

Making decisions on-farm

*'We know we need to change...'*¹

- 2.1 The evidence received by the Committee during the course of its inquiry into farmers and climate change incontrovertibly demonstrated that climate variability and climate change have the potential to have significant impacts on farming communities from a social and psychological point of view, and that adaptation is a psychological and social process as much as a physical and economic process. The need to understand the potential social and psychological impacts – and mitigate those impacts – and to understand the thought processes, social pressures and attitudes that both hinder and promote adaptation, are essential parts of the response to climate variability and climate change for industry and government alike.

Managing social impacts

- 2.2 The Committee has received evidence highlighting the potential impacts of climate change upon farming families and rural communities. The economic and environmental impacts of climate change will create significant social and psychological stresses which need to be anticipated and effectively managed.
- 2.3 In its submission to the inquiry, Mallee Sustainable Farming stated:
- The impacts of climate change will have significant impact on farming and farming communities in the low rainfall cropping

1 Dr Christine Jones, *Transcript of Evidence*, 24 June 2009, p. 20.

areas of Australia. Small changes in climate can lead to large impacts on the environment and our industry and the need for rapid adaptation to change will be paramount to maintain social sustainability.²

- 2.4 Likewise, in its submission, the Victorian Farmers Federation (VFF) noted that:

It is likely that existing problems such as depression and isolation will be exacerbated by the impacts of a changed climate, especially increased drought and disaster events such as floods [and] fire.³

- 2.5 The VFF further noted that these stresses were likely to be exacerbated by the impact of the current drought on rural communities, stating that:

The resilience of rural communities has been worn down over the recent years of drought, and their capacity to adapt to further stress is greatly reduced.⁴

- 2.6 In evidence before the Committee, Mr Graeme Ford highlighted the impact that drought was already having in terms of creating a sense of social and personal isolation in rural communities:

We have noticed from some of the responses in the 12 years of drought that farmers and farm families in very difficult circumstances actually stop talking to people; they retreat behind the farm gate, rather than reaching out. These are the areas that we need to start to reach to. We need to get behind the farm gate to the people who have withdrawn into their own business and not looking at where they need to be. That is a difficult challenge.⁵

- 2.7 Dr Rowan O'Hagan, of Australian Women in Agriculture, also emphasised that the adjustments already faced by farmers and rural communities were placing many under unprecedented strain:

I would say that, probably up until a couple of years ago, people thought about adapting by making these incremental changes: different varieties, different stocking rates and working on water conservation techniques. But it is at the point now where there has been a huge jump in where we have to adapt. People have gone from irrigation, with huge infrastructure and capital investment, to dry-land agriculture overnight, basically. That is a huge shift.

2 Mallee Sustainable Farming Inc, Submission no. 31, p. 1.

3 Victorian Farmers Federation, Submission no. 33, p. 7.

4 Victorian Farmers Federation, Submission no. 33, p. 7.

5 Mr Graeme Ford, Victorian Farmers Federation, *Transcript of Evidence*, 3 September 2009, p. 5.

You cannot just say, 'Well, I'm going to grow a slightly different variety of wheat,' for example; you have to make a complete change or get out. That is all very well, but then we must look also at the social impact of that on those regions.

I think the reality has only just started to hit home in the last couple of years and the percentage of people who are deciding, 'Well, this is climate change,' is actually increasing now; so it has tipped over. We are dealing with a lot of pain also in terms of the psychological fallout of massive change across the board – not only in your livelihood but in your community and the broader community. So the whole of Australia is dealing with water scarcity and the whole of the world is dealing with climate change. It is a lot to take on in a short period of time.⁶

- 2.8 Mr Ford highlighted the need for making production more efficient and to develop and diversify the economies of rural communities as part of managing the impacts of climate change:

We generally perceive the impact [of] climate change as being an impact on production. Obviously you will see a decline if what we fear is true for the weather systems, which means there will be less economic activity in rural areas and less money, which makes it difficult to sustain a population. Therefore, to sustain the population you would need to either compensate for the changes in climate by being able to make more efficient production systems or you have to find some other way of diversifying the economies in rural areas. We probably think it is a mix of both, so we would like to see a very strong focus on regional development and to start to see some efforts put into diversifying those rural economies. That will be difficult.⁷

- 2.9 He also highlighted the role of government in developing community capacity providing support services to individuals and communities as part of the process of adjustment:

The other side of risk management is having a capacity in the community to deal with these variations... It is not a simple decision for a farmer to leave the land; it is perhaps much more complex than someone choosing to leave a milk bar in a capital

6 Dr Rowan O'Hagan, Australian Women in Agriculture Ltd, *Transcript of Evidence*, 3 September 2009, pp. 85-6.

7 Mr Graeme Ford, Victoria Farmers Federation, *Transcript of Evidence*, 3 September 2009, pp. 4-5.

city. It has often been their family home for generations and their whole identity is tied up in it. They believe that they have probably got very few skills to do something else. It is not just about selling a business; it is actually selling their whole life and moving to a different life. I think we see that farm families in general do attempt to hang on to businesses that perhaps they would be better served being out of. How we facilitate that is the real crux. How do we assist people to make those decisions? We cannot force people to sell their assets and we would not want to see that at all, but obviously bringing people to those decision points is a task that the government services like counselling services and outreach workers could assist with.⁸

- 2.10 Dr Nigel Wilhelm, representing the Australian Institute of Agricultural Science and Technology (AAIAST), made a similar point in evidence to the Committee:

... that is one of the almost unique features of the agriculture industry, where the home and the business are so closely linked and are in fact often the same entity. That of course makes business adjustment much more difficult and the emotional stakes far higher. I guess that is about the adjustment schemes and support schemes. It is hard to separate the business operation from the social side of things. That is the dislocate we need to make. The businesses will adjust; it is softening the social impact, and the government has the best role.⁹

- 2.11 The importance of rural counselling services to the process of adjustment and adaptation was emphasised by Ms Elaine Paton, past president of Australian Women in Agriculture, who told the Committee:

There are things like rural counsellors – we are talking about financial and emotional stress – and knowing that the financial counselling service is ongoing is really essential to the security of families who need that service to help them and work with them to come to the decision they need to make.¹⁰

- 2.12 In her evidence, Ms Karlie Tucker, senior consultant with the RM Consulting Group, highlighted the importance of peer support and peer-to-peer interaction. She stated:

8 Mr Graeme Ford, Victorian Farmers Federation, *Transcript of Evidence*, 3 September 2009, p. 5.

9 Dr Nigel Wilhelm, AIAST, *Transcript of Evidence*, 18 November 2009, pp. 3-4.

10 Ms Elaine Paton, Australian Women in Agriculture Ltd, *Transcript of Evidence*, 3 September 2009, p. 87.

That is where I think the peer-to-peer stuff is really important, because of the similar experiences going on. Helping each other with how you manage through it has been really important. There have been some fantastic examples of getting farmers together just to talk about what is going on and how they are managing through it and, if they are not managing through it, then actually getting in there and intervening. Peers are often a stronger help because of the social way that farmers are, more so than perhaps a rural counselling service.¹¹



Committee members meeting with representatives of Rural Alive and Well, Melton Mowbray, Tasmania

- 2.13 The importance of rural counselling services and support networks was brought home to the Committee during inspections in both Tasmania and Western Australia.
- 2.14 In Tasmania, the Committee met with members of Rural Alive and Well, a support and counselling service based at Melton Mowbray. They explained to the Committee the importance of reaching out to vulnerable members of the rural community and providing support. A key role of the

11 Ms Karlie Tucker, RM Consulting Group, *Transcript of Evidence*, 3 September 2009, p. 63.

service was to make connections with the support services provided by government, and help people access those services. One problem the service faced was the silo mentality of governments and bureaucracies; another was the lack of secure funding for the service they provided. The essential ingredient of the service they provided was intervention and building personal connections, giving people a sense that they were not facing the trials and tribulations of life alone.

2.15 The consequences of such an approach were highlighted at a meeting with departmental officials and farmer representatives at Geraldton in Western Australia. The creation of strong social support networks in the region, involving strong peer support and a pre-emptive strategy, had allowed the farming community to get through a period of severe drought in 2006–07 without one instance of suicide.

2.16 In its submission, the Climate Change Research Strategy of Primary Industries network (CCRSPI) noted the likelihood of significant social impacts on rural communities and the need for government intervention to assist rural communities to adapt. Its submission stated:

Significant social pressures will accompany the economic and biophysical impacts of climate change on primary industry – especially when the changes in primary production flow onto labour-intensive primary processing and service industries. Government has a clear role in assisting individuals and communities to adapt to the socio-economic impacts of climate change.¹²

2.17 This would require social research and analysis, and decision making process which went beyond simple cost/benefit analyses:

Social analysis is required to consider the impacts of climate change on rural communities and to better target government's social spending in these communities (Drought Policy Review Expert Social Panel 2008).

Decision analysis, which extends beyond simplistic cost benefit analysis, is required to assist government in considering the economic, environmental and social trade offs associated with policy choices and the community strategies and tactics to adapt to climate change.¹³

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

13 CCRSPI, Submission no. 10, p. 13.

- 2.18 In its submission, Dairy Australia also pointed to the need to create resilient local communities, with strong social and knowledge networks, to manage the impacts of, and adaptation to, climate change:

Resilient farms support local communities, but equally, resilient local communities make it easier for farmers to adjust. To support local action we need a better understanding of the factors operating at a community and social level that enhance resilience. We can develop resilient systems but these systems will break down if the social and knowledge networks supporting them break down. Implementing activities that support local action and local knowledge networks are more likely to deliver sustainable improvements/sustainable adaptation to climate change than generic industry activities.¹⁴

Committee conclusions

- 2.19 It is the Committee's view that strong local networks – supporting farmers and their families, providing access to services and information, and providing connections that allow problems to be identified and addressed before they become unmanageable – are a vital part of the response to climate change in rural Australia. The evidence taken by the Committee in Western Australia and Tasmania demonstrates the value of intervention services. The Committee is very much of the view that such services should continue and be supported by Government. In particular, the Committee was impressed with the work of Rural Alive and Well in Tasmania, and believes this organisation, and others like it, should receive long term support.

Recommendation 1

- 2.20 **The Committee recommends that the Australian Government support rural counselling and support groups, such as Rural Alive and Well, and place funding for such groups on a permanent and regular basis.**

14 Dairy Australia, Submission no. 12, p. 7.

Managing social change

2.21 Managing social impacts is one aspect of the adaptation equation; another is managing social change – identifying social and attitudinal barriers to climate change adaptation and the most effective ways of encouraging a positive response.

2.22 One aspect of the role of government in promoting adaptation to climate change which was raised regularly throughout the inquiry was the need to get a clear and consistent message through to farmers and industries about climate change. In its submission, the South Australian Farmers Federation stressed the need for a consistent message on climate change:

Government has a role in the provision of consistent messages around climate change. Presently there are very mixed messages about climate change and its potential impacts for Australia from a range of sources – within Governments and outside of Government. This makes it very difficult for industry and individual farmers to interpret and develop strategies to reduce or address the impacts of climate change.¹⁵

2.23 In its submission, Australian Women in Agriculture also highlighted the need for a clear and consistent message on climate change:

The accumulating scientific data indicates that significant action is required on climate change, on an accelerated basis, for both adaptation and mitigation. The major social change this will require demands unequivocal leadership and a clear consistent message from government at all levels. Any gaps between government response to climate change and the need for action on climate change leads to uncertainty for the community and business, with consequent higher future costs, lost opportunities and frustration.¹⁶

2.24 Dr Rowan O'Hagan, representing Australian Women in Agriculture, extended this to a clear and consistent articulation of Government responses to climate change, particularly the Carbon Pollution Reduction Scheme:

The first thing I want to raise is about looking at the bigger picture or, as I tend to think of it, the macro picture, which is how farmers will operate under the regulatory system that will pertain under

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

16 Australian Women in Agriculture, Submission no. 56, p. 1.

the CPRS. Under the CPRS, as well as being constrained by production types of activities, farmers will be working in a slightly different environment. One of the issues with that, which is very important, is that the community be given clear and consistent messages about climate change and the need for the CPRS and how it will affect agriculture. At the moment it is very confusing and inconsistent. When you are trying to win the battle for the hearts and minds of people in relation to adapting to climate change and managing under that different environment, it is very important that misinformation or confusing information is not out there.¹⁷

- 2.25 Mrs Aysha Fleming, a social researcher with the Tasmanian Institute of Agricultural Research (TIAR), also told the Committee that:

I think that because it is an area that there is quite a widespread range of emotions about it is quite important that the government has a really clear message about where they stand so that people can respond to that and everyone is on the same page, so to speak, about where the government are. On top of that, it is really important that there is appropriate funding and that it is quite clearly available so that people know how they can begin to act and where the support is.¹⁸

Understanding decision making processes

- 2.26 The key to managing climate change adaptation is identifying the social, psychological, institutional and financial barriers to adaptation.

- 2.27 In their submission to the inquiry, social researchers Professor Frank Vanclay and Mrs Aysha Fleming identified a number of the social and attitudinal barriers to climate change adaptation:

Resistance to change is not just about individual reactions, it is a broader social issue. This means that resistance does not occur within an individual's head, or because of an individual's personal characteristics – education level, personal motivations or situation, skills or beliefs. Resistance is created by common perceptions, norms and values held in society. In our society currently, resistance is being created because climate change is perceived as being:

17 Dr Rowan O'Hagan, *Australian Women in Agriculture, Transcript of Evidence*, 3 September 2009, p. 82.

18 Mrs Aysha Fleming, TIAR, *Transcript of Evidence*, 21 September 2009, p. 10.

- 'just' another environmental or global threat,
- too big to influence,
- an unmanageable and inequitable financial burden, and;
- too uncertain to warrant major action.

If climate change is seen as yet another environmental or global threat like pollution or the hole in the ozone layer, it is common to place blame elsewhere, for example on other industries (e.g. energy, transport) or other countries (e.g. China, India). It is also common to wait for a technological solution that will have relatively little personal effect (e.g. banning CFCs). Climate change is not currently perceived by farmers as something sufficiently urgent to warrant drastic changes in their lifestyle or farm practices.

If climate change is perceived as being too big to influence, because climate is something intangible, invisible and seemingly out of human control, it can lead to rejection. Climate change is dismissed outright, and can lead to feeling overwhelmed or hopeless.

Mitigation of climate change is seen by many farmers as a financial burden, rather than an opportunity. This can create anger and stress, because profit margins are further reduced and farmers risk viability. As a result, cost-cutting measures that are even more harmful to the environment may be utilised. There are potential financial benefits in acting now in response to climate change, but these are not widely recognised.¹⁹

2.28 In evidence before the Committee, Mrs Fleming emphasised the importance of government understanding the range of pressures faced by farmers in response to climate change, and that government needed to respond to those pressures:

I would like to summarise the key findings of my research and then emphasise three points for your consideration. As part of my PhD I interviewed 63 farmers from the dairy and apple industries in Tasmania about their thoughts on climate change. I ask them number of open questions and found that there is a wide range of understandings of climate change, a great deal of confusion about how to act, and a fair amount of distrust about climate information and programs such as the Carbon Pollution Reduction Scheme.

19 Professor Frank Vanclay and Mrs Aysha Fleming, TIAR, Submission no. 2, p. 3.

The first point from my research that I wish to emphasise for the committee to consider is that understandings of climate change are not related to factors of age, education, level of income, farming industry or so on, but rather values, beliefs and ideas about farming. This means that climate change is understood by farmers in a range of ways based on their own personal world views. This needs to be both acknowledged and encouraged.

The second point I wish to emphasise is that need for government to work with farmers to develop a local level social understanding of climate change – that is, involving farmers in the creation of their own information about climate change is more useful than with providing them with external, expert information. Finding appropriate extension and planning infrastructure, for example, is important. The Climate Futures for Tasmania project – and I have some information about that here, which I can provide to you – is an example of local level information about climate projections. This local level information could be useful in a process of working together with farmers to develop strategies of adaptation.

Thirdly, it is important that farmers are supported by the government in the process of adapting to climate change. However, everyone in the wider community will also need to act, so it is necessary that farmers see their involvement as part of a wider social program. Otherwise they may feel unfairly targeted or burdened.²⁰

- 2.29 Professor Vanclay also reminded the Committee that the diversity within the farming community, the individual nature of responses to climate change, required a diversity of solutions – that there is no single universal response to climate change:

I think something that is a little bit understated is that there is not just one type of farmer. We need to consciously remind ourselves of the diversity of farmers and the different ways in which farmers pitch their business strategies, the different values they have around what they are trying to achieve on their farms and the different ways that they engage with information... What that means for promoting change in relation to any issue, whether it is climate change or anything else, is that there is no one solution that will work for everyone. We need to be aware of the diversity that exists and to tailor the message about the change we are

20 Mrs Aysha Fleming, TIAR, *Transcript of Evidence*, 21 September 2009, pp. 9–10.

trying to achieve in terms of the different discourses. In fact, one of the unstated things in Aysha's presentation is that she is using a discourse methodology to study her farmers, and her conclusion in her PhD is that, by identifying the different discourses that farmers operate in and targeting extension along those different discourses, more change will be able to be effected.²¹

2.30 In its submission, the RM Consulting Group highlighted research into the decision making processes undertaken by farmers in response to climate change, and the need for policy makers and advisors to take this into account:

The complexity of decision making in mixed farming systems ... means that rational approaches such as cost-benefit analyses need to be complemented with 'non rational' tools such as gut feel or intuition. A farmer's decision may be in response to a mix of financial, management and social reasons that cannot easily be captured in a tool, making it less useful to and less used by farmers. This is reflected in the range of responses from farmers interviewed as part of the 'Grain and Graze' project which can be summarised as:

- The tools to make decisions are either not well understood or are not adequate to make complex mixed farming decisions.
- Because the decisions are complex and have many unknown variables and risks, a detailed assessment of the costs and returns is considered of little value.

Rather, this research suggested mixed farmers decisions are driven by four main factors:

- hassle reduction – the desire to keep a system simple and avoid complexity
- labour – the desire to use labour more efficiently and the ability to find it when required
- recreation – the desire to find time for recreation
- personal preference – the desire for a system that (predominantly) consists of the enterprises a farmer enjoys.

Additionally, research suggests that farmers draw on many sources of advice and guidance from both the public, private and community sectors. There particularly seems to be a trend amongst 'leading' farmers to operate their businesses in a 'CEO' mode, with them outsourcing the multiple areas of specialised advice they do not have the time or ability to become expert in

21 Professor Frank Vanclay, TIAR, *Transcript of Evidence*, 21 September 2009, p. 15.

(McGuckian 2007). 'Teams' of experts are needed to support such farmers in making decisions in the complex environment they operate within.²²

2.31 Ms Karlie Tucker expanded on the decision making process and its implications in evidence before the Committee:

There is the idea that there are five or six different levels on which farmers are making decisions. The first one is the farm production level and then there is the non-production elements of the farm business, the non-farm elements of the family business, non-business elements of farming, and then the wider rural community. A decision that they make in the production elements is influenced by all of these. An example that we have used in the past is the decision, especially amongst mixed farm[s], to run more or less stock. That has a whole lot of production implications on farm. It also has implications for whether that farming family can go on holidays at certain times of the year. If they run more stock, they cannot. It also has implications for their involvement in the wider community...

A decision on farm will be influenced by all of these factors. The social factor has a couple of aspects. There is what is available as far as services in rural communities. If schools are closing down it is less likely that the farming family is going to want to stay there, and it makes it harder to maintain a business if they do not want to be there. There are also those decisions about how it influences their ability to take holidays and other things. Also, there is the desire within farming families to return to the farm and to continue farming. There are great impacts on whether they want to stay there and be involved.²³

2.32 A similar view of risk and decision making was revealed in a study conducted by the School of Earth and Environmental Sciences at the University of Wollongong. The major findings of the study suggested that:

- 1) risk management varies widely amongst farmers which impacts how they deal with climate risk;
- 2) individual risk management strategies, while conscious of global processes, are embedded in the everyday lives of farmers; and,

22 RM Consulting Group, Submission no. 29, p. 4.

23 Ms Karlie Tucker, RM Consulting Group, *Transcript of Evidence*, 3 September 2009, p. 58.

3) regardless of individual belief in climate change, climate risks are managed within an array, not separate to other risks.²⁴

2.33 Dr Alison Gates, a research fellow with the School of Earth and Environmental Sciences at the University of Wollongong, expanded on the findings of the study:

In terms of looking at what we can really learn from the study that we have done, climate is one – albeit an important one – of a series of risks that farmers deal with on-farm. That is the way it has emerged in the conversations that we have had with farmers – that it is a risk. We have been really interested in gauging the range of responses to that risk. Our results talk about a group of very reactive farmers, who react to the risk, are relatively unprepared and do not have high levels of resilience, and the group of traits that go with that set of more reactive farmers. And then our results talk about the strategic farmers, who have a much more strategic approach to dealing with that risk and see that as part of their business.²⁵

2.34 Dr Gates highlighted two aspects of the study. Firstly, that the farmer was the relevant unit of viability in the study, which shifts the emphasis from commodities, industries or issues to farmers, their families and their communities. She stated:

So, rather than saying: 'In terms of climate change we are going to go out and study wheat' or 'In terms of climate change we are going to go out and study commodity prices or soil type, these small elements of the many dimensions of farming', we say that the relevant unit of viability for our study is the farmer and the farming family. That then incorporates all of those scientific understandings that the farmer has about soil and water and the elements of the farm but also about the social dimensions of the farmer and his or her lifestyle, family, and social and cultural connections to the place where they are farming.²⁶

2.35 The second point highlighted by Dr Gates was the highly individualistic nature of decision making amongst farmers:

24 School of Earth and Environmental Sciences, University of Wollongong, Submission no. 24, p. 2.

25 Dr Alison Gates, School of Earth and Environmental Sciences, University of Wollongong, *Transcript of Evidence*, 1 July 2009, p. 42.

26 Dr Alison Gates, School of Earth and Environmental Sciences, University of Wollongong, *Transcript of Evidence*, 1 July 2009, p. 43.

There is a lot of room for personality in farming... If you give two people the same scenario – their neighbours, microclimate and soil are almost exactly the same – those two different people with different make-ups will do two entirely different things. Both might be successful at what they do or one might not. I think that the approach that each individual takes is based a lot on personality and personal preference. Even if we could come to an agreement about a standard method for forecasting, for example, I am not sure that necessarily both or either of those farmers would take it on because they have their own way of looking at the sky and understanding the place where they work. One of the things I have taken from the study is just how much intrinsic environmental knowledge these farmers have of the places where they farm. They know their country better than anybody else. There is as much to be learnt from them about how to predict and manage and look at those landscapes as there is to learn from outside and to bring to them.²⁷

2.36 In their submission, Professor Vanclay and Mrs Fleming drew clear implications for policy development from the results of their study:

Our research suggests that although the majority of farmers believe that climate change is occurring, there is widespread confusion about its causes, and they are not necessarily convinced by the suggested need for urgent adaptation and mitigation. As a result, we believe that:

1. there is an on-going need for clear statements that the science is decided and the government will act on climate change;
2. there is a need for more research into the beneficial actions agricultural industries can take, and active extension of this information to farmers. However, more than just information is necessary. Support for farmers to implement actions and to work together is needed. This needs to include financial incentives, opportunities for building social networks, collaborations, recognition and rewards;
3. finally, the social value farmers hold and exercise as ‘stewards of the land’ needs to be recognised and encouraged.²⁸

27 Dr Alison Gates, School of Earth and Environmental Sciences, University of Wollongong, *Transcript of Evidence*, 1 July 2009, p. 48.

28 Professor Frank Vanclay and Mrs Aysha Fleming, TIAR, Submission no. 2, p. 4.

- 2.37 Ms Tucker, in evidence before the Committee, emphasised the importance of providing information and market signals as a way of managing change, but also letting farmers make decisions about what is right for them:

I think farmers are amazingly market based. They respond very well to market signals and to information. I think the biggest thing with farmers is always information. They will make the best decisions possible for themselves. As we said, the decision-making environment they are in is very complex. I do not think anyone other than them can say what the right decision is. They need to have the suite of information and then be able to make that decision for themselves.²⁹

- 2.38 In its submission to the inquiry, CSIRO pointed to the complex array of factors that will influence responses to climate change on a global scale with which governments and producers would have to contend:

Climate change will therefore impact Australian agriculture against a backdrop of constant economic and social change, and these impacts will occur at multiple scales. Most fundamentally, climate change will affect the relative productivity of alternative land uses, as changes in rainfall and temperature differentially impact different types of crop and livestock. The viability and vulnerability of alternative agricultural land uses will also depend on the effect of climate change on world prices, as climate changes affects the relative productivity of Australia's trading partners and competitors. All of these changes will take place against a changing institutional context, including changes in greenhouse mitigation policy such as carbon trading schemes.³⁰

- 2.39 CSIRO also highlighted the complex array of factors which will influence adaptation domestically and the approaches that will be required to overcome them:

There is clearly a strong case for investing in adaptation responses. However, there is often an assumption that governments, industries and individual landholders have the capacity to implement adaptation options where in reality there are attitudinal, social, behavioural, institutional or environmental barriers to adopting adaptation measures. Howden et al. (2007) has suggested a number of approaches to overcome these barriers

29 Ms Karlie Tucker, RM Consulting Group, *Transcript of Evidence*, 3 September 2009, p. 64.

30 CSIRO, Submission no. 19, p. 8.

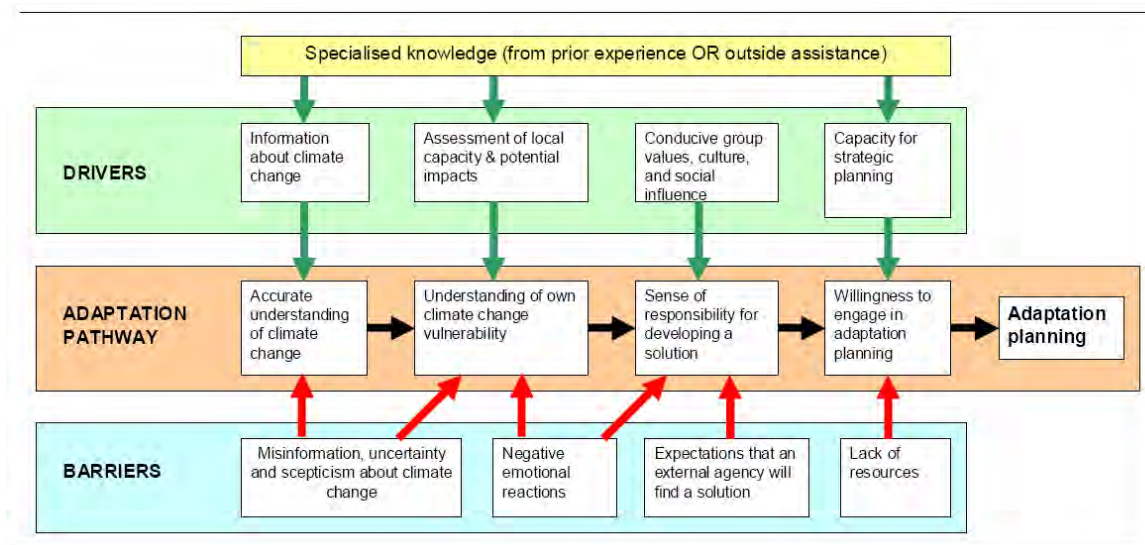
to build adaptive capacity and to change the decision environment. These include:

1. Acceptance that climate change is real and will amplify over the coming decades. Effective communication and unambiguous detection and attribution of climate change will facilitate acceptance of climate change.
2. Confidence that the projected changes will significantly impact on farming enterprises. This requires systems research with industry participation and effective communication strategies that can demonstrate clearly the impacts of climate change even though climate projections may have uncertainties.
3. Technical and other management options available and targeted to specific regions and industries (e.g., improved crop, forage, livestock, forest germplasm, nutritional management).
4. Early warning of likely major land use changes resulting from climate change that allows early policy intervention in supporting transitions and structural adjustment. Options include direct financial support, alternative livelihoods not so dependent on agriculture, building social capital and community resilience, infrastructure development, new land use and land tenure arrangements.
5. Adaptive management and governance in policy, institutions and industries that support agriculture. Regular monitoring of adaptation approaches to assess their costs, benefits and effects with efficient feedbacks to policy and management to facilitate continuing adjustments and improvements in adaptation.

A generic conceptual model of adaptation engagement has been developed by CSIRO (Figure 2) to help overcome barriers to adaptation that would assist in implementing the five steps outlined above. The model is presented as a pathway of stages, with different drivers and barriers relevant at different stages along the pathway. It is envisaged that the model will help to guide engagement efforts with stakeholder groups at different stages on the pathway.³¹

31 CSIRO, Submission no. 19, p. 17.

Figure 2.1 A pathway for adaptation engagement with associated drivers and barriers.



Source CSIRO Submission no. 19, p. 18.

Government can play a key role in building adaptive capacity in rural industries and communities through supporting appropriate education and training and through facilitating more streamlined approaches to adaptive management and governance. Climate change will pose a whole new range of challenges that may require changes to policies and legislation that government will need to consider.³²

2.40 As the National Farmers' Federation notes in its submission, adaptation is about understanding the social processes in change and managing those processes effectively:

Adaptation will not simply flow from more field demonstrations. Change in the primary industries will also flow from social and community responses. Social research to complement policy development on how to support communities through these changes will be critical. Industries will also need research and development to assist primary producers to recognise when and how they should transition from one industry to another whilst retaining profitability and sustainability – as well as for the investigation of new primary industries for the future.³³

32 CSIRO, Submission no. 19, p. 18.

33 National Farmers' Federation, Submission no. 17, p. 13.

- 2.41 The process of adaptation, according to Mr Jean-Francois Rochecouste, of the Conservation Agriculture Alliance of Australia and New Zealand (CAAANZ), will also take time:

Social change does not come very quickly. It is not a two-year or a three-year project; it is a five-year, persistent type process with a small amount of money. It requires not necessarily a huge bucket of funding but just a small amount of money over the longer term.³⁴

Creating change

- 2.42 That change is possible has been highlighted in much of the evidence received by the Committee. Chapter 3 highlights the innovations in farming practice brought before the Committee. In other evidence, Mr Jim Maynard, the Chairman of Mallee Sustainable Farming Inc. and an experienced farmer, pointed to the experience with no-till farming in his district:

We find that a percentage of farmers are always ready to adapt to change. That will go on whether we exist or not. They are very forward thinking, progressive farmers. Also, on the other end of the scale, there is probably a percentage of farmers that will never change, will drop out of the system when either the bank manager will drop them out or they will sell out or retire, because they have had enough of it. In the middle there are a lot of people standing there. A lot of farmers will be there. They only need a bit of a catalyst and a bit of help for the first year or two, then change will take off. The real example of that in the Mallee is that a few years ago there were a few people doing direct drilling. In the last four or five years it is now up to about a 70 per cent uptake in direct drilling. That occurred wholly and solely because there was a drought and they could see the advantage of those odd farmers that were doing it better. It took off like anything.³⁵

- 2.43 In a similar vein, soil scientist Dr Christine Jones highlighted the readiness of many farmers to embrace change under the right circumstances:

I would see the key factor is to support the landholders who are making these changes because they are highly respected or more believable – to put it that way – to fellow landholders and if it

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

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

comes from within farming communities the change will be supported and they already have established social networks. We are finding that it is the most innovative, leading-edge farmers who are making these changes because they have been doing it another way for 30 or 50 years and they realise that it is just not working because their costs are increasing and their soils are declining. Intuitively landholders know that what they are doing is not the right thing. They do want to change. I cannot tell you how many people at recent workshops and things we have had have almost been in tears saying: 'We know we need to change. We just desperately need the information.' They are ripe for change.³⁶

- 2.44 Dr O'Hagan, in evidence before the Committee noted the need to emphasise the benefits of climate change adaptation:

...farmers are members also of the wider community and I think they also have a great opportunity to contribute to carbon pollution reduction. A lot of farmers see that as being of benefit to them because they will not only reduce energy costs but also improve their soils and their biodiversity. So a lot of very positive benefits come from shifting some of our farming practices.³⁷

- 2.45 A similar point was made by Dr Kate Sherren, of the Fenner School of Environment and Society at the ANU, with regard to the social benefits of Holistic Management (HM) grazing:

On the quality-of-life side of things, I can only really speak from an anecdotal point because we are still in the middle of the social research and the research was not designed to test whether or not holistic management was better, but these are the things that we see in the literature and that I hear from some of my respondents. One of them is that there is more family time. I have noticed that those who are doing holistic management tend to be in partnerships between husband and wife, with a lot less need for the wife to go and get work off farm to supplement the farm income, because, I guess, the women can move stock just as easily as the men can. There is actually less labour there. And, because the women are not working off the farm, there is actually more time from the family standpoint. That is what it seems to be.

36 Dr Christine Jones, *Transcript of Evidence*, 24 June 2009, p. 20.

37 Dr Rowan O'Hagan, Australian Women in Agriculture Ltd, *Transcript of Evidence*, 3 September 2009, pp. 86-7.

And then there is the benefit of improved mental health, which has also been in the media quite a lot. There is less risk year to year because of that lack of boom and bust that we see. And it has to be said that there is a huge pride and satisfaction amongst the landholders doing this kind of work from the stewardship role that they are taking on by focusing on the land base as opposed to focusing on the livestock and assuming that everything else will go all right.³⁸

- 2.46 In its submission, the Fenner School of Environment and Society at the ANU, noted that:

Farmers practicing HM grazing in the USA have reported an enhanced quality of life, due to more time for their family. The emphasis on holistic goal setting thus could also have important benefits for the mental health of members of the rural community, which is an important aspect of adaptive capacity at a social level.³⁹

- 2.47 The submission continued:

The HM system also extends beyond production-based solutions by supporting social and structural aspects of agricultural systems. Social and structural aspects of HM agricultural systems focus on stewardship and extended duty-of-care, social networks for sharing of experiences and information. Change at this level will be essential for the agricultural sector to have the capability to implement complex adaptive management strategies required to adapt to climate-change conditions.⁴⁰

Committee conclusions

- 2.48 Communicating a clear and consistent message on climate change is a prerequisite to successful adaptation. Governments at all levels need to undertake to deliver this message, and in a manner relevant to the experience of farmers, for whom managing climate variability is a long term and everyday experience. Part of this is in understanding the decision making processes of farmers. Another part is the creation of positive messages – how adaptation can improve business resilience,

38 Dr Kate Sherren, Fenner School of Environment and Society, ANU, *Transcript of Evidence*, 17 June 2009, p. 3.

39 Fenner School of Environment and Society, ANU, Submission no. 4, p. 5.

40 Fenner School of Environment and Society, ANU, Submission no. 4, p. 6. Emphasis in original.

maintain or increase productivity, and promote personal and social welfare.

- 2.49 The Committee has been greatly impressed with the work of those social researchers who presented their work in evidence before the Committee. This body of work gives us a deeper appreciation of how farmers adapt to change, the pressures and influences they are subject to, the complicated nature of the decision making processes they undertake as a matter of course, and the need to understand these processes as part of the policy development process. To effectively support farmers adapt to climate change, government policy must in turn adapt itself to the needs and decision making process of farmers. The delivery of adaptation programs needs to be flexible and responsive to the needs of farmers and rural communities.
- 2.50 The Committee has also been impressed with the range of adaptations already available, adaptations which can increase resilience, improve productivity, and promote personal and social welfare. These will be dealt with in more detail in Chapter 3.

Recommendation 2

- 2.51 **The Committee recommends that the Australian Government, as part of its overall response to issues affecting agriculture and climate change, take more effective account of the needs and decision making processes of farmers and ensure that the delivery of adaptation programs is flexible and responsive to the needs of farmers and rural communities.**