

Comment on the draft Drought Resilience Funding Plan 2020-2024 Sustainable Farms, December 2019

Sustainable Farms welcomes the establishment of a Fund specifically targeting future drought resilience, and is pleased to provide comment on the draft Drought Resilience Funding Plan 2020-2024.

While the financial investment represented by the Fund's establishment is welcome and necessary, it is vital that this investment be supported by a coordinated strategy to address large-scale existing land degradation problems. As the Plan recognises, a key element of future drought resilience is to avoid drawing down the natural capital of the landscape on which farming and regional communities rely. However, it is important also to recognise and seek to address the existing depletion of the resource base. Without this remediation, any drought resilience plan rests on unsteady foundations.

Our submission appeals to the writers of the Future Drought Fund Plan to:

1. Develop a National Framework to drive targeted investment in natural asset management that will lead our farming businesses and communities towards drought resilience.
2. Develop targets for the restoration and enhancement of natural assets on farms, for example:
 - renovating 25% of farm dams by 2024 to increase water retention and quality, and
 - boosting native vegetation cover to 20% of agricultural regions by 2030.
3. The Framework should recognise and leverage the capacity of regional leadership to design and coordinate strategies at the catchment level that support innovative long-term initiatives for drought-resilient farming businesses and communities.

In addition to the Future Drought Fund, we recommend the government look at the potential benefits of a different form of financial assistance, revenue contingent loans (RCL), for the financing of land restoration investments. The defining characteristic of these loans is that they are repaid if and only when farms have the financial capacity to do so. Our modelling shows that RCL for land remediation could be made operational without significant costs to government budgets. Because RCL are repaid when farms are doing well in the future, this feature fits appropriately with most land remediation projects which take time to deliver the benefits of restoration to a farm business.

Australian farmers urgently require access to this kind of finance instrument in order to undertake the restoration projects that will restore productivity lost from deteriorating environmental resources.

Sustainable Farms is an interdisciplinary research and extension initiative of The Australian National University. The project is embedded in 20 years of ecologically-focused farming research in the sheep-wheat belt of eastern Australia. This work has already demonstrated the significant value to biodiversity of managing natural assets on-farms, such as dams, riparian areas, remnant vegetation and native pastures.

However, growing evidence suggests that this kind of work also supports drought resilience, farm productivity and farmer wellbeing. Sustainable Farms is now undertaking a program of interdisciplinary research to quantify and understand the benefits of improved natural asset management for farm finances, farmer mental health and landscape health.

Sustainable Farms recommends:

1) A National Framework to drive targeted investment in natural asset management on farms.

The major obstacle to achieving drought resilience is that the natural resources upon which farms depend have been severely impacted by large scale land clearing and agricultural outputs.

We recommend the government build a national framework for restoring natural capital assets on agricultural land. A natural capital asset is ‘a store of value representing a benefit or series of benefits accruing to the economic owner by holding or using the entity over a period of time’¹.

There is a growing body of evidence that farm businesses that have managed their farm’s natural assets effectively are more resilient to drought. Examples include protecting remnant vegetation, planting trees, re-establishing native pastures and restoring riparian areas. These investments build the natural capital of farms and provide a wide range of ecosystem services, such as water filtration, carbon sequestration and storage, and habitat for native species. Restoring and protecting some of the key natural assets on farms enables the restoration of some of these ecosystem services into the landscape.

A national framework would focus activities and spending to help meet national targets at both the national, catchment and farm scale. It would support the government to work with regional natural resource management (NRM) agencies, Landcare groups, industry and Indigenous groups.

A national framework should address four classes of natural capital: land, water, carbon and biodiversity (see Table 1), by developing indicators for assessing the components of these four assets. The framework should also track Australia’s progress towards targets for building drought resilience. Rigorous data is required to assess this progress, as well as to help focus polices and resources to meet the challenges.

Table 1: Projects to enhance natural capital assets

Natural capital assets	Components of assets	Management projects
1. Land	Land cover Land use Soil Woody vegetation Pasture composition	Examples of projects to enhance land assets: protecting existing vegetation including paddock trees; planting trees and shrubs; planting shelterbelts; undertaking rotational grazing; enhancing native pastures.
2. Water	River flows Water quality Farm dams Riparian zones	Examples of projects to enhance water assets: fencing farm dams; revegetating around farm dams; restoring riparian vegetation; stabilising erosion areas.
3. Carbon	Biomass carbon stock Soil carbon stock	Examples of projects to enhance carbon assets: protecting large trees and logs; enhancing deep rooted perennial pastures; preventing erosion.
4. Biodiversity	Terrestrial vertebrates Invertebrates Aquatic species Plant composition Diversity of habitats Connectivity of habitats	Examples of projects to enhance biodiversity assets: restoring vegetation for habitat; protecting large old trees, logs and rocky outcrops; undertaking new plantings; restoring vegetation along corridors.

A National Framework would ensure that the natural assets on farms are sustained and enhanced to support biodiversity, carbon storage, farm businesses and the wellbeing of farmers, their families and farming communities.

¹ [Towards a definition of Natural Capital](#), London Group Natural Capital Forum, 2014

2) Targets for the restoration of natural assets on farms.

Aspirations for strategic management of natural assets on farms is a good start, but there is a clear imperative to set specific, measurable targets for this type of management. It is generally accepted that the Vegetation Extent Threshold – a threshold that will support production, biodiversity, river health and landscape function – is 10-30% native vegetation cover across landscapes. But without targets, there is a significant risk that outcomes will not be achieved and, indeed, that degradation of the natural resource base will continue, further reducing our future drought resilience.

For example, in the sheep wheat belt of eastern Australia, where the Sustainable Farms project is located, over 90% of the box gum grassy woodland ecological community has been cleared from since European settlement. This has led not only to the loss of plant and animal species, but also to impacts that are extremely negative for agricultural production and resilience – including rising water tables, salinity and erosion (Lindenmayer *et al* 2018). The value of planting to support production on farms in this area was recognised in the 1980s and since then NRM agencies and Landcare groups have been actively engaged in working with farmers to plant shelter belts and woodlots. There is now a large body of evidence of the benefits of these plantings for both biodiversity and farm productivity.

However, despite this commitment to planting at a farm and local level, we continue to fall short of reaching even the minimum 10% native vegetative cover.

To ensure that we can obtain this minimum vegetative cover, targets must be established. With targets, there is a significant opportunity to leverage benefits at the following scales:

1. *Farm scale*: One example of increasing vegetative cover on-farm is through planting shelterbelts, which have productivity benefits for farms and contribute to drought resilience. Establishing shelterbelts of planted trees on grazing properties has been shown to depress wind speeds and wind chill and boost pasture production for livestock (Lindenmayer *et al* 2018), as well as providing shade and lambing protection for stock. Co-location of native vegetation in farmed landscapes also boosts pollinator diversity, contributing to higher yields of both pasture and food crops.
2. *Landscape scale*: Several studies in Australia have suggested that rainfall patterns and vegetation are linked at the regional level. McAlpine (*et al* 2007) found that the effects of the Millennium Drought were magnified in those areas where clearing is most pronounced. Studies of rainfall gradients in south western Australia indicate a decline in precipitation from the coast to inland areas over the largely cleared wheatbelt, with rainfall increases where vegetation cover is relatively intact (Lindenmayer *et al* 2016). Overseas case studies have also documented this relationship between vegetation cover and precipitation. In Australia's dry climate, this relationship has huge implications.
3. *National scale*: Setting regional targets would aggregate to create significant improvement in native vegetation cover nationally, which would have benefits in areas of key concern to national leadership:
 - a. *Carbon sequestration*: Australian landscapes have the potential to sequester significant amounts of carbon through vegetation restoration, and a continent-wide approach to restoring degraded vegetation would assist us to reach the targets for carbon neutral farming that our red meat industries are striving to achieve. This will be vital for these industries in responding to social concerns and facilitating continued access to high value overseas markets.
 - b. *Benefits for biodiversity*: Australia is a leader in extinction rates globally, and species loss is partly driven by habitat loss. Our research has shown that relatively low increases in vegetation cover provide significant biodiversity gains (Cunningham *et al* 2014). Thus a 10% vegetation cover target would provide very high biodiversity outcomes.

3) Support the capacity of existing regional leadership over the long term

We are fortunate that Australia is home to outstanding regional leadership and a wealth of detailed, catchment-level technical knowledge. It is this leadership and technical capacity that must be leveraged if we are to meet the triple challenges of the future (food security, vibrant regional communities and protecting our natural environment).

Given that the Future Drought Fund does not have unlimited resources, its effectiveness will depend on whether it can effectively utilise and enhance existing capacity in developing drought resilience.

Currently this capacity is particularly strong in natural resource management (NRM) groups in most regions of Australia. The NRM agencies (such as Local Land Services in NSW and Catchment Management Authorities in Victoria) already play a significant role in building social, environmental and economic resilience. We recommend that the Fund leverage this capacity to develop and deliver strategies for remediation of degraded land and water assets, and work together with industry leaders to support the development of innovative and transformational farming systems at the catchment scale. This will be a highly effective way of addressing the challenges of future droughts and building long term resilience.

For most of these groups, their resources do not currently match the scale of the problem of land degradation that we face – either in terms of geographic or time scales. Increased financing would exponentially increase their capacity to develop drought resilience; but just as importantly, *long-term, secure* funding that enabled truly forward-thinking approaches would vastly increase the contribution these agencies can make.

Vitally, long-term funding would also contribute to the ability of these organisations to develop innovative ways of leveraging private investment and working with industry to create regional resilience.

It is through supporting regional leadership and enhancing regional capacity that Sustainable Farms believes the Future Drought Fund can have the most impact across all *three* of the strategic aims currently presented by the plan. Natural resource management groups and others who work in this space do not only work to support the natural resource base – they are an integral part of regional communities, a trusted source of information for farmers, and key to bringing together the three facets of a triple bottom line that are essential for future drought resilience.

Financing options for the restoration of degraded agricultural land

In addition to the Future Drought Fund, we recommend the government investigate financing options for the restoration of degraded agricultural land. The challenge of land remediation that is required to build drought resilience in Australia outstrips the resources currently available to individual farmers, and crucially would place a significant impost on the public purse if it were to be entirely funded by government.

Restoring the natural assets on agricultural land to the level required for future drought resilience will require vast investment. The Future Drought Fund is one economic mechanism, but it needs to sit alongside a range of other measures, as well as new and innovative measures still to be explored.

We suggest that one of the most fair and efficient policy approaches available to the Government to support natural asset remediation is a revenue contingent loan (RCL). While conventional loans must be repaid based on time, an RCL would be repaid based on revenue and would therefore be well-suited to the revenue-variability exhibited by farming businesses. Similar to the Higher Education Loan Program that is key to developing the nation's human capital through education, a revenue contingent loan would

enable farmers to invest in their on-farm natural capital in the certainty that they could repay the loan once this investment had begun to deliver returns, avoiding the potential for significant debt stress.

We note that due to the nature of farm businesses, annual revenue rather than taxable income should be used as the determining factor for debt collection. Sustainable Farms researchers have modelled an illustrative example of a revenue contingent loan to support land restoration. Our analysis suggests favourable outcomes for the funding agency (government) through ease of collection and minimising subsidies, and for borrowers (farm properties) due to the income-smoothing and default protection characteristics of RCL. More information is available in Chapman (*et al* 2019).

Summary

Australia is a complex environment for agriculture, with a variety of land systems that require different management regimes, ancient and nutrient-poor soils, a relatively sparse, dispersed rural population, and a variable, volatile climate.

In this environment, creating drought resilience across farm businesses, communities and landscapes is a complex process. Without a coordinated strategy, there is a real risk that the Future Drought Fund money will be channelled into a series of smaller grants that lack the coordination, targeting or management to ensure connectivity and manage threshold effects across our agricultural landscapes.

We therefore recommend the establishment of a National Framework with definable targets for investing in natural capital. There is clear evidence that this type of investment will underpin the productivity and wellbeing of our farming businesses and communities, and build their long-term resilience to drought.

While all three areas of drought resilience – economic, social and environmental – are equally important, the gains that would come from targeted investment into natural capital assets are at a scale that can be found nowhere else. This type of investment also ultimately underpins all three areas, and provides the foundation from which economic and social resilience can grow.

Further information

If you have any questions or would like to discuss the content of this submission further, please contact:

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A representative from Sustainable Farms at The Australian National University would be available to provide further evidence or advice as required.

References

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