



Name:

Carolyn Hall

Which of the following best describes your situation?

Not for profit organisation

Are you responding on behalf of an organisation or industry body?

Yes

Who are you responding on behalf of?

the Mulloon Institute

How would you like to respond?

c. Both

Upload your document here:



What are the opportunities to reduce emissions and build carbon stores in agriculture and the land? What are the main barriers to action?

Landscape rehydration and restoration of hydrological function across Australia's agricultural land will assist in sequestering carbon while delivering a raft of co-benefits including improved water quality and quantity, increased

biodiversity and agricultural production. This approach will at the same time empower rural communities to take action to make their landscapes more resilient to drought, bushfire and flood and build a shared knowledge with our First Nations people on caring for Country and begin to build a restoration economy that provides culturally appropriate work. The barriers to action are regulatory requirements that are not for purpose, upfront funding for landscape repair, and the development of accredited monitoring methodologies that enable landowners to staple landscape rehydration onto carbon and other natural capital credits. Training and educating rural land managers to deliver these works and adequate planning across Australia to prioritise catchments for repair.

How can we progress emission reduction efforts whilst also building resilience and adapting to climate change?

Landscape rehydration and restoration of hydrological function across Australia's agricultural land. Dealing with the regulatory barriers to landscape repair. Supporting collaboration rather than competition for the small amounts of funding available to support this work.

Are there initiatives or innovative programs underway that could be applied or expanded on at a national scale?

The Mulloon Institute has developed CReST, the catchment rehydration selection tool in NSW. This model has produced a catchment priority map for the implementation of landscape rehydration projects across NSW. Funded by NSW DPI under their Climate Smart Pilots Project – Demonstrating Adaptation Program. The CReST model provides a roadmap for optimising large-scale adoption of landscape rehydration across NSW. It could, with funding be quickly expanded to be a national tool, providing a prioritisation tool for catchment scale landscape rehydration and repair across Australia.

How can the Australian Government bring together existing effort and new initiatives into one coordinated plan?

The future drought fund's mandate could be expanded to include coordination of landscape rehydration and restoration at the national scale to deliver adaptation and mitigation to climate change. This approach can then be combined with a variety of other innovations that are occurring in land management in the agricultural sector. The national cabinet could come together and agree on the outcomes that all the states and territories want to achieve through environmental regulation of restoration projects and so support the development of a national code for landscape rehydration and restoration. The Australian Government could support the development of a restoration economy. The goal is to enable and incentivise the transition toward nature-positive development. Thereby helping farmers and rural communities build and commercialise natural capital and equip First Nations communities to care for and heal Country and generate culturally appropriate work to support closing the gap.

What are the most important options to be further adopted or supported, looking in the short and the longer-term?

Restoring the hydrological function of our landscapes that support broadscale agriculture is a critical first step in supporting our natural systems to cycle and store carbon in the landscape. Additional technologies can be developed and applied concurrently to reduce emissions.

What are the practical solutions to increase uptake?

Training, education and capacity building for landscape rehydration and restoration. The development of communities of practice in rural and First Nations communities across the country. Addressing the avalanche of regulatory hurdles that currently apply to restoration projects, that are not fit for purpose and are suited to projects that exploit the environment for money. Upfront funding for landscape rehydration and repair projects. Adequate planning and modelling to prioritise landscape repair across the country. Support for farmers to access natural capital markets through organisations that are not project developers and can provide information and assist farmers to identify and consider their risk appetites.

How do you see the agriculture and land sectors contributing over the medium and longer-term? What are the opportunities to deliver emission reductions in parallel with wider goals?

Australia has a real opportunity to become the producer of the most sustainable food and fibre on the planet. Production that leaves a legacy of intact functioning landscapes that sequester carbon and deliver food and water security can be achieved through a national program of landscape repair.

How can the Australian Government better support agriculture and land sectors to:

a) drive innovation

b) build capacity

c) ensure the system enables emissions reductions

a) Landscape rehydration and restoration at the national scale can even out the variations in soil carbon levels by moderating the impacts of drought. Farmers are eager to engage with this approach at scale but regulatory costs stop projects in their tracks. Enabling farmers to apply this approach as per a code will drive innovation in landscape repair. b) Targeted education and capacity building - points of truth for farmers and First Nations through organisations that are not project developers, supporting the development of communities of practice for landscape repair. c) address regulatory hurdles for landscape repair.

What new initiatives could the Australian Government design that would support emissions reduction and carbon storage in agriculture and land and help ensure a productive, profitable, resilient and sustainable future for the sectors?

Landscape rehydration and restoration at the national scale that delivers productivity, biodiversity and resilience with education, regulatory reform, and national modelling to prioritise implementation. A national approach to a landscape restoration economy with jobs for example in seed production for biodiversity plantings, management and maintenance of nature-positive projects, farmers gaining income via credits or charging for visitation to regenerated areas, consider the Conservation Reserve Program in the United States.

A consistent and trusted approach for assessing and reporting emissions is often raised as a barrier to reducing emissions. Is there a role for the Australian Government in addressing this concern, and how can producers and land managers be supported?

Any approach must align with international practice. Farm data that is already being collected and can contribute should be captured and utilised and managed to assist farmers in assessing and reporting on emissions. Too many frameworks and strategies make this space very confusing.

What skills, knowledge and capabilities do you think producers and land managers need to implement change? What information and data would help them make decisions about emissions reductions and sustainable land management in the short and longer-term?

Understanding how their landscapes function, developing skills to restore the hydrological function of their landscapes on farm, and understanding when they need assistance by skilled landscape planners. Appreciating the key role their restored and functioning landscapes can play in the adaptation to and mitigation of climate change. Data that shows the health of their landscape and soils, how suitable their landscape is for landscape rehydration infrastructure and sharing knowledge about practices that build natural capital on farm. Accurate shared data on emissions.

Do you have any additional views or feedback that you would like to include in your response?

Landscape rehydration and restoration of hydrological function across Australia's agricultural land will assist in sequestering carbon while delivering a raft of co-benefits including improved water quality and quantity, increased biodiversity and improved agricultural production. This approach will at the same time empower rural communities to take action to make their landscapes more resilient to drought, bushfire and flood and build a shared knowledge with our First Nations people on caring for and healing Country and begin to build a restoration economy that provides culturally appropriate work to help close the gap. The barriers to action are regulatory requirements that are not for purpose, upfront funding for landscape repair and the development of accredited monitoring methodologies that enable landowners to staple landscape rehydration onto carbon and other natural capital credits. Training and educating a workforce to deliver these works and adequate planning across Australia to prioritise catchments for repair. Australia has an opportunity to deliver the most sustainably produced food and fibre on the planet and at the same time deliver adaptation and mitigation to climate change. The Mulloon Institute is ready to support Australian farmers, rural and First Nations communities and the Australian Government to deliver land management change in the agricultural sector.

Is your response confidential?

No

Do you agree to your response being published on our website?

Yes

I have read and understood the privacy notice and consent to the collection, use and disclosure of my personal information as outlined in the privacy notice.

Yes

Confirm that you have read and understand this declaration.

Yes



Mulloon Institute

For environment, farming and society.

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Dear Minister Watt,

RE: Agriculture and Land Sectoral Plan Submission

The Mulloon Institute (TMI) welcomes the agriculture, land and emissions discussion paper and the opportunity to provide feedback on the paper and input into the associated sectoral plan. We also appreciate the involvement of Ministers Plibersek (Environment and Water), Bowen (Climate Change and Energy) as well as your Agriculture, Fisheries and Forestry Ministry. We believe this cross sectoral approach is required to:

- address the challenge of climate change and
- acknowledge the co-benefits across a range of portfolios that can be achieved with a focus on agricultural landscape repair as a mitigation and adaptation to climate change.

The Mulloon Institute (TMI) is Australia's premier scientific organisation in Landscape Rehydration and restoration. Its work focuses on capturing and retaining water in the landscape, through identifying and restoring hydrological processes using physical interventions and regenerative land management approaches. As a not-for-profit organisation, TMI carries out landscape repair and rehydration of catchments across Australia, by sharing regenerative land management practices, monitoring the outcomes and educating farmers and land managers and working with rural and First Nations communities to deliver these practices at scale.

TMI has its own commercial farms comprising 2,500 hectares that acts as a demonstrator, located on the NSW Southern Tablelands, near Bungendore, around 40 minutes east of Canberra. These farms form part of the Mulloon catchment scale landscape rehydration project delivered in partnership with 23 landholders across 23,000 hectares and partly funded by the Australian Government through the National Landcare Program.

The Mulloon Institute recognises there are two sides to the adaptation and mitigation of climate change:

- emissions reduction, and
- agricultural landscape repair.

This submission focusses on the opportunity for Australia's response to climate change provided by the repair of agricultural landscapes. The discussion paper has focussed on emission reduction, we believe consideration of the opportunities offered by landscape repair to meet the challenge of a net zero future deserves is warranted.

In Australia our environment is struggling. Deforestation and agriculture have resulted in widespread degradation of our soils and waterways. This submission acknowledges that we live within the limits of natural systems and that functioning landscapes with intact small water cycles, healthy soils and vegetation are required for planet earth to manage the increased energy coming from the sun. Left unaddressed the ultimate impact of broken water cycles is desertification of agricultural landscapes. This process and its impact on civilisations are well understood in the literature (Kirkby 2021).

Just like your sweat on a hot day cools your body, planet earth can transform and transfer the increased energy coming from the sun with climate change through evapotranspiration. For the small water cycle to do the heavy lifting of managing that increased energy we need an intact mantle of living soils and living vegetation. Repaired and

functioning small water cycles can send that energy back out to space without heating planet earth's core and at the same time deliver a host of co-benefits.

Benefits include restored hydrological landscape function and biodiversity and improved water quality, while also making our landscapes more resilient to drought, bushfire and flood. The Australian Government has recognised the importance of elements of the small water cycle in our response to climate change with the National Soils Strategy and the recently announced National Soil Action Plan. The recently passed Nature Repair Market Bill recognises the role of the market in conserving vegetation and biodiversity. The Water Amendment (Restoring Our Rivers) Bill 2023 provides an opportunity to engage with rural and First Nations communities in the Murray–Darling Basin to deliver sub-catchment landscape rehydration that can contribute to enhancing environmental outcomes in the Basin. There is also an opportunity to capture the need for reinstating the small water cycle through the implementation of landscape rehydration infrastructure across our agricultural landscapes in the National Plan for Water Security.

Landscape Rehydration projects, also known as 'natural infrastructure', 'conservation earthworks' and 'nature-based solutions,' can transform vast areas in just a few years. These projects use soil, rocks, logs, vegetation and adapted management to slow the flow of water and repair 'landscape function': the patterns and processes by which a landscape retains and uses its vital resources as a biophysical system. Compelling scientific evidence is building global momentum for these solutions. Their multiple benefits truly stack up: they mitigate flood risk, foster drought tolerance, sequester carbon, control erosion, drive habitat recovery and filter pollutants from our drinking water. They are low-cost, low-tech and have negligible greenhouse gas emissions. They can also be scaled from a single erosion gully to the landscapes of an entire catchment. Landscape rehydration projects:

- are the 'how to' for farmers in building their natural capital on farm
- can engage and skill up our First Nations communities in Caring for Country and delivering on culturally appropriate work to help close the gap
- can empower rural communities to take action to build landscape resilience in the face of a changing climate.

The delivery of landscape rehydration projects at the catchment scale across Australia can green up and cool down our landscapes and play an important role in our national response to climate change, while delivering on important social outcomes for our rural and First Nations communities.

The Mulloon Institute has developed the following to support scaling this approach.

- A comprehensive landscape rehydration and restoration **education and capacity building curriculum** targeted at landholders, land managers, professionals in the natural resource management sector and our regulators, delivered nationally.
- A small but highly **skilled workforce** of landscape planners and designers who can design and oversee the installation of landscape rehydration infrastructure.
- A **network of demonstrations sites across the country** showing farmers, First Nations, regulators and NRM professionals how this approach can deliver rehydration and restoration in any landscape.
- **Recognition of landscape rehydration infrastructure (LRI) in the legislation in NSW** along with a new planning pathway and a Landscape rehydration infrastructure works – approvals and procedures guideline (NSW Department of Planning and Environment 2023).
- **A catchment priority map for the implementation of landscape rehydration projects across NSW.** Funded by NSW DPI under their Climate Smart Pilots Project – Demonstrating Adaptation Program. The Catchment Rehydration Selection Tool **CReST** model provides a roadmap for optimising large-scale adoption of landscape rehydration across NSW.

- Proposal for a **National Landscape Rehydration and Restoration Code** that addresses the avalanche of regulatory requirements for projects that aim to restore the environment and are not fit for purpose for landscape repair.

At the Mulloon Institute We know how critical restored and rehydrated landscapes are for a climate resilient future. We understand the barriers to this work presented by regulations but see a way forward via the proposal for a national code. We have demonstrations of successful landscape rehydration and repair across the country. We have an education and capacity building program to share and build knowledge. We can now prioritise where this work should be done for the greatest return across NSW and with help across Australia.

The Mulloon Institute has identified the plan to **Rehydrate Australia** as key to our country's response to climate change. We have laid the groundwork to make it an easy win for the Australian Government. We have rural and First Nations communities across the country ready to proceed and we have the support of the scientific and legal communities for monitoring and the required reforms. Further funding would enable the Mulloon Institute to expand its support of Australian farmers, rural and First Nations communities through:

- continuation and expansion of our scientific monitoring program of the Mulloon catchment rehydration project already subject to funding from the NLP2 program
- progressing community catchment scale landscape rehydration projects that can support farmers in building their natural capital and so access natural capital markets
- taking the CReST model to a national tool to prioritise landscape rehydration across Australia
- expanding our national landscape rehydration education and capacity building program.

We would welcome the opportunity to discuss our progress to date and collaborate on a plan with the Australian Government to Rehydrate Australia to contribute to a net zero future and meet our international obligations.

Yours sincerely,



Carolyn Hall
CEO Managing Director GAICD
The Mulloon Institute

References

Kirkby, M orcid.org/0000-0003-2036-1770 (2021) Desertification and development: Some broader contexts. *Journal of Arid Environments*, 193. 104575. ISSN 0140-1963 <https://doi.org/10.1016/j.jaridenv.2021.104575>

NSW Department of Planning and Environment dpie.nsw.gov.au *Landscape rehydration infrastructure works – approvals and procedures* 20 March 2023 Department reference number: SF22/170869
<https://www.planningportal.nsw.gov.au/isepp-landscape>