1. “It’s not just drought” – Drought has a context that determines its impact on rural communities. Remoteness, ageing, globalisation of agriculture, national and international economics and policy, deregulation, water trading, the resources boom, food/water/energy security, mental health and wellbeing, and land management policies and practices all contribute to drought impact.

2. Consistent, continuous, holistic, cross-agency and multidisciplinary policy is needed to address competing demands on water, land, and other natural resources while also maintaining or improving the liveability of rural communities.

3. Mental health, wellbeing and social capital play a critical role in achieving successful adaptation outcomes. There is a need to frame mental health as a necessary part of adaptation, in order to reduce stigma and encourage help-seeking behaviours.

4. Research is needed to develop methodologies for evaluating what is useful and successful in terms of policy instruments and adaptation actions so as to better allocate and target the limited resources available to improve the sustainability of rural communities under climate change.

5. Adaptation can and should be framed positively, focussing on maximising opportunities and providing access to evidence and support for making innovative and adaptive decisions that lead to sustainability, liveability and profitability.
The climate context

Australia is vulnerable to a range of natural hazards because Australia’s climate is highly variable in space and time. Droughts substantially reduce agricultural productivity, and can place significant stress on rural communities, while storms, extreme wind and hail, floods, heatwaves and bushfires collectively account for 93% of Australian insured losses.

Projected climate changes for inland Australia that are relevant to the success and sustainability of rural communities include:

- Average temperatures have increased by 0.9°C since 1910 and warming will continue in all seasons (very high confidence).
- More hot days and warm nights (very high confidence).
- Fewer frosts (high confidence).
- Lower winter rainfall in the south (high confidence).
- Increased intensity of extreme rainfall events (high confidence).
- Increased time spent in drought (medium confidence).
- Natural climate variability is likely to mask some of these changes in the next 20-30 years, especially for rainfall, but beyond mid-century the impacts of climate change are expected to emerge clearly.

Current impacts and issues

The climate stresses set out in Section 1 do not impact on Australia’s agriculture sector and rural communities in isolation, but in the context of social, demographic, health, economic, policy and regulatory pressures.

Social, demographic and health issues:

Rural communities are experiencing ongoing changes to their social and demographic make-up, for example due to rural/urban migration, fly-in-fly-out workers, absentee land ownership, youth departure, an ageing population, etc., and this is leading to a decline in community connectivity. Australia’s rural and remote populations have poorer health than city dwellers, and the gap is widening. Interactions between wellbeing, connectivity, optimism, liveability, resilience and adaptive capacity are known to be important but there is limited evidence or understanding of how and why – or which comes first.

Market and economic issues:

Globalisation of agriculture (and economies in general) has benefited some communities in the short term, by providing increased local employment and improved reliability of income (i.e. over the family-farm model). However, there are challenges associated with deregulation, including dealing with international markets (e.g. loss of the Australian Wheat Board), foreign investment/corporatisation and the potential for long-term damage if the focus is too much on short-term profit-making rather than environmental and community sustainability.

The European financial/tax system inherited by Australia is based on regular and predictable cash-flow models supported by good soils, regular rainfall, reliable and predictable seasons, and easy access to large markets. The workshop participants highlighted their experience that many of the serious socioeconomic and environmental impacts associated with recent droughts are due to economic imperatives bought about by a financial/tax system that is not adaptive enough for the Australian environment. This is also highlighted by a number of researchers.

Competition for water between sectors (agriculture, mining, environment etc.) already exists, and climate change is likely to exacerbate this. Agreed methods are required which can balance the quantity of water required for an activity or product against its economic, social and environmental costs and benefits.
Policy and regulation issues:
There is no coordinated, holistic, cross-agency approach to address issues affecting the sustainability and prosperity of rural communities, such as provision of aged care, mental health support and financial and debt advice.\(^3,4,16,14\) Government support for farmers is crucial but the traditional Exceptional Circumstances and welfare approach sustains short-term responses and creates further issues of dependence.\(^14,21\)

In areas relying on irrigation, there is an immediate need for a stable and secure water allocation and trading system which can be more effectively negotiated, and planned for by farmers. The Murray-Darling Basin (MDB) now has this\(^19\) but many other irrigated areas in Australia do not. Even in the MDB water trading and allocation system, limitations and uncertainties still exist (e.g. uncertainty associated with rainfall predictions, knowledge gaps around how reallocation of water throughout the system impacts the environment and rural communities).

Future impacts and issues
Future climate change will bring new impacts and new opportunities for rural communities. Some of these are:

- Opportunities around carbon capture and storage and around renewable energy generation from solar and wind power.
- Increased frequency and severity of bushfire, making some areas too risky to live in, and requiring new fire prevention and fire fighting methods.
- Reduced water availability due to changed rainfall patterns (possibly combined with increasing demand), leading to higher water costs.

Will governance structures and institutional and policy arrangements be fit for purpose in these changed circumstances? Will there be incentives for farmers and rural communities to engage in sustainable practices and land/water/environmental stewardship? Will the financial/tax/banking system meet the requirements of a society seeking to achieve both economic productivity and environmental and community sustainability? Adaptive decision-making processes will need to be incorporated into everyday decision-making if these goals are to be achieved.
Adaptation actions and policy implications

The context of adaptation policy for rural communities

Current policy affecting rural communities (e.g. drought policy, tax regulation/policy, policy relating to small business, energy policy, policy relating to mining approvals, transport infrastructure policy, communication policy etc.) is not necessarily well structured to deal with climate change.3,10,14 Workshop discussion together with the research reviewed above suggest that the reasons include:

• Policy discontinuity between levels of government and jurisdictions (workshop feedback);

• The scale of decision-making does not match the scale of the problem: climate change is a national problem but decisions made at, for example, state level apply only within state boundaries.22,23

Climate change, by its nature, constantly changes the policy development context. Benchmarks may have to shift and become more flexible. Failure to act at the right time may mean that inappropriate or non-existent policy creates uncertainty that becomes a barrier to action or results in maladaptation. Policy must embrace the concept of adaptability to enable appropriate and timely response to new situations, information or data. It must be flexible and “no-regrets” – not locking rural communities into climate-inappropriate practices and sunk investment.

Adaptation calls for policy that has regard for the long-term, built on the distinction between incremental change, appropriate for the short-term, and transformational change, required to address longer-term climate change. Thresholds can be identified that trigger transition to transformational adaptation and policy instruments constructed to ensure that transformational change takes place when and where required.

“It’s not just drought” – need holistic, multidisciplinary, cross-agency, continuous policy instruments and adaptation actions.

There needs to be a shift from existing government policy, and community/industry understanding, which considers ‘drought-as-crisis’ towards acknowledging the variability of the Australian climate, that multi-year droughts should not be unexpected, and that they may become more frequent.13,14 Exacerbating the impact of climate on rural communities are the complexity of the agriculture industry, global economics (in particular global markets and the recent/ongoing global financial crisis), demographic changes (e.g. decreasing and ageing populations) and local government changes and amalgamation, etc.2,3,10,13

The socioeconomic issues facing rural communities are not just a product of drought or climate change.10,20,21 Understanding them as such underestimates the extent of the problems and inhibits the ability to coordinate the holistic, cross-agency approaches needed for successful climate change adaptation in rural communities. There is the need to learn from previous experience and to build well-coordinated and well-integrated strategies to manage climate change risks in the long-term rather than to just react when there is a serious event.

Policy and adaptation should be ongoing, well-aligned to Australia’s climate, including extreme events, and culturally sensitive. Men and women of different ages participate differently in rural life, and respond to drought and manage their own mental health differently. It is important that issues of gender and ageing be considered when developing policy and climate adaptation strategies relevant to the sustainability of rural communities. Services for ageing populations need to be provided, particularly in light of increased farm-debt and/or decreasing superannuation and, in some cases, the declining asset-base of farms.
Research and development

Research is needed into developing and testing monitoring and evaluation frameworks that assess existing and future adaptation initiatives and policy actions. This would enable an evidence-based approach to understanding what is useful, urgent or successful so that limited resources can be well-targeted. The evaluation needs to focus on quality rather than the quantity of adaptation (i.e. focus on measuring what works and why rather than just the number of adaptation activities or outputs). There is a need for knowledge about which rural communities and agricultural systems/commodities are most likely to be sustainable in the future – most farmers have strategies to make them sustainable and resilient from year to year but what about decades from now? The same applies to policy instruments and adaptation actions – which ones will serve us well in the future? There is a need to better understand and quantify climate change risk, to recognised that there will always be some level of uncertainty about the future, and to develop policy and adaptation actions accordingly.

Case study-based approaches to research are well-suited to build understanding of rural communities:

- To assess existing monitoring and evaluation frameworks and their ability to quantify the success of existing or future adaptation policy actions. Once suitable frameworks are identified, these can be applied more widely to build evidence and gain insights as to which actions work (and which don’t).
- To carry out sensitivity analysis and scenario modelling (incorporating historical climate variability and projected climate change) to quantify strengths, weaknesses, opportunities and threats for various agricultural systems/commodities, policy instruments and adaptation actions.

Role of the private sector

Finance, insurance and Small and Medium-sized Enterprises (SMEs) have a key role to play in the sustainability and prosperity of rural communities. Banks, financial advisors, internet providers and renewable energy companies are key components in any strategy that seeks to ensure that rural communities thrive in a climate changed future. Policy instruments should be created to better facilitate and incentivise the involvement of the private sector in rural communities to maximise benefits/advantages (and minimise costs and vulnerability) associated with adapting to a variable and changing climate.

Links between mental health, wellbeing, community/cultural connectivity, optimism, liveability, resilience and adaptive capacity

Rural communities are faced with social and health issues that, together with environmental and economic impacts, interact to influence levels of individual and community adaptive capacity and resilience. Mental health, wellbeing and social capital play an essential role in achieving successful adaptation outcomes.

It is important that people in communities, especially rural and remote communities, remain connected and avoid isolation. This connection can be difficult in drought, when there may simply be insufficient finances or will to socialise. Programs that introduce people to the Internet and social media may help, but it is important that physical social connectedness is promoted and supported by policy. Mental health care must not get forgotten after a climate event - the difficulties of drought are not lifted simply with rain.

Partnerships and connected working between service providers are essential to create effective referral and support networks. Dedicated mental health professionals are key component of service networks and should be resourced accordingly. Mental health and wellbeing should be framed as a necessary part of adaptation in order to reduce stigma and encourage help-seeking behaviours.

Extension and knowledge

An integrated approach (networks/partnerships/engagement) is needed to ensure understanding and correct use of forecasts, information, and risks. Rural communities require improved access to evidence and tools to support innovative and adaptive decision-making. An example of this provision is the environmental sustainability mapping in Tasmania’s draft climate change action plan 2016-2021.

Funding for knowledge or information brokers is required together with policy around their roles and responsibilities. Knowledge brokers have an important role in framing climate change adaptation actions and policy in positive ways – focussing on strategies to maximise benefits from things that work well now and to take advantage of opportunities that are likely to emerge in the future, while at the same time minimising impacts and their costs. The focus should be on providing access to evidence and support for making innovative and adaptive decisions that lead to sustainability, liveability and profitability.
Citation

NCCARF's evidence-based Policy Information Briefs address key challenges to effective adaptation to Australia's variable and changing climate. They provide high-level policy advice designed for use by policy-makers at Commonwealth and State level.

This Brief was prepared by Anthony Kiem and Emma Austin from Newcastle University. Please cite as: Kiem A. and Austin E. (2016) Sustainable and thriving rural communities under climate change. Policy Information Brief 4, National Climate Change Adaptation Research Facility, Gold Coast.

A workshop was held in Dubbo, attended by policymakers, managers, and researchers from University of Newcastle; the Bureau of Meteorology; the Murray-Darling Basin Authority; local, state and federal government and the National Climate Change Adaptation Research Facility.

References