6

Research and extension

6.1 Research and extension are vital to Australia's farmers meeting the challenges of climate variability and climate change. It is important that effective adaptation and mitigation measures are identified, disseminated and effectively implemented to ensure the long term viability and productivity of our agricultural industries.

6.2 This is an area that the Committee has addressed in the recent past, in the report *Skills: Rural Australia's Need*.

The Role of government

The current policy framework

6.3 In their joint submission to the inquiry, the Department of Agriculture, Fisheries and Forestry and the Department of Climate Change outlined the current policy framework for climate change research for the agricultural sector at the Commonwealth level. The submission stated:

> It is critical for managing climate change that the sector's preparedness and decision-making be based on sound, world's best practice research and resultant adoption and uptake. Our farmers need to understand and build knowledge of the implications of climate change and greenhouse gas management in order to minimise risk, adequately manage threats, and maximise opportunities.[1]

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1 Department of Agriculture, Forestry and Fisheries, and Department of Climate Change (DAFF/DCC), Submission no. 70, p. 13.

6.4 The foundation of the policy framework is provided by the Primary Industries Ministerial Council and the Primary Industries Standing Committee:

> The current cross-jurisdictional policy environment for the rural sector, including that for rural R&D, is being led by the Primary Industries Ministerial Council (PIMC) and its sole subcommittee, the Primary Industries Standing Committee (PISC).
>
> A subcommittee of PISC on R&D has a role to develop a national approach for future rural R&D in Australia. Ensuring jurisdictions firmly place climate change at the top of their policy agenda is also a key priority currently for PISC.
>
> PIMC is working to develop and implement a National Primary Industries Research and Development & Extension Framework. The Framework will establish a stronger culture of collaboration and cooperation to address key cross sectoral and resource issues.[2]

6.5 Providing advice to the Minister of Agriculture, Fisheries and Forestry is the Rural Research and Development Council, consisting of people prominent in various sectors of Australia's rural industries:

> The Council will have a central role in facilitating more effective use of public resources to address priority issues of importance to Australia's primary industries and associated value-chains, enhance the speed of delivery of research outputs to Australia's primary producers and the uptake of R&D by them, and to enhance domestic and international cooperation and collaboration. The Council will work closely with the rural RDCs [research & development corporations], industry sectors, research providers, state and territory jurisdictions and relevant government agencies to strengthen rural R&D through improved collaboration, facilitation and prioritisation of investment, and performance measurement and reporting.[3]

6.6 In evidence before the Committee, Mr Allen Grant, executive manager of DAFF's Agricultural Productivity Division, expanded on the role of the Rural Research and Development Council:

> The minister has established the Rural R&D Council to provide advice to him on rural R&D investment and priorities across Australia. One of the tasks that they need to deliver on is a rural

2 DAFF/DCC, Submission no. 70, p. 13.

3 DAFF/DCC, Submission no. 70, p. 14.

> R&D investment plan. It is not an easy task and it is designed to look across the current R&D model. The government puts over $200 million each year into the rural research and development corporation model through matching levies but the task of the council is to look more broadly than that at how rural R&D is directed, at the needs of our rural constituents, at what further opportunities might there be to put funding into rural R&D either through public investment or private investment, at what other mechanisms exist in other sectors of the Australian economy that might be appropriate to adopt into the rural sector to increase the amount of funding into rural R&D and to provide broader advice on priorities for rural R&D funding. Climate change will be picked up in that advice but it is not a specific target for the advice that the minister is looking for from that council.[4]

6.7 Rural research and development funding is also guided by the Rural Research and Development Priorities, which provide a regularly updated list of priorities:

> It is important to have broad agreement on national priorities for innovation and rural R&D which public investors are prepared to support. As priorities change over time, government policy needs to keep pace to ensure issues of strategic concern like climate change are being addressed adequately through innovation and to ensure that resources are used effectively.
>
> Rural R&D is being guided by both the National Research Priorities (NRPs), established in 2002 and last updated in 2003, and the complementary Rural Research & Development Priorities (Rural R&D Priorities). Reflecting the fact the RDCs are jointly funded by government and industry, it has been a practice of successive agriculture Ministers since 1994 to issue statements of Rural R&D Priorities to ensure that the priorities of government, as well as industry, are incorporated into RDCs' investment decisions.
>
> The Rural R&D Priorities were updated in 2007, in consultation with industry, research funders and providers and state and territory governments, and represent a shared set of high-level objectives across sectors and jurisdictions.
>
> The review took place in order to refocus and refresh the national understanding of critical R&D investment needs to better target

4 Mr Allen Grant, DAFF, *Transcript of Evidence*, 28 October 2009, pp. 1–2.

agricultural industry R&D efforts and to reflect the changing external environment. As part of this review, *climate variability and climate change* was elevated to become an independent, stand alone priority.[5]

6.8 The aim of the Rural Research and Development Priorities is:

> …to foster rural innovation and guide rural R&D in the face of continuing economic, environmental and social change. As such, they include social, environmental and commercial issues, which are becoming increasingly interconnected as industries respond to community concerns in both their products and production methods.
>
> While the priorities fall within broad categories, within each category more detailed guidance is provided on the types of activities investors should be focussing on in the short to medium term environment. Rural R&D Priorities enable issues of common concern to be explored in a coordinated and cost effective way and they also complement the NRPs. Two 'supporting' priorities supplement the Rural R&D Priorities.[6]

6.9 The current Rural Research and Development Priorities are:

- *Productivity and Adding Value*:

Improve the productivity and profitability of existing industries and support the development of viable new industries.

- *Supply chain and markets*:

Better understand and respond to domestic and international market and consumer requirements and improve the flow of such information through the whole supply chain, including to consumers.

- *Natural resource management*:

Support effective management of Australia's natural resources to ensure primary industries are both economically and environmentally sustainable.

- *Climate variability and climate change*:

Build resilience to climate variability and adapt to and mitigate the effects of climate change.

- *Biosecurity*:

5 DAFF/DCC, Submission no. 70, p. 15.

6 DAFF/DCC, Submission no. 70, pp. 15–16.

> Protect Australia's community, primary industries and environment from biosecurity threats.
>
> These are accompanied by two 'supporting' Priorities:
>
> - *Innovation skills*:
>
> Improve the skills to undertake research and apply its findings.
>
> - *Technology*:
>
> Promote the development of new and existing technologies.[7]

6.10 Each of the 15 Rural RDCs use the Rural R&D Priorities and the National Research Priorities in their R&D investment strategies and plan, and report against both priorities annually in various Operational Plans and over the longer term in Strategic Research and Development Plans. 'The RDCs are one of the Australian Government's main vehicles to support and assist primary producers to adapt to the impacts of climate change through rural R&D.'[8]

6.11 The RDCs

> commission and manage targeted investment in research, innovation, and knowledge creation and transfer on behalf of their major stakeholders, their industries and the government. To guide RDCs' investment strategies, industry and stakeholders are consulted and their input helps to develop three to five year corporate plans that reflect Rural R&D Priorities.
>
> With the extensive industry networks the model provides, RDCs create a critical link between the science and producers. This enables research to be appropriately targeted and more effectively extended to end users. The RDC model has provided farmers greater options in adapting to climate change through recent R&D by, for example, developing cropping systems that are more adaptable to climate change, practices that minimise on-farm greenhouse gas emissions and plant varieties with improved water-use efficiency or drought tolerance.[9]

6.12 In evidence before the Committee, Mr Mark Gibbs, General Manager, Climate Change Policy Branch, Climate Change Division, DAFF, explained the Government's current priorities:

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7 DAFF/DCC, Submission no. 70, p. 16.

8 DAFF/DCC, Submission no. 70, p. 14.

9 DAFF/DCC, Submission no. 70, p. 16.

> In terms of Australia's Farming Future and the Climate Change Research Program, we have announced a number of projects this year which look at aspects of soil carbon. They look at how farmers can manage their nitrous oxide emissions. They also look at how they manage livestock emissions—which is mainly methane. There is also a large area of investment in how cropping systems and how managing beef herds and cattle herds in both northern and southern Australia will be impacted by climate change and how there are potential movements for some small industries around Australia. A lot of work has been commenced there and is underway. That work brings together scientists. It brings together the CSIRO and those organisations that are part of our RDC framework. For example, MLA is involved in that work. GRDC is involved in that work. Dairy Australia is also part of that work. They have quite good extension networks, which can extend the results down to farmers. Indeed, we are also using farming bodies such as the Birchip Cropping Group to discuss issues of adaptation in their particular region. More broadly, in Australia's Farming Future, there is also FarmReady.[10]

6.13 Mr Gibbs then expanded on the work being undertaken as part of the Climate Change Research Program:

> With soil carbon, there was a $10 million investment made under the soil carbon research program. By the time we had investment from the CSIRO and the state DPIs [Departments of Primary Industries], we had leverage up to about $20 million. That program of work is about soil sampling in a strategic and targeted way that looks at farm management practices. We also look at places where we are certain that a farm management practice has been going on for some time and compare them to fields where that practice has not been occurring. That is important from a science point of view so that we can start to make some scientific judgments about how soil carbon has increased over time with that practice. Across Australia we target cropping, vegetable growing in Tasmania and different types of farm practices. We have coverage across Australia except for the Northern Territory.
>
> … We are developing a standard methodology run by the CSIRO so we can compare different results under different practices across the country. There is a lot of debate about soil carbon at the moment and about how different practices can significantly

10 Mr Mark Gibbs, DAFF, *Transcript of Evidence*, 28 October 2009, p. 4.

> increase carbon. What we are trying to ascertain is how those levels of carbon can increase. It is not just factors such as what you might be deciding to grow at one point in time; there are also environmental factors, which are very important when it comes to soil carbon. Very significant natural disturbances such as droughts or bushfires, for example, can have an impact on soil carbon.

6.14 Mr Gibbs explained that there is a strong connection between the nitrous oxide program and the soil carbon program, because those two gases are related in terms of soil management. When speaking of nitrous oxide management, Mr Gibbs stated that:

> In the past we have tended to use a methodology which basically involved measuring from a bucket in the ground—I do not know if you have ever seen it. We have now replaced that with things called automatic chambers which allow for nitrous oxide emissions which vary based on night and day, so we can get much better calibration of what is happening out in the field and over time.

6.15 With regard to the management of the livestock program, Mr Gibbs explained:

> That is another coordination hub where we have a number of activities going on, both in the extensive area and in the intensive area. We are looking at different types of management practices ranging from feed supplements to looking at productive traits for different animals. How we actually measure methane is an issue; 'looking at the science of the gut' is my expert way of putting it. That is quite a complicated area.
>
> …Methane emissions are probably one of those areas where it is going to take some time to get answers, but the way we are coordinating the work involves using, again, universities and the extension networks that Meat and Livestock Australia has. We do not have results coming out of that program yet, because it has just started, but we aim to have some results in the near to longer term.[11]

11 Mr Mark Gibbs, DAFF, *Transcript of Evidence*, 28 October 2009, pp. 6–7.

Research needs

6.16 Through the policy framework outlined above, and through the Rural Research and Development Corporations, Cooperative Research Centres, the CSIRO and universities, the Commonwealth makes a significant contribution to the research and development needs of Australia's farm sector. The various State Governments also play a significant role in rural research and development, and extension, through their departments of primary industries and institutions such as the Tasmanian Institute for Agricultural Research. Nonetheless, the Committee received a considerable amount of evidence about the need to better fund and coordinate research into adaptation to climate change and climate variability, and to provide better communication between researchers and farmers.

Funding

6.17 The need to improve funding for research into climate change adaptation was highlighted in the evidence brought before the Committee. In its submission, Australian Pork Limited stated:

> To create world class innovation and maximise the resilience and adaptive capacity of agriculture, government funding to agriculture R & D needs to be significantly increased and should be proportionally in line with the support given to geosequestration from coal fired power stations. Geosequestration - R & D has recently received some $500 million in funding from the Federal Government. Agricultural emissions are equal to approximately 35 per cent of the emissions of the coal industry (National Greenhouse Gas Inventory 2006) and are potentially more easily remedied. A significant increase on top of the current available funding is required to address existing R & D gaps and identify areas of future work to successfully reduce the greenhouse gas emissions from Australian agriculture.[12]

6.18 In its submission, the National Farmers' Federation also called for increased research funding, emphasising that research on climate change adaptation should not be funded at the expense of research into productivity:

12 Australian Pork Limited, Submission no. 16, p. 5.

> R&D is vital in providing farmers with the appropriate signals to build capacity to respond to the challenge of climate change through adapting their farm systems. This same analysis can also inform infrastructure investment decisions and help inform international discussions on reducing greenhouse gas emissions. While industry can and will play a key role in developing this science, it is vital that Government also supports this process.
>
> The NFF recognises that farmers need access to the right tools to effectively manage the risks and capitalise on the opportunities arising from climate change and climate change policy. Failing to dedicate an appropriate level of resourcing to this need will expose the agricultural sectors and indeed the broader community to the potential for significant perverse outcomes from a CPRS implementation. The NFF therefore agrees with the CPRS Green Paper finding that *"Regardless of the policy approach, additional support for research and development into mitigation options for the agricultural sector may be required."*
>
> However, in an environment of increasing concerns over global food supplies and the need for Australian agriculture to continually improve productivity, it is important that the research priorities identified for Climate Change Research Program do not reduce or delay the delivery of research outcomes which are aimed at improving productivity and building resilient, sustainable, well managed agricultural businesses.[13]

6.19 Mr Ben Fargher, CEO of the NFF, highlighted concerns within the farm sector about shifting priorities and declining funding for research. He explained to the Committee:

> We have been concerned that over successive governments in this country we have seen pressure on our research and development in agriculture. And it is not just a Commonwealth government issue or a state government issue; it is across the board. If you measure agricultural research against ag GDP and call it research intensity, you will see that it is at levels that are particularly low. We are concerned about that. We recognise the government has spent some money on R&D, but we also recognise there have been some budget cuts to R&D as well, which we are less than enthused about. Our priority going forward is how we can invest and make sure the extension of the R&D system in the states, the

13 NFF, Submission no. 17, p. 6.

> Commonwealth, RDCs and CSIRO works and is focused on. It is the type of thing that is not necessarily sexy compared to the CPRS debate, but it is the type of thing where you wake up in 20 years time and realise you have lost something you once had and regret it deeply. So we are very focused on R&D.[14]

6.20 In its submission, the South Australian Farmers Federation also expressed concern about the current level of research funding:

> Research and development will be essential to enable primary industries to adapt to climate change. However it is concerning that Governments (both State and Commonwealth) are decreasing the amount of funding provided to research and development. This has the potential to severely impact on agriculture's ability to adapt to the changing climate whilst improving productivity.
>
> Government has a role in funding and assisting industry in the development of farming systems that are more able to withstand a highly variable climate. This could include a focus on new varieties (better adaptation to a dry climate, high temperatures and increased incidence of frosts), new technology eg opportunities to reduce inputs or maximise productivity through technology such as biochar or production of ethanol from animal effluent, and new farming systems including new types of crops and pastures.
>
> Research is also needed to identify the potential impacts of climate change within regions, including production and impacts on the natural resources, which would enable a greater understanding and the potential for rural communities and primary industries to develop strategies to address these impacts.[15]

Coordination

6.21 The need for a high level of coordination in research activities, to maximise efficiency and prevent duplication of effort, was also emphasised in the evidence presented to the Committee. In its submission, the NFF stated:

> The NFF has been supportive of a nationally coordinated approach to research, development and extension programs, which recognise the needs of specific industries. In addition, we

14 Mr Ben Fargher, CEO, NFF, *Transcript of Evidence*, 16 September 2009, pp. 1- 2.

15 South Australian Farmers Federation, Submission no. 21, p. 4.

> note that the science behind emissions management and adaptation is rapidly changing and emerging. A clear role exists for the synthesis of this information and continual updating of information through an information hub(s) to deliver it in a form that is useful and accessible to primary producers. There are also benefits that can come from facilitating transfer of information across industries and regions through such information hub(s).[16]

6.22 In its submission, CCRSPI noted that:

> Australia's relatively small rural RDE spending must be directed strategically and managed efficiently. A national collaborative approach to RDE is required to avoid duplication and poorly targeted efforts.[17]

6.23 In its submission, Australian Pork Limited stated:

> Considering the complexity of the issues and the short timeframe for the task, APL supports a nationally coordinated approach to climate change related research as suggested by NFF and CCRSPI. A concerted approach to climate change R & D is also one of the key recommendations that came out of the latest ABARE modelling exercise. This would facilitate knowledge transfer between different sectors, streamline the whole process and allocate Government and industry funds in the most efficient way.[18]

6.24 In the context of climate change, CSIRO's Dr Andrew Ash noted the benefits of research coordination and the three current mechanisms available to achieve this:

> We have a number of entities that take on research in this space, from the rural research and development corporations through to universities, through to state agencies and CSIRO. Some of the aspects of climate change are generic enough that it does not make sense for each of those groups to be doing their own bit, typically the RDCs. So some coordinated efforts—whether it be around some of the climate change projections which would touch on a number of industries; issues of some of the impacts of those climate change projections on industries—can be done more generically. That is a good reason for having a coordinated body, and just for economies of scale. We do not have a huge number of

16 National Farmers' Federation, Submission no. 17, p. 15.

17 CCRSPI, Submission no. 10, p. 4.

18 Australian Pork Limited, Submission no. 16, p. 20.

> researchers in Australia and in the ag sector generally and it makes more sense to get more bang for your buck by having that coordinated approach.
>
> There are a number of mechanisms for achieving that coordination. We have had in place, up until now—it is somewhat in abeyance—the Climate Change Research Strategy for Primary Industries [CCRSPI] that was under the management of Land and Water Australia. That was one mechanism, particularly for bringing some coordination to RDCs, universities, CSIRO and state departments. Then we have, for example, the Climate Adaptation, our own flagship program, and we do try and work fairly closely with the RDCs and state governments and the Commonwealth through DAFF and the Department of Climate Change and also collaborate with universities and do participatory work with farmer groups and the ag industry. That is the second mechanism.
>
> The third mechanism is the National Climate Change Adaptation Research Facility which has been established by the Department of Climate Change and a consortium run by Griffith University. That has as part of it a primary industries network which particularly brings a network of researchers from universities and CSIRO into that. Associated with that NCCAR Facility, they are developing a national adaptation research plan for agriculture. They are the three mechanisms that we have had in place for coordinating activity, at least in the adaptation space.[19]

6.25 A particularly vital element of the research coordination effort for many stakeholders is CCRSPI, which was established under the auspices of PIMC. The Committee notes that it is the only body involving all major rural R&D, extension providers and funding bodies including all rural R&D corporations, State Government primary industries departments, CSIRO, and the Australian Government. In its submission, the Victorian Government stated:

> From Victoria's perspective, CCRSPI has already demonstrated its potential worth in a coordinating, facilitating and brokering role for rural R&D investment in the recent call for project proposals by DAFF for its Climate Change Research Program, funded under the Commonwealth's *Farming Future* initiative. CCRSPI has also provided a comprehensive summary of existing climate change

19 Dr Andrew Ash, CSIRO, *Transcript of Evidence*, 21 October 2009, pp. 1–2.

> research and development, and identified many gaps and major opportunities for new collaboration. The scale and nature of the climate change challenges for farming sectors means resources can ill afford to be wasted on duplication or for key projects to fail due to a lack of critical funding or coordination.[20]

6.26 In its submission to the inquiry, CSIRO, noted that CCRSPI strategy outlines six priorities:

- Understanding Future Climates
- Managing Emissions
- Preparing Industries
- Accessing Information
- Facilitating Change
- Linking Decision Makers

6.27 CSIRO further notes that CCRSPI is:

> … an important way for primary industries to come together, share knowledge and invest in new research to prepare and adapt to future climate scenarios. While each of the agricultural sectors will have its own specific issues to deal with in terms of climate adaptation, the CCRSPI initiative helps coordinate effort and avoid duplication, particularly for areas of information that are common across different sectors e.g. climate change projections.[21]

6.28 In their submission, Horticulture Australia Limited and the Horticulture Australia Council endorsed CCRSPI, noting that its three pillars are 'collaboration, coordination and communication of information, knowledge and research focused on climate change in primary industries...'[22]

6.29 HAL states that as a partner of CCRSPI, it has strongly supported the need for coordinated research and sharing of knowledge between primary industries. Their submission recommends:

> Action: a process for effective two-way flow of information/needs/actions between industry (via both the CCRSPI process and peak industry bodies) and Government is required.[23]

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20 Victorian Government, Submission no. 73, p. 28.

21 CSIRO, Submission no. 19, p. 22.

22 Horticulture Australia Ltd and Horticulture Australia Council, Submission no. 62, p. 19.

23 Horticulture Australia Ltd and Horticulture Australia Council, Submission no. 62, p. 30.

> Action: Government should support coordinated communication for primary industries through the CCRSPI process.[24]

6.30 Concerns were expressed to the Committee about the future of CCRSPI since the abolition of Land and Water Australia. Mr Robert Young, Director, Climate and Water Research, with the NSW Department of Primary Industries, advised the Committee:

> I guess we were a fan of the CCRSPI structure itself because it got all the players around the table—the state agencies, the CSIRO and all of the rural RDCs. A structure like that that brings most of the players to the table is useful. Now that Land and Water is gone, how we develop a strategy to move forward from that is where we are at at the moment. That might be finding another logical host for that structure, like RIRDC or a more generic RDC, if you like, rather than an industry specific one… I am quite comfortable in terms of who hosts it; the key thing is that people actually get to have a say in how it operates.[25]

6.31 Similarly, Mr Drew Wagner, Senior Policy Advisor with AgForce, raised questions about the future of CCRSPI and emphasised the need to continue the work that had been started under the auspices of Land and Water Australia:

> Without looking like we are sniping from the sidelines, the Land and Water Australia abolition took a lot of industry players very much by surprise. The work that they were doing using the climate change analogy under the CCRSPI program was a very specific and targeted primary industries research program, and the agendas that came out of that and the opportunities that even arose out of that process, while they might not have been able to be undertaken holistically because of the number of possibilities that would put forward, it at least would have allowed for a targeted regime to be worked through. It was getting to the point where a lot of that work was actually starting to get to the crux of what they were trying to achieve, but the flagship that was driving it has been removed. Now, we understand that functionality is still going to be there but, without the specific focus of organisations as executive agencies like that one was, often the agendas can get caught up in the minutiae of what is going on at departmental levels… The loss of that executive agency to drive that agenda has

24 Horticulture Australia Ltd and Horticulture Australia Council, Submission no. 62, p. 33.

25 Mr Robert Young, NSW DPI, *Transcript of Evidence*, 1 July 2010, p. 24.

> been seen as a massive loss and felt not only across the rest of the research and development corps but also across industry at the same time.[26]

6.32 In evidence before the Committee, officers from DAFF explained that CCRSPI had been transferred to the University of Melbourne.[27]

Time frames

6.33 The question of time frames for agricultural research, taking ideas from inception through to widespread adoption, was raised in evidence before the Committee. This is an issue the Committee also encountered in its previous rural skills inquiry. The evidence presented before the Committee in this inquiry highlighted the importance of matching programs and funding to the often long term requirements of agricultural research.

6.34 In evidence before the Committee, Mr Kevin Goss, CEO of the Future Farm Industries CRC, stated:

> …we are really saying that government assistance to farmers in this very important matter of adapting to climate change should take a longer term view than we see is being planned at the moment. If you think about the public and private investment in research that underpins collaborative arrangements that scan across the many entities that can really serve farmers very well, you see the science capacity behind it builds over time. This is a long run now, so having a long-term view about how it is to be done is clearly quite important.[28]

6.35 Expanding on this point, Mr Michael Poole, Director of the Future Farm Industries CRC, gave the example of the development of no-till farming in Western Australia:

> I was there for the whole of that journey of the development of zero till. It started off, really, with a dream: that we needed to move to tilling systems, which were much more efficient in their water use, which stopped the country blowing away, and which would take advantage of new technologies as they came in. Through a very strong partnership from the beginning … pulling all those in, it then took 30 to 40 years to bring that from an

26 Mr Drew Wagner, AgForce, *Transcript of Evidence*, 14 July 2009, p. 9.

27 Mr David Mortimer, DAFF, *Transcript of Evidence*, 28 October 2009, p. 9.

28 Mr Kevin Goss, FFICRC, *Transcript of Evidence*, 9 September 2009, p. 1.

> embryonic idea to now, when about 95 per cent of the country is using those techniques. I think that as we go forward in adaptation research and R&D for climate change we will see the same sorts of timescales. It is a long time-scale problem and we will need to bring that sort of effort to bear. It is about partnerships and research collaborations and it will need to bring in a whole range of technologies. A feature of bringing in the tillage was the partnership and collaboration, but there was also the aggression with which we attacked the problems. There were about a dozen step changes in that as we went forward—new pieces of technology coming in—so it was not a case of one thing being done and then adopted over 30 years. Problem after problem after problem had to be knocked over, and they are still being knocked over as new problems arise today in those systems. As climate change and climate variability impact on those systems, we are moving to new technologies to handle them. Our key message there is that, as Kevin alluded to, it has taken a long, hard grind of public and private money, public and private research and world-class technology to get there and that really is what we face with something as complex as climate change.[29]

6.36 Mr Wagner, of Agforce, also noted the often long time scales between inception and adoption, and the problems that could occur when programs or funding ceased too soon:

> The difficulty with R&D, though, is that—as anyone involved in research might tell you—you could find the answer tomorrow or you could find it in 10 years. The lead time on getting a lot of this stuff right and then commercialising it and extending the product out to the market can often be very long. There appears to be a reticence to commit to a lot of those longer time frames, which is understandable financially but perhaps, for market development and market accuracy, a somewhat too narrowly focused aperture to get that desired outcome in the end.
>
> There are often times … when R&D agendas have been removed because no outcome has been determined within a set time frame and a new priority has come up… But we need to take it to the nth degree to find out what that end outcome is, because otherwise we are going to keep throwing money at things we have not actually finished.[30]

29 Mr Michael Poole, FFICRC, *Transcript of Evidence*, 9 September 2009, p. 2.

30 Mr Drew Wagner, AgForce, *Transcript of Evidence*, 14 July 2009, p. 8.

6.37 Dr Don Yule, Director of Controlled Traffic Farming Solutions, pointed to the impacts of stop-start project funding on the development of Controlled Traffic Farming:

> The five years of the project just proved that it could happen, proved the content that was needed, that it would work and also demonstrated the process of the one-on-one interaction with the farmers… In terms of what government can do now there was no follow-up from Land and Water Australia.
>
> …What we needed at that stage was for them to say, 'This is really good stuff, we need to take it to the wider farming community and we also need to take it to the wider service sector.' What happened was that they said, 'We've done it, we'll move on to something else.' … GRDC was involved in that and they said, 'We're going to work on something else.' They also came back with a bit of a thing that we were supposedly so successful that everyone was doing it. It fell in a bit of a hole, I suppose.[31]

6.38 However, Mr Wagner, also emphasised the need to move quickly on research and development into climate change adaptation—the nature and complexity of the problem requires an urgent response:

> The thing that worries me and our organisation specifically though… is the sheer speed upon which we are going to have to see the deployment and commercialisation of these opportunities. We have talked about the ongoing very strong history of adaptation within this sector domestically in Australia since time began. But the difficulty here is that in the past we were talking about it taking generations to adapt and overcome issues. We are now going to be talking about multiple issues within generations. It appears that the impacts which we are trying to adapt to are ramping up almost exponentially. Perhaps the focus on the R&D side of things is not ramping up at the same rate.[32]

6.39 Mr Bill Williamson, an agricultural scientist who appeared before the Committee with the Murray Irrigators Support Group, noted that scientists were increasingly being asked to focus on simple issues with straightforward responses—often in response to policy demands—a fact which was undermining their capacity to work through complex issues like climate change adaptation:

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31 Dr Don Yule, CTF Solutions, *Transcript of Evidence*, 14 July 2009, p. 39.

32 Mr Drew Wagner, AgForce, *Transcript of Evidence*, 14 July 2009, p. 10.

> Science is good at dealing with difficult problems, and typically policy and politics likes to see simple problems. Simple problems are where there is a signal and you get a direct response. Difficult problems are situations where you have a signal and you might get one or two different answers. Complex problems are where you do not really see the signal; you just go out and do something and the farmer knows it is going to be right. That is a difficult space to work in. I think science more and more seems to be pushed into situations where science does not have the time to consider complex issues, and it is poorly prepared to deliver solutions for complex problems.[33]

Regional focus

6.40 Another important issue raised during the inquiry was the need for a regional focus for research initiatives. Regional variation in climatic, soil and production conditions made regionally relevant research outcomes vital.

6.41 In evidence before the Committee, Mr Dale Park, representing the Western Australian Farmers Federation, told the Committee:

> One of the real grizzles of almost all of Western Australian farmers is that for the amounts of levies that we pay into the RDCs, the research and development corporations, very little comes back to Western Australia. Certainly, we have heard the argument that comes back that the work done in the eastern states has application in Western Australia as well.
>
> Conversely, we also must recognise that the mechanisms for having lower carbon agriculture have not only a north-south divide but definitely an east-west divide, and that happens in the north and south too. Not a lot of what happens even in the Kimberleys can be compared with what happens in Queensland. We are reasonably close in our agriculture in the south-west land division to some of what happens in Victoria, but there is a hell of a lot of that is a lot different as well. One of the things that have definitely been lacking in quite a lot of research is the recognition that things are different in the west and the east.[34]

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33 Mr Bill Williamson, Murray Irrigators Support Group, *Transcript of Evidence*, 3 September 2009, p. 46.

34 Mr Dale Park, WA Farmers, *Transcript of Evidence*, 24 September 2009, p. 8.

6.42 Mr Park informed the Committee that the key to success in pursuing national research objectives was ensuring stakeholder representation from different parts of the country:

> I would support the idea of having regionally based research, but that can be national as well. Through some of the Australia's Farming Future funding for biochar there is a group that is the amalgamation of all our universities and the ag department, and CSIRO in Western Australia is participating in that through the national program.[35]

6.43 In his submission to the inquiry, the Minister for Agriculture, Food and Forestry, Western Australia, made a similar point:

> A key priority is to undertake research to identify the impacts climate change will have on the Western Australian agricultural industry. As noted, it is crucial that any such research takes into account Western Australia's unique conditions, and is not generalized from other regions. Thus, Western Australia supports the development of national research networks, but on the proviso that adequate funding is available to undertake Western Australian specific work.[36]

6.44 The Minister further noted that:

> Adaptation responses need to be determined at a local level. Each business will have a unique response depending on where they are in the farm family cycle. Each district will be affected in slightly different ways and experience different degrees of variability. It is predicted that WA will suffer the biggest effects from climate change and thus its rural communities may need to make significant adjustment. While there is some transferability of adaptation research across jurisdictions, in order to determine specific adaptation responses for Western Australian agriculture, specific work needs to be undertaken here in Western Australia. Consequently there is a role for both State and Commonwealth investment in researching adaptation responses for both agriculture and forestry.[37]

6.45 This is not an issue of relevance just for Western Australia. Mr Jim Maynard, Chairman of Mallee Sustainable Farming Inc., informed the

35 Mr Dale Park, WA Farmers, *Transcript of Evidence*, 24 September 2009, p. 8.

36 Minister for Agriculture, Food and Forestry, Western Australia, Submission no. 61, p. 3.

37 Minister for Agriculture, Food and Forestry, Western Australia, Submission no. 61, p. 1.

Committee of the need to take account of regional variations even within his area.[38]

Farmer led research

6.46 Farmer input into adaptation research was seen as a critical issue by many of those who spoke to the Committee, especially those farmers and researchers at the cutting edge of innovations that were receiving little or no institutional support. It was seen as critical to accelerating adaptation that farmers have input into research priorities and that scientific evaluation be made of farmer-led innovations.

6.47 In evidence before the Committee, Mr Maynard stated:

> MSF submits that direct farmer participation in problem solving and driving locally relevant research leads to a more rapid application of the practical on-farm solutions in the adaptation and adjustment to changing climate immediately and in the long term. By farmers owning that and having some say in it, it becomes more relevant to other farmers than just being told by a departmental person, 'This is what you should do.' It just seems to work a little bit better. It does not say that it works all the time, but in our opinion it does work better. In our area we have lived with a variable climate all our lives; I have seen it come and go. To survive you have to learn to adapt to whatever is happening at the time. We have had wet seasons and particularly dry seasons. We have learned to adapt as best as possible. However, in doing that, we have had to gain some research to make sure that what we find out is sustainable in the long term.[39]

6.48 Mr John Rochecouste, CEO of the Conservation Agriculture Alliance of Australia and New Zealand (CAAANZ), told the Committee:

> I think a lot of our researchers are not familiar with farm machinery and how it operates. So what we would like to see is a lot more on-farm research. We feel that, if you want to actually get information across to farmers, some of the best people with the capacity to do that are farmers who have done it themselves. They can go to their community and say, 'I can do it and I'll show you

38 Mr Jim Maynard, Mallee Sustainable Farming Inc., *Transcript of Evidence*, 3 September 2009, p. 68.

39 Mr Jim Maynard, Mallee Sustainable Farming Inc., *Transcript of Evidence*, 3 September 2009, p. 67.

> how I've done it.' We get a good crowd at most of the field days and events we have where farmers speak.[40]

6.49 He too highlighted the benefit of working directly with farmers to test and verify innovative practices:

> We have got the capacity to improve research enormously quickly by starting the research on the farm and then having yield monitors and a controlled traffic system collect that information, and we can have that distributed to the farmers within the season. We do not have to go through a three- or four-year research program. So, if researchers would just work with us, I am sure we could achieve results a lot faster.[41]

6.50 Mr Rochecouste concluded:

> We would like researchers to come and talk with us about what needs doing and not go off on their own and make a decision about what they think we need.[42]

Committee conclusions

6.51 The Committee believes that in general, the current policy framework for research and development of climate change adaptation is appropriate. The Australian Government has already committed significant funds towards climate change research and towards a range of potential and actual adaptation measures. The Committee is of the view that if this research effort is sustained good results will be effected.

6.52 The Committee has some significant concerns however that research needs to be effectively coordinated to avoid waste and duplication. The Committee heard evidence to the effect that CCRSPI was seen as an important agent for achieving coordination. The Committee is concerned that the work of CCRSPI may have been delayed by the demise of Land and Water Australia and the time taken to find CCRSPI a new home. The Committee is of the view that CCRSPI should be the principal agent for achieving research coordination in climate change adaptation, and that the Australian Government should provide the necessary resources of staff and funds for CCRSPI to continue its role.

6.53 The Committee also has some concerns about research funding. The current funding effort is the minimum required to achieve results and

40 Mr Jean-Francois Rochecouste, CAAANZ, *Transcript of Evidence*, 14 July 2009, p. 30.

41 Mr Jean-Francois Rochecouste, CAAANZ, *Transcript of Evidence*, 14 July 2009, p. 31

42 Mr Jean-Francois Rochecouste, CAAANZ, *Transcript of Evidence*, 14 July 2009, p. 33.

must be sustained if current and prospective research is to be converted into effective adaptation. Adaptation to climate variability and climate change is a long term project—it requires long term research funding.

6.54 The Committee agrees that there is a strong need for region specific research. The impacts of climate variability and climate change can be highly industry and location specific. It stands to reason, therefore, that developing local and regional responses to climate variability and climate change is essential.

6.55 The Committee was impressed with the potential range of responses to climate variability and climate change already being undertaken by farmers—some of it outlined in Chapter 3 of this report. A significant part of the adaptation response is already taking place outside the realm of government policy and formal research networks. An effort needs to be undertaken to capture, evaluate and disseminate these responses. Doing so will accelerate the adaptation response to climate variability and climate change.

Recommendation 9

6.56 **The Committee recommends that the Australian Government maintain its commitment to climate change research pertaining to Australia's agricultural industries, ensuring that the funding is committed, sustained and pays due attention to regional as well as national needs and priorities. Climate change research must reflect the changes affecting different regions, soils and topography—as all have an impact on changes in farming practices to deal with them.**

Recommendation 10

6.57 **The Committee recommends that the Australian Government, as part of its ongoing strategy development to issues affecting agriculture and climate change, develop a strategy to capture, evaluate and disseminate the range of farmer driven innovations that have a significant capacity to increase the resilience and productivity of farm enterprises.**

Recommendation 11

6.58 **The Committee recommends that the Australian Government ensures that there is an overall body to receive and analyse research and co-ordinate research across the nation in relation to climate change adaptation in agriculture, and that said body is given the necessary resources of staff and funds to carry out its role.**

Extension

6.59 During the course of the inquiry there was much discussion about the current state and availability of extension services. There was widespread agreement that government extension services had declined. There was less agreement on whether or not this was a problem. Some thought the decline in state government extension services reduced the availability of independent advice; others highlighted the increase of private extension services.

6.60 In its submission to the inquiry, CCRSPI noted the loss of government services and the need to increase overall funding for extension:

> Over the past decades successive governments, both state and federal, have reduced funding to rural extension networks and shut rural research stations. This has greatly reduced the capacity of governments to assist farmers to adopt new R&D and to be able to demonstrate and commercialise new technologies and practices in the field.
>
> Private agronomists and consultants have partly filled the extension gap, though their focus tends to be limited by commercial considerations…
>
> Much more investment is required in extension, training, commercialisation and demonstration if Australia's primary industries are to adapt to the impacts of climate change and continue to contribute to Australia's wealth and wellbeing.[43]

6.61 Mr Dale Park, of the Western Australian Farmers Federation, made a similar point. He told the Committee:

43 CCRSPI, Submission no. 10, pp. 16–17.

> The real difficulty for an on-the-ground farmer like me is being able to work out what is relevant, what is not relevant, and who you should be talking to. And with the demise of information coming from the ag department, which was always seen as an independent arbiter almost, we have to get our information from either consultants or proprietary firms and it just makes life a lot more difficult for us in trying to work.[44]

6.62 Mr Michael Poole, Director of the Future Farm Industries CRC, on the other hand, saw the shift from public to private extension services principally as a challenge to the public sector to integrate with the new reality:

> Twenty years ago it would have been almost totally a case of public agronomists working in departments of agriculture out there in the countryside. We have seen a steady shift. There has been some erosion of those services by the various governments and a steady rise in private agronomists. For example, our partner company, Landmark, now employs hundreds of agronomists and we have training programs for them. There are now consultants out there in the countryside. So a lot of delivery now is through the private sector, and the challenge then is for the public research sector and R&D sector to then interface with that army of people out there in the countryside to make sure that the technologies get through.[45]

6.63 Mr Kevin Goss, CEO of the Future Farm Industries CRC, reinforced the point:

> … there is a changing distribution of how advice works and how farmers are supported … the relative contribution of state agency personnel in applied research in this area is declining and the contribution of the private sector is increasing while the others are remaining about where they are. So what is really important, and it is really the central thing of what we are saying, is that if you are the Australian government and you are investing in R&D to assist farmers to adapt to climate change, then you need to think about how that connects with how farmers come to be part of that: it is the rising private sector, it is still the important role of the public sector and how you bring them together.[46]

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44 Mr Dale Park, WA Farmers, *Transcript of Evidence*, 24 September 2009, p. 9.

45 Mr Michael Poole, FFICRC, *Transcript of Evidence*, 9 September 2009, p. 12.

46 Mr Kevin Goss, FFICRC, *Transcript of Evidence*, 9 September 2009, pp. 12–13.

6.64 In evidence before the Committee, Mr Allen Grant from DAFF highlighted the widespread availability of extension services, arguing that farmers had to take some responsibility for accessing the available services:

> I think the capacity is there, but whether farmers choose to take it up is really up to them. It is there in programs like FarmReady, it is there in the extension services that are still provided mainly by the state governments and it is also there in the increasing number of economists and other business services that are provided by the business sector. Companies like Landmark and those sorts of people are really extending their abilities and skills and availability to take farmers through some of those key issues. So I think the capacity is there, but, in the end, farms have to choose to access it.[47]

6.65 Mr John Rochecouste, CEO of CAAANZ, argued that the critical point was to resource the best from of extension—from the point of view of CAAANZ a direct farmer-to-farmer format:

> The thing we feel is important is that farmers are often excluded from the extension process or are at the end of the pipe and we would like to see them a lot more involved in developing the information for themselves … A lot of our communication is done working with farmers in paddocks, and that capacity has been severely eroded in the last 10 to 20 years. A lot of departments of agriculture have pulled back from their on-the-ground extension. That has been picked up by farmer groups. All our members pay to become members and they do that because they get a benefit out of it. We would like to see extension that actually involves farmers a lot more in doing things on the ground, working with them in their area.[48]

6.66 Mr Mark Moore, Policy Analyst with the NSW Irrigators' Council, noted the success of an extension program run by the NSW Irrigators' Council:

> We went to six different locations throughout New South Wales. The feedback that came from the farmers who were attending them was on the ability to listen to individuals who were actually trialling things on their farm or had successfully completed trials and had supporting data. Farmers were being advised of this information not in the sense of 'this is what you should be doing' but in the sense of 'this is what I have been doing and it has

47 Mr Allen Grant, DAFF, *Transcript of Evidence*, 28 October 2009, p. 5.

48 Mr Jean-Francois Rochecouste, CAAANZ, *Transcript of Evidence*, 14 July 2009, p. 26.

> worked so you might be able to take away some ideas and new innovative ways of looking at things that might assist you when you look at your operation'. There was 100 per cent positive feedback from it…we have actually expanded it to nearly all of Australia. We are going to be going to Tasmania, Western Australia, South Australia, Victoria and Queensland.[49]

6.67 Several points were highlighted by various submissions and witnesses. The first was the need for governments to manage the flow of information, helping farmers sort out what material was relevant to them.

6.68 In evidence before the Committee, Ms Alison Turnbull, representing Horticulture Australia Limited, stated:

> There is both overload and need for information, so there are those two gaps that are happening. But the industry also is getting quite frustrated because climate change can be happening obviously at all different levels and the issue that we have is that we are getting global information that is driving the media and government to act, but the tailored, relevant information for them to actually make a change on farm is not there for them yet. The issue is the gap between what they are perceiving and being told by the media all the way down to 'What can I do to my farm and what does it mean to me?' Unfortunately we do not have an answer for everybody at the moment.[50]

6.69 A similar view was expressed by Ms Karlie Tucker, from RM Consulting Group:

> There is an information glut in that there is a lot of information around, but whether that information is useful is the first question for me. It is really difficult to find very good regional data on how rainfall will change over a year and between years for our region. … One example that I really like that has been used in the Department of Primary Industries is saying that there are different climate impacts, such as the southern annular mode, the Indian Ocean dipole, the El Nino and ENSO. It is about helping farmers understand those, when they are in positive or negative, how they affect rainfall or they are likely to affect spring rainfall, spring breaks and things like that. That helps management throughout the year for farmers. A really positive way that government can be involved is in helping train up people on the different indicators. I

49 Mr Mark Moore, NSW Irrigators' Council, *Transcript of Evidence*, 1 July 2009, p. 5.

50 Ms Alison Turnbull, Horticulture Australia Limited, *Transcript of Evidence*, 1 July 2009, p. 14.

> think there needs to be much more regional specific data, and also that information has to be presented in a way that farmers can use it for immediate decision making.[51]

6.70 Mr Chris Phillips, General Manager, Trade and Strategy, with Dairy Australia, told the Committee that the number of people who are able to pass on knowledge by having meaningful discussions with farmers is diminishing:

> One of the key challenges for us at present is that it is not the traditional thing about putting more fertiliser here or changing herd genetics there a bit. With respect to the greenhouse debate, it is about which types of herd genetics and feed systems will result in an answer for that policy. That may send a quite different commercial signal to the farmer as to whether he is making money out of those exercises. We are struggling at the moment to understand the many dimensions and how it crosses over in the different parts of the farm systems. In particular, some of the smaller dairying regions need support to work out how the skill bases can translate over.
>
> Yesterday I was talking to someone about a situation in Yarram, in Gippsland. Because of some of the changes in temperature for some of the farm systems down there they are finding they are not working very well with perennial ryegrass anymore. They are asking, 'How do we find out about other farm systems in Australia where they are not reliant on perennial ryegrass to the same extent, such as in South Australia and Western Australia?' But how do you get that extension knowledge that is localised in those regions over to someone in Gippsland? The local extension people know their regional systems, but we have to work out how we can translate some of that knowledge across regions.[52]

6.71 In keeping with the evidence presented in Chapter 2, it was noted in the submission of the RM Consulting Group that to be effective, extension had to be provided in a range of formats to meet different needs and situations:

> One-on-one advice is useful, but RMCG's investigation of best practice extension indicates there is huge value in discussion groups when farmers are under stress. At these times, the peer-to-peer learning and social interaction such groups provide is highly

51 Ms Karlie Tucker, RM Consulting Group, *Transcript of Evidence*, 3 September 2009, p. 61.

52 Mr Chris Phillips, Dairy Australia, *Transcript of Evidence*, 3 September 2009, p. 17.

> beneficial to maintenance of farmer well-being and their ability to make decisions. They can also provide relaxed environments for farmers to explore scenarios and to meet potential advisors.[53]

6.72 Moreover, in evidence before the Committee, Dr Alison Gates noted the importance of using established and trusted pathways to transmit information to farmers (a factor which will be further explored below):

> My initial reaction is that farmers tend to have quite established pathways where they get their information from and that maybe setting up a new approach might be counterproductive. I think it is important to make sure that the information gets down through the pathways that they are using. For a lot of people that is even simple things like the Land newspaper. Making sure that good information goes down existing pathways would be the place where I would be inclined to think that you start.[54]

Local coordination

6.73 Achieving accessibility and local relevance of research and extension was the key role of a number of local groups which provided models for local action.

6.74 In its submission, Mallee Sustainable Farming Inc. highlighted the success of its model in providing regionally focused research, development and extension. Since its formation in 1997, MSF has utilised research expertise from state, federal and local agencies, as well as skills from the private and university sectors, to make the organisation relevant to needs of local farmers. They have also developed 'a number of successful extension activities to communicate new and timely information to landholders.'[55]

6.75 In evidence before the Committee, Mr Jim Maynard, Chairman of Mallee Sustainable Farming Inc., stated:

> The model brings farmers and scientists working together to answer the challenges through a wide range of mechanisms, driven by farmer questions, including our state based reference committees. Each state in our area has its committee that feeds information from their farmers towards us to decide. We have regional forums, field days and demonstration sites. Last year we

53 RM Consulting Group, Submission no. 29, p. 8.

54 Dr Alison Gates, School of Earth and Environmental Sciences, University of Wollongong, *Transcript of Evidence*, 1 July 2009, pp. 47-48.

55 Mallee Sustainable Farming Inc., Submission no. 31, p. 2.

> trialled a system—that was funded from DAFF—in respect to when you need change. If we have four or five farmers in close proximity together that want to change their system, we employ an agronomist to help them to understand what the change implies. It worked very well, to such a degree that I know that there were four farms and two of them are now paying an agronomist to carry on the work. That is a very quick way to bring change on. It is the quickest way of the lot. It is a bit more expensive than field days and forums, but you really grab the issue. When you get four farms changing in close proximity and the neighbours start seeing results, it is often the case that eight or 10 farms that will take it on. That is a very quick way to implement change if you want it. It does come at a cost, but from what I saw of it, it is well worth it, but it was only a short-term project.[56]

6.76 In its submission, Mallee Sustainable Farming concluded that:

> MSF strongly believes that the farmer based Research, Development and Extension service delivery model is well placed to assist the farming and rural communities to be responsive and adapt to the impacts of climate change. It is critical that governments at all levels provide appropriate levels of support to farmer based organisations to enable them to achieve their core functions and respond to challenges as they arise.[57]

6.77 The South West Climate Change Forum, formed in August 2007 and based in South West Victoria to help primary producers adapt and prepare for changes in climate and climate variability, is another example of local action. Mr Mike Weise, representing the Forum, noted its development in response to 'the ambiguous and many sources of information that were coming to 1,700 or so dairy farmers in our region at that time.'[58] Its membership consists of local catchment management authorities, state and local government agencies, as well as industry representatives. It is supported by local, state and federal government organisations, as well as research and academic institutions.

6.78 In its submission, the Forum outlines its task to

> collect, collate, analyse and disseminate consistent and credible messages on climate change, thereby ensuring the primary

56 Mr Jim Maynard, Mallee Sustainable Farming Inc., *Transcript of Evidence*, 3 September 2009, p. 72.

57 Mallee Sustainable Farming Inc., Submission no. 31, p. 4.

58 Mr Mike Weise, SW Climate Change Forum, *Transcript of Evidence*, 3 September 2009, p. 31.

> production sector has access to the most up to date and relevant data for their specific operation.[59]

6.79 The Committee notes the Forum's conclusion that the 'ground up approach works well in delivering information about climate change and managing climate variation', and their observation that 'industry based groups and networks can deliver climate change messages more efficiently and effectively' because of their close contact with farmers, and their reputation as a reliable information source.[60] The Forum's submission states:

- There are already networks and industry groups in existence, with proven track records in engaging primary producers which need further government funding and continued support from government agencies to be effective in aiding the industry to deal with the physical, policy and peripheral effects that climate change and variability will bring.
- SWCCF provides a network model that can be replicated on the basis that many primary industries have similar issues regards water, soils, mitigation etc. With many farmer based groups only having a small staffing base, a regional representative group with staff devoted to working on climate change across a range of industries is very effective and supports a regional response and collaboration.
- A regional approach aids the coordination of activities and messages both across the region and between industries.[61]

6.80 Mr Weise highlighted the experience of the forum as a farmer-led organisation working for farmers, providing channels of communication trusted by farmers:

> Over the last six or seven years we worked with the catchment management authorities in western Victoria and we had an extension product that allowed farmers to determine which learning they chose to do. It is self-directed by farmers, which is a good extension methodology. CMA has found it really difficult to invest in that because it did not have a specific outcome. It was not metres of fencing or whatever. It took us probably five years to help them understand that this was a really good doorway to go through to have natural resource management change, because it was the farmer's own doorway. I would encourage this inquiry to look at going in through normal doorways to primary producers

59 South West Climate Change Forum, Submission no. 6, pp. 1–2.

60 South West Climate Change Forum, Submission no. 6, p. 3.

61 South West Climate Change Forum, Submission no. 6, p. 3.

> to help that change take place and not necessarily develop something new.[62]

6.81 The importance of local action was also highlighted in the evidence of Southern New England Landcare Ltd, a network of local producers. In its submission, Southern New England Landcare stated:

> That government can augment the shift towards farming practices which promote resilience in the farm sector in the face of climate change; and promote research, extension and training to assist the farm sector to better adapt to climate change by:
>
> - Utilising Community Organisations (such as Landcare Networks) that possess knowledge, social and intellectual capital that have been developed over the past two decades, to rapidly implement climate change programs
> - Providing adequate and sustained resourcing to these community organisations to allow them to carry out this role
> - Encouraging onground innovation by assisting local communities to build partnerships with agencies and research bodies to trial and develop technologies and practices that build resilience in the face of climate change
> - Facilitating adoption of these and other innovative practices by landholders by funding local organisations to run projects that deliver extension and incentive programs.
>
> For landholders to take ownership and responsibility for changed practices they must drive the direction of the change. Under current funding arrangements 20 years worth of experience and goodwill in landholder engagement stands to be lost, and along with it the opportunity landholder driven innovation and rapid adoption of management for climate change resilience.[63]

6.82 In evidence before the Committee, Mrs Sonia Williams, the executive officer of Southern New England Landcare Ltd, noted that:

> It is beyond the capacity of many of our farmers to fathom a way forward with things such as carbon pollution reduction schemes and climate change. We provide a mechanism where they can come to us and we can link them to the economists, researchers or programs. They see us as the one-stop shop. They are us—we are owned by them. They pay membership. We are a locally owned community organisation. They look to us to help them along the path of sustainability and profitability. … We have, over 17 years,

62 Mr Mike Weise, SW Climate Change Forum, *Transcript of Evidence*, 3 September 2009, p. 32.

63 Southern New England Landcare Ltd, Submission no. 39, p. 1.

> been working with farmers to mitigate the effect that activities had on climate change on their farms. So we have a strong relationship and an established network and system to bring all parties to the table to develop something that they are comfortable implementing.[64]

6.83 However, Mrs Williams also noted the disjunction between bottom-up leadership, essential to successful adaptation, and top-down prioritisation and funding:

> We have found that having the multistakeholder steering committees—we also have farmers on the steering committees—means that the relationship and communication is built up so that department of agriculture does not go out in isolation and dream up a great scheme that farmers have not got any intention of or ability to deliver on. I do not believe that we are as integrated as we should be. We are outside the funding loop of most of that and most of the programs that are developed are developed first and are then taken to the community. It is not the model we take, which is to bring all the partners together to develop the program.[65]

6.84 Changes in funding and priorities were potentially devastating for local groups dependent on outside funding:

> Our main funding came through the National Landcare Program and then the Natural Heritage Trust, and now it comes through Caring for our Country. I have been involved for 17 years. When the National Landcare Program first rolled out, local people identified issues that were important at the local level and bodies like ours brought all partners to the table to develop a way through. So there was ownership, and people could move forward on issues. With the Natural Heritage Trust, we started to move to regional priorities. Instead of the priorities of the local people driving it, it was a more top-down approach. People would say: 'This is what's important for our region. What might be needed at this level to start people off is tree planting. That might get them to where they are going.' They would be told, 'No, that is not a priority so you can't start there.' People were not allowed to start where they were comfortable with and capable of starting.

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64 Mrs Sonia Williams, SNELC, *Transcript of Evidence*, 19 August 2009, p. 7.

65 Mrs Sonia Williams, SNELC, *Transcript of Evidence*, 19 August 2009, p. 6.

> With the move to Caring for our Country, it went from regional priorities to national priorities and a very targeted business plan. So, unless your community is in one of the areas for which a high-priority target has been identified, the chances for funding are minimal. Even with creativity they are minimal. What we found on the tablelands was that loss of vegetation is not considered a priority issue under the Caring for our Country business plan. Anybody who has been onto the Northern Tablelands, with the huge dieback problems, will know that that is just not the case. So we struggle. We spend a significant part of our time trying to find resources so that we can go about doing a job. That is not a complaint; it is a fact. It would be far more productive to have some steady source of funding support for organisations with track records to get in there and link those processes in. Then we would not have to spend half our year just trying to keep the door open.[66]

6.85 Loss of funding means loss of staff; loss of staff means loss of capacity and local knowledge. Mrs Williams continued:

> Coordinators are the key to keeping a local network happening. They are the key to bringing in the partners. They are the key to actually identifying what it is in the local area that is important. I worked as a coordinator 17 years ago. I am now the executive officer of Southern New England Landcare. We have three to four part-time coordinators. They get to know their community. The community can talk to them. If the funding is not there for the coordinator, it becomes impossible. It is somebody's job to line all these things up—to bring the people to the table; to take the minutes; to organise this and that and to do the follow-up. That is what a true Landcare coordinator does.[67]

6.86 In discussing an engineered woodland project, Mr Shane Andrews, Project Officer with Southern New England Landcare, emphasised the need for continuity:

> The continuity of coordinators is critical for various innovations. I used to work for Greening Australia and we used to run various farm forestry projects. Typically, they would last for a year or two. The plantings would be done, the people got excited … the coordinator would leave and within five years they would have

66 Mrs Sonia Williams, SNELC, *Transcript of Evidence*, 19 August 2009, p. 7.

67 Mrs Sonia Williams, SNELC, *Transcript of Evidence*, 19 August 2009, p. 10.

> been forgotten about. With this engineered woodlands project, we have a longer term commitment through the Forestry Investment Group where we are monitoring the sites, having back up field days and getting media articles about there to keep the land use in front of the farmers of the region. Without that sort of coordinating role and its continuity, any new innovation can be dropped—the ball can be dropped.[68]

6.87 Similar issues were faced by other organisations. Mr Maynard from Mallee Sustainable Farming, told the Committee of his group's experience with uncertain funding:

> As a farming group we are severely challenged. A lot of energy goes into how we are going to fund next year. That is the biggest problem. We would spend about a third or half of our manager's time and probably a third of our wage structure in running it. It is only a small operation. We only have a manager and 4½ staff, with two of them part time. It is not a big organisation. We have an office and all your associated equipment to run it. We are finding that there is a significant amount of energy to keep that core office job running so that you apply for projects. Projects are good. A project usually wants results. You have got your dot point or key indicators that you need to report on. I have no hassle in reporting it, but there is not very much for the administration. With the closure of some of the research stations—we have one in our district with the state department pulling out of that research and extension—we are becoming more and more relevant in providing this service for government. We are finding it so hard.
>
> We have gone down a membership path and we are getting some money from members, but you cannot really keep putting that up in the middle of a drought or hard economic times. We get some money out of our membership, but it costs a bit to run a membership type thing. We are looking for sponsors, with some success, and some not successful. However, it is not enough to run the organisation. We are putting a lot of effort into trying to keep that going, and it gets pretty hard. We have a new manager here. I do not want to frighten him off or he might be gone next week. He has only been here eight days now.
>
> The point is that in going through appointing people you more or less cannot promise them a future unless you have got the money

68 Mr Shane Andrews, SNELC, *Transcript of Evidence*, 19 August 2009, p. 10.

> in the bank. You just cannot do that. It is hard to attract the right person if you say, 'I can only employ you until next year. I can't guarantee you any more.' It is an ongoing problem. I know what I am asking for is public money to run an office, but I feel that part of this is for the public good.[69]

Committee conclusions

6.88 The Committee is of the view that the provision of effective extension services is a vital part of assisting farmers to respond to the challenges of climate change and climate variability. The Committee notes that whether these services are better provided by government or the private sector is a matter of some contention within the farming community. Government certainly does have a role in the provision of extension services, at least insofar as ensuring that such services exist, are accessible, and effective. In many areas, State Government extension officers still play an important and effective role as coordinators and providers of information. The Committee believes that this role should continue. On the other hand, private sector extension services are undoubtedly also making a significant contribution to the development of farming enterprises. The ability to access both public and private services is undoubtedly an asset to the farming community.

6.89 Regardless of who provides extension services, the evidence presented to the Committee indicates that such services need to be flexible and responsive to the needs of a range of farmers in a variety of situations—there is no 'one-size-fits-all' approach to extension.

6.90 The Committee notes that another important factor in the provision of extension is local knowledge and local leadership. The Committee took evidence about and witnessed at first hand the work of a number of groups providing extension services at a local and regional level. These groups provide an essential service to farmers in terms of climate change adaptation. Integrating them into the response to climate change and ensuring that they have the resources to continue their activities is vital. Putting resources into a bottom-up approach to climate change, which focuses on local and regional priorities, should be seen as complementary to approaches based on broader national priorities.

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69 Mr Jim Maynard, Mallee Sustainable Farming Inc., *Transcript of Evidence*, 3 September 2009, pp. 73–4.

Recommendation 12

6.91 **The Committee recommends that the Australian Government give greater consideration to better integration of local and regional organisations into its overall response to the issues affecting agriculture and climate change, and provide additional funding to support the management role of these local and regional organisations.**