

5 January 2024

Department of Agriculture, Fisheries and Forestry

Submitted electronically

To whom it may concern,

Climateworks Centre submission on the Agriculture and Land Sectoral Plan

Climateworks Centre welcomes the opportunity to respond to the *Agriculture, land and emissions* discussion paper.

Climateworks Centre bridges the gap between research and climate action, operating as an independent not-for-profit within Monash University. Climateworks develops specialist knowledge to accelerate emissions reduction, in line with the global 1.5 degree Celsius temperature goal, across Australia, Southeast Asia and the Pacific.

Globally, more than one-third of greenhouse gas emissions caused by human activity can be attributed to the way food is produced and consumed. Land and ocean ecosystems are also the most valuable carbon sinks, removing and storing CO₂ from the atmosphere. Ensuring that agricultural and land systems can reduce and remove emissions in line with a 1.5-degree pathway will require changes in how food is grown, what is grown, and in how land is managed - particularly Australia's forests and natural carbon sinks.

Action is especially urgent given the window to keep global warming within 1.5°C is open but narrowing. Climateworks has conducted extensive scenario modelling to determine emissions reduction pathways for Australia compatible with the Paris climate goals. Our submission draws on:

- [Climateworks Centre decarbonisation scenarios 2023](#) economy-wide modelling
- initial results from the upgraded Land Use Trade Offs model (LUTO 2.0) that Climateworks and Deakin University have been developing (noting these are yet to be finalised) and foundational research that has contributed to the development of the model
- Climateworks' [Land Use Futures](#) program and [Natural Capital Investment Initiative's](#) engagement with agriculture, conservation, finance, corporate and government sectors around what sustainable land use looks like and what is required to achieve it.

Submission summary

Climateworks recommends that the Department of Agriculture, Fisheries and Forestry (DAFF) and Department of Climate Change, Energy, the Environment and Water (DCCEEW) take into account the following considerations when developing the Agriculture and Land Sectoral Plan. Specific recommendations for each of these points are included in the submission body.

- Focus the Agriculture and Land Sectoral Plan on sectoral change in line with the 1.5°C target of the Paris Agreement, the Global Methane Pledge, and the goals in the Convention on Biological Diversity; and use least-cost sectoral pathway analysis to guide actions.
- Ensure the Sectoral Plan takes a holistic, systems-level approach to balancing climate, nature and agricultural production to address tradeoffs and maximise co-benefits. This includes acknowledging the need for significant land use change to reach climate and nature goals, promoting shifts in land management and food production systems to support such changes, optimising opportunities across regions and sub-sectors, and supporting nature-based solutions (NbS) to achieve multiple goals.
- Develop realistic, shared expectations of the land sector's capacity to compensate for other sectors' emissions. This requires consideration of a broad range of costs (financial, social and environmental), promoting consistency across sectors in the use of offsets, and ensuring scientifically rigorous treatment of the relationship between biological removals from the land sector and emissions from fossil fuels and industrial processes.
- Address data and information gaps to support and enable planning. Bringing agriculture into the National Greenhouse and Energy Reporting Scheme requirements can contribute to this need, along with supporting work on modelling, mapping and data systems to fully assess the opportunities and tradeoffs between climate, nature and agricultural productivity objectives, and addressing limitations in the reliability of data on carbon storage in the land..
- Set out how government will drive investment and expenditure to achieve the pace and scale of change in land use and management required to meet climate goals and restore nature. This includes ensuring that the development of the Sectoral Plan and the Sustainable Finance Strategy create a coherent approach to private and public investment. These should promote a broad suite of solutions, which should include but not overly rely on agricultural innovation. It is also important to clarify the potential and limitations of market-based mechanisms in bringing about the scale and pace of change required, with sufficient consideration given to complementary finance mechanisms, such as tax policies that incentivise sustainable land use.
- Support a diversified and just transition in the land sector that results in a better quality of life, diversified economic opportunities and resilient rural communities. In particular, the plan must take pre-existing structural inequalities into consideration and provide opportunities for Aboriginal and Torres Strait Islander peoples to both access and express their connection to Country.

The need for higher ambition

This section relates to questions 1 and 2 of the discussion paper.

Recommendation 1: Align the Sector Plan with the 1.5°C target in the Paris Agreement, the Global Methane Pledge, and the goals in the Convention on Biological Diversity, thus driving simultaneous rapid decarbonisation and carbon sequestration that enhances biodiversity, natural capital and ecosystem services.

Climateworks welcomes the recognition in the discussion paper of the need for higher ambition. Climateworks has recently published [least-cost emission reduction pathways for Australia](#). These scenario modelling results suggest that a cost-effective path in line with the Paris Agreement goal of keeping warming below 1.5°C, sees greater emissions reductions than Australia's current 2030 target. The pathway reaches 68 per cent below 2005 emissions (or 48 per cent for a well under 2°C target) and net zero before 2040, more than a decade sooner than Australia's current commitment of 2050.

Australia's agriculture and land sectors will play a pivotal role in reducing and storing greenhouse gas emissions while also restoring ecosystems and biodiversity, meeting agricultural demand, and supporting regional communities. Climateworks modelling has consistently shown that for Australia to decarbonise within the bounds of the Paris Agreement temperature goals substantial carbon dioxide removals (CDR) are needed – predominantly through sequestration in the land sector. This requirement needs to be reflected through an appropriate level of ambition in the Sector Plan.

Australia has signed up to the Global Methane Pledge, and there are important opportunities from agriculture, and livestock in particular, to reduce methane as part of Australia's contribution to this pledge. The Plan will be a key occasion for the government to set out how it will support relevant actions.

The Sectoral Plan also provides an important opportunity to guide action to meet the various targets within the Convention on Biological Diversity, given the [poor state](#) of nature in Australia.

Opportunities to reduce emissions and capture carbon in agriculture and land

This section relates to questions 1, 2, 3, 5, 6 and 7 of the discussion paper.

Recommendation 2: Ensure that the Agriculture and Land Sectoral Plan takes a holistic, systems-level approach to balancing climate, nature and agricultural production, to address tradeoffs in finite land use and maximise co-benefits.

Recommendation 2.1: Acknowledge that large-scale changes in land use, including ecosystem restoration, will be needed to achieve climate and nature goals. Achieving optimal land use will require direct changes delivered through improved land management and agricultural practices and technologies. Indirect changes that enable land use change and reduce agricultural emissions are also crucial.

Recommendation 2.2: Position Australia's land sector to operate within environmental thresholds, and support Australia's exports to contribute to sustainable development globally, including a transition toward sustainable diets that are affordable, nutritionally adequate, and environmentally friendly. Australia could consider joining the Alliance of Champions for Food System Transformation to help meet these goals and provide global leadership.

Recommendation 2.3: Ensure that each region and agricultural sub-sector have plans that 'add up' to nation-wide action to meet climate and nature goals, by taking into account relative opportunities and trade-offs at the commodity and regional level. This means that plans within the agriculture sector need to go beyond meeting emissions intensity targets to address overall emission reduction goals. They also need to take into account the opportunity costs for how land can be used for emissions removals.

Recommendation 2.4: Recognise the important role of nature-based solutions (NbS), by conserving or rehabilitating natural ecosystems or enhancing natural processes in modified ecosystems, to achieve climate mitigation, adaptation and biodiversity goals. During the development of the plan, Climateworks advises the government uses the IUCN Global Standard for NbS to inform policy and regulatory frameworks to help prioritise solutions that will deliver significant benefits for people and nature while contributing to climate change mitigation.

Taking a holistic, systems level approach

Australia's land sector will play a pivotal role in reducing greenhouse gas emissions and removing carbon dioxide from the atmosphere and storing it. Analysis by Climateworks and other similar research has shown CDR required in either 1.5°C or well below 2°C scenarios is substantial. This presents significant practical challenges regarding how best to use land that has competing economic, environmental or cultural significance. Climateworks welcomes the development of agriculture and land sector pathways and plans that provide an opportunity to address this challenge.

A pathway for the agricultural and land sectors is needed to provide an understanding of the contribution of different solutions to achieving net zero land use, the overall realisable sequestration potential from the land sector, as well as the opportunities to resolve competition for resources amongst solutions. This information is critical to align action related to land use and agriculture with net zero trajectories, while ensuring that decarbonisation in other sectors align with what is achievable in the land sector, particularly regarding its sequestration capacity.

Agriculture and land sector pathways must account for the need to both reduce the direct environmental impact of agricultural practices whilst also ensuring nature and biodiversity outcomes. The Agriculture and Land Sectoral Plan therefore needs to take a holistic, systems-level approach to balancing climate, nature and agricultural production to address tradeoffs and maximise integrative and co-beneficial solutions.

A broad suite of solutions

Climateworks is currently working with Deakin University to complete the development of the Land Use Trade-Offs (LUTO) 2.0 model that will help provide data on how this challenge can be addressed. Climateworks' whole-of-economy modelling and initial results from LUTO 2.0 enable us to draw several conclusions.

We have modelled the impacts of a broad range of agricultural practices and technologies to improve efficiency, lower emissions and sequester carbon. Our work assumes that Australia meets increasing agricultural demand. We therefore find that agricultural emissions, mostly methane from livestock and nitrous oxide from fertilisers, remain substantial even with improved land management practices and the adoption of new technologies. Our results show that significant amounts of land-based sequestration will be required to achieve climate targets, which is only achievable from substantial land-use changes.

This means that promoting further innovation and uptake of technological solutions as well as good land management practices are essential, particularly given growing food and fibre demand. However, these solutions should not be viewed as a panacea. They must be accompanied by measures that enable large-scale changes in land use to achieve climate and nature goals in order to successfully incentivise and support the reforestation and regeneration and good land management to enable sufficient CDR, beyond existing carbon sinks.

A broad range of solutions are essential to enable the scale of land use change that is required to reduce and remove emissions. These solutions include reducing food loss and waste, supporting the development of non-animal-based proteins and off-land food production, and promoting more sustainable diets that are also nutritious, affordable and accessible. The scale of change required for good management of land used for CDR can also provide opportunities for economic diversification that can enable regional communities to continue to make their livelihoods from the land.

The LUTO 2.0 model includes a sophisticated module that enables analysis of the impact of all these solutions (including domestic and international dietary scenarios) in combination with changes in land management practices and uses. We would welcome engagement with DAFF and DCCEEW as we refine our scenarios early in 2024.

Responding to demand and a global transition to healthy and sustainable diets

As the discussion paper notes, Australia plays an important role in global food supply as a major exporter. Australia's prosperity and global food security depend on this role continuing. Australia should position itself to respond to this as well as how the land sector can operate within environmental constraints. The Sectoral Plan should consider not only what is produced and consumed in Australia but also the embodied emissions within international trade flows.

Some Australian agricultural products have a lower environmental footprint per kilogram of product compared to those produced in other countries. Emerging technologies have the potential to make these products even less emissions-intensive. However, reducing emissions through increased efficiency and technology is unlikely to achieve the deep emissions cuts and CDR that are needed. Furthermore, a focus on relative emissions intensity has limitations when determining the role of Australia's agricultural sector in global supply chains.

Food production choices should respond to demand while enabling the land sector to operate within environmental thresholds. Given population growth, improvements in emissions intensity can be outstripped by overall increases in production. Food production choices should therefore also contribute to evolving global food security requirements, reflecting the need for sustainable diets globally. To do so, some land managers may need to be supported to make significant changes in production, including shifting from higher-emissions to lower-emissions commodities.

The LUTO 2.0 model includes a module to assess the impact of a range of potential demand-side solutions in relation to projected business as usual scenarios that take into account current dietary trends, population and GDP growth among major trading partners. Modelled solutions include dietary change (including adoption of the EAT-Lancet diet), offland food production, and reducing food loss and waste. Our modelling suggests that dietary change has a major impact on Australia's ability to balance climate, nature and agricultural production. Given this, there is opportunity for government to be proactive in positioning Australia in the face of required change, by including in the Plan measures to promote the enabling conditions for more sustainable dietary patterns domestically, and to support a food export industry that contributes to a sustainable food system globally while supporting regional economic diversification.

We welcome Australia joining the Emirates Declaration on Sustainable Agriculture, Resilient Food Systems and Climate Action. We recommend that the Australian Government also consider joining the [Alliance of Champions for Food System Transformation](#) to engage and learn with other nations on this journey, and provide leadership to support the transformations that are required in food systems globally.

Coordinating opportunities across regions and agricultural sectors

The Sector Plan should ensure that each region and agricultural sub-sector have plans that 'add up' to nation-wide action to meet climate and nature goals. The Plan should enable land managers to make well-informed decisions about land use and management that is economically beneficial to themselves and their communities, while delivering broader outcomes needed for Australia as a whole. It can do this by taking into account and providing guidance on the relative opportunities and tradeoffs associated with agriculture, climate, biodiversity, and other ecosystem services across the country. These opportunities and tradeoffs can vary greatly by region. The LUTO 2.0 model, with its high spatial resolution, can support this analysis at the LGA and SA2 levels.

An assessment of opportunities and tradeoffs also needs to take place at the industry and commodity level in the agricultural sector. This assessment should form part of the Sectoral Plan's development, and the Plan should provide a framework for ongoing analysis of opportunities and tradeoffs. The important issue here is how changes in each agricultural sub-sector combine to cost-effectively reach net zero emissions for the economy as a whole. When the opportunity costs for how land is used, and the CDR required across the whole of the Australian economy, are taken into account, it becomes clear that plans for sectors that use large amounts of land, such as livestock, need to go beyond carbon neutral or net-zero goals for that sub sectoral product.

Beyond land, the plan must also address how to ensure fair and equitable use of water for agriculture while maintaining environmental flows in the context of a changing climate. Land-based sequestration through environmental plantings (or other types of forestry) can substantially alter water use and hydrology, an important consideration in decision-making.

The role of nature-based solutions

As stated in the discussion paper, opportunities to capture and store carbon can also improve outcomes for biodiversity. Nature-based solutions (NbS) involve conserving or rehabilitating natural ecosystems or enhancing natural processes in modified ecosystems, to achieve societal goals. NbS have been proposed as a set of integrative approaches that can provide the means to simultaneously address climate change, halt and reverse biodiversity loss whilst meeting the needs of a growing global human population. A widely cited [report](#) estimates that at a global level NbS hold the potential to provide up to 30 per cent of climate mitigation required to meet the 1.5°C target in the Paris Agreement.

There is a clear need to prioritise solutions that will deliver significant co-benefits for people and nature. Afforestation, which may involve planting trees in ecosystems that have not historically been forests, and reforestation with monocultures, especially with exotic tree species, can contribute to carbon sequestration. However, such solutions are often detrimental to biodiversity and may undermine ecosystems' capacity to adapt to climate change. It is crucial that the implementation of NbS positively impact biodiversity and ecosystem health and integrity. The [IUCN Global Standard for Nature-based Solutions](#) is a robust framework for prioritising, designing and verifying NbS to respond

to multiple sustainability objectives and avoiding tradeoffs. Climateworks advises this is used to prioritise solutions that have nature-positive outcomes while addressing other societal challenges.

Develop shared, realistic expectations of the land sector's capacity to compensate for other sectors' emissions

This section relates to questions 5, 6, 8 and 9 of the discussion paper.

Recommendation 3: Through the development of the Plan, agree and set out shared, realistic expectations of the land sector's capacity to compensate for other sectors' emissions, and implications for land use and management.

Recommendation 3.1: Ensure that the full costs (financial, social, environmental) are accounted for when making decisions about expectation of emissions reductions apportioned to the land and agriculture sector. Full costs should be considered to ensure that any delayed action in directly reducing emissions in other sectors is economically and environmentally effective.

Recommendation 3.2: Set out in the Plan the policy and planning mechanisms to incentivise the agriculture sector to undertake emissions reduction activities according to the mitigation hierarchy that applies across all sectors. This includes prioritising all possible measures to reduce emissions, and deprioritising reliance on on-farm removals ('in-setting').

Recommendation 3.3: Ensure scientifically rigorous treatment of the relationship between biological removals from the land sector and emissions from fossil fuels and industrial processes.

The land sector's capacity to remove CO₂ from the atmosphere has significant implications for Australia's overall ability to achieve net zero emissions. Given the importance of CDR within Climateworks' 1.5C scenario, and the low confidence about how much Australia can sequester, it is essential to develop shared, realistic expectations of the land sector's capacity to compensate for residual emissions in agriculture and other sectors, and implications for land use and management.

The broader costs (financial, social, environmental) of increasing land based sequestration should be accounted for when making decisions about the potential for emissions reductions in the land and agriculture sectors. Such calculations should include potential co-benefits for nature. The full costs should be considered to ensure that any delayed action in directly reducing emissions in other sectors is economically and environmentally effective.

The role of offsets and 'insetting' in the transition to net zero

In order to balance opportunities and trade offs across sectors, it is important that policy and planning mechanisms incentivise the agriculture sector to undertake emissions reduction activities according to the offsets mitigation hierarchy that should apply across all sectors. This includes prioritising all possible measures to reduce emissions and de-prioritise reliance on land-based sequestration.

The use of carbon offsets is often criticised for lack of integrity. Criticisms include that emissions reductions are overstated or double-counted, difficulties in monitoring and verification, and lack of permanence. There are also potential social and environmental impacts large-scale actions such as tree planting. With rigorous frameworks, standards, implementation and enforcement the use of offsets can raise ambition, enhance financing for nature and provide options for tackling residual emissions mid-century. Offsets can support transition at the national level to net zero emissions when used by a business or entity that does not have the technologies to decarbonise a product, including in agriculture. They should not be used in lieu of action to cut emissions. There is a particular challenge for the agricultural sector about the degree to which current livestock products can be substituted by non-animal products. These substitutes can have lower climate and environmental impacts. The availability of substitutes is an important part of a framework to assess whether use of offsets fits within an appropriate pathway for Australia to reach net zero emissions.

There is debate within the agriculture sector about whether land-based sequestration on farms should

be used for 'in-setting' of farm emissions versus offsetting other entities' emissions. Australia faces social and political choices about how to balance the relative trade-offs required to reduce emissions across all sectors while supporting communities to be economically viable. Climateworks considers that applying the same criteria to both offsets and 'in-sets' in the agriculture sector, would help to make this choice more transparent. All these factors should guide how both offsets and 'in-sets' are deployed.

Addressing equivalency limitations between emissions and CDR

Beyond the specifics of how offsets are created and used with integrity, there are broader issues around the degree to which land-based sequestration is equivalent to and can counterbalance emissions from fossil fuels and industrial processes. Scientifically rigorous consideration of situations in which there is poor equivalency between sequestration and emissions will ensure integrity in carbon accounting, modelling and policy design. Further work in the development of the Plan to build understanding of these issues can avoid ineffective outcomes. This may include agreeing on measures to increase discount rates and adjusting time frames for sequestration in modelling, and increasing the value placed on carbon sinks, including more resilient, higher integrity ecosystems. Climateworks, University of Melbourne and Griffith University commenced a series of workshops in November 2023 to discuss the potential discrepancies between removals and emissions, drawing on expertise and discussions from a workshop series hosted by Chatham House with UK and European researchers and policy-makers. These workshops were attended by a number of people from across government, and we are happy to discuss the findings and would welcome continued engagement on this topic in early 2024.

Address key information gaps to support planning

This section relates to question 10 of the discussion paper.

Recommendation 4: Address data and information gaps by undertaking or funding work to fully assess the opportunities and tradeoffs between climate, nature and agricultural productivity objectives across the breadth of the Australian landmass. Addressing these issues will be important to both create the plan and ensure its effective implementation. The LUTO 2.0 model has been designed to provide this analysis, and we would value engagement in validating and refining scenarios and inputs in early 2024 to develop credible and realistic pathways that can contribute to the development of the Sectoral Plan.

Recommendation 4.1: Address limitations in the reliability of data on carbon sequestration in landscapes (in both soil and vegetation) and their durability in face of climate change, and the impacts of land management practices on sequestration across regions. This may require a combination of meta analyses and further primary research.

Recommendation 4.2: Prioritise the development of comprehensive updated Australian land use maps.

Recommendation 4.3: Bring agriculture into the National Greenhouse and Energy Reporting Scheme (NGERS) requirements, as recommended by the Climate Change Authority.

There is considerable uncertainty about the role and potential capacity of sequestration in the land sector and particularly NbS in Australia, and likewise understanding of tradeoffs and co-benefits associated with their deployment. A nuanced and detailed understanding of the role of NbS is essential for maximising benefits for climate, biodiversity, and other societal values in sectoral pathways.

Modelling, mapping and data systems to fully assess opportunities and tradeoffs

More advanced spatial modelling will substantially improve the land and agriculture sectoral pathway to underpin the Sectoral Plan. In the [Land Use Futures program](#), Climateworks is collaborating with Deakin University to identify net zero aligned land and agriculture pathways informed by the upgraded LUTO 2.0 model. LUTO 2.0 is an integrated environmental and economic model of Australia's land

system that provides the optimal arrangement of land use and management solutions in order to meet multiple sustainability goals and agricultural demand, at minimum economic cost (or maximum profit). The initial design of the model was based on a broad consultation process, including government, agriculture, industry, the conservation sector and researchers, through which the Land Use Futures program prioritised 85 on ground solutions that cover various domains of action such as nature-based solutions, technologies and other land management practices.

The model covers the entire Australian land mass at a spatial resolution of 1km² 'pixels', presenting how land is managed and used for each pixel. Multiple scenarios can be modelled to understand the different impacts of a set of choices and aspirations for the future. For policy-makers, the LUTO 2.0 model will provide information on how the land use sector can best contribute to climate and biodiversity goals, helping to resolve trade-offs between 'natural' habitat protection and agricultural development and supplying information to help generate forecasts of future agricultural land-use patterns.

Climateworks and Deakin University are currently refining scenarios and adding additional functionality to LUTO 2.0 to test and ground truth initial model runs in early 2024. We welcome DCCEEW and DAFF's participation in this process and continued engagement so that LUTO 2.0 can contribute to the development of the Sectoral Plan and its implementation.

There is also a need to address limitations in the reliability of data on land-based sequestration, their expected durability in face of climate change, and the expected impacts of land management practices on sequestration across regions. This includes review of the main Emission Reduction Fund compliant measures and existing carbon stocks, in relation to uncertainties around carbon storage in both soil and vegetation. Addressing uncertainties in a conservative manner is critical for ensuring the integrity of the pathways that can support the Sectoral Plan. This work may require further analysis and research both for informing the development of the Plan, and for enabling its effective implementation.

Updated Australian land use maps (ideally developed and held by ABARES) would improve government and industry decision making and enable more robust modelling (such as for the LUTO 2.0 model).

Extending the National Greenhouse and Emissions Reporting Scheme

Australia has excellent emissions data on many of its industrial activities due to the National Greenhouse and Emissions Reporting Scheme (NGERS). However, agriculture is not currently covered under the reporting requirements. Climateworks supports the recommendation of the Climate Change Authority in the 2023 NGERS review to incorporate large agriculture and land sector entities into the Scheme to improve data and understanding of the climate impacts of the land and agricultural sector.

Supporting and enabling change

This section relates to questions 8 and 9 of the discussion paper.

Recommendation 5: Ensure that the development of the Sectoral Plan and the Sustainable Finance Strategy create a coherent approach to private and public investment to achieve the pace and scale of change in land use and management required to meet climate goals and restore natural capital. These should set out how government will drive investment and expenditure for a broad suite of solutions to achieve the pace and scale of change in land use and management required to meet climate goals and restore natural capital.

Recommendation 5.1: Set out actions to incentivise further innovation and uptake of technological solutions along with providing the enabling conditions for land use change. This includes supporting the development of an ambitious Sustainable Finance Taxonomy that incorporates 1.5 aligned climate goals and nature-related goals, and ensuring that the Nature Repair Market adequately supports required changes in the land sector and avoids perverse incentives.

Recommendation 5.2: Explore the potential for market-based mechanisms to incentivise emissions reduction in agriculture given the sector is excluded from the Safeguard Mechanism.

Recommendation 5.3: Promote nature-based solutions (NbS) that conserve or rehabilitate natural ecosystems or enhance natural processes in modified ecosystems to achieve climate mitigation, adaptation and biodiversity goals. Consider developing a national NbS roadmap to promote the uptake of NbS to achieve climate mitigation, adaptation and biodiversity goals.

Recommendation 5.4: Include nature-related risks and impacts to the introduction of mandated corporate disclosures on climate. This should include mandating the development of credible transition plans for both nature and climate, which should take into account the opportunity costs of finite land resources.

Recommendation 5.5: Expand the scope of climate financing to co-develop instruments that intentionally achieve nature-positive outcomes.

Recommendation 5.6: Clarify the limitations of market based mechanisms in bringing about the scale and pace of change required, and budget sufficient public allocation to fill gaps and facilitate or de-risk private investment where of value. This includes supporting the expansion of both public and private protected areas.

Changes in policy and investment to enable change

Current emissions projections for the agriculture and land sector are not in line with a least-cost pathway for net zero emissions across the economy. The Sectoral Plan is the opportunity to set out how government will introduce or strengthen a range of mechanisms that support and accelerate emissions reduction in agriculture and increase carbon storage in the land. We agree with the statement in the discussion paper that ‘delivering emissions reductions and expanding carbon storage across agriculture and the land will require more than just investment from government and industry, it will also require significant investment by private actors.’

Climateworks sees a number of areas in which government can support new investment and provide the right mix of incentives to promote sustainable land use and management that are economically viable and support vibrant local communities. Land managers recognise the importance of the natural capital that underpins production systems and provides wider benefits to society. However, the market-based system that land managers participate in does not assign value to natural assets or services provided by the environment. Recognising and rewarding land managers – and landholders – for the wide range of benefits that land management provides has the potential to drive improved stewardship of nature among and alongside productive land activities.

There are two broad areas where further government action will be important.

The first is how to effectively develop and deploy changes to agricultural practices to reduce emissions. Examples include feedstuff to reduce methane from ruminants, types and use of fertilisers, and electrification of on-farm machinery. Many of these technologies could be supported through existing mechanisms to support research and innovation – including ARENA, CEFC and Agricultural Innovation Australia. However, given that many technologies and management practices are novel, there may be benefits to further agriculture-specific programs. Given that agriculture is not covered under the Safeguard Mechanism, Climateworks recommends exploring how existing or new market mechanisms could incentivise emissions reductions within agriculture in a way that supports rural communities to maintain and diversify income.

The second is the broader issue of ensuring land use that supports climate goals and is nature positive. This is important given the interconnection of different outcomes from land uses – agricultural production, emissions, sequestration, water use and biodiversity, amongst others. There are existing and emerging government policies – including the Emissions Reduction Fund and the Nature Repair Market – but these mechanisms will require further development to ensure they holistically address land management and create the scale of change required.

Implementing the Sustainable Finance Strategy in a way that provides appropriate incentives for changes in land management and use (and disincentives for harmful practices) will be a key lever to create change. The development of an ambitious Sustainable Finance Taxonomy that incorporates 1.5°C-aligned climate goals and nature-related goals will be an important lever for directing financial capital and combatting greenwashing.

Ensure that market driven approaches are properly regulated and outcomes verified

To support NbS that have synergistic benefits for nature and climate, it is important to expand the scope of climate financing and intentionally co-design instruments that will achieve nature-positive outcomes. The development of the Nature Repair Market provides an important opportunity to adequately support changes in the land sector and avoid perverse incentives.

Mandating corporate disclosures on both climate and nature-related risks and impacts is also important for directing capital. This should include mandating the development of credible transition plans for both nature and climate and ensuring that these plans create the desired changes in investor and business practice. Climateworks recommends providing guidance as part of the implementation of the Sustainable Finance Strategy on how these plans can be assessed by regulators, investors and those who manage and govern businesses. For credibility in the land sector, assessment of plans to address nature-related risks should consider the opportunity costs of finite land resources.

Given the wider social benefits, government investment in public data is essential for accurate, scalable natural capital measurement. The development of scientifically-credible public datasets to measure natural capital will allow businesses, investors and regulators to address emerging requirements from the Taskforce on Nature-related Financial Disclosures (TNFD.). It would allow proper regulation and verification of outcomes from new and existing mechanisms designed to increase private capital flows into nature, such as the Nature Repair Market.

Develop new fiscal policies and programs that provide finance for nature-based solutions

A plurality of mechanisms to channel finance for nature will be required to create the scale and pace of change that will deliver a cost-effective path to net zero emissions and make the most of potential economic opportunities. There are risks and likely limitations to efforts to scale market-based mechanisms for NbS. Calls for scaling up natural capital markets should also be balanced with alternative fiscal policy measures such as tax policies that incentivise sustainable land use. Clarifying the limitations of market-based mechanisms to bring about the scale and pace of change required, and budget sufficient public allocation to fill gaps and facilitate or de-risk private investment where required will be an important part of the Sectoral Plan. Such investments could include expanding both public and private protected areas.

Address implementation challenges in scaling NbS

The further development of Nature Positive laws and upcoming Nature Positive Summit provide a perfect opportunity to develop a comprehensive strategy to accelerate the uptake of NbS and provide global leadership. Scaling NbS and realising their potential will take coordination and cooperation across administrative levels, governmental structures, and jurisdictional boundaries. It also requires long-term planning but has the potential to have enduring impacts. The development of a national NbS roadmap (either as part of the Sectoral Plan or separately) would help the government increase carbon sequestration while taking into account other environmental co-benefits, minimising trade-offs, and helping to align the various supporting market and non-market mechanisms.

The LUTO 2.0 model can be used to help test policy options and market mechanisms that have the potential to drive required land use and land management changes to meet climate, biodiversity and other environmental targets. We welcome engagement on how we could contribute to this process.

Ensuring a just transition

This section relates to questions 1 and 2 of the discussion paper.

Recommendation 6: Ensure that the Sectoral Plan supports a diversified and just transition that enables changes in how land is managed to result in a better quality of life, and diversified economic opportunities for people in rural communities. The plan should also take pre-existing structural inequalities into consideration and provide opportunities for Aboriginal and Torres Strait Islander peoples to both access and express their connection to Country.

The plan must support a diversified and just transition that ensures that any changes in the way that land is managed result in a better quality of life, fair work and resilient rural communities. The plan should enable economic diversification by involving regional communities in decision-making; provide clarity on what is needed from the land sector regionally and nationally; and support incentives and information to realise changes. Transitioning to net zero land use and restoring Australia's biodiversity will create a demand for a wide range of jobs with new skills and long-term career prospects that the government should support with adequate investment.

The plan should address pre-existing structural inequalities, in particular those related to Aboriginal and Torres Strait Islander peoples. It should recognise and elevate the critical role of Aboriginal and Torres Strait Islander peoples in caring for Country. Indigenous people in remote communities provide a wide range of environmental services, including fire management, carbon sequestration, weed control, feral animal control, biodiversity conservation, fisheries management, restoration of wetlands and water resource management. Caring for Country can provide opportunities for employment, wealth generation and overcoming economic disadvantage. The plan should provide opportunities for Aboriginal and Torres Strait Islander peoples to both access and express their connection to Country, and sufficient resourcing to care for Country based on effective consultation about what is needed to do so.

Thank you for taking the time to consider our submission. We would welcome an opportunity to brief your team if you would like to explore our responses in further detail.

Yours sincerely,

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