Submission to the Productivity Commission inquiry *Barriers to Effective Climate Change Adaptation*

Introduction

The Australian Government Department of Agriculture, Fisheries and Forestry (DAFF) develops and implements policies and programs that ensure Australia's agricultural, fisheries, food and forestry industries remain competitive, profitable and sustainable. The Productivity Commission inquiry, *Barriers to Effective Climate Change Adaptation*[1] is an important opportunity to inform the development of climate change adaptation policy approaches in Australia. Effective climate change adaptation plays a key role in ensuring competitive, profitable and sustainable primary industries in Australia and accordingly, DAFF looks forward to exploring adaptation opportunities and recommendations expected in the final report.

The Australian Government Department of Climate Change and Energy Efficiency (DCCEE) is the lead department for developing and implementing climate change adaptation policy, building adaptation capacity and implementing adaptation program activities. DCCEE's submission to this inquiry presents the broader Australian Government policy approach to climate change adaptation. DAFF's submission will explore climate change adaptation in the context of competitive, profitable and sustainable primary industries in Australia.

This submission highlights some of the key issues related to climate change adaptation in the primary industries through the context of programs, initiatives and activities that DAFF administers. It explores how a range of activities assist in building the resilience of primary producers and landholders to increase their capacity to adapt to a changing climate.

Australian Government Climate Change Policy

The Australian Government's climate change policy recognises that an effective climate policy must respond both to the *causes* of climate change (mitigation) and to its *consequences* (adaptation), and must place domestic action in an international context.

Mitigation

The government's *Clean Energy Future* package will introduce a price on carbon from 1 July 2012, and create economic incentives to reduce carbon pollution in low cost ways. The Government is committed to reducing carbon pollution unconditionally by 5 per cent below 2000 levels by 2020, and by up to 15 or 25 per cent depending on the scale of global action. The government is also committed to reducing emissions by 80 per cent in 2050 compared with 2000 levels. These initiatives to reduce Australia's carbon pollution will contribute to global action to stabilise the concentration of greenhouse gases in the atmosphere as soon as possible to avert dangerous climate change[2] and will help support Australia's efforts to build global action to reduce emissions.

Adaptation

The Australian Government's position paper, *Adapting to Climate Change in Australia*[3], sets out the Government's vision for adapting to the impacts of climate change and proposes practical steps to realise that vision. The key messages of this position paper include:

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[1] Terms of Reference, Attachment A, *Barriers to Effective Climate Change Adaptation*, Productivity Commission Issues Paper, October 2011.

2 *Securing a Clean Energy Future, the Australian Government's climate change plan,* www.cleanenergyfuture.gov.au/

[3] Department of Climate Change and Energy Efficiency, www.climatechange.gov.au

- Climate adaptation is a shared responsibility. Governments, business and the community all have a stake and role in responding to climate change impacts.
- The Australian Government's role in climate change adaptation is to: maintain a strong flexible economy and social safety net; lead national reforms; manage Commonwealth assets and programs; and provide public goods including, science and information.
- Initial national priorities for adaptation action are: coastal management; water; infrastructure; natural systems of national significance; prevention, preparedness, response and recovery with regard to natural disasters; and agriculture.

DAFF climate change adaptation related initiatives

DAFF administers a number of initiatives linked to climate change adaptation. The approaches of these initiatives include broad-based reform, provision of public goods, capacity building and direct assistance. The initiatives include:

- A pilot of Drought Reform Measures in Western Australia is testing a package of new measures developed in response to the National Review of Drought Policy. The pilot is running from 1 July 2010 to 30 June 2012. The measures are designed to move from a crisis management approach to risk management. The aim is to better support farmers, their families and rural communities in preparing for future challenges, rather than waiting until they are in crisis to offer assistance. The pilot was reviewed by a panel of independent experts in 2011[4]. This review has provided recommendations on how future government investments in preparedness activities needs to focus more on activities that help farmers prepare for future challenges such as drought, climate variability and reduced water availability. These recommendations are being considered by government among options for nation drought policy reform.
- The National Review of Drought Policy includes a comprehensive national review of drought policy through three separate assessments. The review is supporting the development of policies to help better prepare farmers and rural communities for a changing climate. The review included:
    - an economic assessment[5] of drought support measures by the Productivity Commission
    - an assessment by an expert panel[6] of the social impacts of drought on farm families and rural communities
    - a climatic assessment[7] by the Bureau of Meteorology and the Commonwealth Scientific and Industrial Research Organisation (CSIRO) of the likely future climate patterns and the current Exceptional Circumstances standard of a one-in-20-to-25-year-event.

[4] Keogh, M,, Granger, R. and Middleton, S,. 2011, *Drought Policy Review Panel: a review of the pilot of drought reform measure in Western Australia*, Canberra, September, pg 4. www.daff.gov.au/agriculture-food/drought-pilot/drought-pilot-review

[5] Productivity Commission, www.pc.gov.au/projects/inquiry/drought

[6] Drought Policy Review Expert Social Panel 2008, *It's About People: Changing Perspective. A Report to Government by an Expert Social Panel on Dryness*, www.daff.gov.au/agriculture-food/drought/national_review_of_drought_policy/social_assessment

[7] Hennessy, K., et al., *An assessment of the impact of climate change on the nature and frequency of exceptional climatic events*, www.daff.gov.au/__data/assets/pdf_file/0007/721285/csiro-bom-report-future-droughts.pdf.

- *Carbon Farming Futures*[8] is an element of the Clean Energy Future[9] Plan's Land Sector Package[10]. The *Carbon Farming Futures* will invest $429 million over six years to assist farmers and other land managers to participate in and benefit from carbon farming and the Carbon Farming Initiative (CFI)[11]. It will achieve this through:
    - research into land sector greenhouse gas emissions abatement
    - assisting trials and demonstrations of on-farm management practices and technologies to reduce agricultural greenhouse gas emissions and/or increase carbon sequestered in soil
    - extension and outreach activities to help farmers and land managers benefit from carbon farming
    - converting research into offset methodologies for use in the Carbon Farming Initiative
    - a tax offset for new eligible equipment to encourage the adoption of conservation tillage practices.

  Although these activities have a primary focus on mitigation, there will be climate change adaption outcomes for Australian landholders. This is because *Carbon Farming Futures* will lead to increased resilience through improved productivity and provide information that can be used by landholders to inform business decisions including how to maximise opportunities provided by carbon markets such as the CFI.

- *Australia's Farming Future*[12] (AFF) is an Australian Government initiative to help primary producers adapt and respond to climate change and provides funding from 2008-09 to 2011-12. It is made up of a number elements:
    - *Climate Change Research Program* provides funding for research projects and on-farm demonstration activities.
    - *FarmReady* assists industry and primary producers develop skills and strategies to help them deal with the various localised impacts of global climate change.
    - *Climate Change Adjustment Program* assists farmers in financial difficulty to manage the impacts of climate change. Farm Business Analysis and Financial Assessments and professional advice and training are individually tailored to help farmers adjust to climate change and to set goals and develop action plans to improve their financial circumstances. Rural financial counsellors can assist eligible farmers to take action to improve their long term financial position.
    - *Transitional Income Support* is linked to the climate change adjustment program and provides short-term income support and advice and training

[8] Department of Agriculture Fisheries and Forestry, www.daff.gov.au/climatechange/carbonfarmingfutures
[9] Department of Climate Change and Energy Efficiency, www.cleanenergyfuture.gov.au/
[10] Department of Climate Change and Energy Efficiency, www.cleanenergyfuture.gov.au/clean-energy-future/land-use/
[11] Department of Climate Change and Energy Efficiency, www.climatechange.gov.au/en/government/initiatives/carbon-farming-initiative.aspx
[12] Department of Agriculture Fisheries and Forestry, www.daff.gov.au/climatechange/australias-farming-future

opportunities to farmers in serious financial difficulty, while they adapt their farm to changing circumstances, including climate change.

- *Community Networks and Capacity Building* (CNCB) activities focus on increasing the leadership and representative capacity of target groups including women, young people, Indigenous Australians and people from culturally and linguistically diverse backgrounds and building community resilience to climate change.

- *Caring for our Country*[13] is investing $2 billion from 2008 to 2013 to achieve a real and measurable difference to Australia's environment. This program funds projects across the country to achieve national targets - projects that improve biodiversity and sustainable farm practices. *Caring for our Country* aims to achieve an environment that is healthy, better protected, well-managed and resilient and provides essential ecosystem services in a changing climate.

DAFF also administers several programs that facilitate adjustment by Australia's agricultural industries. These include maintaining freedom from imported pests and diseases via DAFF biosecurity, facilitating technologies for adaptation via the Rural Research Corporations and improving international market access.

DAFF acknowledges the significant work of a range of government bodies, organisations and initiatives working with primary industries on climate change adaptation issues. These organisations include:

- Climate Change Research Strategy for Primary Industries
- National Climate Change Adaptation Research Facility
- Primary Industries Adaptation Research Network
- Rural R&D Council
- CSIRO Climate Adaptation Flagship
- Canberra Adaptation Network
- State and Territory government departments and agencies.

Primary producers' views on climate change adaptation

Research undertaken for DAFF in 2009[14] showed that primary producers understand and acknowledge the need for adopting strategies that prepare for prolonged climate variability (including drought), improve productivity and reduce costs. Although these strategies can be considered climate change adaptation, many producers implemented them to deal with what was perceived as natural climate variability or to improve the efficiency and viability of their business. While 27 per cent of primary producers surveyed said they did not believe in human induced climate change, many indicated that they have or would take up adaptation and mitigation initiatives for variability in climate and to improve the viability of their business.

Primary producers participating in the research identified financial stress from prolonged drought, an ageing workforce and succession as the most significant barriers to adapting to

[13] Caring for our Country, www.nrm.gov.au

[14] Instinct and Reason, 2009, *Australia's Farming Future market research*, available: www.daff.gov.au/climatechange/australias-farming-future

climate change. Another potential barrier for adaptation was that many primary producers believed that they had already adapted to climate change when they had responded to challenges such as prolonged drought and falling commodity prices.

National review of drought policy and pilot of new measures

The National Drought Review of Drought Policy and the pilot of drought reform measures in Western Australia have highlighted the importance of improving policy to enable farmers to better manage risk under a changing climate. Between 2001–02 and 2010–11 the Australian Government provided approximately $4.85 billion in funding through the existing National Drought Policy's Exceptional Circumstances (EC) drought assistance[15]. EC expenditure peaked in 2007-08 at $1.1 billion, when 69.2 per cent of agricultural land was EC declared[16].

A 2009 Productivity Commission inquiry[17] found that the existing EC declarations and related drought assistance programs do not help farmers to improve their self-reliance, preparedness or climate change management. In response to the Australian Government's review of drought policy, a pilot of drought reform in Western Australia is testing measures to support farmers prepare for future challenges, rather than waiting until they are in crisis to offer assistance. This approach is designed to ensure drought policy is effectively linked to achieving climate change adaptation outcomes – in this case through training in strategic farm business planning and funding to implement preparedness activities.

The 2011 review[18] of the pilot by independent experts found that the strategic farm business planning helped build skills that farmers need to better prepare for and manage future challenges. The panel found that the approach to implementing preparedness activities could be better targeted. They recommended that any future government investment in preparedness activities needs to focus more on activities that help farmers prepare for future challenges such as drought, climate variability and reduced water availability, such as:

- the trialling of new innovations that draw on research and development
- assisting landholders to access alternative income streams and financial support to assist farmers improve the viability of their farm business
- training to enhance farmers' skills in business, natural resource management, personal planning and managing risks associated with climate variability
- natural resource management activities that are aligned to state and national priorities and deliver public benefits.

The pilot of drought reform measures was considered in the context of a desire by governments to develop an improved policy framework to enable Australian farmers to better manage risk, rather than as an attempt to simply reduce government expenditure in this area.

[15] Australian National Audit Office, 2011, *Drought Assistance*, Performance Audit No. 53 2010-11, pg 15.
[16] Australian National Audit Office, 2011, *Drought Assistance*, Performance Audit No. 53 2010-11, pg. 16.
[17] Productivity Commission 2009, Government Drought Support, Report No. 46, Final Inquiry Report, Melbourne. pg XX
[18] Keogh, M,, Granger, R. and Middleton, S,. 2011, *Drought Policy Review Panel: a review of the pilot of drought reform measure in Western Australia*, Canberra, September, pg 4. www.daff.gov.au/agriculture-food/drought-pilot/drought-pilot-review

Initiatives managed by DAFF to improve resilience

Examples of activities that improve resilience and adaptive capacity in the manner identified by the Drought Policy Review Panel are evident in a number of initiatives that are administered and supported by DAFF.

Trialling New Innovations – Climate Change Research Program

The Australian Government has an important role to play in contributing to the provision of information that would not otherwise be available, so that farmers can make well-informed decisions. Individuals and farm businesses need information and tools to support effective adaptation decisions and to help sectors and regions assess their vulnerabilities.

The Australia's Farming Future Climate Change Research Program is a good example of how the government can provide this information. In the $11.5 million Adaptation Research Program element of the Climate Change Research Program, researchers involved are working directly with farmers, who put forward their strategies for climate change adaptation. The Climate Change Research Program's adaptation projects are:

- producing localised climate information to explore the viability of adaptation responses
- testing the response of wheat and sorghum to increases in temperature and carbon dioxide
- examining new ways to monitor and reduce heat stress in livestock
- examining benefits of and constraints to expanding the peanut industry into the Northern Territory
- determining the costs and opportunities of relocating tomato, cotton and rice production to northern Australia
- securing the future of Australia's wine industry by improving management practices and grape varieties
- developing plans to reduce the impact of climate change on Australia's south eastern fishing and aquaculture industry
- implementing new and sustainable ways to manage livestock in Australia
- working with crop and livestock farmers to test seasonal risk management responses for their potential to reduce the impacts of climate change.

Researchers and industry groups then test these strategies through modelling and on-farm demonstrations in the $7.7 million demonstration element of the Climate Change Research Program, which allows farmers to test the effectiveness of these management strategies on production now and under credible future climate scenarios. Two examples[19] of this work are the 'Mitigation and Adaptation in the Australian Dairy Industry' (MAADI) project delivered by Dairy Australia and the 'On-farm demonstration of best practice options for climate change mitigation and adaptation for beef producers across northern Australia' project delivered by Meat and Livestock Australia.

The MAADI project involves on-farm demonstration and validation of climate change mitigation and adaptation options, strategies, and technologies across the dairy supply chain. MAADI is producing a network of farm to processor demonstration sites, linked to regional

[19] Department of Agriculture, Fisheries and Forestry, www.daff.gov.au/climatechange/australias-farming-future/climate-change-and-productivity-research

reference groups and relevant industry climate change RD&E projects. The project also includes sites demonstrating technologies, and strategies, to mitigate heat stress including changes in feed and production systems; resilient farming systems through changes in production systems; and mitigation through techniques such as feed additives and waste management.

The 'On-farm demonstration of best practice options for climate change mitigation and adaptation for beef producers across northern Australia' project is engaging beef producers through on-farm demonstrations across northern Australia and equipping them with the knowledge and tools to implement appropriate mitigation and adaptation practices. It is helping to overcome constraints to adoption related to the perceived complexity and riskiness of selecting and implementing new practices by working with producers.

This linking of climate change adaptation research and demonstration allows the Climate Change Research Program to effectively deliver information to primary producers. This information can then be used by primary producers to inform their decision making in relation to climate change adaptation.

Additional Income Streams – Carbon Farming Initiative

Carbon farming projects can increase resilience to the impacts of climate change, protect our natural environment, and increase farm profitability and food production. The Carbon Farming Initiative (CFI) is a carbon offsets scheme which provides economic opportunities for farmers, forest growers and land managers to help the environment by reducing emissions or increasing carbon storage on their land. Legislation for the CFI was passed by the Australian Parliament in August 2011 and the CFI is now operational.

The CFI will be linked to the Carbon Price Mechanism to allow credits generated under the CFI to be sold to companies with liabilities under the Carbon Price Mechanism. Only CFI credits that are also recognised under the Kyoto Protocol will be linked, including credits earned from activities such as reforestation, savanna fire management and reductions in emissions from livestock and fertiliser. The government will purchase carbon offsets from other activities through a $250 million CFI non-Kyoto Carbon Fund over six years. These credits can also be sold to companies wanting to offset their carbon pollution to meet voluntary commitments to carbon neutrality.

The potential additional income stream that farmers and landholders can earn from the CFI will build resilience and therefore their adaptive capacity.

Training – FarmReady

FarmReady[20], part of Australia's Farming Future Initiative, helps industry and primary producers develop skills and strategies that increase their self reliance, preparedness and capacity to deal with the impacts of climate change. FarmReady provides $34.4 million over four years to improve adoption of business management skills and increase adoption of new technologies and best practice management by primary producers, Indigenous land managers, natural resource management groups and industry groups. The program consists of two elements: FarmReady Reimbursement Grants and FarmReady Industry Grants. The four years of FarmReady funding ceases on 30 June 2012.

[20]Department of Agriculture, Fisheries and Forestry, www.daff.gov.au/climatechange/australias-farming-future/farmready and FarmReady www.farmready.gov.au

FarmReady Reimbursement Grants are available to individual primary producers and Indigenous land managers to attend approved training activities that improve their capacity to adapt to climate change and increase self reliance and preparedness. Participants select training from a suite of approved training courses, based on self-identified learning needs. To be approved under FarmReady, training courses must refer to one or more key learning areas, ranging from understanding the implications of climate variability and climate change, through to improving risk, planning and business management, and integration of new techniques including high-level technical skills for sustainable production. From February 2009 until December 2011 more than 24 600 reimbursements have been paid.

In March 2011 an evaluation by the Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES) found that FarmReady Reimbursement Grants have had a significant influence on both decisions to participate in training (64 per cent) and decisions to offer courses (74 per cent). FarmReady has also achieved very positive results, with 96 per cent of participants gaining new skills or knowledge and 83 per cent of participants taking action that has provided significant benefits for their enterprise. Such success may be attributed to the fact that FarmReady allows primary producers and Indigenous land managers to individualise government support, within the framework of the program, to take into account their own individual training and/or industry needs.

FarmReady Industry Grants were available to industry organisations, natural resource management groups and producer groups to undertake projects that will enable their members to adapt to climate change, promoting industry self-reliance and preparedness. There have been 64 FarmReady Industry Grants projects awarded from two competitive grant rounds. Of these projects, 21 have been completed as of December 2011 and 2 have been terminated by mutual consent. Funding continues for the remaining projects until 30 June 2012.

The March 2011 ABARES evaluation of FarmReady developed and critiqued an evaluation tool for FarmReady Industry Grants that DAFF has subsequently adapted and applied to individual completed projects. This has assisted the department in reviewing how well each project had achieved its objectives and contributed to overall program objectives. Preliminary results show the majority of completed projects have met, or exceeded, their objectives.

Natural Resource Management – Caring for Our Country and The Biodiversity Fund
The Australian Government's Biodiversity Fund is part of the Clean Energy Future plan and will improve the resilience of Australia's unique species to the impacts of climate change. It will enhance the environmental outcomes of carbon farming projects, and help farmers and land managers protect biodiversity and carbon values on their land. The Government will provide $946 million over the first six years for landholders to undertake projects that establish, restore, protect or manage biodiverse carbon stores.

The first phase of the *Caring for our Country* Initiative 2008–13 seeks to achieve an environment that is healthy, better protected, well managed and resilient, and provides essential ecosystem services in a changing climate. *Caring for our Country* is currently providing over $600 million for sustainable agriculture and Landcare projects and activities including the Reef Rescue Program and a national network of Regional Landcare Facilitators.

The annual Business Plan targets have focused on improving management practices that improve soil condition and biodiversity. Biodiversity is improved through the conservation and protection of native vegetation connectivity and condition at a landscape scale which

improves the environment on and off farm. Increasing landscape connectivity may also facilitate the dispersal of native species in response to environmental changes that are likely to occur in a changing climate.
By 2013 over 42,000 farmers will be assisted to increase their uptake of management practices that deliver improved ecosystem services to help them better respond to the threats and opportunities created by changing circumstances, while also increasing the environmental resilience of the natural resource base and reduce business risk. A further 6,700 farmers will be supported to adopt activities that contribute to the ongoing conservation and protection of biodiversity, and at least 42,000 farmers will participate in events to increase their knowledge and skills in sustainable land management. The Reef Rescue Program will assist almost 2000 farmers and land managers in priority areas to adopt new soil, water, nutrient and pesticide management practices to improve the quality of water entering the Great Barrier Reef lagoon.

Conclusion

DAFF recognises that climate change adaptation is a shared responsibility and will work closely and collaboratively with its government partners and the broader business and community sectors to deliver adaptation action.

The department is continuing to progress its work on climate change adaptation while also striving to deliver sustainable, competitive and profitable outcomes for the primary industries in Australia. The agriculture sector is a national priority for adaptation action and accordingly DAFF will continue to build on the strengths of existing initiatives and explore new and potential opportunities to build resilience and adaptive capacity in the sector.

DAFF welcomes the Productivity Commission inquiry to further inform the public policy development process and looks forward to reviewing recommended policy instruments that address the current barriers to effective climate change adaptation.