

13<sup>th</sup> December 2023

## **Submission on Agriculture, land and emissions Discussion paper**

Dear Honourable Senator Murray Watt, Honourable Tanya Plibersek MP and Honourable Chris Bowen MP,

Thank you for the opportunity to comment on the Agriculture, land and emissions Discussion paper. This is an important step towards Australia reaching net zero and indeed, we suggest that the agriculture and land sector can make a major contribution to sequestering carbon and thus offsetting emissions from other sectors.

Inclusion of First Nations land managers, Indigenous Protected Areas, the growing market for native foods and opportunities for the wider First Nations communities to contribute to reducing emissions is a strength of the Discussion Paper. Australia's First Nations peoples have a depth of knowledge of sustainable agriculture and land management developed over sixty thousand years of changing environmental conditions. Reactivating and, where appropriate, sharing this knowledge could accelerate our emissions reductions. Successful examples such as the [Indigenous Carbon Industry Network](#) should be supported to share their learnings across Australia, to empower First Nations people to engage with, lead and benefit from simultaneously reducing emissions, sequestering carbon in soils and vegetation and caring for Country.

While the Discussion paper outlines the current situation accurately, unwaveringly addressing the challenges that global warming is already causing for our nation's farmers, the opportunities to reduce emissions miss or underemphasise three key areas that we suggest hold enormous potential and would like to draw to your attention:

- Regenerative agriculture
- Rehydration of wetlands and organic soils
- Conservation lands

### **1. Regenerative Agriculture**

Regenerative agriculture, also known as agroecology, is a philosophical approach to farming that centres rebuilding the health of soils as the foundational resource for food and fibre production. While soil health comprises more than simply carbon, soil carbon is a useful indicator for soil health. Regenerative agriculture producers have focused upon and learnt how to increase soil carbon via several decades of on-farm experimentation with plant and animal management, supported by an international network of practitioner knowledge sharing. However, funding for research on regenerative agriculture has lagged behind on-ground action, hence there is as yet a paucity of scientific evidence. However, the first four issuances of Australian Carbon Credit Units

under the Emissions Reduction Fund have all been to regenerative agriculture practitioners. As they say, “the proof is in the pudding”. The sectorial decarbonisation plan for agriculture and land should feature regenerative agriculture centrally, with funds for regional hubs to sharing learnings with other producers, low interest infrastructure loans as well as research to further optimise carbon sequestration.

## **2. Rehydration of wetlands and organic soils**

Rehydration of wetlands and organic soils can enable these carbon and biodiversity hotspots to regain their natural carbon sequestration function. Most of Australia’s wetlands and organic soils have been drained to make them more productive for dryland agriculture, or to concentrate water in irrigation and hydroelectricity infrastructure. However, these ecosystems are more productive when they are wet, and research suggests that they will continue to provide water flow downstream. A concern with wetland rehydration globally has been the potential for increased methane emissions, which could offset the reduced carbon dioxide emissions and increased soil carbon storage. However, recent local research suggests that some wetlands in Australia also absorb methane from the atmosphere, so this concern may not be universally applicable. Rehydration of wetlands and organic soils provides drought resilience co-benefits for agriculture and biodiversity, while growing the nation’s LULUCF carbon sink. The sectorial decarbonisation plan for agriculture and land should include rehydration of wetlands and organic soils as a priority within LULUCF policy and action, with funds and incentives to drive the required landscaping works on public, private and Indigenous managed lands. On-farm research in partnership with land managers to monitor and document greenhouse gas emissions and soil carbon sequestration with leading private and NGO practitioners such as The Mulloon Institute, Bush Doctor and Bush Heritage would provide the evidence base and communications materials to facilitate rapid upscaling of this LUC across the nation.

## **3. Conservation lands**

Conservation lands hold enormous untapped potential for carbon sequestration. To realise this potential, which has so far barely been considered, funding, research and action need to be rapidly invested into our public lands concurrently. One model to achieve this is in partnership, whereby the government leases public lands to not for profit organisations (NFPO), who manage the land for carbon sequestration and conservation. Private equity can then flow into the system to fund restorative land management actions to increase carbon sequestration in vegetation and soils, via the NFPO’s sale of carbon credits to investors. The Indonesian government is progressing rapidly in this space and Australia could adapt the legislative model that facilitates this to grow our carbon sink in conservation lands and improve their biodiversity conservation function. The sectorial decarbonisation plan for agriculture and land should devote equal attention to conservation lands as to agricultural lands and explore novel approaches to inject funding into conservation land management for carbon sequestration.

Finally, we caution that the strong emphasis on a continued export market focus for our agriculture products is incompatible with achieving net zero, in light of planetary boundaries and our ancient landscapes. Rather, we can better contribute to ensuring global food security by exporting our agriculture and land management knowledge via research and practitioner collaborations (such as expanding the work of the Australian Centre for International Agricultural Research) and sequestering carbon to stabilise the global climate and support agricultural production elsewhere.

Thank you for considering our suggestions. I would be happy to discuss any of them further with your team as you develop the sectorial decarbonisation plan for agriculture and land. Individual answers to some of the questions posed within the Discussion paper below.

Sincerely,



Dr Samantha Grover



**Note that this submission represents the professional opinions author and the Soil-Atmosphere-Anthroposphere Lab and not the official position of RMIT University.**

### **Responses to questions posed in the Discussion Paper**

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

Opportunities to reduce emissions and build carbon stores in agriculture and land abound. Three key opportunities discussed in detail above in our submission are regenerative agriculture, rehydration of wetlands and organic soils and investment into management for carbon storage on conservation lands. Two other important opportunities for the agriculture sector are nitrification inhibitors and seaweed. Nitrification inhibitor coating should be mandatory for any nitrogen fertiliser sold in Australia. The slight cost increase can be rapidly absorbed and passed on to consumers and the impact on our emissions reduction will be significant, given  $\text{N}_2\text{O}$ 's GWP is estimated at 265 times that of  $\text{CO}_2$ . Seaweed as a methane-inhibiting food supplement for livestock should be scaled up; with start-up support for production facilities and a 5 year no cost trial of the supplement for farmers.

Land managers and industry are acting already or are poised for action on climate change; currently the key barrier is policy uncertainty. A strong ambitious net zero plan for Australia, with clear direction within the sectorial decarbonisation plan for agriculture and land, will rapidly overcome this barrier. On a smaller scale, the barrier of delivering methane-inhibiting supplements to grazing livestock can be overcome by using rotational grazing of small paddocks practiced within regenerative agriculture, with the co-benefit of increasing soil carbon storage.

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

As described in our submission, regenerative agriculture, applying land management practices suited to the local climates and soils of each region of Australia, can sequester carbon, build drought resilience and, with policy support, enable farming agribusinesses to diversify production and incomes to adapt to climate change.

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

Three examples of innovative work that could be expanded;

1. Indigenous Carbon Industry Network: This incredibly successful network could be funded to share learnings nationally and support Indigenous land managers to move into the soil carbon sequestration and integrated farm management carbon sequestration spaces.

<https://www.icin.org.au/>

2. Climateworks Centre: This well established centre bridges the gap between research and climate action and they have programs that could be implemented and expanded in all industry sectors.

<https://www.climateworkscentre.org/>

3. Victorian Traditional Owners Native Food and Botanicals Strategy: implementation of the three programs around Provenance, Market and Practice could accelerate First Nations land management with climate and reconciliation benefits for all Australians. <https://gunaikurnai.org/wp-content/uploads/2021/07/Victorian-Traditional-Owner-Native-Foods-and-Botanicals-Strategy-ONLINE.pdf>

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

The Australian Government can now bring together all existing effort and new initiatives into one co-ordinated plan by releasing the Net Zero plan as the **overarching** guiding policy for the nation, which requires all other sectoral efforts to pivot to prioritize emissions reduction and carbon sequestration as their **top priority**. At present there are many unco-ordinated efforts which include emissions reduction and carbon sequestration as one, but not the top, priority.

*10. 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?*

The Australian Government can greatly decrease the barrier for assessing and reporting soil carbon and emissions data under the 2021 Soil Carbon Method by providing a secure, open-access, and interactive calculator, and by providing standardised data templates for the Method input data. Currently the Australian Government does provide a service that allows producers, land managers or aggregators to provide data, that is then processed in a restricted environment and certain outputs (e.g. net abatement) are returned to the data provider. However, this does not allow said parties to analyse and learn from their data, and subsequently improve their practices. It also introduces time delays for the data providers, and unnecessary work on the Government's or external auditor's side which could be invested elsewhere.

*11. 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?*

There is a lack of people with the appropriate knowledge to implement emissions reduction and carbon sequestration practices in Australia at all levels. Two suggestions for building our nation's capability to reach net zero; a) farmer-led knowledge sharing and b) investment in a suite of Australian Research Council Industrial Transformation Training Centres and Research Hubs.

a) Farmer-led knowledge sharing

Farmers who have been practicing regenerative agriculture for decades are at the forefront of practical knowledge. As farmer-to-farmer knowledge sharing has been demonstrated to be the most effective way of enabling farmers to change their practices (rather than more information and data from experts), funding for facilitators and workshop support staff to leading farmers to share their practices with other farmers would be a cost-efficient way to accelerate sectorial emissions reductions and carbon sequestration.

b) ARC Industrial Transformation Training Centres and Research Hubs

This Australian Government investment in research and training should be centred upon emissions reduction and carbon sequestration for the next 1-2 decades. An example in the agriculture and land sector could be "Climate-smart landscape transformations", with biophysical and social science research and training on Indigenous land management and regenerative agriculture to sequester carbon in land.