

Report for Regional Alliance (Northern and Yorke - Landscapes SA)

Future Drought Fund - Opportunities for the Northern and Yorke region

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Executive Summary

The Future Drought Fund will provide funding for drought affected regions. The primary aim of the fund is to build drought resilience. This means aiding rural communities and farming businesses to become more prepared for, and resilient to the affects of drought.

The following report outlines future opportunities for members of the *Alliance* to apply for funding.

This document is designed as a strategic tool to determine the best suited organisation to lead particular projects and to determine which of the funding pools each project is most aligned to. This report also provides a number of recommendations on the ways that projects should be designed to ensure that projects meet the Future Drought Fund application requirements but also meet the needs of the community and strengthen relationships in the region.

It is suggested that Legatus Group and the RDA's lead programs that focus on leadership, mental health and resilience, non-farming economic programs and projects, non-farming infrastructure related projects and particular regional plans.

PIRSA and Landscapes SA are best placed to lead farming related programs. The suggested split of projects across PIRSA and Landscapes SA has been determined by the ability of each organisation to provide on-ground support, research and development and support for economic and business planning. Some region wide projects have been assigned to PIRSA due to the organisations cross-regional reach.

A project prioritisation has been provided with the following projects recording the highest ranking:

- Development of a drought resilience plan for agriculture
- Support and partner with peak agricultural groups
- Voluntary farm resilience assessments
- Develop the business case for NRM activities
- Weather and climate education program incorporated with business planning
- Economic resilience programs for non-farming businesses with a drought resilience leader focus
- Development of a regional drought resilience plan for agriculture
- The establishment of a Drought Resilience Adoption and Innovation Hub
- Farm business management course

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1 Introduction

The Northern and Yorke Landscapes region is located in South Australia, extending a distance of approximately 305 kilometres¹ from the food bowl of the northern Adelaide Plains in the south to the pastoral districts of the Flinders Ranges in the north, bounded to the west by Yorke Peninsula. The region is a diverse and rich farming area with horticulture, grape and wine production, broadacre, wool, livestock and pastoral farming prospering across the district.

Land use changes quickly throughout the region. The northern end of the region (Flinders Ranges, Orroroo and Carrieton, Mount Remarkable, Peterborough) experience higher temperatures and reduced rainfall and are predominantly utilised as pastoral lands and sheep grazing². The southern and central areas are hubs of grape and wine production, horticulture, wool and broadacre farming. Drought has had a significant effect on all Northern and Yorke region districts; however, some areas have experienced more prolonged effects of drought.

There is a strong correlation within the Northern and Yorke region between higher productivity farming lands, employment, education and entrepreneurship. The region has an aging workforce³.

Responding to drought has been a priority for state and local government in South Australia over the past three years. A collective group consisting of the Legatus Group (representing 15 councils), The Northern and Yorke Landscapes Board, Regional Development Australia – Yorke and Mid North, Regional Development Australia – Barossa, Gawler, Light, Adelaide Plains and Regional Development Australia Far North will apply for drought relief funding. All 15 of the councils within the region have experienced drought conditions over the past three years and are eligible for the Future Drought Fund available through the Australian Government Department for Agriculture, Environment and Water. Information provided on the Future Drought Fund website, states that funding will be made available from July 2020.

Future Drought Fund projects will:

- Help farms and communities be more prepared to respond to the impacts of drought
- Lift the productivity and profitability of the agriculture sector
- Enhance the health and sustainability of Australia's farming.

Funding may include the following types of projects:

- Restoring native vegetation for soil or water regeneration
- Financial and business planning for primary producers to improve ability to manage through lower income periods caused by drought
- Training and information for primary producers in areas such as finance and business planning, managing climate risk and sustainable stock management
- Training and information on local climate variability and advice on climate risk applied to specific locations
- Research in drought resilience
- Improving data on fodder and impacts from drought, including market trends

¹ Nature Maps 2020, available online: <http://spatialwebapps.environment.sa.gov.au/naturemaps/?locale=en-us&viewer=naturemaps>

² Bureau of Meteorology weather observations (Hawker, Quorn, Clare, Kadina), available online: <http://www.bom.gov.au/sa/observations/map.shtml>

³ Balston, J.M., Billington, K., Cowan, H., Hayman, P., Kosturjak, A., Milne, T., Rebbeck, M., Roughan, S., Townsend, M. (2011). Central local government region integrated climate change vulnerability assessment. Central Local Government Region of South Australia, Crystal Brook, SA. pp.189.

1.1 Background

The Future Drought Fund offers up to \$1.1 billion of funding across the 2020/2021 to 2028/2029 period for drought relief. The funding pools are divided into 11 categories, with limited funding offered each financial year. In the 2020/2021 financial year period \$100 million will be made available.

The Future Drought Fund offers the Northern and Yorke region a fantastic opportunity to access funding for projects that will reduce the impacts of drought whilst increasing the resilience of landscapes and people to prepare for and respond to drought.

The top priorities identified through the Future Drought Fund Consultation process focused on the following four categories:

- Farm business planning
- Community initiatives
- Research adoption and extension
- Farming youth and leadership training

Armed with this information, the aims of this projects are to scope potential projects for the Northern and Yorke region across the below listed categories and to prioritise projects across a timeline, according to the needs of the community. Projects aim to increase the resilience of people, assets, businesses, communities and landscapes to the effects of drought.

1.2 Context

The Drought Resilience Funding Plan 2020 to 2024 lists drought resilience as:

“drought resilience means the ability to adapt, reorganise or transform in response to changing temperature, increasing variability and scarcity of rainfall and changed seasonality of rainfall, for improved economic, environmental and social wellbeing”.

The Fund's vision is an innovative and profitable farming sector, a sustainable natural environment and adaptable rural, regional and remote communities—all with increased resilience to the impacts of drought and climate change.

The Fund has three inter-connected strategic priorities:

- economic resilience for an innovative and profitable agricultural sector
- environmental resilience for sustainable and improved functioning of farming landscapes
- social resilience for resourceful and adaptable communities

2 Methodology

The following methodology outlines the process used in developing this report and in developing project ideas that are strongly aligned to the Future Drought Fund (FDF). Information contained within this report has been sourced from feedback from relevant stakeholders, the March 2020 Report delivered to Legatus Group outlining potential gaps, desktop research, workshops and interviews.

2.1 Workshops

Edge presented FDF related information and collected feedback from stakeholders at two separate online workshops.

Legatus Group Workshop

The Legatus Group invited representatives from the Central Local Government Region councils to an online workshop hosted on the 20th August 2020. Representatives from councils listened to presentations from SA Water, Space Down Under and Edge Environment. The presentations provided

information on the FDF grant process, climate change, passive irrigation and water efficiency projects that councils may like to consider when applying for funding for FDF grants.

Feedback was invited from the group and was provided at a later stage to the Legatus Group. This information has been forwarded to Edge Environment for the purposes of writing this report, with project ideas incorporated into Section 3.

The Alliance workshop

Members of the Alliance (Landscapes SA – Northern and Yorke, Legatus Group and RDA Yorke and Mid North) as well as invited guest, Primary Industries and Regions South Australia (PIRSA) attended an online workshop on the 1st September. Representatives from the Alliance were joined by staff from the Department of the Prime Minister and Cabinet (PMC) and Edge Environment.

Staff from the PMC relayed information pertinent to the FDF grant application process. Edge Environment presented information related to the FDF grant application process and suggestions for the grant prioritisation process.

2.2 Interviews

Edge organised interviews with representatives from RDA – Yorke and Mid North and Landscapes SA – Northern and Yorke. Interviews aimed to gain a deeper understanding of the capacity, skill set and focus for each organisation.

Findings from the interviews have been incorporated into section 3.

2.3 Desktop research

Edge staff reviewed the documents made available to the public on the Future Drought Fund website to gain a greater understanding of the opportunities and limitations of the Future Drought Fund Program. Reviewed information included:

- The Drought Resilience Funding Plan
- National Drought Agreement
- Future Drought Fund consultation results
- Fact sheets
- Media releases
- Other information provided through the website

2.3.1 Liaise with the Department of Agriculture, Environment and Water

Edge contacted the Australian Government Department of Agriculture, Environment and Water to gain further information about the Future Drought Fund application process and guidelines. Edge staff were referred to the FDF website and informed that all information that is relevant to the FDF application process is best sourced from the FDF website.

3 Funding strategy

Funding for the Future Drought Fund is made available through nine separate grant funds. Each of the funds has an established funding pool. However, it must be noted that information regarding the grant process and the amount of funding made available may alter over time. Two of the funds will provide farmers with greater access to online data and information. Providers have been sourced to develop online tools and digital platforms for the *Drought Resilience Self-Assessment Tool* and the *Climate Services for Agriculture Program*. As such, funding is not available through these two funding pools in the 2020/21 financial year period.

The *Natural Resource Management Drought Resilience Program – Landscapes* grant funding is only made available to regional NRM groups. In the 2020/21 financial year a total of \$5 million has been made available. Northern and Yorke Landscapes SA are in the process of developing a grant application for the 2020/21 financial year. As part of the grant application, Landscapes SA have committed to contribute \$50,000 of their own funds to boost the impact of the grant, if they are successful in attracting funding.

The Alliance, consisting of the Legatus Group, three Regional Development Australia groups and Northern and Yorke - Landscapes SA have engaged Edge Environment to consolidate a broader Future Drought Fund funding strategy for the region.

Table 1 and Table 2 outline the details of the six *Future Drought Fund* funding programs that are available to all *Alliance* stakeholders and PIRSA.

Table 1. Future Drought Fund programs that are currently open and available to the Alliance and PIRSA (source: Australian Government, Department of Agriculture)

Program	Funding made available in 2020/21	Summary of the program
Networks to Build Drought Resilience	\$3.75 million	<p>This program will provide funding to networking groups to support training and networking events to develop skills, participate in risk management planning, and foster projects that encourage connectedness and improve wellbeing. It will support small-scale infrastructure projects to make community facilities drought resilient to support community wellbeing and reduce social isolation. For example, installation of water efficiency or recycling infrastructure, or providing shade for sporting and recreational facilities, upgrades to public gardens, tourist attractions and other community facilities.</p> <p>A competitive grant round to select a provider to deliver the program opened on 28 August 2020.</p>
Drought Resilience Leaders	\$7.45 million	<p>This program will provide funding to community members to undertake training in leadership and to undertake a community activity to build drought resilience in their locality.</p> <p>The program will also include a mentoring component to foster informal knowledge sharing and uptake of innovative practices to build the drought resilience of farmers and their businesses.</p> <p>A competitive grant round to select a provider to deliver the program opened on 28 August 2020.</p>

Table 2. Future Drought Fund programs that are not currently open and available to the Alliance (source: Australian Government, Department of Agriculture)

Program	Funding made available in 2020/21	Summary of the program
Natural Resource Management Drought Resilience Program – Grants	\$10 million	<p>The program will provide grants of between \$20,000 and \$200,000 to organisations, farmer groups and individuals to build drought resilience on agricultural landscapes.</p> <p>A competitive grants process for organisations, farmer groups and individuals is expected to open for applications by November 2020. Funding for successful applicants is expected to be provided for activities to commence in early 2021.</p>
Drought Resilience Research and Adoption	\$86 million over four years	<p>Eight Drought Resilience Adoption and Innovation Hubs will be established in Australia’s major climatic and agricultural zones across regional Australia. Hubs will be networks of researchers, primary producers, industry groups, community groups and others.</p> <p>Hubs will harness research, development and innovation to build drought resilience. They will translate research into practical on-ground action through support for extension, adoption, testing, scaling up and commercialisation support.</p> <p>A competitive process to select Hubs in each of the targeted regions is expected to open in October 2020.</p> <p>A regional university will also be selected to coordinate the Hubs and support connections to national research and development priorities and advances.</p> <p>A competitive process to appoint a regional university to lead delivery of this program is expected to open in October 2020, alongside the call for Hub proposals.</p> <p>That university will also deliver Innovation Grants for research organisations, private sector, industry, not-for-profit organisations and community groups. A call for applications for the Innovation Grants is expected open in February 2021</p>
Farm Business Resilience Program	\$20 million	<p>Providing farm businesses with training to develop strategic management skills and support the development of a Farm Business Plan through facilitated sessions.</p> <p>The Australian Government will work with State and Territory Governments to develop this program.</p>
Regional Drought Resilience Planning	\$10 million	<p>Through group partnerships with local councils and regional stakeholders - develop a Regional Drought Resilience Plan for agriculture - identifying and guiding innovative actions to build resilience to future droughts.</p> <p>The Australian Government will work with State and Territory Governments to develop this program.</p>

Each of the *Alliance* organisations and PIRSA are well positioned to obtain funding from several grant categories. For the purpose of this process, it is suggested that each organisation apply for funding across several categories. According to the Drought Resilience Funding Plan 2020 – 2024, projects that collaborate with at least one other organisation are encouraged and projects that include a public and private partnership are viewed strongly.

Themes identified across all three of the inter-connected Drought Resilience Funding Plan strategic priorities (Economic resilience, Environmental resilience, Social resilience) are as follows:

- Encourage the leveraging of investment
- Public and private partnerships
- Collaboration between organisations
- Innovative solutions and the adoption/trial of new technologies and methodologies
- Strategic farm management tools and programs
- Farm diversification
- Data management to improve both natural resource management and farming
- Involve end-users to co-design programs

Table 3 showcases the strategic priority/ies of each organisation and the recommended funding category that best fits the strengths of each *Alliance* organisation. The aim of this is to establish the lead organisation for each project.

Table 3. Recommended breakdown of the Future Drought Fund funding category for each *Alliance* organisation in the Northern and Yorke region

Lead Organisation	Strategic priority	Funding category
Legatus Group	Economic resilience Social resilience	Networks for Building Drought Resilience Drought Resilience Leaders Regional Drought Resilience Planning
RDAs	Economic resilience Social resilience	Networks for Building Drought Resilience Drought resilience leaders
PIRSA	Economic resilience Environmental resilience Social resilience	NRM Drought Resilience Program – Grants Farm Business Resilience Program Drought Resilience Research and Adoption
Northern and Yorke Landscapes SA	Economic resilience Environmental resilience Social resilience	NRM Drought Resilience Program – Landscapes NRM Drought Resilience Program – Grants Farm Business Resilience Program
Farming organisations	Economic resilience Environmental resilience Social resilience	NRM Drought Resilience Program – Grants Farm Business Resilience Program Drought resilience leaders

A focus for all organisations should be to partner with one another, farming organisations and community groups in the delivery of programs and projects across the region. Projects that can demonstrate a strong partnership, especially a public/private partnership and co-development are well situated to receive funding.

3.1 Legatus Group

Legatus Group and the councils that the group represent are in a strong position to apply for grant funding across several categories. Table 4 demonstrates grant categories that Legatus Group, as a representative of the councils in the region are best placed to lead, or present as preferred options to council members. Tables 5-7 demonstrate the projects that are better lead by other Alliance organisations and PIRSA and that the Legatus Group members may benefit from in a supporting role.

Table 4. Legatus Group – Recommended FDF projects, collaboration, timeline and funding category.

Recommended funding project	Lead organisation	Collaboration /supporting organisation	Timeline and funding category
Mentoring program	Legatus Group	Landscapes SA RDA's Ag Ex Alliance SANTFA Barossa Improved Grazing Group Upper North Farming Systems	Drought resilience leaders 2020/21
Community resilience leadership program	Legatus Group/RDA's	Councils RDA Murraylands and Riverland RDA Eyre Peninsula and Whyalla	Drought resilience leaders 2020/21
Building resilience in mental health	Legatus Group	National Centre for Farmer Health RDA's Centre for Mental Health Research – ANU PERMA+ - SA Medical Health Research Institute	Networks for building drought resilience 2020/21
Street Tree passive irrigation trials	Legatus Group	Space Down Under – Adelaide University Councils	Networks for building drought resilience 2020/21
Smart Irrigation	Legatus Group	SA Water Councils	Networks for building drought resilience 2020/21 *Consider how this project will be funded post grant funding. One off funding will provide infrastructure but ongoing funding for monitoring services will be required.
CWMS water reuse	Legatus Group	Councils	Networks for building drought resilience 2021/22 and beyond
Development of a regional drought resilience plan for agriculture. Focus must be	Legatus Group and Landscapes SA	Councils	Regional Drought Resilience Planning

resilience i.e. mitigation not recovery. Aim is to establish a long-term strategic document, outlining process for mitigation and resilience building *displayed in Section 3.4.1		State/Australian government	2020/21, 2021/22 and beyond
Small scale infrastructure	Legatus Group and RDAs	Councils	Networks for building drought resilience 2021/22 and beyond.
Development of a regional sustainability hub	Legatus Group	Landscapes SA RDA's Department of Environment and Water	Networks for building drought resilience 2021/22 and beyond. For consideration: Determine how other funding could contribute to the development of the sustainability hub.

3.1.1 Mentoring program

A key focus of the FDF funding is to upskill young people and to increase the resilience of farmers within a region. Legatus Group may like to lead the development of a mentoring program. A key priority for projects developed through Future Drought Fund (FDF) funding are large scale programs that can be operational across a broad geographic area. Each of the Alliance organisations could lead such a program, however, it may be in Legatus Group's best interest to target one specific project partner i.e. all three RDA's, and design a program in collaboration with a number of farming bodies. The ability of Legatus Group to access key contacts from key farming organisations across different council areas will be essential.

This project will require cross-council collaboration and industry partnerships. The connection of council to their community and the important position that councils hold within the community can aid in the development and delivery of a program that is wanted by the community and benefits the community.

It is suggested that council co-develop such a program through seeking input from peak farming bodies. This project is best supported by RDAs.

The mentoring program meets the following FDF objectives:

- Encourage the development of local leaders, including youth, to enhance wellbeing and drive initiatives that build drought resilience
- Encourage communities with a high level of drought resilience to share learnings with other communities.
- Facilitate increased community understanding of their drought resilience, including through training and information sharing—for example, case studies, inventory or support packages and making information readily accessible.
- Support community activities and initiatives that foster ongoing social networking, support, engagement and wellbeing.

3.1.2 Community Resilience Leadership Program

It is recommended that councils and Legatus Group partner with the RDA's that represent each of the regions to deliver this project. A community resilience course that is well researched and executed is likely to be relevant to all drought-affected regions. A program of this nature could be run in conjunction with a well-being resilience course and economic resilience course or as a standalone program. It is recommended that the program be delivered as a workshop, to present and also gather information from the community about the economic and community impacts of drought.

Such a program may be an effective way to gather information from the community about the impacts of drought and dry times and to define solutions, based on the gathered information. The program overview may be as follows:

- Present the information that is known (from previous research)
- Collect information through a workshop style information session
- Present the methodology for collecting information/opinion/data
- Develop a plan for collecting, collating and communicating this information
- Develop options to build community, social and economic resilience

The next steps may be to develop case studies and support packages. As part of this program communities with high resilience should be sourced.

The purpose of a program of this nature is to address multiple themes of the FDF, such as:

- Support community activities and initiatives that foster ongoing social networking, support, engagement and well-being
- Support initiatives that strengthen and build leadership in communities to help build drought resilience, including exploring entrepreneurial opportunities
- Facilitate increased community understanding of their drought resilience, including through training and information sharing—for example, case studies, inventory or support packages and making information readily accessible
- Encourage communities with a high level of drought resilience to share learnings with other communities

3.1.3 Building resilience in mental health

Mental health and resilience thinking is an area that is not aligned to any of the Alliance members strengths. As such, a program of this nature is best funded and administered through a particular body, such as the Legatus Group with the delivery of the program run through an external organisation.

The development of a resilience thinking program, such as PERMA+, is required to address the need in the community to increase mental resilience. The PERMA+ program is not only concerned with mental health but also building mental resilience. The program is available through the South Australian Medical Health Institute and could be delivered across a large geographic area. The success of such a program requires buy-in from the community. As such, the program would be best delivered with a partner or number of partners, including farming organisations, community groups and sporting organisations.

This program could be delivered as a standalone package. Due to the long-term commitment of training of this type, it may be difficult to weave this training into a broader 'resilient farming' package. However, a broader package offering business planning, NRM planning and well-being may be more attractive to the target audience. It is recommended that the appetite for such a program be assessed via a series of community surveys across different local government areas prior to applying for grant funding.

The building resilience in mental health program meets the following FDF objectives:

- Support community activities and initiatives that foster ongoing social networking, support, engagement and wellbeing.
- Support data and information collection, coordination and supply to improve community and regional planning to build drought resilience (this may apply to people).
- Empower communities to identify the impacts of drought and develop regional drought resilience and management plans
- Facilitate increased community understanding of their drought resilience, including through training and information sharing—for example, case studies, inventory or support packages and making information readily accessible.
- Encourage communities with a high level of drought resilience to share learnings with other communities.

3.1.4 Street tree passive irrigation trials

The Legatus Group have sought the adoption of water sensitive urban design in towns in the region through Space Down Under at Adelaide University. The program is likely to be adopted by The District Council of the Copper Coast.

For evidence of the benefits of such a program you may like to suggest that elected members or executive speak with Dr Tim Johnson from The City of Mitcham, who has been successfully utilising soakage trenches and TREENET Inlets adjacent to street trees for some time. There is a strong correlation between plant growth, canopy density and access to stored stormwater in the form of soakage trenches. Trials within the City of Mitcham are now focussed on quantifying the micro-climate benefits of high-density canopy in street trees with access to large quantities of stormwater.

The passive irrigation trials, support local government to adapt to the impacts of climate change through heat mitigation and address the following FDF objective:

- Support communities to implement small-scale enduring infrastructure projects to build drought resilience and enhance wellbeing—such as water efficient or recycling infrastructure for sporting and recreational facilities, upgrades to public gardens, tourist attractions and other community facilities.

3.1.5 SA Water Smart Irrigation

Clare and Gilbert Valley, Adelaide Plains and Copper Coast councils have committed to the SA Water Smart Irrigation trials. The trials will utilise sensors to assess soil moisture and the internet of things to deliver water where it is needed, at the most suitable times. Expected benefits of such a program, are reduced irrigation needs for individual sporting grounds and therefore a reduction in irrigation costs. Savings from reduced costs can be used to irrigate more greenspace or be absorbed by councils for other operations.

The SA Water Smart Irrigation project, support local government to adapt to the impacts of climate change through heat mitigation, make economic savings and address the following FDF objective:

- Support communities to implement small-scale enduring infrastructure projects to build drought resilience and enhance wellbeing—such as water efficient or recycling infrastructure for sporting and recreational facilities, upgrades to public gardens, tourist attractions and other community facilities
- Assist communities to develop and implement innovative activities

3.1.6 CWMS water reuse

CWMS water is a valuable resource. Disposal of CWMS water is typically via evaporation ponds or via agricultural irrigation systems across broad acre areas. There is potential to better utilise this water for non-potable uses. It is understood that there are particular regulatory and economic issues surrounding the use of CWMS water. It is suggested that a cost benefit analysis be conducted to assess the worth of the market and non-market values associated with irrigation of green space with CWMS water. A focus of this will be to assess the value of aesthetics, heat mitigation, recreation, potential mains supply water savings and drivers of economic activity.

It is suggested that Legatus Group seek a research partner to assess the highest and best use of the water across multiple council areas. Research should examine a range of options, ultimately arriving at one preferred scenario for each of the identified CWMS across the region.

Research should aim to define:

- The amount of water that is generated by each scheme
- The highest and best use of this water, including an analysis of traditional economic measures and non-market benefits (i.e. health, mental health, recreation, environmental and social value)
- A solution tailored to each town/area
- Consideration of how the water could benefit local businesses or the research could include community consultation
- Research options for creating new lines of business

The CWMS research addresses the following FDF funding objectives:

- Support communities to implement small-scale enduring infrastructure projects to build drought resilience and enhance wellbeing—such as water efficient or recycling infrastructure for sporting and recreational facilities, upgrades to public gardens, tourist attractions and other community facilities.
- Promote approaches that overcome barriers to developing innovative infrastructure or creating new lines of business
- Assist communities to develop and implement innovative activities

3.1.7 Small scale infrastructure

As described in further detail in section 3.2, one particular component of the *Networks for Building Drought Resilience* focuses on small scale infrastructure. As such, it is recommended that every council in the region should be considering the value add of small-scale infrastructure to a town's economy.

Projects that are likely to boost tourism, create destinations or build upon existing economic strengths within towns should be considered. A focus of the installation of small infrastructure, should be on building on existing strengths, i.e. improvement of existing tourism destinations and the improvement of town main streets. For example:

- Street art
- Street furniture
- Street trees
- Signage, car parks, bollards, walking and cycling trail development associated with tourism attractions and commuter routes. i.e. Cycle paths between Melrose and Wilmington, The Clare Riesling Trail etc.

Projects that are likely to be regarded highly by the FDF administrators will enable social networking, be inclusive of the community, encourage end-user co-design and be based upon existing needs.

More information regarding small-scale infrastructure projects is included in section 3.2.2.

Small scale infrastructure projects address the following FDF funding objectives:

- Support communities to implement small-scale enduring infrastructure projects to build drought resilience and enhance wellbeing—such as water efficient or recycling infrastructure for sporting and recreational facilities, upgrades to public gardens, tourist attractions and other community facilities.
- Assist communities to develop and implement innovative activities

3.1.8 Development of a regional sustainability hub

The development of a regional sustainability hub was one of the recommendations of the 2011 Climate Vulnerability Report for the broader region. Legatus Group may like to consider ways in which the sustainability hub can help build resilience across the region. Key to gaining funding for a regional sustainability hub through FDF funding is demonstrating the benefit of the hub is building resilience across the region. It is recommended that Legatus Group consider ways in which the hub increases the resilience of the broader region, with a focus on drought and climate change. The sustainability hub may be an opportunity to facilitate and grow community networks and develop entrepreneurial opportunities.

The development of a regional sustainability hub addresses the following FDF objectives:

- Support communities to implement small-scale enduring infrastructure projects to build drought resilience and enhance wellbeing—such as water efficiency or recycling infrastructure for sporting and recreational facilities, upgrades to public gardens, tourist attractions and other community facilities.
- Support initiatives that strengthen and build leadership in communities to help build drought resilience, including exploring entrepreneurial opportunities
- Support community activities and initiatives that foster ongoing social networking, support, engagement and wellbeing.

3.2 Regional Development Australia

Three Regional Development Australia groups work across the Northern and Yorke region – Yorke and Mid North, Far North and Barossa Gawler Light Adelaide Plains. Eight RDA’s operate within South Australia. It is understood that the RDA’s may take a state-wide approach to the development of grant applications, as part of the FDF. The projects presented in Table 5 represent opportunities for the three RDA’s within the region to actively lead and deliver economic and social resilience projects.

Table 5. Recommended funding projects, collaboration organisations, timeline and funding category for Regional Development Australia

Recommended funding project	Lead organisation	Collaboration/supporting organisation	Timeline and funding category
Infrastructure projects	RDA’s and Legatus Group	Councils Legatus Group	Networks for building drought resilience 2020/21
Facilitate public private partnerships for innovation	RDA’s	Farm Businesses Farming organisations	Farm Business Resilience Program 2021/22
Design a youth leadership course focussed on drought resilience	RDA’s	Legatus Group Councils Office for Youth	Drought resilience leaders 2020/21
Economic resilience programs for non-farming businesses with a drought resilience leader focus	RDA’s	Legatus Group	Farm Business Resilience Program 2020/21

3.2.1 Infrastructure projects

It is suggested the RDA's partner with Legatus Group for this project. The RDA's are in a position to promote the development of small-scale infrastructure projects. Projects, such as the water infrastructure projects described under Section 3.1.3 and 3.1.4 are likely to deliver considerable well-being, economic, flood and heat mitigation benefits to towns in the region. It is suggested that the RDA's identify planned and emerging infrastructure projects in the region and assess the suitability of each project to the FDF *Networks for Building Drought Resilience* fund.

Projects described below represent projects that regions may consider:

- Permeable pavement positioned around street trees – councils utilising permeable pavement to reduce inflow of stormwater into stormwater systems, to reduce the need to increase the capacity of stormwater management systems and to increase passive irrigation to street trees thus increasing tree health and growth and providing urban cooling benefits.
- Community gardens – The construction of physical infrastructure that creates new community networks, such as through food gardens.
- Partner with existing farming networks – In order to determine the types of small scale infrastructure that is needed in the region, develop surveys or alternative forms of community consultation to determine the best use of infrastructure that could be shared across the region – examples include – a towable native plant seeder, fencing equipment etc.
- Invest in areas that drive economic activity – Small scale infrastructure may include improvements to car parks, fencing and signage of tourist attractions to improve the visitor experience. What trails exist in the region? What are the tourist trails that connect tourists to a series of towns and destinations in the region? How could these trails be improved through small scale infrastructure?
- How could small scale infrastructure create vibrancy in a town or assist a hub of businesses? – small scale artwork, such as murals are a cost-effective method of creating vibrancy in town centres. The involvement of community in such projects is likely to drive social cohesion and stewardship of the created infrastructure.
- Focus on projects that increase the liveability of towns/regions – Small scale infrastructure projects that improve town centres, through street furniture, shading, green infrastructure, upgrades of sporting facilities.
- The delivery and reuse of water for agriculture – i.e the current Clare Valley Wine and Grape Association water pre-feasibility study

The purpose of a program of this nature is to address multiple themes of the FDF, such as:

- Support community activities and initiatives that foster ongoing social networking, support, engagement and well-being
- Support initiatives that strengthen and build leadership in communities to help build drought resilience, including exploring entrepreneurial opportunities
- Support communities to implement small-scale enduring infrastructure projects to build drought resilience and enhance wellbeing—such as water efficient or recycling infrastructure for sporting and recreational facilities, upgrades to public gardens, tourist attractions and other community facilities

3.2.2 Facilitate public-private partnerships

Due to the RDA's influence and spread across the state, the organisations are well positioned to facilitate the development of projects through connecting public and private partners. The larger farming organisations are likely to partner with Landscapes SA, however there may be scope to develop a whole of region or cross-region agricultural plan. This could include accessing feedback from smaller farming groups and large farming bodies to define the greatest need and greatest opportunity for each agricultural sector. One of the RDA's roles is to facilitate investment in the region

and to facilitate public-private sector investments. This expertise should be used to lead projects and to also support the development of projects that are led by other organisations within the *Alliance*.

Suggested public private partnership projects include:

- Assisting farming groups to access FDF funding through the sharing of knowledge
- Supporting Alliance organisations to deliver projects
- Identifying climate resilience projects developed through the private sector in other regions/states/countries. Foster partnerships between drought resilience specialists and organisations in the region
- Approach leading organisations with FDF project ideas and opportunities for collaboration

3.2.3 Youth leadership course

The FDF will prioritise projects and programs that can be delivered across a broad geographic area. As such, it is organisations, such as the RDAs that are best positioned to deliver programs across and within regions. One component of FDF funding focuses on mentoring opportunities and the sharing of knowledge from communities who have experienced drought and dry times and have successfully responded, to the communities that may be unfamiliar with the effects of drought.

A youth leaderships/mentoring program should seek to identify existing experienced leaders in the community and empower these leaders to share learnings and findings of responding to the effects of drought. Leaders and mentees should be sourced from across multiple industries and sectors, however, it is likely that agriculture will form a considerable component of the program.

A program of this nature may work best, if facilitated by a professional trainer/facilitator with partnerships sought from peak industry bodies, in order to access suitable participants.

The following FDF strategic priorities are addressed through a course of this nature:

- Encourage the development of local leaders, including youth, to enhance wellbeing and drive initiatives that build drought resilience
- Support initiatives that strengthen and build leadership in communities to help build drought resilience, including exploring entrepreneurial opportunities
- Support community activities and initiatives that foster ongoing social networking, support, engagement and wellbeing

3.2.4 Economic resilience programs for non-farming businesses

There is clearly a need for drought affected farm businesses to diversify their income streams in order to buffer their businesses from the effects of the drought and prolonged dry times. Traditionally this has been done within the agricultural sector. There is a need to identify examples of drought affected businesses that have increased revenue and their income streams through the addition of non-farming activities to the business. It is recommended that examples are sourced from within the region and from outside of the region, showcasing ways in which businesses benefitted from diversification. Examples should be sourced from across different sectors, displaying the ways in which businesses across different landscapes and rainfall zones may benefit.

It is suggested that RDA invite specialists from other sectors, such as tourism, to share experiences of on-farm tourism. Identify opportunities that are limited in scope within other regions. What assets does the Northern and Yorke region have, that may not exist or be limited in other regions? Refine a list of unique experiences, such as:

- Eucalyptus distillery tours and sales – Kangaroo Island, SA.
- Spirits distillery - Kangaroo Island, SA.
- Swim with the Australian Sea Lions – Eyre Peninsula, SA.
- Helicopter Hiking – The Kimberley, WA.
- Native Flower Farming – Adelaide Hills, SA.

- Jackaroo and Jillaroo School – Tamworth, NSW.

Suggested diversification options include:

- Tourism and hospitality
 - Farm stays
 - Farm experiences i.e. sheep shearing, animal care, infrastructure maintenance etc
 - 4-wheel driving
 - Events i.e. weddings, corporate team-building events
 - Cafes, restaurants
 - Hiking, mountain biking etc
 - Unique experiences
 - Bird watching, animal watching – conservation opportunities
- Carbon farming
- Forestry (may be limited to particular areas)
- Energy farming
 - Wind
 - Solar
- Native flowers, bees and honey farming

The following FDF strategic priorities are addressed through a program of this nature:

- Encourage primary producers to adopt innovative approaches and technology, including on and off-farm diversification options or new farming practices, farming systems and markets (e.g. emerging carbon markets)
- Promote approaches that overcome barriers to developing innovative infrastructure or creating new lines of business

3.3 Primary Industries and Regions South Australia (PIRSA)

PIRSA is responsible for the continued prosperity of the South Australian farming industries and regions. Table 6 represents a host of projects that PIRSA may choose to lead in partnership with a range of other organisations.

Table 6. Recommended funding projects, collaboration organisations, timeline and funding category for PIRSA

Recommended funding project	Lead organisation	Potential collaboration organisation	Timeline and funding category
The establishment of a Drought Resilience Adoption and Innovation Hub	PIRSA	Northern and Yorke – Landscapes SA Legatus Group Councils State Government GRDC MLA Hortex	Drought Resilience Research and Adoption 2020/21

		<p>CVWGA</p> <p>BGWA</p> <p>RDA's</p> <p>Ag Ex Alliance</p> <p>SANTFA</p> <p>Barossa Improved Grazing Group</p> <p>Upper North Farming Systems</p> <p>Smarter Regions CRC</p>	
<p>Farm business management course</p> <ul style="list-style-type: none"> • Strategic planning • Business plan • Business assessment • Farming in dry times/drought • Natural resources • Physical resources • Human resources • Risk management • Understanding banks • Career transition • Succession planning 	PIRSA, Landscapes SA	<p>RaboBank</p> <p>RDA's</p> <p>Upper North Farming Systems</p> <p>Barossa Improved Grazing Group</p> <p>Hart Field Day Site</p> <p>Consider cross-regional development i.e. partnering with organisations who work across regions.</p>	<p>Farm Business Resilience Program</p> <p>Networks to Build Drought Resilience</p> <p>2020/21</p>
<p>Business diversification program</p> <ul style="list-style-type: none"> • Alternative revenue streams • Opportunities for each region • Tourism • Energy • Agriculture • Events 	PIRSA/RDAs	<p>RDAs</p> <p>Department of Agriculture – innovation grants</p> <p>Identify local and nonlocal farmers who have diversified and fund them to deliver a “lessons learnt” package.</p> <p>Agronomy firms</p>	<p>Farm Business Resilience Program, NRM Drought Resilience Program - Grants</p> <p>2020/21</p>

3.3.1 The establishment of a Drought Resilience Adoption and Innovation Hub

The FDF offers a total of \$86 million across four years for eight distinct Drought Resilience Adoption and Innovation Hubs across Australia’s major climatic and agricultural zones. The hubs will increase networks and relationships between farmers, researchers, community groups and industry groups. The Australian Government have listed the locations of each hub, with one hub to be located in South Australia.

The Northern and Yorke region contains a huge array of agriculture from horticulture in the south, to broadacre, wine grape production and pastoral country in the north. As such, the region is well positioned to host a hub. The development of an application for this will require considerable support from all of the Alliance organisations, as well as more broadly from state government and industry groups. PIRSA is the ideal organisations to pull all of these organisations together to define the scope of this project.

Suggested themes for inclusion in the application include:

- Demonstration of the impacts of drought and dry times in the region
- Demonstration of current levels of drought resilience across the region and adaptation measures that are in place
- Explanation of the economic importance of the region to South Australia and Australia
- Defining the variety of agriculture across the region
- Description of gaps in farming knowledge
- Description of current research and development within the region and innovative practices and technologies that have been developed in the region
- Current and future partnerships between public and private enterprise, research organisations and industry bodies
- Reasoning of the Northern and Yorke area as the preferred location, citing its central location and ease of access to other drought affected regions, including Eyre Peninsula, the arid lands and the SA Murray Darling Basin.

The following FDF strategic priorities are addressed through a program of this nature:

- Support the development and availability of an innovative drought resilience research, development, extension and adoption strategy—including a stocktake and evaluation of drought resilience research and extension—in a process that will involve end users to maximise the relevance and adoption of outcomes
- Encourage the generation of ideas, information sharing and the adoption of regionally and industry relevant research, development and extension through collaborations with public and private sector extension organisations and networks
- Encourage the leveraging of investment, including through public and private partnerships and other potential investors, to address gaps and investment opportunities in research, innovation and extension
- Support on-ground projects that enhance the resilience of natural capital in agricultural landscapes—including adoption of new or existing technology and practices
- Support incentives for practice change that will build or redesign landscapes for improved functioning
- Support primary producers to adopt strategies for improving soil health, land cover, water and biodiversity
- Promote the development and adoption of new or existing commercial opportunities and technologies that support improvement of natural resource condition and resilience
- Support the creation and uptake of commercial opportunities for investment into sustainable landscapes, and encourage increased private sector's involvement in environmental management
- Support data and information collection, coordination and supply to improve community and regional planning to build drought resilience
- Assist communities to develop and implement innovative activities

3.3.2 Farm Business Management Course

A clear directive gathered through community and industry feedback and communicated to the Australian Government in developing the FDF was to upskill farmers in business management and financial literacy. Programs of this nature are clearly valued by those managing the FDF and are needed across the region.

In developing courses of this nature, it is important to define the outcomes of such a program. Although the goals may be to upskill farmers in business management, there is a need to define how drought resilience is best woven into this and whether there is a need or desire to include non-business related content into the course.

It is suggested that PIRSA conduct thorough research and stakeholder engagement amongst the distinct communities to determine the needs of each community and the gaps in knowledge. A course of this nature will need to be conducted over a number of weeks/months and is best delivered in collaboration with Landscapes SA and leading farming organisations in order to access specialist knowledge, experience of course development and to ensure buy-in from the community.

Suggested partnership organisations are outlined in Table 6.

A suggested course of action/next steps is defined below:

1. Define a list of potential project partners
2. Develop a basic program outline defining the skills and knowledge required
3. Seek feedback from farming organisations through surveys and interviews to define knowledge and skills gaps
4. Incorporate feedback into a renewed program
5. Research delivery organisations
6. Approach delivery organisations and assess appetite for project partnership and delivery
7. Choose one or multiple organisations to help deliver content and promotion of the course
8. Plan, promote and deliver program

The following FDF strategic priorities are addressed through a program of this nature:

- Support improved strategic management capacity of farm business managers through the use of innovative tools, improved drought risk business planning, education and training, and improved knowledge of—and access to—market and private sector services
- including through sharing information—for example, on climate data, soil health, water use efficiency, maintenance of groundcover, capturing carbon and the efficient use of inputs
- Encourage primary producers to adopt innovative approaches and technology, including on and off-farm diversification options or new farming practices, farming systems and markets (e.g. emerging carbon markets)
- Promote approaches that overcome barriers to developing innovative infrastructure or creating new lines of business
- Involve end users to co-design local natural resource management research development, extension and adoption. This will help to develop tailored outcomes and the adoption of the research
- Identify and review innovative solutions developed overseas for drought resilience, with a view to adapting them to suit Australia's agricultural sector

3.3.3 Business diversification program

Parts of this program are described under Section 3.1 and 3.2. This program is likely to be most beneficial if delivered in partnership with RDAs. It is suggested that this program be an addition to the previously described Farm Business Management Course and that funding for this program be sought in the 2021/22 financial year and beyond. It is recommended that this program take a lower priority to

all of the other programs described under this section due to limitations with applying for multiple projects across multiple FDF grants funds, prior to the 2020/21 grant closure dates.

Demonstrating a pathway for farmers to access alternative revenue streams is important. Inviting farmers from businesses that have successfully transitioned to an alternative form of income can help to bridge the gap between theory and practice.

Demonstrating a number of pathways to achieve a similar goal is important. The perceived and real barriers that farmers face in creating alternative revenue streams need to be overcome in order to create change. Barriers are likely to differ between different agricultural sectors and are likely to differ between regions. As such, this program will also require background research and information harvesting to determine the barriers for farmers in the region and to develop enablers and support systems that allow farm business to diversify.

Farm businesses are complex, with each business having different capacity and capability to diversify. Therefore, approaches to diversification must be taken across the board.

The following FDF strategic priorities are addressed through a program of this nature:

- Promote approaches that overcome barriers to developing innovative infrastructure or creating new lines of business
- Encourage primary producers to adopt innovative approaches and technology, including on and off-farm diversification options or new farming practices, farming systems and markets (e.g. emerging carbon markets).
- Support demand driven research including cross-sectoral, development, extension and adoption to expand technologies available to primary producers and agribusiness to respond to risks such as drought—both within their current industries and activities and to enable switches to new enterprises

3.4 Landscapes SA

Landscapes SA is well connected to individual farmers and farming organisations within the region. As such, the organisation would benefit by utilising its considerable influence in the region to facilitate a range of projects and to seek and strengthen partnerships with key agricultural groups across the region.

Table 7. Recommended funding projects, collaboration organisations, timeline and funding category for Landscapes SA

Recommended funding project	Lead organisation	Potential collaboration organisation	Timeline and funding category
<ul style="list-style-type: none"> • Innovative dryland revegetation techniques including cross slope direct seeding to reduce erosion potential and provide forage • Regenerative ag approaches; networks, practice adoption and demonstration farms • Soil management; strategies to increase health, carbon levels, address soil constraints, biological activity (measurement and benefits) • Pasture; mixed species, cover level measurement (including remote 	Landscapes SA	RDA's Ag Ex Alliance SANTFA Hart Field Day Site Barossa Improved Grazing Group Upper North Farming Systems	NRM Drought Resilience Program - Landscapes 2020/21

<p>sensing), native grasses / annual / perennial, change of land use with cash cropping to grazing</p> <ul style="list-style-type: none"> • Water management; sheeted catchments / EMU approach, dam rationalisation and infrastructure, demonstration farms • Livestock management; containment areas, grazing management, virtual fencing, mixed grazing model • Farm business management • Communications; videos, factsheets, case studies, how-to guides, social media connections • Weather and soil moisture data; on farm weather and soil monitoring, interpretation, developing decision points and understanding strategies 			
Development of a drought resilience plan for agriculture	Landscapes SA and Legatus Group	Councils State government	Regional Drought Resilience Planning 2020/21 and beyond
Support and partner with peak agricultural groups	Landscapes SA	Barossa Improved Grazing Group Upper North Farming Systems Hart Field Day Site Explore options with other groups – Mid North Young Guns, Barossa Youth in Ag, YP Alkaline Soils Group	Farm Business Resilience Program 2020/21 and beyond
Voluntary farm resilience assessments	Landscapes SA		Networks for building drought resilience 2020/21 *Consider how this project will be funded post grant funding. One off funding will provide infrastructure but ongoing funding for monitoring services will be required.
Develop the business case for NRM activities	Landscapes SA	PIRSA Northern and Yorke Landscapes Board	Natural Resource Management Drought Resilience Program – Grants

		Australian Government	Natural Resource Management Drought Resilience Program – Landscapes 2020/21, 2021/22 and beyond
Funding for property improvement	Landscapes SA	Barossa Improved Grazing Group Upper North Farming Systems Hart Field Day Site Explore options with other groups – Mid North Young Guns, Barossa Youth in Ag, YP Alkaline Soils Group	Natural Resource Management Drought Resilience Program – Grants Farm Business Resilience Program Natural Resource Management Drought Resilience Program – Landscapes 2020/21
Weather and climate education program incorporated with business planning	Landscapes SA	Barossa Improved Grazing Group Upper North Farming Systems Hart Field Day Site	Natural Resource Management Drought Resilience Program – Grants Natural Resource Management Drought Resilience Program – Landscapes Farm Business Resilience Program 2021/22 and beyond

3.4.1 Development of a drought resilience plan for agriculture

It is suggested that Landscapes SA collaborate with Legatus Group and councils to co-design at least three separate drought resilience plans for agriculture. Each plan should focus on a particular region and farming sector. The breakdown of a suggested plan is as follows:

- Upper North - pastoral grazing
- Mid North and Yorke – broadacre
- Lower and Mid North – horticulture including viticulture

The information provided by the FDF on this project specifies that councils and state government are well placed to deliver a regional plan for agriculture.

The plan may include information from across Australia and the world, include the latest in research and innovation and consider the following themes:

- Planning for rain - Ensuring when it does rain, water penetrates soils
- Post/pre and in drought resilience building
- NRM activities to protect soils
- NRM activities to protect surface water
- NRM activities to protect ground water

- NRM activities to protect and buffer stock from the effects of drought
- NRM activities to protect and buffer crops (dryland) from the effects of drought
- Water security
- Farm diversification
- Farm and business planning
- Public and private partnerships
- Gaps analysis
- Updated weather and climate information relevant to each region - including long term climate forecasting
- Private sector services to improve NRM and enable access to emerging markets

The following FDF strategic priorities are addressed through a program of this nature:

- Increase primary producers' understanding of their farm business drought resilience level
- Facilitate primary producers' increased knowledge of market and private sector services to improve natural resource management and enable access to emerging markets
- Support primary producers to adopt strategies for improving soil health, land cover, water and biodiversity
- Promote the development and adoption of new or existing commercial opportunities and technologies that support improvement of natural resource condition and resilience
- Support the creation and uptake of commercial opportunities for investment into sustainable landscapes, and encourage increased private sector's involvement in environmental management
- Facilitate increased community understanding of their drought resilience, including through training and information sharing—for example, case studies, inventory or support packages and making information readily accessible

3.4.2 Support and partner with peak agricultural groups

Peak regional agricultural groups are proven drivers of change⁴. Kilpatrick et al. (2003) note that farmers who are actively involved in networks are more likely to make changes to practice⁴. Not only do peak bodies demonstrate sustainable agriculture and natural resources management projects, they also provide a networking opportunity for many communities.

Peak regional groups frequently have a record of applying for and winning grant funding to demonstrate innovative land and water management techniques, provide locally relevant and timely information to farmers and focus on science communication and stakeholder engagement. These organisations allow farmers to exchange knowledge and provide a platform for learning. As such, peak regional groups are influential within the community and can drive practices that make a meaningful difference to environmental, social and economic business sustainability.

⁴ Kilpatrick, S., Bond, L., Bell, R., Knee, J., Pinkard, G. (2003), *Effective farmer groups for defining practices for sustainable agriculture*, Regional Institute Online Publishing, <http://www.regional.org.au/au/apen/2003/refereed/063kilpatrick.htm>, Accessed 10th September, 2020.

Learning in groups is beneficial for the bulk of farmers⁴. Change occurs in three main ways:

- By delivering new knowledge and skills
- By providing interaction with “experts” (facilitators, trainers or teachers)
- By providing opportunities for interaction with peers

It is suggested that Landscapes SA target each of the peak farming groups and co-design projects for the FDF. Landscapes SA should seek to influence the groups to design projects that meet the needs of the farming communities and the strategic goals of all organisations involved.

Key outputs of a project of this nature are:

- Map landholders involved in agricultural groups – Create a geographic map showing the location and size of each farm within a particular district that is a member of the peak regional organisation. This will provide Landscapes SA with detailed knowledge about the locations of the farms and farmers that may be influenced through projects and programs run through the peak body
- Gaps analysis – The aforementioned map can be used to map the farmers that are not involved in peak groups. Landscapes SA may like to consider how to influence those who are not members to become members. What are the main barriers to joining a group? How can funding from the FDF be used to incentivise non-members to join?
- Research the projects that are most suited to each farming district – Ensure that projects and programs run through the agricultural groups are innovative and address the FDF requirements. Focus on drought resilience, not recovery. How can drought programs be woven into other projects and planning? Drought planning needs to occur pre-drought, in-drought and post-drought
- Co-design projects – Seek to collaborate – Listen, negotiate, explain and decide. A partnership should benefit both/all organisations
- Seek long-term funding – extend the life of projects through planning multi-year projects and programs
- Target particular farms/farmers for drought resilience trials and natural resources management works – Seek to work with those with the most influence. Determine who is a credible and trusted source of advice and support⁴. These individuals are likely to be the greatest influencers in the group⁴.

The following FDF strategic priorities are addressed through a program of this nature:

- Encourage communities with a high level of drought resilience to share learnings with other communities
- Support community activities and initiatives that foster ongoing social networking, support, engagement and wellbeing
- Support the development and availability of an innovative drought resilience research, development, extension and adoption strategy— including a stocktake and evaluation of drought resilience research and extension— in a process that will involve end users to maximise the relevance and adoption of outcomes

- Support on-ground projects that enhance the resilience of natural capital in agricultural landscapes—including adoption of new or existing technology and practices
- Support the creation and uptake of commercial opportunities for investment into sustainable landscapes, and encourage increased private sector's involvement in environmental management
- Involve end users to co-design local natural resource management research development, extension and adoption. This will help to develop tailored outcomes and the adoption of the research
- Support the development and availability of an innovative drought resilience research, development, extension and adoption strategy— including a stocktake and evaluation of drought resilience research and extension— in a process that will involve end users to maximise the relevance and adoption of outcomes

3.4.3 Voluntary farm resilience assessments

Farmers tend to underestimate the environmental problems they are facing individually and within a region⁴. It is for this reason that it is important to work one on one with farmers as well as within broader groups. Assessing farm resilience can be a difficult process. Many farms cover huge areas, with soil types, groundcover and biodiversity varying from paddock to paddock. However, there is a need to benchmark and quantify the needs of individual farms and practices that demonstrate positive change over time.

It is suggested that farm resilience assessments are offered through Landscapes SA. FDF funding could target a range of actions, including:

- Training for Landscapes SA staff
- Post resilience assessment incentives scheme to increase the environmental resilience of the farming business
- Farm resilience self-assessment packages and training
- Demonstration sites, targeting the slow adopters of drought resilience practices
- Access technology and data, for example, aerial drones and accompanying camera technology to assess vegetation, water stress and soils
- Determine how precision agriculture can benefit drought resilience and incorporate precision agriculture technology into farm planning and drought resilience

The following FDF strategic priorities are addressed through a program of this nature:

- Support improved strategic management capacity of farm business managers through the use of innovative tools, improved drought risk business planning, education and training, and improved knowledge of—and access to—market and private sector services
- Increase primary producers' understanding of their farm business drought resilience level
 - including through sharing information—for example, on climate data, soil health, water use efficiency, maintenance of groundcover, capturing carbon and the efficient use of inputs—and/or
 - by encouraging voluntary farm resilience assessments where appropriate

3.4.4 Develop the business case for NRM activities

It is suggested that Landscapes SA develop multi-year demonstration trials, utilising cost-benefit analysis and modelling to quantify the benefits of natural resources management practices in relation to drought resilience. An aim of this project is to determine:

- Market values for stock/crop affected by drought with and without particular drought resilience and natural resources management measures

- The non-market benefits of particular drought resilience measures, i.e. capturing the economic value of water quality, carbon sequestration, soil retention, salinity mitigation, shade, biodiversity, heat mitigation

Although elements of this research may have been conducted in the past, there is little evidence of a cost-benefit analysis for drought related management. The primary aim of this research is to create a locally relevant example that involves people who are known in the community i.e. providing an example that all in the region can relate to. Partnering with both private and research organisations for this component is a must.

3.4.5 Funding for property improvement

Incentives programs are widely recognised as a tool for creating change⁵. Payments are often attached to the delivery of ecosystem services through specific or multiple practices. Incentives that drive changes to infrastructure, including green infrastructure i.e. vegetation, are one of the best indicators of sustained change in farm management. Farmers are only likely to co-contribute to infrastructure projects that are viewed as beneficial to farm operations and business. Once installed, infrastructure is likely to remain in place. Incentives that target behaviour change are more difficult to maintain, once the incentive scheme has ceased⁵.

A focus of the FDF funding is delivering innovative practices that will build or redesign landscapes for improved functioning and support primary producers to adopt strategies for improving soil health, land cover, water and biodiversity.

Suggested incentives schemes will aim to address the projects outlined in Table 7, as part of the *NRM Drought Resilience Program – Landscapes*. Other suggested farm infrastructure incentives programs include:

- Evaporation prevention infrastructure for on-farms dams i.e. Aquacaps, Evap-cap etc
- Rainwater tanks for attachment to farm sheds and areas of large surface area
- Solar pumps
- Fencing for stock containment areas
- Shelter belts
- Planting of native feed sources, such as Old Man Saltbush (*Atriplex spp.*)
- Fencing for newly planted paddock trees
- Projects that increase drought resilience through NRM and increase options for on-farm diversification i.e. growing of native food plants, native flowers and carbon farming etc.

Small scale infrastructure projects address the following FDF funding objectives:

- Encourage primary producers to adopt innovative approaches and technology, including on and off-farm diversification options or new farming practices, farming systems and markets (e.g. emerging carbon markets)
- Support incentives for practice change that will build or redesign landscapes for improved functioning
- Support primary producers to adopt strategies for improving soil health, land cover, water and biodiversity
- Support on-ground projects that enhance the resilience of natural capital in agricultural landscapes—including adoption of new or existing technology and practices
- Incentivise local and regional organisation’s capabilities by trialling and adopting new natural resource management practices and technology through collaboration

3.4.6 Weather and climate education program incorporated with business planning

A key focus of FDF funding is helping farmers to better understand and interpret climate and weather data. This information needs to be coupled with business management and farm management

information. The benefits of understanding soil moisture, expected rainfall or evaporation rates are of little value, if there is not an understanding of how each factor is likely to affect farm operations, farm sustainability and profitability.

Any weather and climate data program needs to help farmers make better informed decisions. Key to this is understanding what data already exists and determining the following:

- Where do farmers currently access weather and climate information?
- How do farmers access weather and climate information?
- How relevant is this information? i.e. is it relevant to the region?
- How accurate is the information? Do farmers trust the information source?
- How do farmers use weather data to make decisions? i.e. destocked/lowered stocking rate based on short-medium term forecast
- How do farmers use climate data to inform decisions? i.e. changed varieties of wheat from a high yielding variety to a lower yielding drought tolerant variety
- What information do farmers need to make decisions about time of sowing/stocking rates/paddock arrangement/choice of crop/variety/breed of stock etc
- When is the right time to lower stocking rates? How can ground cover be maintained whilst maintaining farming viability?
- How can climate/weather data be used to make more informed decisions?
- How can data lead to innovative practices?

It is recommended that Landscapes SA develop a survey for completion by farmers. Surveys may be printed off and handed to peak regional bodies and available online. The surveys will form a baseline from which to design a climate/weather and business planning program. Not enough information is known about data and how farmers relate to data in the region. A significant opportunity exists to bridge that gap. The FDF funding has several categories that focus on innovation and data collection and understanding.

An impacts of climate business planning course would address the following FDF funding objectives:

- Support the development and availability of an innovative drought resilience research, development, extension and adoption strategy—including a stocktake and evaluation of drought resilience research and extension—in a process that will involve end users to maximise the relevance and adoption of outcomes
- Support improved weather information over a range of timeframes and levels regarding drought risk, such as early warning systems, seasonal forecasts, future climate projections and impacts for agriculture
- Increase primary producers' understanding of their farm business drought resilience level
 - including through sharing information—for example, on climate data, soil health, water use efficiency, maintenance of groundcover, capturing carbon and the efficient use of inputs
- Support the collection, management, public accessibility and application of data and information to improve natural resource management
- Increase primary producers' understanding of their farm business drought resilience level
- Support primary producers to adopt strategies for improving soil health, land cover, water and biodiversity
- Facilitate increased community understanding of their drought resilience, including through training and information sharing—for example, case studies, inventory or support packages and making information readily accessible
- Support the development of systems and collaborations that enable better analysis and practical application of data, including for farm natural resource management practices

4 Project prioritisation

The following tables prioritise projects according to a defined criterion that will, to the best of the authors knowledge, strongly address the FDF funding criteria. This framework allows for a quick reader scan of projects and the areas that are addressed by each particular project and the areas that are not i.e. a gaps analysis. Should the Alliance organisations wish to apply for a lower priority project, it is recommended that the project is improved to include as many of the categories below.

4.1 Legatus Group

Ranking	Project/program	Encourages the leveraging of investment	Public and private partnerships	Collaboration between organisations	Innovative solutions and the adoption/trial of new technologies and methodologies	Involve end-users to co-design programs	Farm diversification	Data management to improve both natural resource management and farming
1	Development of a regional drought resilience plan for agriculture	✓	✓	✓	✓	✓		
2	Community resilience leadership program		✓	✓		✓		
2	Building resilience in mental health		✓	✓		✓		
2	Development of a regional sustainability hub	✓		✓	✓			
3	Mentoring program		✓	✓				
3	Street Tree passive irrigation trials				✓			✓
3	Smart Irrigation				✓			✓

3	CWMS water reuse			✓	✓			
4	Small scale infrastructure			✓				

4.2 Regional Development Australia

Ranking	Project/program	Encourages the leveraging of investment	Public and private partnerships	Collaboration between organisations	Innovative solutions and the adoption/trial of new technologies and methodologies	Involve end-users to co-design programs	Farm diversification	Data management to improve both natural resource management and farming
1	Economic resilience programs for non-farming businesses with a drought resilience leader focus	✓	✓	✓	✓	✓		
2	Facilitate public private partnerships for innovation	✓	✓		✓			
3	Design a youth leadership course focussed around drought resilience			✓				
3	Infrastructure projects			✓				

4.3 PIRSA

Ranking	Project/program	Encourages the leveraging of investment	Public and private partnerships	Collaboration between organisations	Innovative solutions and the adoption/trial of new technologies and methodologies	Involve end-users to co-design programs	Farm diversification	Data management to improve both natural resource management and farming
1	The establishment of a Drought Resilience Adoption and Innovation Hub	✓	✓	✓	✓			✓
1	Farm business management course		✓	✓		✓	✓	✓
2	Business diversification program		✓	✓	✓		✓	

4.4 Landscapes SA

Ranking	Project/program	Encourages the leveraging of investment	Public and private partnerships	Collaboration between organisations	Innovative solutions and the adoption/trial of new technologies and methodologies	Involve end-users to co-design programs	Farm diversification	Data management to improve both natural resource management and farming
1	Development of a drought resilience plan for agriculture		✓	✓	✓	✓	✓	✓
1	Support and partner with peak agricultural groups		✓	✓	✓	✓	✓	✓
2	Voluntary farm resilience assessments		✓	✓	✓	✓		✓
2	Develop the business case for NRM activities	✓	✓	✓	✓			✓
2	Weather and climate education program incorporated with business planning		✓	✓	✓	✓		✓
3	Funding for property improvement	✓		✓				✓
3	<i>NRM Drought Resilience Program</i>			✓	✓		✓	

	- Landscapes projects							
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