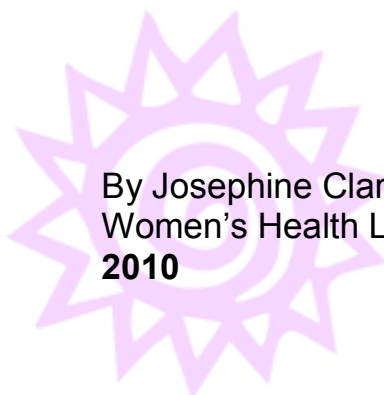




The Health Impacts of Climate Change and Drought on Women in the Loddon Mallee region

A literature review with recommendations



By Josephine Clarke
Women's Health Loddon Mallee
2010



Women's Health Loddon Mallee

www.whlm.org.au

47 Myers St, Bendigo, 3550

34 Oke St, Ouyen, 3490

1800 350 233

Publication 2

**Determinants of Health of Women in the Loddon Mallee
Region Series**

Table of contents

Summary.....	4
Introduction	5
Scope of inquiry	5
About Women’s Health Loddon Mallee	5
Climate change and drought—the debate	6
How this review will be used.....	7
Methodology	7
Background information.....	8
Climate change predictions for the Loddon Mallee region	9
Health impacts of climate change and drought.....	10
Climate change, drought and gender	11
The Loddon Mallee region.....	17
Summary of recommendations	19
References.....	21

A focus on the social determinants of health has to be seen in a global context because so many of the determinants themselves are affected by global trends.¹



Summary

This literature review focuses on the health impacts of climate change and drought on women in order to understand how environmental changes are affecting women's lives.

The physical environment has long been acknowledged as a determinant of health. In recent years climate change has also been recognised as having increasing significance on people's health. Priority recommendations from the 10th National Rural Health Conference state

...that climate change be recognised as a core issue for health, and that its impact on health policy, planning and service delivery be considered in all health priorities and initiatives.

This should include

...proactive mitigation strategies; enhanced environmental literacy
...incentives for renewable energy generation and energy conservation (an economic opportunity for rural and remote Australia).²

The experience of drought in the Loddon Mallee region is diverse and complex. The Loddon Mallee region is geographically, socially and economically diverse. Many local economies have experienced reduced income due to the drought and changing physical environment. The Loddon Mallee region is expected to experience reduced rainfall and increase temperatures due to climate change.

With changes in the physical environment come stresses, resilience, adaptation, innovation and opportunity. By undertaking a gendered analysis of the health impacts of drought and climate change, Women's Health Loddon Mallee (WHLM) is 'alerted' to the increased risks and vulnerabilities women in the region may experience. Using a social determinants of health model, WHLM is able to identify that in addition to the public health risks of climate change, women may be further disadvantaged by economic restructuring, potentially the increased incidence of natural disaster, and the social and economic costs of climate change adaptation and mitigation requirements.

This overview of the gendered impacts of drought and climate change identifies a number of health issues for women including alerts to potential health issues. Eleven recommendations are offered for WHLM to consider in response to the literature review, including program development, targeted community consultation, research, and advocacy work that addresses policy development in response to climate change.

Introduction

Scope of inquiry

The following questions were developed to guide a literature review into the health impacts of climate change and drought on women in the Loddon Mallee region:

1. What is the gendered impact of climate change?
2. What do we know about women's experience of drought and climate change in the Loddon Mallee region?
3. What do we know about the changing role of women in this context?
4. What do we know about the health impacts for women of climate change in the LM region?
5. What are women in the LM thinking about climate change including priority health issues?
6. What are women doing to respond to the social, economic and environmental impacts of climate change?
7. How do women want to be supported in meeting the challenge of our changing physical environment and how can Women's Health Loddon Mallee (WHLM) best support women in the region?

These questions are interrelated. As the physical environment is a determinant of health, these questions assume the importance of the impact of our changing environment on women's health.

This literature review attempts to answer these questions to assist with guiding work priorities at Women's Health Loddon Mallee, as well as identify gaps in information to assist its strategic planning regarding community consultation.

About Women's Health Loddon Mallee

WHLM provides some direct services to women. These include counselling (primarily for women experiencing the effects of violence), and group programs (self esteem, anxiety and depression, puberty and personal safety for young women). WHLM has a library, develops relevant information resources, publishes a newsletter and can assist women to find information or support groups.

WHLM's main role is to address the social determinants of health with a focus on prevention. WHLM has three priority areas which are:

- Sexual and reproductive health
- Prevention of violence against women
- Mental health and social connectedness including women and climate change.

WHLM targets working with women who have the greatest difficulty getting good health care and whose lives are most challenging or for whom health

interventions make the most significant difference. These include young, older, remote, new refugee, Aboriginal women and women from low socio-economic backgrounds.

WHLM works in partnership with others for example, local government, community houses, health services and Primary Care Partnerships (PCPs). Our work with partners is significant as it relies on the capacity and reach of others to achieve an impact across the region.

This work can be broadly described as **health promotion** and includes social marketing (health messages), community development (creating supportive environments), policy development, advocacy, development of new service models and research.

As part of its Research Plan, WHLM annually selects a determinant of health to research. The determinants of health³ include:

- Economic participation
- Social supports
- Physical environment
- Food security
- Housing
- Transport
- Education
- Access to medical care

The determinants of health are integral to a social model of health that recognises ‘the context of health’.⁴ Individual physical ailments and disease are indicators of ill-health and need to be understood in the broader context of public policy, organisations and institutions:

The ways in which the social determinants affect the health of individuals is obviously complex – the “causes of the causes” requires looking upstream to social and economic structures that shape our chances of health and illness.⁵

Research at WHLM aims to understand the gendered nature of the social determinants of health with a view to gathering information that assists its health promotion activities that will improve the social and health status of women.

Climate change and drought—the debate

From the outset this report acknowledges the complexities—and sometimes tensions—in using the terms ‘drought’ and ‘climate change’. *Drought* refers to ‘acute water shortage’.⁶ *Climate change* ‘is the result of changes in our weather patterns because of an increase in the Earth’s average temperature’.⁷ While drought and climate change are two issues that intersect, Women’s Health Loddon Mallee acknowledges that there are diverse opinions about the scientific details of climate change, and that many people refute the existence of climate change as a consequence of human impact on the environment.

WHLM accepts that climate change is occurring, however, it also accepts there is ongoing debate on the issue, and extent, of climate change. This means WHLM has prioritised a consideration of the impacts of climate change as well as drought, as part of its research into the physical environment as a determinant of health, however, there is a diversity of opinion and experience informing how women in the region relate to the current state of the physical environment.

It is in the context of a changing environment where people are making critical decisions and managing adaptation that WHLM endeavours to use its research to provide information and prompt conversations about the social and health status of women in the Loddon Mallee region. Importantly, WHLM invites responses to its research findings.

How this review will be used

The literature review will assist WHLM with the following:

- Contribute to the organisation's 'evidence base' about the gendered health impacts of our changing physical environment
- Identify gaps in data and information regarding the health impacts of climate change and drought on women
- Assist with organisation planning for an effective community consultation strategy that will assist with further collation of relevant information
- Identify areas for action following the report's recommendations
- Assist WHLM with its strategic planning.

Methodology

This literature review has obtained information through:

- Journal database searches
- Web-based information searches

Background information

The Loddon Mallee region in North West Victoria is diverse. The region covers a large geographical area of 58,965 square kms and extends from Central Victoria to the South Australian and New South Wales borders. It includes ten Local Government Areas and has a total female population of 149,259.⁸

The Loddon Mallee region has substantial and diverse agricultural economies that include horticulture, viticulture, grain cropping, dairy, and sheep farming. The region includes substantial dry land and irrigation farming. It also supports tourism and other service industries.

Since the 1990s the region has experienced drought. All areas in the Loddon Mallee region have been declared in drought for the purpose of farmers being eligible for Exceptional Circumstances and other drought assistance supports. Drought has combined with changes in agricultural terms of trade⁹ at times resulting in reduced crop production and income for farmers.¹⁰ Moreover, in recent years there has been a decrease in irrigation allocations and the development of water trading.

Neil Barr describes how 'production landscapes' that include the Mallee have managed changing agricultural terms of trade by farms needing 'to get big or get out'. Aggregation of farms has resulted in population decline that impact upon the 'social landscape': 'The farm landscape will be increasingly inhabited by males.'¹¹ Further, it is predicted crop farmers will be an ageing population.¹²

Demographic information confirms the Mallee region has overall experienced out-migration, and some Local Government Areas are experiencing decreased population growth.¹³ It is predicted the Loddon region will experience growth concentrated in select Central Victorian Local Government Areas, especially the regional centre of Bendigo.¹⁴ Central Victoria has been described as a 'transitional landscape' with changing land use as farming declines with the increase in population (including from Melbourne) and demand for residential land.¹⁵

Changes in land use, micro and macroeconomic conditions, agricultural commodities, and Loddon Mallee demographics are also informed by both State and Federal regional policy developments and various income/ industry supports. For example, 'drought' has often been viewed as 'a crisis' however, recent policy review promotes a revision of Exceptional Circumstances drought supports that 'move people towards an acceptance that future dryness will occur'.¹⁶ This is just one example of the impact of the changing physical environment.

Climate change predictions for the Loddon Mallee region

'Climate change' refers to the changes occurring in the environment and weather due to the warming impact of rising levels of greenhouse gasses in the atmosphere.

It is estimated that greenhouse gas emissions, including those caused by human activity, will result in a temperature increase of 0.9°C by 2030 in the Mallee and North Central regions. Beyond this date, temperature predictions vary depending on the extent of greenhouse gas emission reductions.

Average annual temperatures were 0.4°C warmer in the Mallee region over the period 1998-2007 compared to a previous 30 year average. The North Central region experienced a 0.3°C warming for the same period.¹⁷

Rainfall has declined over the past decade. According to Victorian Government data, during 1998-2007 average annual rainfall in the Mallee region was 13% below a previous 30 year average (1961-1990). The North Central region experienced a 15% reduction in average annual rainfall for the same period.¹⁸

Climate change estimates, assuming a lower emissions growth scenario, are that by 2070 the average temperature in the Mallee and North Central regions will increase by 1.4°C and that average rainfall will be reduced by 6%. Under a higher emissions growth scenario by 2070 the average temperature in both regions will increase by 2.8°C and average rainfall will be reduced by 11%.¹⁹

As well as climate change predictions that it will get hotter and drier due to less rainfall and increased evaporation resulting in reduced river flows and water storages, these factors will impact upon water availability for agricultural production, an important consideration in the Loddon Mallee region which has irrigation agriculture. It is also predicted there will be changes in seasonal rainfall patterns, fewer frosts and an increase in the number of hot days. There will be an increased risk in the incidence of extreme weather events including bushfires.²⁰

Demand for water may increase due to increased temperatures and population growth projections in the North Central region. At the same time river inflows may decrease which will impact upon water quality, water catchment supplies, and water available for agriculture.

Health impacts of climate change and drought

Climate change has major repercussions for the social determinants of health – people’s daily living conditions and their access to money, power and resources are strongly influenced by political, economic, environmental, cultural and social factors.²¹

This is a critical link between *who* incurs the burden of disease as a consequence of climate change—people already experiencing social and financial disadvantage—the politics of who is responsible for causing climate change through increased production of carbon emissions,²² and who bears the social, economic, and environmental costs of climate change mitigation.

In considering the health impacts of climate change and drought, we need to consider what those impacts will be in the Loddon Mallee region with a specific emphasis on impacts for women’s health. However, WHLM acknowledges there is a wider, global context to the health impacts of a changing environment. Identifying those people in the region who are most vulnerable to the impacts of climate change, and responding to the challenges and opportunities presented by climate change is interrelated with the need to consider regional efforts needed to mitigate the detrimental impacts of climate change. Mitigation efforts are required so that people, in particularly women, currently experiencing disadvantage elsewhere—beyond the Loddon Mallee region—are not further made vulnerable.²³

Recommendation 1: That health services, including WHLM, support local and regional initiatives to mitigate greenhouse gas emissions.

Health impacts of climate change may include²⁴:

- Heat related stress and exhaustion caused by predicted increase in temperatures
- Increase in bushfires and other extreme weather events that may in turn detrimentally affect access to secure food supplies, water and water quality;
- Changes in air quality resulting in respiratory complications
- Increase in vector-borne and infection diseases
- Increased demand for health services.

It has already been documented that the health impacts of drought include:

- mental health impacts including increases in anxiety, stress and depression
- reduced income due to changes in agricultural productivity²⁵
- reduced social capital in various regions due to out-migration and changing demographics e.g. ageing populations.

A consideration of the health impacts of climate change and drought using the social determinants of health model extends public health considerations to include other significant factors that support healthy individuals and thriving

communities such as access to housing, transport, and basic utilities. Climate change predictions include economic adjustments that will require supports for low-income households.²⁶

Climate change, drought and gender

Drought and climate change have already resulted in much adaptation and innovation. In the Loddon Mallee region there is a plethora of drought responses, networks and services as individuals, families, communities and industries develop their capacity to respond to the challenges and opportunities of a changing environment. While this literature review is not able to detail all efforts and innovations in the Loddon Mallee region to date, in brief there have been strategies to manage the impacts of drought as developed by Local Governments (Drought Response Officers), combined service drought social recovery planning and coordination, as well as the rise of new industries e.g. solar and wind, community-based climate change mitigation groups, and individual pledges and actions.

Notwithstanding these efforts, WHLM prioritises a consideration of women's health and this involves a *gendered analysis* of the impacts of climate change and drought. Consequently, there are numerous 'alerts' to the current and possible impacts of climate change and drought on women.

The following is a listing of 'alerts' regarding the gendered health impacts of climate change and drought:

Extreme weather events and natural disaster

Given the climate change predictions for the Loddon Mallee region include the possibility of extreme weather events it is important to consider information that already exists regarding the gendered impacts of these events. Evidence of women's experiences in times of natural disaster include:

- Women are 14 times more likely to die in a natural disaster²⁷
- Increase in violence against women
- Women caring for others and ignoring their own health
- Difficulties accessing key resources e.g. money/ financial benefits, water, safe spaces, food.²⁸

Consequently, risk management and planning processes around extreme weather events need to include women to ensure their needs are considered with respect to decisions made around vital resource allocations, services, supports and infrastructure post-crisis. This also involves considering what is expected of women before, during and after extreme weather events, and undertaking a gendered analysis of the roles women are expected to fulfil. Women can also mobilise community response to manage the effects of a natural disaster.²⁹

Recommendation 2: That a gender analysis training package is developed and offered to those key stakeholders identified as being involved in planning natural disaster responses.

Water security

Water security is a public health issue (as mentioned previously) regarding water quality and distribution. Access to water also may be insecure following an extreme weather event. Even with current weather conditions i.e. outside of an extreme weather event, water access and allocations have and continue to change with economic and social impacts. Further, water allocation policies and pricing are changing³⁰ resulting in increased costs for low-income people.

There is preliminary research that indicates violence against women ‘seems to peak with water announcements [irrigation entitlements]’.³¹ Given that climate change predictions calculate an increase in temperatures resulting in decreased water availability, it is expected this will result in (further) reduction of water allocations to water dependent agricultural industries, stressing those industries.³² Social impacts may include increased vulnerability for women including reduced income and risk of violence.

Recommendation 3: That scoping research to identify potential increases in violence against women in the Loddon Mallee region is undertaken. This will investigate reported and non-reported incidents of violence against women. It will also be an opportunity to establish any links between impacts of drought and climate change and increased vulnerability for women (and children). Recommend commencing with a survey that includes individuals, services, community organisations and other stakeholders involved in drought support services, as well as agricultural support and agronomy services.

Mental health & social connectedness

Recent research shows that with drought there is a higher probability of mental health problems among farmers and those not employed.³³ The ongoing experience of drought is associated with suicide among (male) farmers and farm workers, anxiety, and stress including that caused by family dislocation with women increasingly working off the farm to support the family farm; changing social roles; and changes to the physical environment.³⁴

The drought has detrimentally impacted upon social connectedness and a wider sense of ‘community’ as individuals and families manage their stress. Many women, for example, have increased workloads as a result of the drought, and have less time for community focussed activities. As well as this, small towns with declining populations lose the social capital that comes with social networks.³⁵ As people refine their coping mechanisms in response to ongoing drought there can be a decline in sharing experiences.³⁶ However, some ‘community connection’ is at work in response to the drought with one study reporting ‘a strong sense of rural identity and of ‘getting through’ drought.’³⁷

The frequently referred to notion of ‘resilience’ and the idea of ‘getting through’ drought assumes drought is a temporary occurrence. Yet the experience of climate change in addition to the experience of drought may increase stress and anxiety. People, including children, can experience stress

and anxiety in anticipation of a future natural disaster or in response to the idea of climate change as 'a global environmental threat'.³⁸ People's sense of community and belonging may also be affected by demographic shifts and migration.

Given that the mental health impacts of the drought have already been well documented, and is a significant issue for agricultural communities of which there are many in the Loddon Mallee region, it is reasonable to assume WHLM needs to be alerted to a possible increase in mental health problems due to existing population vulnerabilities. Social connectedness and mental health may be assisted by women gathering and sharing their coping strategies. Research from other parts of Australia has shown women experience stress for many reasons including the increase in their workload (and lack of recognition), financial stress, worry for others wellbeing, for example.³⁹

Recommendation 4: That an 'outreach strategy' is developed that addresses mental health supports and strategies for women. This 'outreach strategy' should enhance social infrastructure, highlight coping strategies and assist women in the regional (non-urban) areas where mental health services are reduced.

Women's increased workloads

Research into the gendered impacts of the drought demonstrates that for many women in families involved in agricultural production, there has been an increase in their workload.⁴⁰ In agricultural industries, many women are working on and off the farm to support the family unit given reduced farm income, as well as also undertaking much of the (unpaid) household and caring work. Women's increased workload compromises women's health⁴¹ compounded by the fact the changes in women's workloads are often not recognised.

Economic participation and security

As a determinant of health, economic participation and financial security assists women's wellbeing. Women in the Loddon Mallee region earn less than men.⁴²

As noted under the heading 'water security' reduced water availability and reduced allocations stress agricultural productivity, for example. In turn this will impact upon other services and industries e.g. manufacturing that support or sit alongside agricultural economies. It has already been predicted that 'Small towns of less than 1000 people which are highly reliant on broadacre farming are most likely to be in decline.'⁴³ There may be reduced work opportunities – significant for women working off-farm to support the family farm. This literature review has revealed that little is documented about the impacts of the drought on the economies of small towns in the Loddon Mallee region, however, reduced income may be an outcome of predicted environmental changes for many rural industries, compounded by income changes that have already occurred.

It is expected expenses will increase as economic adjustments occur with the introduction of a carbon emissions trading scheme, for example. If, as is expected, the introduction of the scheme will particularly impact those people who have low-incomes,⁴⁴ this will affect many women who already earn less than men, and women who are experiencing falling incomes due to the impacts of a changing physical environment.

Education and training

Adapting to drought and climate change involves exploring opportunities. It is important that women have the opportunity to equally participate in the education and training necessary to assist economic and structural adjustments that take place due to drought and climate change.

The Garnaut Climate Change Review was an investigation commissioned by Australian Governments into the impacts of climate change and to develop policy recommendations. Garnaut details options for rural land use: 'Choices for landowners will include production of conventional commodities, soil carbon, bioenergy, second-generation biofuels, wood or carbon plantations, and conservation forests'.⁴⁵ For women to have the opportunity to increase or change their economic participation and income, they need to be included in developing commodities and markets that emerge with a changing physical environment due to climate change and drought.

At a time when many farming families are questioning the viability of their business⁴⁶, it is critical that women have access to information about climate change and alternative economic opportunities. 'Climate change literacy' is an important component to critical decision making and understanding one's options and opportunities. Indeed, the Garnaut Climate Change Review asserts 'Information about climate change and its likely impacts is the first requirement of good adaptation and mitigation policies.'⁴⁷ Clear and accurate information about climate change that explains terms such as 'carbon sequestration' and 'Emissions Trading Scheme' will assist women to understand the impacts of climate change and identify their needs in managing these impacts.

Recommendation 5: That a strategy to develop women's 'climate change literacy' to assist women to make informed decisions is developed in partnership with, for example, environmental advocacy and industry groups.

Recommendation 6: That advocacy is undertaken for women's inclusion in education and training opportunities attached to industry innovations and emerging markets developing in response to climate change.

Recommendation 7: That advocacy is undertaken for equitable access to, and uptake of, capital and other financial incentives necessary for women to increase their economic participation in the region at a time of changing and emerging industries.

Transport

Current and predicted demographics show that the Loddon Mallee population is ageing. Combined with the increased need for greenhouse gas abatement strategies, transport infrastructure will need to be further developed. The ageing population is dominated by women, and accessible, affordable 'green' transport infrastructure will need to address not only decreased and isolated rural populations, but those centres where populations are predicted to increase.

Housing

As rural populations move in response to drought and climate change, housing infrastructure will need to be redeveloped for many of the same reasons as outlined under 'transport'. Further, households need to be supported so that housing infrastructure is sustainable and able to cope with increased temperatures, for example.

Policy

Policy at all level of government informs resource allocation. Conducting this literature review has affirmed the importance of the need for WHLM, and women, to be involved in contributing to policy development and review. This is advocacy work that is greatly assisted by a gender analysis of policy to help identify those people who, in this instance, will be most disadvantaged by ongoing drought and climate change.

Policy making is integral to how rural and regional areas are being resourced to adapt to climate change as well as mitigate greenhouse gases. There needs to be women's inclusion at the 'global' level as these policies directly effect macro and micro social and economic restructuring that is currently taking place. Women need to be included in the Victorian Government's carbon price adjustment policy so their views assist developing relevant and meaningful community capacity building initiatives. Further, many Victorian rural women have articulated that they want 'Accessibility of information and opportunities to participate in debate and decision-making about climate change'⁴⁸

WHLM offers local knowledge that can assist policy development. As this literature review work has shown, a gendered analysis of policy development needs to occur with respect to the following issues:

- Natural disaster response planning
- Water allocation
- Emissions Trading Scheme
- Greenhouse Gas abatement strategies and targets
- Economic renewal
- Housing
- Transport
- Food security (by no means an exhaustive list!).

Recommendation 8: That there is promotion of women's leadership and participation in climate change and related policy development and review.

Recommendation 9: That an 'advocacy skills' program is delivered to assist women to learn more about how governance works and how to get involved.



The Loddon Mallee region

This literature review has been able to survey and draw on existing research to identify some of the health impacts for women of climate change. With the exception of the 'Critical Breaking Point?' social research undertaken by the Birchip Cropping Group, there has been little research undertaken that describes women's experiences of drought and climate change specifically in the Loddon Mallee region.

In trying to understand who is most disadvantaged by drought and climate change, there are a number of gaps in knowledge about the health impacts of environmental changes on women in small rural communities who are outside the family farm scenario, young women, Aboriginal women, women from culturally and linguistically diverse backgrounds, for example.

A valuable source of information about health issues, including emerging issues, is local and anecdotal knowledge. Mapping this knowledge can be assisted by survey and focus group work within a participatory research framework. The difficulty in moving from a broad consideration of the health impacts of drought and climate change on women to developing an appropriate community consultation method is that many people may be tired of talking about 'the drought'; doubt that climate change is occurring; they may view climate change as something located in the future and therefore has no immediate impact; or reflecting on climate change is simply not a priority.

In the Loddon Mallee region people are adapting to drought. The 'Report of the drought impact survey'⁴⁹ undertaken by the City of Greater Bendigo was a survey sent to primary producers. Survey respondents were mostly male and older. Survey responses describe the stress of water shortages as well as the changes in farming practices that people have made in response to the drought. Succession planning is an issue for many of the respondents. What the survey does not describe are the changes in women's roles and their input into critical decision making and adaptation strategies.

Recommendation 10: That survey work is undertaken that asks respondents for information regarding women's experiences of, and responses to, drought and climate change. It is an opportunity to ask respondents to identify any new health issues they associate with drought and climate change, insight into coping strategies, and supports required. Survey to include a recruitment strategy that targets responses from those population groups about whose views and experiences little is known (young women, Aboriginal women, CALD women).

Recommendation 11: That a select number of Case Studies be developed whereby women from diverse industries and communities are interviewed to profile their changing environment adaptation strategies and innovation, as well as their views regarding impacts of

drought and climate change on their families, communities, and other women. These would be identifiable interviews for use in published material as a tool for advocacy.



Summary of recommendations

Recommendation 1: That health services, including WHLM, support local and regional initiatives to mitigate greenhouse gas emissions.

Recommendation 2: That a gender analysis training package is developed and offered to those key stakeholders identified as being involved in planning natural disaster responses.

Recommendation 3: That scoping research to identify potential increases in violence against women in the Loddon Mallee region is undertaken. This will investigate reported and non-reported incidents of violence against women. It will also be an opportunity to establish any links between impacts of drought and climate change and increased vulnerability for women (and children). Recommend commencing with a survey that includes individuals, services, community organisations and other stakeholders involved in drought support services, as well as agricultural support and agronomy services.

Recommendation 4: That an 'outreach strategy' is developed that addresses mental health supports and strategies for women. This 'outreach strategy' should enhance social infrastructure, highlight coping strategies and assist women in the regional (non-urban) areas where mental health services are reduced.

Recommendation 5: That a strategy to develop women's 'climate change literacy' to assist women to make informed decisions is developed in partnership with, for example, environmental advocacy and industry groups.

Recommendation 6: That advocacy is undertaken for women's inclusion in education and training opportunities attached to industry innovations and emerging markets developing in response to climate change.

Recommendation 7: That advocacy is undertaken for equitable access to, and uptake of, capital and other financial incentives necessary for women to increase their economic participation in the region at a time of changing and emerging industries.

Recommendation 8: That there is promotion of women's leadership and participation in climate change and related policy development and review.

Recommendation 9: That an 'advocacy skills' program is delivered to assist women to learn more about how governance works and how to get involved.

Recommendation 10: That survey work is undertaken that asks respondents for information regarding women's experiences of, and responses to, drought and climate change. It is an opportunity to ask respondents to identify any new health issues they associate with drought and climate change, insight into coping strategies, and supports required. Survey to include a recruitment strategy that targets responses from those population groups about whose

views and experiences little is known (young women, Aboriginal women, CALD women).

Recommendation 11: That a select number of Case Studies be developed whereby women from diverse industries and communities are interviewed to profile their changing environment adaptation strategies and innovation, as well as their views regarding impacts of drought and climate change on their families, communities, and other women. These would be identifiable interviews for use in published material as a tool for advocacy.



References

- ¹ p.164 Baum, F & Harris, L (2006) 'Equity and the social determinants of health' *Health Promotion Journal of Australia*, vol. 17, no. 3, pp.163-4.
- ² 10th National Rural Health Conference Priority Recommendations from Rural Health: The Place to Be Cairns 17-20 May 2009, <http://10thnrhc.ruralhealth.org.au/recommendations/?IntCatId=16> Viewed 09.07.09
- ³ Wilkinson, R & Marmot, M (eds.) (2003) *Social Determinants of Health: The Solid Facts 2nd Edition*, WHO, <http://www.euro.who.int/document/e81384.pdf> Viewed 24.02.10
- ⁴ http://www.health.vic.gov.au/healthpromotion/what_is/determinants.htm Viewed 24.02.10
- ⁵ Baum, F & Harris, L, loc. cit.
- ⁶ Definition of drought taken from the Climate Glossary, Bureau of Meteorology, <http://www.bom.gov.au/climate/glossary/drought.shtml> Viewed 3.02.10.
- ⁷ Definition of climate change taken from <http://www.climatechange.gov.au/en/climate-change.aspx> Viewed 11.02.10.
- ⁸ 2006 Census of Population and Housing www.abs.gov.au
- ⁹ See Executive Summary in Barr, N (2005) *Understanding Rural Victoria*, Department of Primary Industries, www.dpi.vic.gov.au Viewed 19.11.09 and Ch. 3 in Alston, M (1995) *Women on the Land: The Hidden Heart of Rural Australia*, UNSW Press, Kensington.
- ¹⁰ 'Sustaining community wellbeing in drought: Loddon Mallee: Sustainable development network', http://www.health.vic.gov.au/communityhealth/downloads/drought/loddon_mallee.pdf Viewed 24.02.10
- ¹¹ Barr, N, op. cit, p.x.
- ¹² Ibid., p.13.
- ¹³ *Victorian Population Bulletin 2009* and p.11 *Victoria in Future 2008 – Mallee*, both available at <http://www.dse.vic.gov.au> Viewed 25.02.10.
- ¹⁴ Department of Planning and Community Development 'Victoria in the Future' information forum, Bendigo, 14.10.09.
- ¹⁵ Barr, N, op. cit., p. xi, p.52.
- ¹⁶ Commonwealth of Australia (2008) 'It's about people: changing perspectives on dryness. A Report to Government by an Expert Social Panel' p.6 Available at www.daff.gov.au
- ¹⁷ Department of Sustainability and Environment (2008) *Climate change in the Mallee and Climate change in the North Central Region* Available at www.climatechange.vic.gov.au
- ¹⁸ *ibid.*
- ¹⁹ *ibid.*
- ²⁰ *ibid.*
- ²¹ Walpole, S & Rasanathan, K & Campbell-Lendrum, D (2009) 'Natural and unnatural synergies: climate change policy and health equity' *Bulletin of the World Health Organisation*, vol. 87, no. 10, pp. 733-804, <http://www.who.int/bulletin/volumes/87/10/09-067116/en/index.html> Viewed 14.10.09.
- ²² *ibid.*
- ²³ Consider that 'The developing world, with only 10 per cent of the world's health resources, already carries 90 per cent of the disease burden, and climate change will disproportionately affect those already vulnerable.' p.19 Victorian Government Department of Human Services (2007) *Climate change and health: An exploration of challenges for public health in Victoria*, Available www.climatechange.vic.gov.au Viewed 17.09.09
- ²⁴ *ibid.*, pp.13-18.
- ²⁵ Barr, N, op. cit.
- ²⁶ Garnaut, R. (2008) *The Garnaut Climate Change Review Final Report*, p.xlii, www.garnaut.review.org.au Viewed 5.02.10
- ²⁷ Neumayer and Pluemper (2007) cited by Alston, M. Presentation at the Women, Leadership and Climate Change National Forum, RACV Convention Centre, Melbourne, November 2009.
- ²⁸ UNIFEM Australia 'Gender and Climate Change fact sheet' <http://www.unifem.org.au/Content%20Pages/Resources/gender-climate-change#> Viewed 22 October 2009; Duncan, K (2007) 'Global Climate Change and Women's Health' *Women & Environments International Magazine*, 74/75, p.10; www.paho.org/English/DPM/GPP/GH/genderdisasters.pdf Viewed 14.10.09.

-
- ²⁹ www.paho.org/English/DPM/GPP/GH/genderdisasters.pdf Viewed 14.10.09.
- ³⁰ For an example see <http://www.coliban.com.au/pricingreview.asp> Viewed 23.03.10.
- ³¹ Alston, M. Presentation at the Women, Leadership and Climate Change National Forum, RACV Convention Centre, Melbourne, November 2009.
- ³² Garnaut, R., op. cit., p.539.
- ³³ Edwards, B & Gray, M & Hunter, B, *The Impact of Drought on Mental Health and Alcohol Use* Australian Social Policy Conference 10 July 2009
www.aifs.gov.au/institute/pubs/papers/2009/edwards2.pdf Viewd 14.07.09.
- ³⁴ Sartore, G-M & Kelly, B & Stain, H & Albrecht, G & Higginbotham, N (2008) 'Control, uncertainty, and expectations for the future: a qualitative study of the impact of drought on a rural Australian community' *Rural and Remote Health* 8:950 <http://www.rrh.org.au> Viewed 22.10.09
- ³⁵ Barr, N., op. cit., p.16.
- ³⁶ Caldwell K & Boyd CP (2009) 'Coping and resilience in farming families affected by drought' *Rural and Remote Health Journal*, www.rrh.org.au Viewed 22.20.09.
- ³⁷ Sartore et al., op.cit., p.9.
- ³⁸ Fritze, J & Blashki, G & Burke, S & Wiseman, J (2008) 'Hope, despair and transformation: Climate Change and the promotion of mental health and wellbeing' *International Journal of Mental Health Systems* www.ijmhs.com/content/2/1/13 Viewed 18.08.09.
- ³⁹ Alston, M & Kent, J 'Dirt, Drought and Drudge: Australian women's experiences of drought' www.ruralwomen.org.au/events/health Viewed 9.07.09
- ⁴⁰ Alston, M (2005) op. cit.; Alston, M (2006) 'I'd like to just walk out of here': Australian Women's Experience of drought' *Sociologica Ruralis*, vol 45, no. 2, pp154-170.
- ⁴¹ Alston ibid.
- ⁴² Women's Health Loddon Mallee (2009) 'Economic participation of women in the Loddon Mallee Region' (draft), not published.
- ⁴³ Commonwealth of Australia, op. cit., p.21
- ⁴⁴ Garnaut, R., op. cit., p.xli.
- ⁴⁵ Ibid., p. xliv.
- ⁴⁶ Birchip Cropping Group (2008) *Critical Breaking Point?: The effects of drought and other pressures on farming families* p.182 Available www.bcg.org.au
- ⁴⁷ Garnaut, R., op. cit., p. xli.
- ⁴⁸ Department of Planning and Community Development (2009) 'Rural Women in a Changing Climate: Outcomes Summary', p.6. Available at www.ruralwomen.vic.gov.au
- ⁴⁹ Kippen, S & Talbot, L (2009) 'Report of the drought impact survey' City of Greater Bendigo, not published.

Illustrations by Robyn Spicer