Why should psychology help address climate change?

Dr Susie Burke
Senior Psychologist Public Interest, Environment and Disaster Response
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Climate change is regarded as the biggest global health threat of the 21st Century, according to an article published in The Lancet, Britain’s premier health journal (Costello et al., 2009). Psychological and mental health impacts of climate change have only recently been considered among the collection of health impacts of climate change but are among some of the most potentially devastating effects in terms of human suffering, and among the most difficult to quantify and address.

On current trajectories, we are on track for 4–6 degrees of warming by the end of this century, a scenario described in the 2012 World Bank report ‘Turn Down the Heat’ as one that would vastly exceed the consequences experienced to date and potentially exceed the adaptive capacities of many societies and natural systems. This would be a world of unprecedented heatwaves, severe drought, and major floods in many regions, with serious impacts on human systems, ecosystems, and associated services and will likely lead to increased mortality and species extinction (World Bank, 2012).

Human behaviour change is required to bring about urgent change in every area of concern where the national and global environment is threatened. This will require strategies at population, local community and individual levels. Current practice tends to view this as a scientific and infrastructure issue but the heart of community change is psychosocial and behavioural.

These, thus, are the compelling reasons why psychology has a critical role and responsibility to play in addressing climate change:

a) Climate change threatens human health and wellbeing – and psychologists have a responsibility to protect health and wellbeing
b) Climate change is caused by human behaviour
c) Solutions require changes in human behaviour.

As experts in human behaviour, climate change is clearly dead centre in psychologists’ area of interest and expertise.

Below, I make the case for why psychology has an undeniable responsibility to face the problem of climate change, work on solutions (adaptation and mitigation), advocate for climate policy, and take a leadership role in addressing climate change. I also have provided a background to the current climate crisis, (including the scientific consensus backing it up), outlined the health and mental health impacts, and included some notes on health care sector responsibilities around taking action on climate change.
Psychology’s specific responsibilities

Several key articles by eminent psychologists have been published in recent years stressing psychology’s essential role in addressing climate change and environmental threats. These can be found on the environment and psychology pages of the APS website.

Psychology should help address climate change because:

1) Human motivations and behaviours constitute core causal factors with respect to environmental problems (Oskamp & Schultz, 2006). Since people are causing global warming, they also have it in their power to prevent it from getting worse (Union of Concerned Scientists, 2006). Human behaviour change is required to bring about improvements in every area of concern where the national and global environment is threatened. Psychologist are experts in human behaviour, therefore have a significant contribution to make.

2) The magnitude and potential irreversibility of global climate change and its likely psychological impacts and effects on quality of life, social justice and the environment make it an ethical imperative for psychologists’ involvement (Swim et al., 2011). Psychologists have an ethical responsibility to create, communicate and apply psychological knowledge in order to benefit individuals and society – because climate change threatens individual and community wellbeing it should be considered an appropriate arena of ethical obligations for psychologists (Doherty & Clayton, 2011).

3) Psychologists have expert knowledge in research, analysis in analysing and addressing linkages between people and environmental problems and finding achievable and effective solutions to help humanity effectively mitigate and adapt to (Stern, 2000a). Psychologists have already been working on the challenge of climate change for well over twenty-five years, and on related areas of risk perception, appraisal, communication, and decision making, and disaster preparedness and response, for close to 50 years. Psychologists should help because they can (Swim et al., 2011).
How else can psychology increase its contribution to the science of climate change?

Psychology can make a significant contribution to limiting the magnitude of climate change by improving understanding of human behaviours that drive climate change and human reactions to climate-related technologies and policies, and by turning that understanding into effective interventions. These are summarised in an article by Paul Stern in the American Psychologist special issue on Psychology and Global Climate Change (Stern, 2011).

Specifically, psychology has important contributions to make to:

- **Individual and household behaviour** – how to increase pro-environmental behaviour, using knowledge about communication techniques, feedback, social norms, incentives etc.

- **Organisational change** – how to increase energy conservation in organisations using knowledge about decision making, barriers to action, organisational leadership, optimal defaults, etc.

- **Policy change** – how to develop and communicate climate policy to increase public support; how to increase support and uptake of technologies for limiting climate change using knowledge about risk perceptions, cognitive biases, values, attitudes, beliefs and worldviews.

- **Socio-Cultural change** – how to enable fundamental societal changes through a nuanced understanding of consumption, identification of underlying needs and concerns.

- **Climate leadership** - By publicly engaging with climate change, the APS takes a leadership role and demonstrates to other organisations, the public and the media that climate change is real, serious, and requires urgent action.

Health care sector responsibilities

Worldwide, the health care sector has enormous challenges ahead. In the UK, Australia, and USA, climate and health advocates are calling for the healthcare sector to take action in the following ways:

1) The health care sector should model the transition to a post-fossil fuel economy. In industrialised countries, health care represents around 10% of the economy. Given its enormous economic clout and its healing mission, health care is well positioned to model the transition away from our addiction to fossil fuels, which not only contributes to global climate change but also has local pollution and public health impacts.

2) The health care sector must have a central role in education and advocacy around the public health impacts of climate change, and help prepare them for these impacts, and also become potent spokespersons for policies at all levels of government that would rein in climate change. We have compelling reasons for doing so. Climate change will affect, in profoundly adverse ways, some of the most fundamental determinants of health: food, air, and water.

3) Hospitals and health organisations need to focus on preparedness and resilience in their design and operations so they can be critical players in responding to extreme weather events, rather than being one of the victims.
Background information on climate change, health impacts, and urgency of climate action

Current scenario – 13 of the 14 hottest years have occurred this century.

2013 was Australia’s hottest year ever.  

Heatwaves in Australia are now 5 x more likely due to climate change.  
http://www.guardian.co.uk/environment/2013/jul/08/australian-heatwaves-likely-global-warming

In March 2013, the Greenhouse gas concentrations in the atmosphere reached 400ppm of CO2 in March, breaking a record untouched for three million years. The last time GHG concentrations were this high was at the end of a prolonged greenhouse period; the Earth was two to three degrees warmer, and sea levels 5-40 metres higher than today.  

National Geographic says: "This time, 400ppm is a milepost on a far more rapid uphill climb toward an uncertain climate future."

Health effects

The Lancet, Britain’s premier health journal, calls climate change “the biggest global health threat of the 21st century.”

Health scientists are telling us is that climate change will bring increased asthma, more virulent allergens, medical emergencies from heat stress, the spread of water- and vector-borne diseases and increased injury from severe weather events. (Climate Commission, 2012, “The critical decade: climate change and health”).

Inaction on climate change is now a leading global cause of death, according to the DARA 2012 Climate Vulnerability Monitor report entitled “Cold Calculus for a Hot Planet”. This report was commissioned by 20 governments and draws on peer-reviewed scientific
literature and datasets released by the UN, World Bank and Intergovernmental Panel on Climate Change (IPCC). (DARA, 2012).

The DARA report estimates that climate change is already costing the global economy $1.2 trillion annually and is responsible for 400,000 deaths each year. These figures are expected to rise exponentially, with climate change costing $2.4 trillion annually, or 3.2% of GDP in net average global losses by 2030.

The DARA report says a continued pattern of the world’s current carbon intensive energy use would cause 6 million deaths a year by 2030, with 700,000 of these attributable to climate change, and the remainder directly related to the harm caused by carbon intensive economies.

This report finds the world’s poorest communities are being the hardest hit, with average GDP losses of 8% in 2030, but every country in the world is affected. Not one country in the world is left unharmed.

**Mental health effects**

Psychological impacts of climate change, ranging from mild stress responses to chronic stress or other mental health disorders, result both from direct and indirect causes of climate change. Psychological and mental health impacts have only recently been considered among the collection of health impacts of climate change (Fritze et al., 2008; Doherty & Clayton, 2011; Climate Institute, 2011; Clayton et al., 2014). However mental health concerns are among some of the most potentially devastating effects in terms of human suffering, and among the most difficult to quantify and address (Portier et al., 2010).

A variety of psychological impacts can be associated with extreme weather and other climate related events (see figure below):

Extreme weather events can lead to mental health disorders associated with loss, social disruption, and displacement, as well as cumulative effects from repeated exposure to natural disasters. The most common mental health conditions associated with extreme events range from acute traumatic stress to more chronic stress-related conditions such as post-traumatic stress disorder, complicated grief, depression, anxiety disorders, and drug or alcohol abuse (Silove et al., 2006).

The effects of climate change impact the social, economic, and environmental determinants of mental health, with the most severe consequences being felt by communities who were already disadvantaged prior to the event. Some communities are more likely to be exposed to climate change impacts due to their location (for example, coastal areas). Others have limited adaptive capacity due to poverty, poor physical and service infrastructure and economic reliance on climate vulnerable ecosystems. Some communities are vulnerable on both counts, and it is in these communities that the social and economic impacts of climate change are likely to be most severe (Fritze et al., 2008).

The social impacts of reduced economic security caused by climate change include:

- stress
- insecurity
- social isolation
- reduced personal autonomy
- negative self-perception
- strain on relationships
- increased rates of suicide
- reduced participation in ‘optional’ activities such as social events
- increased workloads
- separation of families to access employment opportunities.

Prolonged heat and cold events can create chronic stress situations that may initiate or exacerbate health problems in populations already suffering from mental illness and stress-related disorders. In addition, psychotropic drugs interfere with the body’s ability to regulate temperature; individuals being treated with these drugs could be at increased risk of heat-related illness during extreme heat events (Martin-latry, et al., 2007).

The chronic stress-related conditions and disorders resulting from severe weather or other climate change-related events may lead to additional negative health effects, and exacerbate pre-existing illnesses, like diabetes, cardiovascular disease (Hughes & McMichael, 2011).

Source: Clayton et al., 2014
**Scientific Consensus - 97% of scientists agree that human behaviours are causing global warming**

In the scientific field of climate studies – which is informed by many different disciplines – the consensus is demonstrated by the number of scientists who have stopped arguing about what is causing climate change – and that’s nearly all of them. A survey of 928 peer-reviewed abstracts on the subject ‘global climate change’ published between 1993 and 2003 shows that not a single paper rejected the consensus position that global warming is man caused (Oreskes 2004).

A follow-up study by the Skeptical Science team of over 12,000 peer-reviewed abstracts on the subjects of ‘global warming’ and ‘global climate change’ published between 1991 and 2011 found that of the papers taking a position on the cause of global warming, over 97% agreed that humans are causing it (Cook 2013). The scientific authors of the papers were also contacted and asked to rate their own papers, and again over 97% whose papers took a position on the cause said humans are causing global warming.

[Image: http://theconsensusproject.com/]

Quite possibly the most important thing to communicate about climate change is that there is a 97% consensus amongst the scientific experts and scientific research that humans are causing global warming.
**Future predictions warn of 4-6 degrees warming**

The average global temperature has increased almost 1°C over the last century. This rise in temperature has caused far more damage than most scientists expected. Almost 80% of summer sea ice in the Arctic is gone, the oceans are 30 percent more acidic, and since warm air holds more water vapour than cold, the atmosphere over the oceans is five percent wetter, leading to changes in the amount and pattern of precipitation, and resulting in devastating floods and droughts (McKibben, 2013).

Global temperatures are continuing to rise. Further increases are expected to cause the sea level to rise, increase the intensity of extreme weather events and change the amount and pattern of precipitation. Other effects of global warming include changes in agricultural yields, trade routes, glacier retreat, species extinctions and increased prevalence of diseases.

In 2009, at the Copenhagen climate conference, the world’s nations agreed on the scientific view that the increase in global temperature should be below two degrees Celsius. The goal of two degrees is supported by more than 100 countries. But even a 2°C global average temperature rise is considered to pose unacceptable risks to key natural and human systems, including significant loss of species, major reductions in food-production capacity in developing countries, severe water stress for hundreds of millions of people, and significant sea-level rise and coastal flooding (W. L. Hare, leading author of the IPCC 2007 report, quoted in Worldwatch Institute, *State of the World 2009: Into a Warming World*, Washington).

The very bad news, however, is that scientists are now predicting that we are on track for **4 -6 degrees** warming: A report released by the Global Carbon Project, a group of scientists, announced that the planet was on-track for the worst-case-scenario projections of the IPCC, of a rise in temperature of between 4 and 6 degrees by the end of the century. A *World Bank commissioned study* also warned that a four-degree leap was possible this century - even if current pledges to cut emissions are met.

Study after study predicts that carbon emissions will keep growing by roughly three percent a year. Fatih Birol, the IEA's chief economist argues that the new data provide further evidence that the door to a two-degree trajectory is about to close (McKibben, 2013).
Climate action - The imperative to cut carbon emissions

Scientists estimate that humans can pour roughly 565 more gigatons of carbon dioxide into the atmosphere by midcentury and still have some reasonable hope (75% chance) of staying below two degrees (Meinshausen et al. 2009). (The 565-gigaton figure was derived from one of the most sophisticated computer-simulation models that have been built by climate scientists around the world over the past few decades. And the number is being further confirmed by the latest climate-simulation models currently being finalized in advance of the next report by the Intergovernmental Panel on Climate Change (McKibben, 2013)).

At the current rate of carbon emissions, we'll use up our 565-gigaton allowance in 16 years.

The amount of carbon already contained in the proven coal and oil and gas reserves of fossil-fuel companies is 5 x the amount of carbon that we can afford to release if we are to have. This is the fossil fuel that we're currently planning to burn. These plans are NOT compatible with a working future for this planet.

Transition to renewable technologies
Global and national emissions must therefore be cut dramatically if the world is to avoid 2 degrees warming. Securing a safe climate means that 80% of all existing fossil fuel reserves must remain in the ground—yet many of our institutions are investing in these reserves. Australia is one of the most carbon-intense economies in the world, yet we are rich in renewable energy resources.

Several excellent reports have been written detailing how it is possible for Australia to meet all of its energy needs from renewable energy. Australian research demonstrates conclusively that there are no technological or financial impediments for Australia to move to 100% renewable energy for its stationary energy (electricity) supply. Wind can achieve a capacity factor of up to 45% in Australian conditions, and solar thermal can provide base-load (i.e. overnight) power due to its ability to store power for up to 16 hours. With upgrades to the national electricity grid to accommodate distributed generation, combined with energy efficiency improvements, renewable energy technologies could comfortably supply all Australia’s power requirements.

The Zero Carbon Australia 2020 Plan developed by the Melbourne Energy Institute (MEI), University of Melbourne and research consultancy Beyond Zero Emissions (BZE) in 2010 demonstrates that Australia has sufficient non-fossil renewable energy resources to power its entire stationary energy sector and that a transition to 100% renewable energy is affordable and can be accomplished in a short time frame (BZE, 2010).

Modelling at the University at New South Wales also demonstrates that 100% renewable energy is feasible for Australia using commercially available technologies to supply high levels of variable resources such as wind and solar (Eliston et al., 2012).

Getting from here to there

In the absence of any current government policy to support this transition, due to the recent abolishment of the carbon tax, and the proposal to weaken the Renewable Energy Target, the push to make a transition away from the burning of fossil fuels needs to come from the community, from business, from organisations, from institutions, and from individuals.
**Divestment** is a key strategy in achieving this push away from fossil fuels and towards renewable energy. All around the world pressure is mounting on individuals, organisations and financial institutions to take their money out of fossil fuels that we know are driving climate change, thereby stigmatising investments in coal, oil & gas, and starting to reduce the power of the fossil fuel industry. As institutions and individuals move their money out of fossil fuels and into clean energy (divestment), we can take away the fossil fuel industry’s social license to continue to burn fossil fuels and drive climate change. We then set Australia on the path to a clean, safe and just energy future.

Divestment can involve taking money out of banks, superannuation funds, and other financial institutions:

- **Banking:** In Australia, the Big 4 banks Westpac, Commonwealth, ANZ and National Australia Bank, have loaned a combined $19 billion dollars since 2008 to fossil fuel projects, from coal and gas export ports on the Great Barrier Reef to Australia’s largest new coal mine in NSW’s Leard State Forest.

- **Superannuation:** Over 55% of the world’s superannuation is invested in coal, oil, gas and other climate-exposed investments whilst less than 2% is invested in climate solutions like renewable energy. If super funds switched even a fraction of their investments to renewables, it would completely transform the energy industry. We have the opportunity to radically shift superannuation from being the world’s biggest fossil fuel investor to a climate change champion.

- **Institutions:** Even our public institutions, like universities, religious institutions, workplaces, or local government, invests its money in fossil fuels.

Divestment campaigns are mounting around the world to push the transition to fossil fuels. A recent article in The AGE summarises this well.

The British Medical Association (BMA), voted in July 2014 to end its investments in fossil fuel companies, making it the first national medical organisation in the world to do so. (The motion is [here](#)).
The APS and how it can respond to climate change

There are many ways in which the APS as an organisation, and its units, staff and members can respond to climate change:

1. Educate and inform – ourselves, APS members, the public
2. Reduce our own carbon emissions – organisational, personal
3. Adapt to unavoidable changes brought about by climate change
4. Conduct ongoing research into human/environment links
5. Advocate for climate policy which will reduce threats to human health from climate change.

Current activities

In 2009, the APS engaged a contractor to write an Environmental Assessment Report to assess the APS’ carbon footprint. The findings from this report have been used to inform the Green Policy.

The APS Green Policy proposes changes that will assist the APS in minimising its environmental footprint.

In 2013, the APS Board signed a Statement of Commitment on Climate Change. Signing this statement conveys the seriousness with which we take the threat of unmitigated climate change on the health of our children and future generations.

The APS is actively exploring video conferencing options to improve our capacity to have effective meetings with colleagues, without always having to fly to face-to-face meetings.

The APS offsets all of its air travel by contributing to the Greenfleet biodiversity forestry program. Between 2013 and 2014 Greenfleet will plant 1,444 native trees on our behalf to offset 386.89 tonnes of Co2e.

The APS purchases 25% of its electricity from renewable energy.

The APS has a Green Team since 2009 which works to help raise environmental issues with staff, recycle batteries, phones, reduce waste etc in the office environment.

Further activities

There is also much more that the APS can do to respond to the urgent threat of climate change. These include, but are not limited to, the following options:

Divest from fossil fuel companies. As a part of the Statement of Commitment on Climate Change the APS has agreed to divest. Whilst the APS does not have direct investments in fossil fuel projects, we bank with one of the Big 4 banks, and are thus
indirectly funding new fossil fuel projects. The APS can divest from Commonwealth and National Australia Bank and choose to bank with a financial institution that is fossil free.

Inform staff and members about superannuation choices, so that people are aware of the risks that their superannuation is financially supporting the coal, oil and gas sector through our superannuation, and are pointed towards information that they would find useful for comparing their superfund on the basis of its fossil fuel investments. [http://superswitch.org.au/](http://superswitch.org.au/).

**Reduce carbon emissions from APS air travel.** The largest contribution to APS carbon emissions comes from air travel. The APS could drastically reduce air travel of staff and members through e.g., improved video conferencing, scheduling face-to-face meetings around the APS conference, etc.

**Offset all carbon emissions from remaining air travel.** Maintain and expand the program of off-setting emissions (currently through the planting of trees) to compensate for the carbon dioxide emissions of APS travel. Staff could be offered the opportunity to actively participate in tree planting projects to offset their travel emissions.

Drastically reduce use of taxis where public transport options exist.

Purchase 100% green power.

Make online the default option for all APS journals, newsletters, annual reports etc.

Print all APS materials on 100% recycled paper.

Drastically reduce all APS printed materials and send through email or via website.

Progress to becoming a paperless office.

Progressively replace all energy related equipment with energy efficient equipment.

Run all APS events as carbon neutral conferences or events ([http://caha.org.au/how-to-make-your-conference-carbon-neutral-or-even-carbon-negative/](http://caha.org.au/how-to-make-your-conference-carbon-neutral-or-even-carbon-negative/)).

Make all catering for APS events and meetings vegetarian and sourced from sustainable caterers.
References


