



## NATIONAL RURAL WOMEN'S COALITION

### Climate change and women in rural, regional and remote Australia

Climate change is warming our planet, altering the environment and impacting people's lives in rural, regional and remote Australia. Seven million people live outside the nation's cities, where women, as well as being half the population, are central to the family, social and economic fabric of communities and businesses. If there is to be an effective national response to climate change, then rural, regional and remote women need to lead, participate and be heard.

In Australia, the measurable consequences of climate change already include reduced rainfall and increased desertification.<sup>1</sup> Heatwaves have increased in frequency.<sup>2</sup> Tropical cyclones are predicted to become more severe and destructive.<sup>3</sup> Droughts are likely to become more frequent and severe in parts of Australia, and reduced average rainfall is likely.<sup>4</sup> This will affect agriculture, town and city water supplies, and water volumes in river catchments such as the Murray Darling Basin.<sup>5</sup> Coral bleaching events will increase, and changes may affect the sustainability of fisheries.<sup>6</sup>

The consequences of climate change will transform all aspects of life in rural, regional and remote Australia:

- Floods, cyclones, increasing temperatures and desertification will put pressure on agriculture and aquaculture.
- Extreme weather events and supply chain disruptions will increase the cost of rural, regional and remote living.
- Industries will be reshaped as Australia and our trading partners transition away from coal and other fossil fuels for energy production.
- Climate related health risks, such as heat stress and mosquito-borne diseases, will rise.

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<sup>1</sup> Intergovernmental Panel on Climate Change (IPCC), Special Report on Climate Change and Land, para. A2.5.

<sup>2</sup> IPCC, Assessment Report 5 Synthesis Report, SPM1.4. <https://www.ipcc.ch/report/ar5/syr/>

<sup>3</sup> Climate Council, Fact sheet: tropical cyclones and climate change, <https://www.climatecouncil.org.au/resources/fact-sheet-tropical-cyclones-and-climate-change/>

<sup>4</sup> Feng, P, et al, (2019) 'Projected changes in drought across the wheat belt of south-eastern Australia using a downscaled climate ensemble'. *Int J Climatol*. 39: 1041–1053; Dai, A, (2012) 'Increasing drought under global warming in observations and models'. *Nature Climate Change*, 3(1), 52–58.

<sup>5</sup> CSIRO (2008) *Water availability in the Murray-Darling Basin - CSIRO Murray-Darling Basin Sustainable Yields Project*, CSIRO.

<sup>6</sup> Wolff, NH, et al, (2018) 'Vulnerability of the Great Barrier Reef to climate change and local pressures'. *Glob Change Biol*. 24: 1978–1991; Koehn, J, (2011) 'Climate change and Australian marine and freshwater environments, fishes and fisheries: synthesis and options for adaptation'. *Marine and freshwater research*, 62 (9): 1148; Brown, CJ, et al, (2021) 'Direct and indirect effects of heatwaves on a coral reef fishery'. *Glob Change Biol*. 27:1214–1225.

Women are uniquely affected by climate change. Research by Margaret Alston shows that “gender is a critical factor in vulnerability to climate events”.<sup>7</sup> This includes because the stresses caused by extreme weather and climate change are amplified by the gendered nature of paid and unpaid labour in agricultural businesses and rural communities. Women experience increased demands to take off-farm work and greater vulnerability during and after natural disasters.<sup>8</sup> They are also central to health and community organisations, as well as unpaid care work, that face increasing demands during periods of stress and disaster response.

## Preparing for change

For rural Australia, climate change presents challenges and opportunities. Different regions face different situations as the economy transforms. In some regions, the focus will need to be on managing agriculture with reduced rainfall; for others it will be preparing for more extreme weather events. In yet others, it will be tapping into new manufacturing and forestry opportunities emerging from the green economy. With the possibility of zero coal-fired energy generation across the globe less than twenty years from now,<sup>9</sup> transitioning from coal mining to new energy production and employment opportunities will be vital for income and family security in many regions.

Women will bear much of the burden of climate change in rural Australia. However, with the right policies and actions, they can harness opportunities to lead and participate in the social and economic transformations Australia needs. A lot will depend on how the changes are managed. If

### Women on the land watching the climate change

On the Sunshine Coast, Kerrie McMartin and her family have 245 acres, where they grow commercial crops of lychees, custard apples and sugar cane as well as running a pick-your-own strawberry agritourism business. The property has been in the family 74 years.

Kerrie says, “We have salt water inundation from the Maroochy river. The river level has risen 5 inches since dad has been here. We border on a mangrove swamp which goes into the river. Our cane farm is 80% below high tide level, so it is very vulnerable. A drainage system was put in the 1950s and we have to keep strict management practices on all of our drains and floodgates and maintain good levy banks, but it’s an ongoing challenge. Already, we’ve lost one of our paddocks and one of our dams is at risk.

The timing of the rain is now a much bigger issue as compared to when dad was growing things when he was younger. Before they used to dry farm everything now you wouldn’t survive without irrigation. We get longer periods of continual wet; we’ve come close to 300hrs of pumping water off our cane so far this year, then long periods of dry where you have to irrigate or everything dies.

Temperature is also an issue. It’s not like we have the high temperatures you see out west, but it is much warmer. Our pests that used to be only summer pests are now all year-round pests, so our spray has to increase all year round.” (from Farmers for Climate Action)

<sup>7</sup> Alston, M, (2013) ‘Gender and Climate Change in Australia and the Pacific’, in Alston, M and Whittenbury, K (eds.), *Research, Action and Policy: Addressing the Gendered Impacts of Climate Change*, Springer Science + Business Media, Dordrecht, p.182.

<sup>8</sup> Enarson E, (2009) *Women, gender and disaster*. Sage Publications India, New Delhi.

<sup>9</sup> International Energy Agency (IEA) (2021), *Net Zero by 2050: A Roadmap for the Global Energy Sector*, <https://www.iea.org/reports/net-zero-by-2050>

governments, business and communities anticipate change, develop transition plans and work together, rural Australia can emerge even more resilient and with new industries. If governments continue to avoid planning, communities are left unsupported, and industries are left to deteriorate without assistance, rural and regional Australia will suffer.

## Water

On land, climate change will affect water supply across the continent. For food production zones in temperate Australia, there is likely to be less rainfall. It will also be less predictable. In dry years, water supplies in rural and regional towns are already being stretched to their limits. We will need to plan to better live with dry conditions. With rainfall declining, the meaning of drought itself may have to change, as drier conditions become the 'new normal'.

In other parts of Australia, there may be increased impacts of cyclones and storm events. This will translate into increased risks around crop losses, and inability to insure effectively. In these regions, construction, infrastructure and flood management will be important.

On sea, aquaculture, fisheries and marine tourism all face unique pressures. Over 90 percent of the increased heat caused by global warming is being absorbed by our oceans. They are also soaking up more carbon dioxide leading to greater acidification.<sup>10</sup> These changes put at risk the life cycles of fish, as well as changing the productivity of global fisheries.<sup>11</sup> The Australian Institute of Marine Sciences has concluded:

“Future climate change is likely to exert strong evolutionary pressure on fish populations by selecting more heat-tolerant forms. However, fish biologists and natural resource managers question whether such adaptation is possible given the rate of warming that most climate models forecast”.<sup>12</sup>

The changes also threaten the Great Barrier Reef, one of the country's leading tourism destinations and Australia's most important marine reserve.

## Food

The agricultural sector both contributes to, and will be impacted by, climate change. Livestock production and land clearing together contribute about a quarter of greenhouse gas emissions globally. Because most work on limiting emissions has so far focused in other sectors like energy generation and transport, the proportion of emissions from agriculture could continue to rise.<sup>13</sup>

Agricultural production and food security will be fundamentally affected by climate change.<sup>14</sup> While there are a few regions of the world where food production might increase, in Australia it is predicted to fall. Impacts will be direct, through reductions in yields of major crops such as

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<sup>10</sup> Marine Stewardship Council, Climate change and fishing, <https://www.msc.org/what-we-are-doing/oceans-at-risk/climate-change-and-fishing>

<sup>11</sup> Organisation for Economic Cooperation and Development (OECD), Climate change and the policy implications for agriculture and fisheries, <https://www.oecd.org/agriculture/topics/climate-change-and-food-systems/>

<sup>12</sup> AIMS, Fish and Climate Change, <https://www.aims.gov.au/docs/research/biodiversity-ecology/fish/fish-and-climate-change.html>

<sup>13</sup> OECD cited above

<sup>14</sup> FAO, IFAD, UNICEF, WFP and WHO (2018) *The State of Food Security and Nutrition in the World 2018. Building climate resilience for food security and nutrition*. Rome, FAO.

vegetables, maize and wheat, and indirect, through changes to input costs or disruptions to supply chains.<sup>15</sup>

Across rural, regional and remote Australia, seasons and rainfall patterns will change. For some, particularly in south-eastern Australia, food production may decline. For others, crop and livestock production zones will shift across the landscape, and farming will have to move with them. Global warming will usher in a new wave of rural adjustment and put pressure on already struggling regional towns and rural service industries. And when farms struggle, women are most likely to bear increased working hours as well as the impacts of an economically precarious existence.

Every Australian household will be affected as consumers. There is a risk food prices will rise, and supply chains disrupted. Rural, regional and remote households are likely to be disproportionately impacted by these rising costs. Women will bear the brunt of a decline in food security in rural Australia, having to manage rising household costs and the needs of children, aged parents and the communities they support.

## Health

The World Health Organization (WHO) has declared global warming the greatest threat to health in the 21st century.<sup>16</sup> Climate change is having significant health impacts, both direct and indirect. They are likely to severely affect rural, regional and remote Australia.

There are direct health effects from the higher temperatures caused by climate change.<sup>17</sup> They include illness and morbidity from increased heat. Heat stress is predicted to be the greatest climate change-induced cause of death. Increasingly frequent and severe bushfires, too, create direct risk of injury or death. Even more widespread will be the longer periods of poor air quality and pollution that result, putting the health of many people at risk, particularly those with underlying health conditions.

There are other, equally serious indirect health effects of climate change. These will include the increased prevalence of infectious diseases. In regional Australia there

### **Australian rural, regional and remote women: at the forefront of climate change response**

These rural regional and remote Australian women advocates are at the forefront of thinking, communicating and acting on climate change

- Dr Jo Walker, board member of Climate and Health Alliance, who has spent decades working in rural health systems and advocating for better health policies and practices
- Dr Marji Puotinen, an ecological data scientist working with the Australian Institute of Marine Science, looking at the conservation of marine ecosystems under climate change stress
- Dr Robyn Alders AO, the first woman veterinarian to receive an Australia Day Honour, working on food and nutrition security.
- The many, many rural regional and remote women across the country who lead and support organisations that deliver peer-to-peer learning, innovation and change in the rural communities.

<sup>15</sup> Scheelbeek, PFD, et al, (2018) 'Effect of environmental changes on vegetable and legume yields and nutritional quality'. *Proceedings of the National Academy of Sciences*: 115 (26); Folk, E, (2019) 'Climate change impacts on food production'. *Ecologist*, 15 Nov 2019.

<sup>16</sup> Better Health Channel, Climate change and health, <https://www.betterhealth.vic.gov.au/health/healthyliving/climate-change-and-health>

<sup>17</sup> WHO, Climate change and health, <https://www.who.int/news-room/fact-sheets/detail/climate-change-and-health>

is likely to be increased frequency and range of viruses like Dengue and Ross River. Extreme weather events create health risks from contamination of water supplies, or disruption to electricity and sewerage services. The increased economic and social stress caused by climate change will risk increased mental illness in rural, regional and remote communities. Increased pressures and stresses may also exacerbate existing inequalities, resulting, for example, in more instances of intimate partner violence. The changes ahead risk exacerbating existing inequalities in access to health services in regional, rural and remote communities.

Women, again, will carry the greatest burden and must be central to managing the change. Women make up the biggest part of the health sector workforce. Women also take on the bulk of the responsibility in accessing health care for their family members. The increase health care burden of climate change in rural, regional and remote Australia will therefore be met by women.

## What is needed?

Every level of Australian government can act to help the country prepare for the warming that is already occurring. Rural, regional and remote women need to be involved in every community and every part of the process. Women are the backbone of their communities. Their industriousness, resilience, pragmatism and skill are needed to shape responses to climate change, and their networks are essential to bringing communities on the journey.<sup>18</sup>

To combat climate change, Australia's highest priority should be reducing our carbon emissions, and ensuring other countries do the same. International action to reduce carbon emissions will limit rising temperatures, doing more than any other policy measure to protect our land, our seas, our water supply, our farming, our health. Many major impacts of climate change are hard to mitigate or protect against: prevention must be our first line of defence.

It is the NRWC's position that there are key areas in which rural, regional and remote women's leadership is required, and their needs must be central, if Australia is to respond successfully to climate change.

### Planning

Grassroots community organisations need to be deeply involved in planning for our climate future. Women remain underrepresented in rural and regional governance, both in industry professional associations and local government.<sup>19</sup> This means their perspectives, priorities and knowledge get overlooked. Rural, regional and remote women must be brought into planning and decision-making forums, so their needs are understood and taken into account. Planning processes must draw on the depth of experience that rural women bring: they know what is needed to make climate-driven transformations work in rural communities.

### Adjustment

Governments will need to lead and finance adjustment and mitigation strategies for our rural and regional communities. Keeping fisheries and farms viable, and towns alive, will require investment in infrastructure to match the new climate reality. As we adjust to the imperatives of climate change, women's needs and priorities must influence how we invest.

Regional climate future-proofing will reduce risks in primary production, guarantee rural services, and improve community quality of life. This will include investments to

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<sup>18</sup> UN Women, In Focus: Climate action by, and for, women, <https://www.unwomen.org/en/news/in-focus/climate-change>

<sup>19</sup> 50/50 by 2030 Foundation, equity reports, <https://www.5050foundation.edu.au/>

- ensure water supplies for towns and agriculture are efficient and secure;
- enhance health services so they can meet the increased needs of their communities, and
- create transport and communications infrastructure that will reduce the chance of supply chain disruption.

Successful adjustment policies will relieve pressures that threaten to disproportionately impact on rural, regional and remote women.

Business and government need to partner with communities to develop future economic and employment pathways in our regions as industries are transformed by the urgent priority of reducing emissions. In some coal mining regions, a failure to plan will leave women particularly vulnerable, because they depend more on income that flows from a mining workforce comprised overwhelmingly of men.<sup>20</sup> Without a transition plan that includes and responds to women's needs, in these regions women may be plunged into greater levels of poverty and economic dependence. Structural adjustments need to be planned and implemented to ensure the income security and welfare of all who are downstream dependent on existing coal industries, not only direct employees.

### **Participation in our climate future**

As our rural, regional and remote communities adjust to climate change, employment futures will be central to

- ensuring community support for climate action, and
- securing the viability and wellbeing of rural, regional and remote families and businesses.

Rural, regional and remote women need opportunities to participate in the economic and service fabric of a low carbon future. Business that position to be part of the growing green economy can enhance their workforce, as well as contribute to fairer communities, by recognising, recruiting women and ensuring they take leadership roles. We know women are at the forefront of many areas in which climate change requires a response: agricultural innovation, crisis response, green energy. NRWC calls on governments, businesses and financiers to recognise their potential and to support women who are ready to participate and be leaders in our climate future.

## *Where to go for more information*

*To read what Australian scientists and policy experts say is needed, visit the Climate Council: <https://www.climatecouncil.org.au/>*

*On **health**, visit the Climate and Health Alliance: <https://www.caha.org.au/>*

*On **planning, energy or agriculture**, visit CSIRO's climate change website: <https://www.csiro.au/en/research/environmental-impacts/climate-change>*

*On **farming**, visit Farmers for Climate Action: <https://farmersforclimateaction.org.au/>*

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<sup>20</sup> Workplace Gender Equality Agency, (2019) Gender segregation in Australia's workforce, <https://www.wgea.gov.au/publications/gender-segregation-in-australias-workforce>