.9 million
Emissions Reduction Fund	Encourages Australian businesses to cut their greenhouse gas emissions and undertake activities that store carbon, including agricultural activities that increase soil carbon.	\$2.55 billion, plus \$2 billion Climate Solutions Fund, to build on the success of the Emissions Reduction Fund and continue investment in low-cost abatement.
Clean Energy Innovation Fund	Clean Energy Finance Corporation invests money in a range of innovative projects and initiatives.	\$6.7 million in equity \$38 million in debt finance
Soil data	Deliver regional climate information to plan for future climate risks.	\$12 million Climate Services for Agriculture Program



Photo: Mark Imhof

