

CUT FROM ‘COUNTRY’: THE IMPACT OF CLIMATE CHANGE ON THE MENTAL HEALTH OF ABORIGINAL PASTORALISTS

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ABSTRACT: Given the climate change predictions for Australia, increasing temperatures and lower rainfall are likely to have adverse health implications for remote communities’ dependant on agriculture for their livelihood. This paper examines the impact of the loss of employment in the pastoralism sector on the wellbeing of Aboriginal residents in the Shires of Cloncurry and Mount Isa City in North West Queensland. Data were collected in 2013 via postal questionnaires from 96 non-Aboriginal households, and three focus groups with male and female Aboriginal residents (n=14). The results outline the social problems and decline in mental wellbeing among Aboriginal people as a result of the downsizing in the pastoralism sector during a period of prolonged drought. Unemployed Aboriginal people who have been ‘forced’ to migrate from regional areas to nearby towns through no fault of their own need alternative activities to enable them to maintain a sense of wellbeing. This may in part be provided through involvement in community-driven social support activities.

KEY WORDS: Aboriginal people, mental health, pastoralism, rural, social wellbeing

1. INTRODUCTION

This paper examines the impact of drought (defined as rainfall deficiencies and prolonged periods of above-average temperatures), not unlike the conditions predicted under climate change scenarios, on the mental health and wellbeing of Aboriginal residents in arid North West Queensland (hereafter referred to as NWQ) who are dependent on the pastoralism sector for their livelihood. While the focus is on the impact of the severe drought—as these were the conditions preceding and at the time of the 2013 study—the suspension of live cattle exports to Indonesia in 2011, and general economic downturn had also adversely affected pastoral enterprises across NWQ. To provide a context to this study the paper will outline the following: the predominance of mental ill-health in rural and remote regions of Australia; second, attention is drawn to the particular vulnerability of residents of rural regions, followed by a synopsis of the actual changes in climate that have occurred, and those predicted for Australia. Fraser *et al.* (2002) mention a concern over the paucity of knowledge on the causal mechanisms between rural population change and mental health, this study provides minor insight into one such cause, namely the impact of a work downturn in the pastoralism industry.

The Impact of Climate Change on Mental Health

In Australia, the rates of death are higher in rural and remote areas compared to metropolitan areas (Table 1), as are male suicides (Caldwell *et al.*, 2004; Judd *et al.*, 2005; Miller and Burns, 2008; Sartore *et al.*, 2008). The data are skewed by the high proportion of Aboriginal people living in rural and remote regions as 4.74 per cent of all Indigenous peoples' deaths are attributed to suicide compared to 1.75 per cent in non-Indigenous people (Table 2), though the actual difference is thought to be much larger due to an under-reporting of suicides among Indigenous people. The highest suicide rate occurs in Indigenous males under the age of 35 years (ABS, 2012). Residents whose livelihood is dependent on agriculture (regardless of their cultural backgrounds) have been shown to be directly impacted by adverse climatic conditions. During the drought of 1997 to 2001 in South Australia 'farm men were approximately 40 per cent more likely than non-farm rural men to commit suicide' (King *et al.*, 2011, p. 16). In New South Wales during periods of markedly lower rainfall (300 millimetres below average) there were reports of an 8 per cent increase in suicides (Commonwealth of Australia, 2008; Nicholls *et*

al., 2006), while during the severe drought in northwest Victoria in 2007 among sixty farming families interviewed on three occasions over a one year period 12 per cent had been diagnosed with clinical depression (Birchip Cropping Group, 2008).

Table 1. Indigenous and Non-Indigenous Death Rates and Median Age at Death in Urban, Regional and Remote Areas in Australia.

Deaths	Indigenous		Non-Indigenous	
	Standardised death rate	Median age at death (years)	Standardised death rate	Median age at death (years)
Major cities	8.5	59.5	5.5	82
Inner/outer regional	8.8	58.8	6.2	81
Remote/very remote	12.2	53.3	5.8	75.6
Total	9.6	56.9	5.7	81.6

Source: ABS, (2012).

Table 2. Indigenous and Non-Indigenous Australians Standardised Death Rates and Proportion of Deaths Attributed to Intentional Self Harm (Suicide) in 2012.

Deaths	Indigenous	Non-Indigenous
	Standardised death rate	Standardised death rate
All causes	1128.3	573.9
Suicide	22.4 4.74% of all causes 5 th ranked cause	11.0 1.75% of all causes 13 th ranked cause

Source: ABS, (2012).

Besides the suicides and clinical diagnoses of mental illness among farmers there are numerous reports (Alston, 2006; Anderson, 2008; Tonna *et al.*, 2009) of other diagnosed and undiagnosed mental health issues during periods of drought—these include nervous breakdowns, depression, sleep disorders, suicidal thoughts, severe strain, anxiety and distress (Alston, 2006), as well as excess alcohol consumption and illicit drug-use (Commonwealth of Australia, 2008), with associated ‘difficulty

of managing personal relationships' (Alston, 2006, p. 168). Furthermore, during the droughts the mental health issues extended to the children and wives of farmers (Birchip Cropping Group, 2008; Dean and Stain, 2007). In a study of 8 000 people living in rural areas, respondents who had been impacted by drought in the preceding three years reported almost twice the rate of mental health problems compared to those who had not been affected by drought (Commonwealth of Australia, 2008). Much of the mental health issues arise as a result of the prolonged stress of trying to maintain the farm as a viable entity, witnessing the loss of stock and crops, servicing farm debts and the lack of alternative sources of income (Berry *et al.*, 2008; Nicholls *et al.*, 2006). The longer and more severe the drought the greater the social, economic and environmental impacts.

The greater ill-health of rural and remote residents during times of drought compared to metropolitan residents may also be exacerbated by fewer health services, longer distances required to travel to access services, and the lower incomes to be able to afford such services (c.f. Betts and Thornicroft as cited in Caldwell *et al.*, 2004). Such is the extent of mental ill-health during drought in Australia that the Government has placed additional mental health resources in rural towns during these periods (Commonwealth of Australia, 2008). Although the association between drought and mental ill-health has been well documented in certain areas, according to Alston and Kent (2004) more needs to be known about the everyday and specific impacts of climate on the health and wellbeing of farming communities. Berry *et al.* (2008), McMichael *et al.* (2010) and McMichael (2013) share similar concerns. Continued studies in this field will help redress this need, and help to inform service delivery of those in greatest need (c.f. Judd *et al.*, 2002).

While this paper focuses on one impact of climate change in a remote, inland, arid region, no less important but not covered in this paper is mental ill-health associated with other climate change impacts—these include the loss of environment through sea level rise and a decline in fish stock (see Albrecht *et al.*, 2007; McNamara and Westoby, 2011); or the adverse impact of climate change on physical health due to heat stress or vector-borne diseases (see D'Ippoliti *et al.*, 2010; Haines *et al.*, 2006; Horton *et al.*, 2010; Kolstad and Johansson, 2011; McMichael and Lindgren, 2011; Ng *et al.*, 2014; Peng *et al.*, 2011; Törö *et al.*, 2010; Tran *et al.*, 2013).

Particular Vulnerabilities to Climate Change

Globally, the depopulation of rural areas is a recognised problem for regional communities and industries (Cawley, 1994; Gray and Lawrence, 2001, and Hugo, 2005 both as cited in Birchip Cropping Group, 2008). The agricultural sector in Australia particularly in arid and semi-arid regions is identified as being most vulnerable to climate change (Hennessy *et al.*, 2008; White, 2000). People living in rural and remote regions have also been identified as particularly vulnerable to climate change due to their geographical isolation, higher socio-economic disadvantage and relative lack of access to services and employment opportunities (Fraser *et al.*, 2005; Hunter, 2009). Judd *et al.* (2006) list similar factors as contributors to the high rate of suicide in rural-living males. While generally rural areas show higher levels of socio-economic disadvantage, an upturn in the mining sector has brought some affluence specifically to non-Indigenous persons employed in the mining sector (Table 3).

Table 3. Socio-Economic Characteristics of Queensland (Qld), and Non-Indigenous and Indigenous Inhabitants of the Shires of Cloncurry and Mount Isa City.

	Shire of Cloncurry		Shire of Mount Isa City		Qld
	Non-Indigenous	Indigenous	Non-Indigenous	Indigenous	
Median age (years)	35	27	31	21	36
Population in the labour force employed full-time/part-time (%)	88.8	69.6	90.7	75.0	88.2
Population employed in the mining sector (%)	13.2		28.0		0.5
Pop. employed in sheep/cattle/grain farming (%)	11.2		Not listed		1.1
Median total household income (\$/week)	1,587	1,031	2,191	1,354	1,235
Median rent (\$/week)	75	120	275	150	300
Average household size	2.5	3.3	2.6	3.5	2.6
Dwellings in need of 1+ extra bedrooms (%)	3.4	15.9	3.6	16.2	-
*Homeless persons per 10,000 persons	-	-	-	>150	69

Source: ABS (2013b; 2013c) *DoC and QCoSS (2011).

Farming families have been known to have deep 'emotional connections' to their land (Dean and Stain, 2007; Nicholls *et al.*, 2006):

"Farming is not like any other small family business. No other business creates the emotional connections that farming does. ... It's not just about generating an income..." (Commonwealth of Australia, 2008, p.11).

Aboriginal people are also vulnerable to climate change due to their close relationship with the environment (Bardsley and Wiseman, 2012; Memmott *et al.*, 2013). While Aboriginal ownership of pastoral land is low (3 per cent in the northern tropical savannah region; with a further 22 native title claims pending in north Queensland), Aboriginal connections to country come in various forms. In addition to land ownership where native title is lacking or yet to be determined Aboriginal people with traditional links to the land can gain access to and be involved in the management and use of the land and water through Indigenous Land Use Agreements (ILUAs), or Pastoral Land Use Agreements (PLUAs, where they pertain to pastoral properties). ILUAs and PLUAs are flexible but binding agreements, the terms of which are made with the land owner (McClelland Rural Services, 2014; National Native Title Tribunal, 2014). Notwithstanding the formal land use arrangements, Aboriginal people, unlike in Western society, view themselves as an integral part of the natural environment; that is, they are 'at one' with 'country' in both their daily and sacred life (Anderson, 1996). This non-human centred view of the cosmos brings with it a strong land ethic (Rose, 1988, p. 379). Aboriginal lore and 'dreamings', songs, dance and narrative ensure that traditional knowledge is passed on to future generations and direct the people in looking after country (Memmott *et al.*, 2013). Thus, for Indigenous people 'forced' migration from country brings with it particular feelings of loss (Albrecht *et al.*, 2007; McNamara and Westoby, 2011).

Actual Environmental Changes Associated With Climate Change

Climate change is no longer in the realm of the predicted, rather actual changes in long-term average temperatures and rainfall have been documented globally. The average temperature of the earth warmed by 0.74°C between 1906 and 2005 (uncertainty range 0.56 to 0.92), since 1950 the number of heat waves has increased (Solomon *et al.*, 2007), and

mean sea level (global average) has risen by 210 mm since 1880 (CSIRO and BoM, 2012).

Although the global average surface temperature has increased the warming has varied with location (Solomon *et al.*, 2007). In Australia, the average temperature (daily mean) has warmed by 0.9°C since 1910, and mostly since 1950. The annual average maximum and minimum temperatures increased during this period by 0.75°C and more than 1.1°C respectively (CSIRO and BoM, 2012). Specific regional changes are well documented, for example, the average temperature of South Australia has warmed by 0.76°C since 1910 (CSIRO and BoM, 2012). In NWQ average annual temperature has increased by 0.4°C in the last decade alone (Queensland Government, 2012). While the long-term decline in mean winter rainfall in southwest Western Australia has been attributed to climate change, in NWQ the 2 per cent decline in mean annual rainfall over the past thirty years is said to fall within natural variability (over 110 years) (Queensland Government, 2012). Elsewhere the changing patterns of seasonal rainfall, apparent over the past few decades, have been attributed to circulation changes in oceans and the atmosphere (CSIRO and BoM, 2012). The cause of the changes in circulation may be linked to climate change, but are under further investigation.

Climate Change Predictions

Further to the changes in climate that have taken place in the last few decades, more extreme changes in climate are predicted. While warming will occur across the globe, regions such as NWQ will be particularly vulnerable as warming over land areas will be greater than over the oceans, interior landmasses will be subject to greater warming than coastal areas, and generally there will be a drying of subtropical regions. Specific changes will, however, vary with location due to different locally-driven feedback processes (Cleugh *et al.*, 2011; Christensen *et al.*, 2007).

Climate projections for NWQ indicate unprecedented increases in temperature (compared to the past 50 years), and an increased risk of severe drought. The average temperature (daily mean) is projected to rise by 1.1°C by the year 2030 and 4.9°C by 2070, with the number of days in excess of 35°C increasing 1.5 times by 2070. For example, for places like Camooweal and Richmond in NWQ the number of days in excess of 35°C is likely to increase from the current average of 156 and 144 days per year to around 229 and 224 days per year respectively. Predicting future rainfall is more problematic, nonetheless, 'best estimates' indicate

that rainfall in NWQ is likely to decline. The higher temperatures, decline in rainfall, and increased annual potential evaporation (6–14 per cent by 2070) will impact the soil moisture budget with concomitant adverse effects on vegetation and dust in the region and hence on the stocking rates and viability of pastoral properties in NWQ (Queensland Government, 2012). These are likely to have significant impacts on the health and wellbeing of inhabitants of this region, and other arid regions in Australia.

2. THE STUDY OBJECTIVE

Given the climate changes that have taken place, and the predictions for arid regions, this study aimed to identify the impact of adverse climatic conditions on the wellbeing of individuals reliant on pastoralism or pastoralism-associated industries for their income. The arid region of North West Queensland (NWQ) was used as a case study, though the findings may well apply to other arid regions of the world.

According to the World Health Organisation (WHO, 1946 as cited in Barwais, 2011), health is the condition of complete physical, mental and social wellbeing. Wellbeing is a term that is broadly used—clinical definitions include ‘the absence of negative conditions’ (Barwais, 2011), or ‘low levels of negative moods’ (Deiner, 2009, as cited in Barwais, 2011). However, wellbeing is more than just the absence of illness (McAllister, 2005 as cited in Barwais, 2011), but a “prevalence of positive attributes” (Barwais, 2011), “the state of being comfortable, healthy or happy” (The Oxford Dictionary, 2013). Wellbeing thus refers not only to ones ‘psychological state’ but also to physical health and quality of life. The term ‘wellbeing’ as used in this paper will draw on these definitions. The inclusion of measures of wellbeing in mental health studies is not unprecedented. For example Fraser *et al.* (2005, p. 161), building on the work of Judd *et al.* (2002), examined wellbeing and ‘satisfaction with life’ in their study of the impact of restructuring in four rural towns in Australia.

3. THE STUDY AREA

In 2007, the population of NWQ was 28 335. The majority (over 88 per cent) of the population resides in the Mount Isa region where around 28 per cent of those in the labour force work in mining (Table 3), the predominant activity (Queensland Government, 2012). Across Australia

less than 2 per cent of the mining workforce is Indigenous. The city of Mount Isa (population: 21 806) is a major service centre for the region. In neighbouring Cloncurry Shire (population: 3 425) the majority (99 per cent) of residents rely on pastoralism (cattle) as their primary activity (ABS, 2013a), although of those formally listed as 'in the labour force' in the 2011 census around 11 per cent specify their employment sector as 'sheep/cattle/grain farming' (Table 3; ABS, 2013b). Agricultural and other land uses in the region are limited by the natural environment capabilities (rugged, hilly, Spinifex terrain and Mitchell Grass Downs) and arid climate. There is some tourism (outback experiences) in the region (Queensland Government, 2012).

NWQ has a semi-arid (in the east) to arid climate (in the mid- and west region) with hot summers and mild, dry winters. Typically, rainfall is highly seasonal with around 290 mm falling during summer (October–March) as heavy thunderstorms or rain penetrations from decayed cyclones, and a further 105 mm falling in autumn. However, as outlined previously, increasing shifts in seasonal rainfall patterns have been experienced in the past few decades resulting in irregular rainfall with a moderate to high natural variability (Queensland Government, 2012). The long-term mean maximum temperature ranges from 38.1°C in the far west of the region (Camooweal) to 31.6°C in the far east (based on 104 and 92 years of data respectively). The long-term mean annual rainfall ranges from 400.4 mm in west NWQ to 492.4 mm in the east (based on 104 and 117 years of data respectively). Cloncurry, which is located approximately mid-way between the west and east extremities of the region, has a mean maximum temperatures of 32.2°C and mean annual rainfall of 480.8 mm (based on 55 and 125 years of data respectively); the NWQ region thus shows a warming and drying trend westwards (BoM, 2013).

Given the topic of this paper it should be noted that in 2013, the time of the study, the annual rainfall fell within the lowest 5th percentile in the study area. For example, the rainfall in Cloncurry and Hughenden was 165.8 mm and 129.6 mm, compared to means of 524.2 mm and 492.2 mm respectively (since records began in 1884), and in Camooweal was 165.0 mm compared to the long-term mean of 400.4 mm (since records began in 1892). In addition, the long-term mean maximum temperatures in these areas (32.2°C, 31.6°C and 32.9°C respectively) have been matched or exceeded in seven or more of the past 10 years (BoM, 2013).

4. METHODOLOGY

Quantitative Data Collection

Data were obtained in two ways, firstly through an 8-page postal questionnaire that was sent to all non-restricted (to Australia post only) letter boxes within the Shires of Cloncurry and Mount Isa City. While the questionnaire was open to all cultural groups only 96 non-Aboriginal people chose to complete it. Anonymous responses were returned to the researchers in the reply-paid envelopes provided. There was no incentive to complete the questionnaire. Secondly, to garner the perceptions of Aboriginal people three semi-structured focus groups were held in which a total of 14 Aboriginal people participated. The focus group participants voluntarily attended in response to notices posted at the venue (inviting Aboriginal people to participate); a \$30 grocery store voucher was offered as an incentive to attend. Ethics approval to conduct the research was granted by the James Cook University Human Research Ethics Committee.

The questionnaire comprised questions derived from common themes in the literature and previously used instruments, including: Holt (2003); Kagawa (2007); Kaplowitz and Levine (2005); Lidgren *et al.* (2006); Marcell *et al.*, (2004); Michalos *et al.* (2011); and Shephard *et al.* (2009). Pre-testing of the questionnaire was initially done in a separate study focussed on students, then refined with academics familiar with the topic area, and tested with a group of professionals in a coastal town in north Queensland.

The questionnaire comprised a mix of single answer demographic questions, open-ended questions and closed responses on a 6-point Likert scale (from strongly agree to strongly disagree and an option of 'not interested'). The questionnaire included: 12 questions on perceived threats to the community and 12 on the community's ability to respond to the threats (very well to very badly or 'don't know'); 7 on the level of satisfaction with community services (education, health, banking, postal, retail, government agency); 14 on community leadership and organisational approach and ability (e.g. 'Our community leaders have successfully led us through past challenges', 'our community has plans in place to deal with threats'); 29 questions were aimed at identifying the respondents' environmental beliefs and behaviours; 12 on the towns industries, perceived growth or decline and threats and strengths to the community's future; 12 on formal and informal memberships of clubs or

organisations within the community; 55 questions on relationships, sources of support and interactions between groups; 9 questions on respondents' familiarity with environmental terminology and a further 9 which asked respondents whether they sought further information on each of the terms; 4 on future sustainability; 15 on sources of information and their trustworthiness (a further 15 questions); and 9 personal demographic questions.

5. RESULTS

The results fall into three sections. Qualitative data on the health concerns of Aboriginal residents as a result of the climate-related decline in the pastoralism sector are presented first. Findings are drawn from the dominant themes arising from the interviews with 14 male and female Aboriginal residents in the region. The second section outlines the level of participation in, and role of, social support networks and activities in the rural communities. This section draws on both non-Indigenous questionnaire data and data from the focus groups. Although the questionnaire was open to all residents of the Shires regardless of their cultural background, questionnaire responses were only received from 96 persons identifying themselves as non-Indigenous. Thirdly, and briefly, respondents' perceptions on the state of growth of the communities is mentioned. The findings feed into a discussion section that follows the results. When quotes from the focus groups are provided in the results section, the exact terminology used by the Aboriginal participants is given. Hence the words 'country' or 'bush' (to refer to the environment) and 'bush people' (to refer to where they live) are used.

Mental Health Issues Associated with Climate-Related Impacts

The Aboriginal people who had grown up on country, expressed a strong desire to remain on country, but lamented the limited employment opportunities in rural areas. Given their interests and connection to 'country', Aboriginal males in particular commonly seek out opportunities in the environmental management, pastoralism and stock sectors, as rangers, stockmen or assistants.

The drought and poor grazing during the drought was forcing farmers to destock. As a result of the destocking many of the positions linked to the pastoralism and stock sectors were no longer required. Many participants expressed an interest in staying on country in other forms of employment associated with pastoralism such as maintenance of

machinery, or maintenance of stock routes and tanks, but were unable to because pastoralists were cutting back on the general support positions during times of drought. There were reports that even when paid positions ceased, some redundant workers 'worked for nothing, just because they loved the work out there', or due to a reluctance to move away from country, or a lack of alternative options. Reluctantly, many without jobs moved to Mount Isa in search of work and shelter:

"The stock have no grass, so they move the stock out, so Aboriginal people have to leave because there are no jobs, they move to town".

Once in Mount Isa, without employment many migrants succumb to despair and drinking, with concomitant social problems. The boredom, frustration and inability to earn 'leads to domestic violence', and 'they turn to drink'. In this context, the high rate of suicide in Mount Isa was mentioned. Cillikens (2013, p.1) states that 'Mount Isa reportedly has one of the highest rates of suicide in the country'.

Most of the participants in the study mentioned that the key problem in such circumstances was that without alternative skills the Aboriginal workers were left without alternative opportunities for income. While many had good practical skills, because they lacked adequate levels of literacy they were unable to gain formal qualifications leading to their continued unemployment:

"Need that piece of paper to say you're qualified otherwise can't get a job, no-one will employ you".

"___is a great mechanic but doesn't have the certificate so can't get a job".

"Need to be up-skilled but they have low levels of literacy".

"Need to be able to do a job application... many don't know how to do that".

"Jobfuture, that was for Aboriginal people but they closed that down, why did they do that?"

Participants expressed a need for funding to help Aboriginal people to gain 'skills for a lifetime' (i.e. to up-skill during periods of downturn in

pastoralism). Similarly, while there was a need for more rangers to help care for the vast areas of land in NWQ and ranger training programmes were available, the funds needed to implement such programmes were lacking.

The words used to describe the redundant migrants to Mount Isa are in sharp contrast to those which capture an essence of social wellbeing while working ‘out bush’:

“They’ve got nothing to do”.

“Give them a purpose, give them a chance”.

Versus:

“If you want fun in the bush you make your own fun, that’s the way bush people are”.

The Role of Social Support Networks and Activities in NWQ

The questionnaire asked respondents to list ‘the two best things’ and ‘the two worst things’ about their community (Table 4). Of Mount Isa, 64 per cent of respondents listed people-related aspects such as the friendliness within the community, ‘great community spirit’, caring nature and connectedness of local residents as the best things about living in the town:

“We are a close knit community, as we try and help each other”.

“I have felt safe and supported here for 40+ years”.

“Welcoming of newcomers”.

“Everyone knows each other and feel more connected”.

Negative people-related factors such as the level of crime, alcohol and drug abuse, and the influx of homeless and unemployed Aboriginal people were listed by 14 per cent of respondents. In addition, some mentioned elements of divide in the community:

“[there is a] huge distinction between the have and have not[s]”.

Table 4. The Best and Worst Aspects of Living in the Towns of Mount Isa and Cloncurry (n=96).

Shire	Aspects of living in the community (n=96)		
	The best are:	The best and worst:	The worst are:
	People-related	Non people-related	People-related
Mount Isa	64%	22%	14%
Cloncurry	50%	25%	25%
Examples	Community spirit; Easy to make friends; People are genuine and friendly; Attitude of helping each other; Commitment to local charities	Best: Lifestyle; Proximity to work; High income; No overcrowding; Slow pace of life. Worst: Geographical isolation; Cost of living; Extreme heat; Lack of facilities (shops); Job security; Town too small to be considered for better services	Domestic break-ins; Aboriginal homelessness; People are not worried about the environment; Low education levels; Nothing been done to combat youth crime

Source: the Authors

Of these 14 per cent, 4 per cent of respondents mentioned people-related aspects as both the best and worst things about the community, that is, they listed the friendliness and good community spirit as the best things about the community but also listed concern over domestic break-ins or Aboriginal homelessness as negative aspects. The latter comments derived from the postal surveys reiterate the comments made in the Aboriginal focus groups, and highlight the plight of the Aboriginal climate change 'refugees'. Less than a quarter of responses (22 per cent) listed non-people-related aspects as the best (lifestyle, proximity to work, high income) and the worst (remoteness, cost of living, and climate) things about the community.

Similarly, the majority (50 per cent) of respondents in Cloncurry believed that the best aspects to living in the community were people-related (friendly, sense of community). The remainder of the respondents (25 per cent respectively) listed non people related aspects as both the best and worst things about the community, and negative people-related aspects (crime, bored youth).

The questionnaire asked respondents to list the number of formal and informal community groups that they belonged to and state the level of support in the groups. In Cloncurry, 57 per cent of respondents belonged to between 1 and 10 groups (median: 3), while 43 per cent did not answer the question (which may imply zero memberships). Group participation

was evenly spread across formal and informal groups, with the most common ones dealing with community support (charities, Rotary, Country Women's Association) and social issues; memberships of community administration groups, sport and recreational groups, and volunteering were also common. There was minimal involvement in climate and environment focussed groups compared with social and sporting groups, however, this may be a function of the limited options available. Respondents were almost unanimous in their opinion on the 'excellent' and 'very good' levels of trust, bond, support, cooperation, mutual help and acceptance of differing views and opinions that the community groups provided.

The open-ended responses about the social support groups and activities highlighted the importance of supporting local charities and reiterated the sentiments about community spirit:

"You know you are helping to make a better world [and] meet people".

"Charities and Aboriginal support groups as this is what will help maintain community spirit".

The need to support *local* charities was also highlighted in juxtaposition to strong sentiments on government neglect of remote Queensland communities:

"Without our commitment to local charities we will get nowhere".

"We are the forgotten places. The money goes to floods and SE QLD not small communities".

"We need more help in the northwest state of Queensland. As we live elsewhere and all governments do not know where that is. We are forgotten in our area".

"I once collected money for PCYC after being told all the money raised would come back to us. Big deal, the telemarketer got 50 per cent, the rest went to Brisbane. We got nothing. \$14 000 would have been good for our town and our children" (their emphasis).

The results from the Aboriginal focus groups also highlight the social and behavioural value of social support networks and activities.

Aboriginal people reported on the value of the former Community Development Employment Program (CDEP):

“That gave Aboriginal people something to do ... people who were drinking. They started looking good. They started to get out and enjoy it ‘coz we’d laugh and have fun, ... it doesn’t matter if they were white or black we’d do their yards, whoever was... too old to do it, and you see their face they thank you!”

At the time of the study the welfare-oriented CDEP was in a phase of transition to the more vocation-focused Remote Jobs and Communities Program (RJCP). Mount Isa mines has also invested in training programs, and is one of the largest private apprenticeship providers in Queensland. While the mining company offers apprenticeships across of a range of trades regardless of the incumbents’ cultural background, the literacy skills required to enter such programs appear to be lacking in the majority of local Indigenous job seekers; the RJCP seeks to address this gap. A Government-funded ranger mentoring program for younger Aboriginal people not only provided valuable training for youth but was also valuable in enabling them to remain on country:

“Lots stayed out there and worked”.

“[I’ve] seen how many bush people have stuck to the job”.

“They need to be given the opportunity”.

“Most everyone here is bush people... they have different values [to town people]”.

“Rangers is a good life”

“Looking after country”.

“We need rangers that’s (sic) protecting the land”.

“You need role models for the younger people to show them I’ve worked in this business, my grandfather did it before me, then I do it”.

Minimal funding directed at enabling Aboriginal people to remain on country would service two goals: caring for country, and ‘give them a

purpose'. The costs associated with funding mentoring programs is likely to be minimal compared to the costs associated with the potential social issues arising when disenchanted unemployed people migrate to regional towns.

Respondents' Perceptions on the State of Growth in the Communities

The majority of respondents perceived the community in which they live to be in a phase of growth (Table 5). These perceptions correspond with the ABS population data (ABS, 2013b, 2013c). Although the population of Mount Isa fell between 2001 and 2007, since 2007 (to 2012) it has risen by 9.3 per cent (or 1 917 persons). Similarly the population of Cloncurry Shire declined between 2001 and 2006, but has since risen by 5.4 per cent (175 persons). These perceptions bode well for the majority of residents in the communities, as Fraser *et al.* (2005, p. 168), who investigated the mental health of residents of four rural towns in Australia, states: 'living in declining areas might lead to some vulnerability in terms of mental health and reduced wellbeing' (where the phase of growth or decline was defined by the population trend).

Table 5. Respondents' Perceptions on the State of Growth in the Communities of Mount Isa and Cloncurry.

Shire	Respondents' perceptions on the state of their community			
	Growing	Declining	Static	No answer
Mount Isa	36%	24%	31%	9%
Cloncurry	53%	16%	16%	15%

Source: the Authors.

6. DISCUSSION

Health issues arising as a result of the loss of employment and job insecurity are documented by Wilson and Walker (1993) and Bartley *et al.* (2009). Regardless of the sector, those who lack transferable skills and have little hope of finding alternative employment following redundancy are vulnerable to mental ill-health. High levels of anxiety in redundant workers and mental health issues in their families have also been reported following closures in the automotive industry in South Australia (Beer and Evans, 2010). A few years after the automotive industry redundancies employment insecurity was rife with over 70 per cent of the

former employees earning less than when in their previous positions, over 20 per cent only able to obtain part-time or casual employment (after previously being employed full-time), and over 30 per cent had withdrawn from the labour force. Beer and Evans (2010, p. 100) comment:

“... Labour Adjustment Package funding should have been redirected to further training or re-skilling opportunities for redundant workers. Lack of training and re-skilling of redundant workers also partly explains why so many former Mitsubishi workers have only been able to find newer employment in lower-paid positions with less security of employment, as evidenced by those who could only obtain casual work”.

The work downturn in the pastoralism sector, albeit temporary during prolonged drought periods, leads to migration to neighbouring towns and service centres in search of alternative sources of shelter and income. For Aboriginal people the ability to retrain is further hampered by their poor educational backgrounds and low levels of literacy and numeracy. Further, according to McMichael *et al.* (2012) forced climate-related migration poses enhanced health risks in vulnerable groups. In a rural-urban comparison of mental health status, Judd *et al.* (2002) identified factors other than location alone as influencing mental health, these include (among others): poverty, unemployment, lower socio-economic class, poor social networks and low perceived social support. In our study, the former three factors were prevalent among the redundant Aboriginal workers, however, social support networks and activities offered by the communities into which they have migrated may in part offer a solution to some of the above-mentioned social and wellbeing issues. Social support groups and activities were seen as a strength ('we help each other out') and attraction to living in the two communities (Table 4). Likewise, Misan and Ashfield (2011) highlight the value of social support groups:

“Social capital—made up of community participation and social cohesion is especially important for poorly connected people and for people with intransigent problems” (Berry *et al.*, 2008, p. 3).

The higher levels of cohesion, trust and help between residents in rural communities as a result of higher levels of social connectedness and

cohesion, and a greater involvement in civic activities are associated with better mental health (Ziersch *et al.*, 2009, p. 7). In our study, while redundant migrant pastoral workers may initially seem unlikely to participate in social activities, appropriate engagement in community networks and activities ('give them a purpose') could enhance their wellbeing and feelings of connectedness to the community while removed from country, or at least mitigate some of the social problems outlined by the respondents. Likewise, Malecki (2004, as cited in Becker *et al.*, 2013) highlight factors outside of employment, such as social and relational capital that assist in creating a community lifestyle that is likely to attract or retain people in regional areas. With reference to building resilience to the impacts of climate-induced distress in rural communities Caldwell and Boyd (2009), and Berry *et al.*, (2008) echo this point. Recovery from mental illness is a long-term process, though unfortunately in some parts of Australia additional mental health resources provided during periods of drought (Commonwealth of Australia, 2008; DoHA, 2008) have been withdrawn prematurely.

A favourable lifestyle and adequate social capital without adequate services will do little to facilitate regional rejuvenation. Similarly, while there are a multitude of government and non-government organisations (dependant on both government and non-government funding) providing allied and mental health or wellbeing support to Aboriginal (and non-Aboriginal) residents in NWQ, many in need of help do not utilise the services due to the stigma associated with mental illness, a stoical stance (Berry *et al.*, 2011), an inability to recognise the extent of their health needs (Caldwell *et al.*, 2004), a fear of showing their vulnerability (Tudiver and Talbot, as cited in Caldwell *et al.*, 2004), or time constraints (Alston, 2006; Birchip Cropping Group, 2008).

Despite being well serviced Hanna and Spickett (2011), and a recent comprehensive mental health review of the region (CNWQML, 2013) suggest ways in which improved and sustainable mental health outcomes might be achieved. These include improved collaboration across health and non-health services; strategically focused resourcing by government, non-government and corporate funders of the sector; and a need to address the stigma associated with mental ill-health. To this end two new initiatives funded by the local mining company in 2013 but run by North West Hospital and Queensland Health Services (Cillikens, 2013), as well as other Aboriginal awareness programs are specifically aimed at reducing the stigma associated with personal and mental health issues so that the services that are available are more effectively utilised. Other practical initiatives could also mitigate the mental ill-health risk in those

who are unemployed and displaced from country. These include the Homelessness Community Action Plan which provides an integrated step-wise plan to address homelessness.

7. CONCLUSIONS AND IMPLICATIONS

Fraser *et al.* (2005, p. 158) state that “Negative and positive population growth in rural Australia is essentially a symptom of more widespread political, economic and social change”. Our study has provided an example of how an element of regional economic change (due to a downturn in the pastoralism sector) can be adversely affected by prolonged drought (albeit climate change).

Australian Government policy has moved away from a welfare approach to drought relief towards seeing ‘dryness’ (regardless of the cause) as the norm, while still recognising the particular vulnerability of the agricultural sector (Commonwealth of Australia, 2008). The policy states that farmers need to plan for and heed climate predictions to avoid crop and stock losses:

“There is a role for governments in helping farm families, rural businesses and communities to realistically expect seasonal variation and therefore plan for the intense risks ... that are associated with, and flow on from, primary production” (Commonwealth of Australia, 2008, p. vi).

While the social and mental issues may in time reverse with re-employment when conditions within the pastoralism sector improve, the longer the duration between bouts of temporary recovery in the pastoralism sector the more difficult it will be for those experiencing mental health issues to return to employment (c.f. Wilson and Walker, 1993). Further, according to climate change predictions the frequency, duration, severity of drought and increased temperatures in the future will be ‘unprecedented’. The social and health issues are thus likely to become more permanent with the concomitant depopulation of rural communities.

At a time when deep cuts in government spending extend across all sectors it makes little sense to recommend improved government services in small, remote communities. In fact, the paucity of services in rural areas was identified as a factor facilitating community cooperation and involvement in voluntary activities (Hofferth and Iceland, 1998 and Liu

and Besser, 2003 both as cited in Ziersch *et al.*, 2009). While community-driven social support activities in regional areas are mainly funded by government and often subject to budget cutbacks, nonetheless, ongoing government support (monetary and other), albeit minimal, has the potential to provide far-reaching social benefits in climate-impacted communities. Horton *et al.* (2010, p. 5) concur:

“Strengthening community social networks and well-functioning social capital is likely to be effective in mitigating the strain imposed by the changes induced by protracted drought and environmental adversity”.

Notwithstanding these benefits, McMichael *et al.* (2012) warn of the limits to community resilience when, given the climate predictions, climate-forced migrations are set to rise. The key to building resilience in climate-affected communities is a complex task that is well documented by King *et al.* (2009), and thus not repeated here. Their findings are relevant for Aboriginal and non-Aboriginal mental health and wellbeing throughout rural and regional areas of Australia where incomes are affected by climate change, regardless of whether it is caused by drought or floods. For regional communities to retain residents, rejuvenate or merely adapt to adverse climate-induced circumstances will require the protection of both livelihood and mental wellbeing. Diversification of income and the ability to apply skills and experiences gained through farming to other areas of employment are key elements to building resilience.

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