

A SOCIAL ANATOMY OF URBAN HEATWAVES

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Pic: M.Windisch 2016

I want to acknowledge that we are meeting on in Indigenous land
Indigenous communities have been impacted very strongly by climate change but
have also been at the forefront of protecting the environment from predatory and
mercenary industrial activities.

The critically important knowledge held by Indigenous peoples worldwide of diverse
ecology and how to live in harmony with nature will be absolutely vital in our fight to
reduce or arrest the warming of the planet and secure a livable future for the next
generations to come.

HEATWAVE BODIES



Pics: M Windisch 2014

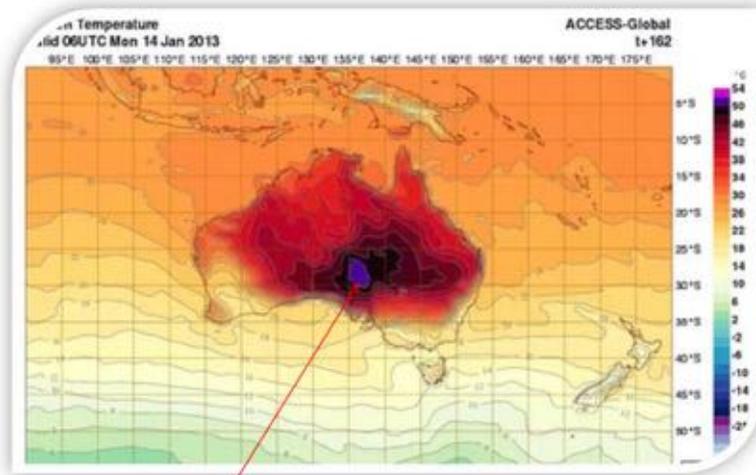
"It is not the body-object described by biologists that actually exists, but the body as lived by the subject"

Simone de Beauvoir 1953



My name is Margarita Windisch and I have been teaching in the Diploma of Community Services and Community Development and in Social Work at Victoria University (Melbourne) for over 7 years. I still practice as a sexual assault counselor for the Sexual Assault Crisis line (SACL). I have also been a social movement activist for about 25 years. My interest in this topic was triggered by my personal experience of suffering through quite a few heatwaves – and they scare me...

2013 record breaking heatwave



**New colour for 50-54 degrees C
had to be added**

Pic: BOM

http://www.bom.gov.au/climate/updates/summer_heatwave-2013.shtml

The record breaking heatwave of 2013 seared itself into my mind. The summer of 2013 was labelled 'the angry summer' by the environmental community and it was followed by a few more 'angry summers'.

THE HEAT IS ON

- ❑ The world warmed quicker in 2015 than any other time in recorded human history
- ❑ 2016: hottest year on record

World Meteorological Organization 2017



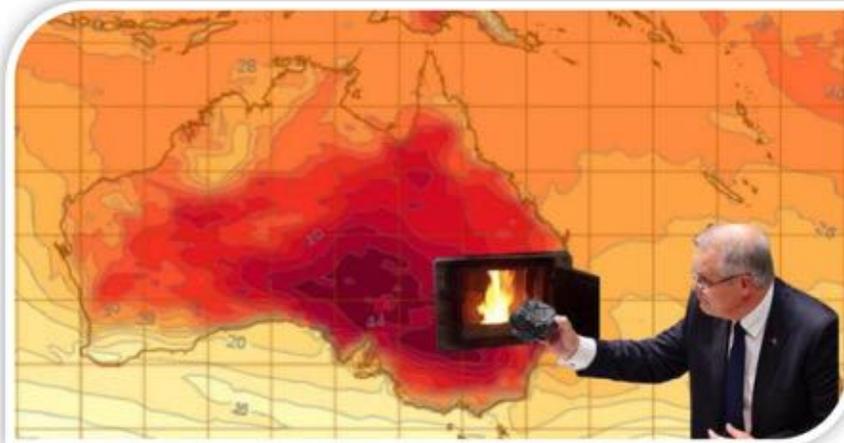
Pic: M.Windsch 2008

So what is the current state of play?

Internationally we saw extreme heatwaves hit Asia, the Middle East and Europe in May/June 2017. Turbat in Pakistan recorded over 53°C in May, making it 'Earth's hottest temperature ever recorded in the month of May—and one of Earth's top-five hottest reliably-measured temperatures on record, for any month.' (Dr.Jeff Masters, 2017, <https://www.wunderground.com/cat6/historic-heat-wave-sweeps-asia-middle-east-and-Europe>)

The Summer 2017 European heatwave has been nicknamed LUCIFER for its ferociousness

2016: a 'bumper crop' for climate change



Pic: @georgebludger

The 2016 State of the Climate report (an annual summary of the global climate) published by American Meteorological Society –found that Greenhouse gases, Global surface temperature, Average sea surface temperature and Global sea level were the highest on record. An all-time record rise of CO₂ from 2015 to 2016 was also recorded. The report states that “the global average CO₂ concentration at Earth’s surface for 2016 was 402.9 ± 0.1 ppm, surpassing 400 ppm for the first time in modern atmospheric measurement record and in ice core records dating back 800,000 years”

(http://www.ametsoc.net/sotc2016/StateoftheClimate2016_lowres.pdf)



As we are hurdling head first into the unknown epoch of the Anthropocene, The Australian BOM & CSIRO State of the Climate 2016 report (BOM 2017) found that the duration, frequency and intensity of extreme heat events have increased across large parts of Australia as has number of days per year over 35 °C, except in parts of northern Australia.

In Australia '...the type of extreme hot weather we now regard as unusual will become a normal pattern in many regions, occurring every year or two' (Steffen, W, Hughes, L & Perkins, S 2014, p52).

Heatwaves - invisible catastrophes

Globally responsible for 95% of deaths of all natural hazards in post-industrial societies (Poumadere et al. 2005)

Australian heatwaves kill more people than any other natural disaster (Coates et al. 2014)

The Intergovernmental Panel on Climate Change (IPCC) (2014) warns that **increasing deaths from heatwaves could become one of Australia's most detrimental impacts of climate change in the future**, with major implications for emergency services and public policy development

Direct Heatwave DEATHS

Invisible catastrophes

- ❑ **U.S. 2006 – 2010: > 3,332 deaths** (Berko et al. 2014)
- ❑ **Europe 2003: > 70,000 deaths** (across 16 countries)
(Robine et al. 2008)
- ❑ **Eastern Europe & Russia 2010: 55,000 deaths**
(Coates et al. 2006)
- ❑ **Australia (Victoria) 2009 & 2014: >500 deaths**
(Coates et al. 2014)

A new study by the Lancet Planet Health journal that focuses on Europe warns that heatwaves would be the most lethal weather-related disaster and could cause 99% of all future weather-related deaths in Europe. The study also highlighted that the growing human risk of climate hazards results from a combination of climate change, population growth and urbanization (Forzieri et al 2017)

CITIES: Bright lights, big smoke & UHI



Pic: Joel Coleman, Huffington Post 2016

Why focus on big cities?

City growth is a global phenomenon – For the first time in history city dwellers outnumber people living in rural communities. Rapid urbanisation, with its associated environmentally harmful consumption patterns, is also considered a significant contributor to greenhouse gas emissions. While acknowledging cities to be pivotal sites of innovation, creativity and social connectivity, there are significant challenges and risks posed by increasing urban expansion to human wellbeing and future ecological sustainability.

Australia is a highly urbanised country with 90% of the national population concentrated in coastal areas and 65% living in capital cities (Australian Bureau of Statistics 2010). This trend is set to continue as Australia's population growth is accelerating with ongoing migration to large cities projected. Importantly, cities are warmer than rural areas, due to the urbanisation processes (Harlan et al. 2006, Steffen, W, Hughes, L & Perkins, S 2014). A combination of large amounts of heat absorbing building material combined with heat creation from air conditioned buildings, a lack of shade and green space, create an 'urban heat island effect' (UHI), which results in higher day time temperatures and less cooling at night (Kovats & Hajat 2008). This means that urban heatwaves are considered amongst the most fatal of natural disasters

DE-NATURALISING DISASTER

Heatwave vulnerability

'Heatwaves are
silent and invisible
killers of silenced
and invisible
people'

Klinenberg 2002



Pic: M.Windisch 2010

Although humans have demonstrated capacity to adjust to their local climates through a variety of measures, the biological limit to heat tolerance is narrow. Heat causes distinct clinical illness and exacerbates pre-existing health problems. Patz et al. (2007) make the point that everybody can feel the impact of heatwaves, but the burdens associated with extreme heat are not evenly spread across society. They are concentrated among specific population groups, earning them the title of 'silent and invisible killers of silenced and invisible people' (Klinenberg 2002).

So who are these silenced and invisible people? Older people are significantly over represented in heatwave related excess mortality statistics internationally. This is largely, but not exclusively, due to reduced thermal regulatory capacity, increased frailty and higher rates of pre-existing chronic illnesses (Kovats & Hajat 2008, Loughnan et al. 2013). Studies of the 2003 Paris heatwave report that 80% of deaths occurred in the 75+ age group (Poumadere et al. 2005, Keller 2013), which is consistent with findings in Australia, where the largest increase in deaths occurred in the 65+ age group (Coates et al. 2014, Tong et al. 2015). Even though the high rates of heatwave related mortality rates seems to be an established fact in the literature, some authors argue that current figures could be a conservative estimate because not all heat related deaths are recorded as such (Loughnan et al. 2013).

'there are no generalised opportunities and risks in nature, but instead there are

sets of unequal access to opportunities and unequal exposures to risks

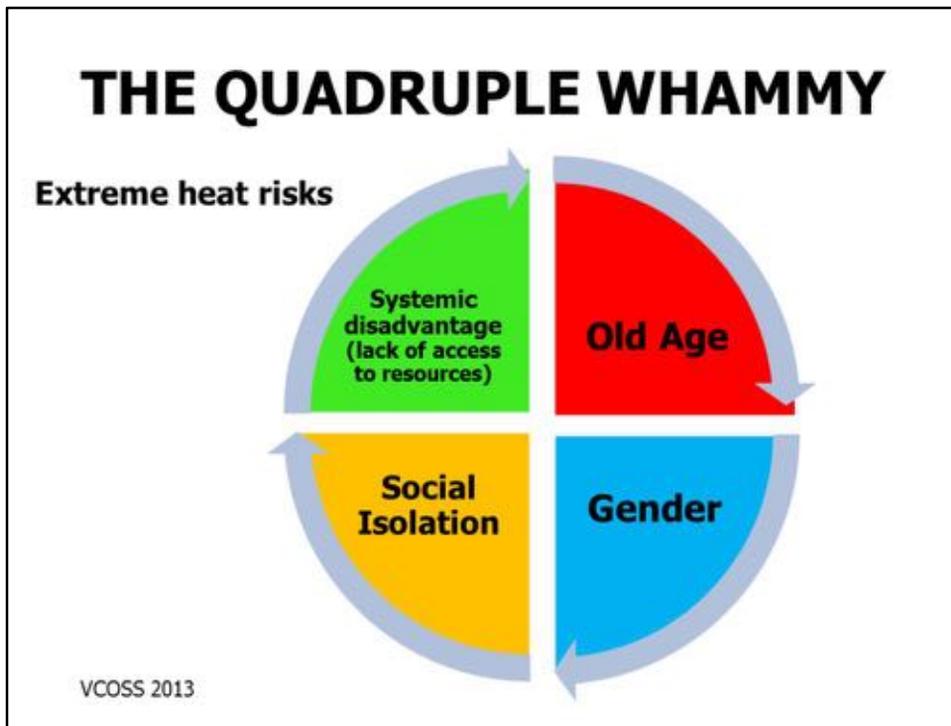
which are a consequence of the socio-economic system'



Fig. M Windisch 2011

Cannon 1994 (cited in Neumayer & Pluemper 2007)

Being elderly in a consumer driven society structured around youthfulness can be marginalising and alienating in the best of times. During extreme weather events old age can become lethal, if combined with particular social factors that are a product of the intersectionality of systems of power acting upon people's lives. This suggests that the extent of human vulnerability to climate hazards and an older person's ability to adapt to extreme heat events is as much impacted by nature itself as by a specific sets of social, economic and cultural relations. In other words, the 'social determinants' of health play a major role in this process.



Although growing evidence points to women being disproportionately affected by extreme weather events, literature recognizing the gendered nature of climate change is still limited. It can be argued that this is a reflection of a set of institutionalised social, economic and cultural relations that systematically undervalue women’s lived experiences on a global scale. Women make up the vast bulk of the global poor, experience entrenched discriminatory gender roles and suffer from significant power imbalances. These inequalities are responsible for significant health stresses and impede women’s overall capacity to adapt to climate change. Neumayer and Pluemper (2007) found that the lower the socio economic status of women, the higher their mortality rate compared to men in natural disasters. It is suggested that the deleterious effects of urban heatwaves are most profound for older women, who experience economic and social marginalisation. I call it the quadruple whammy: old age, gender, poverty and social isolation. Further research into the gendered nature of heatwaves is particularly important as women have a longer life expectancy than men but also less economic recourse in old age. Petersen & Parcell (2014) found that more and more Australian women heading into retirement age are falling into poverty and housing stress, due to low — or lack of — superannuation, high living costs and expensive housing, increasing women’s vulnerability to future heatwaves. The gender gap in availability of financial resources is a direct result of deeply entrenched structural discrimination women experience over their lifetime.

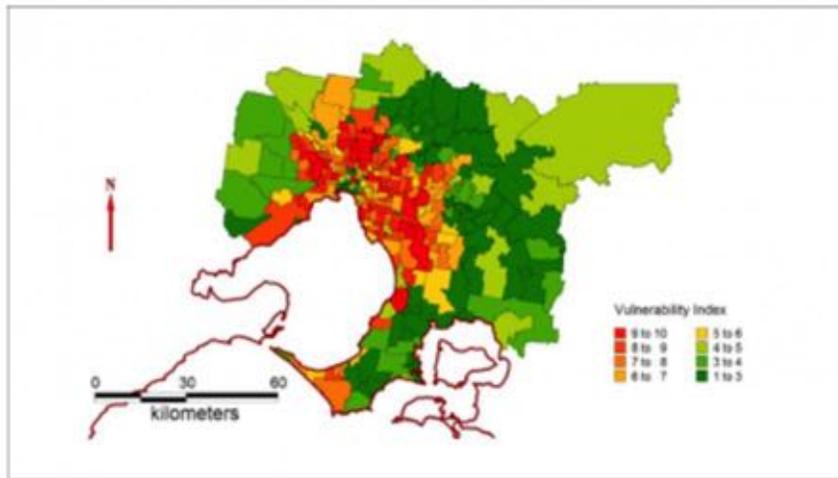
WOMEN VICTIMS

- ❑ 65% of 2003 French heatwave victims were women (Poumadere et al. 2005)
- ❑ higher mortality in Italy (1997-2003) and Spain (Barcelona 2003) for poor, isolated elderly women (Staffoglia et al. 2006, Borrell et al. 2006)
- ❑ In Australia women aged 75+ identified at being most at risk (Tong et al. 2014)



A range of studies conducted across Europe and Australia have identified women at higher risk of harm, including death, due to extreme heat. Poumadere et al. (2005) found that over 65% of the 2003 French heat wave victims were women and Staffoglia et al. (2006) concluded that elderly women who lived alone and were poor experienced higher mortality during heatwaves in Italy between 1997 – 2003. These findings were partially corroborated by Borrell et al. (2006), who used educational attainment as a measure of socioeconomic position for their study. They found a higher mortality rate of poor older women with low education levels, compared to men in the 2003 Barcelona heatwave, and suggest that the existing patriarchal structures of the Spanish welfare state, evident in very low widows pensions, may be a contributing factor to the female death rate (Borrell et al. 2006). Data from the Australian time series analysis conducted by Tong et al. (2014) found that women aged 75+ were identified at being most at risk of adverse heatwave effects, which supports findings from previous research in Australia and overseas (Kovats & Hajat 2008, Loughnan et al. 2013). The authors also speculate that physiological reasons, such as menopause related reduced thermo-regulation, combined with social circumstances may be responsible for increased female vulnerability (Tong et al. 2014). Women’s general longer life expectancy may also account for a higher mortality rate in heatwaves.

'Place matters: thermal inequity'



Loughnan et al. 2013

https://www.researchgate.net/publication/258385010_Mapping_Heat_Health_Risks_in_Urban_Areas

By establishing a link between place/dwelling and social vulnerability we can highlight the variables in the construction of risks in urban ecology. Certain suburbs are not simply locations where disaster happens, but can become critical agents of mortality. Loughnan et al. 2013 created special vulnerability index and identified risk factors: Poorer suburbs - intense urban heat island effect, (up to 4C hotter), less green spaces, hotter houses (renters), large % of older people living alone , range of ethnicities The importance of cooling as a protective measure seems undisputed in the literature. Extensive heatwave research has highlighted the protective effect of residential air conditioning and/or accessibility of cool environments on mortality (Kovats & Hajat 2008, VCOSS 2013). Heatwave plans in Australia advice on the health benefits of air conditioning for vulnerably population groups:

- 1) Residential air con – highly protective but what are the drawbacks? (cost, increase in green house gas emissions etc).

Although private air conditioning can greatly reduce heat stress and mortality for individuals (Semenza et al. 1996), it can also be considered a maladaptive strategy in a broader sense, as it raises greenhouse gas emissions, which is associated with more frequent extreme weather events. Extensive air conditioning use dramatically increases energy demand and consumption and creates supply hazards that threaten the functioning of essential services and infrastructure, negatively impact on daily living (Vandentorren et al. 2006, Victorian Government Emergency Management Victoria 2014). Income also becomes a deciding factor for home air conditioning use during a heatwave, due to prohibitively high electricity costs (VCOSS 2013).

Public cool spaces

Promotion of public cool spaces (air-conditioned heat refuges) - libraries, government buildings, places of worship, many commercial venues

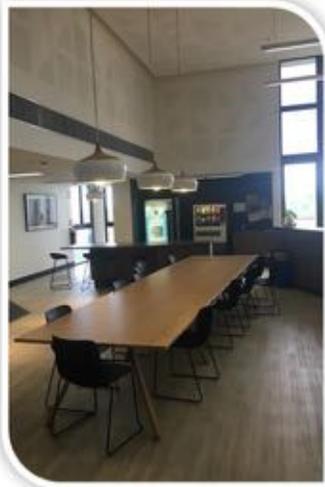
QUESTIONS to be considered...

- What are effective cool spaces?
- Effective for whom?
- Who can access them and when?
- What are the barriers to accessibility?
(consider transportation, toilets, pets, food, safety)

The construction of effective cool spaces policies as a heat adaptation measure are best centred on the heterogeneous experiences of seniors, which are shaped by the interaction of a multitude of factors that determine heat vulnerability. Sampson et al. (2012) argue that the level of financial, physical, psychological and cultural considerations taken into account will affect attendance.

Although accessing public cool spaces is considered a predominant strategy in many heatwave plans internationally, there is limited data available on the demographics of attendees, accessibility and attendance rates. There is no available research that addresses access and barriers to cooling centres from a gendered perspective. It makes it difficult to ascertain to what extent any identified barriers to usage can be considered 'gender neutral'. Taking into account women's heightened vulnerability to climate change and heatwaves due to entrenched discriminatory gender relations and 'gender-blind policies and practices' (Alston 2013, pp. 352), it can be argued that a research focus on women's experiences is warranted. Keeping in mind the growing demographic of older and poorer women, safe public heat refuges may well become a critical adaptation measure for women who cannot afford to pay high power bills in their homes.

'COOL' COOL SPACES



Pic: M.Windisch 2015

Key risk factor is social isolation.

Heat refuges could become sites for community engagement & re-connection

- Cool spaces have potential to prolong life for people at risk and strengthen community through being educational, collective, proactive and innovative

Commercial cool spaces: There the limitations of promoting commercial and profit driven operations as useful sites for heat adaptation. Although shopping malls and movie theatres are increasingly frequented during extreme heat, Sampson et al. (2012) identified prohibitive entry fees to certain venues and Saniotis et al. (2015) lack of appropriate amenities in privately owned spaces and shopping malls, which elderly persons deem necessary for comfort, as access barriers. Study participants also reported being asked to move on by police or security personnel (Sampson et al. 2012). This raises a broader ideological question of responsibility for community wellbeing, social protection and sound public heatwave policies based on low energy strategies and social justice principles. There are opportunities for proactive state intervention that enhances already designated public heat refuges, extends to more venues and offers regular free community transport to and from these sites. I will require a 'paradigm shift from individual to collective cooling' rooted in the socio-ecological tradition. Shifting away from emissions intensive private air-conditioning to shared public cool sites can be considered a more equitable and sustainable long term adaptation measure that focuses on inclusion and community capacity building. Public cool sites for action for climate justice & other causes, such as Social Action, Urban greening – can cool ambient air temperatures ; make people interact, more activity = healthier and happier and Community building – people and place connections

Question: should designated heat refuges only be available during designated extreme heat days of right across the summer months?

Social work's dilemma & tension

Focus on:
providing 'palliative
care' for society's
many victims
or
changing society for
the better for
humanity.....

Tester 2009, p109



Pic: M.Windisch 2010

The elderly, who experience multi-stress vulnerability, are most at risk from heatwave related death, with women making up the largest percentage. Most of the stress factors are socially constructed, illuminating the intersection of social systems of power responsible for much heat vulnerability. By rejecting the proposition that heatwave disasters are predominantly unavoidable and inevitable, we *de-naturalise disaster*. For the majority of victims their personal vulnerability to heat is an outcome of structural inequality inflicted upon an entire population group or geographic urban areas.

The wide-ranging impacts of extreme heat events also lay bare the detrimental consequences of ideologically driven welfare policies that privilege privatisation over community wellbeing and the protection of life affirming social capital (Klinenberg 1999, Keller 2013).

Adaption work is critical but will be extremely limited without mitigation. The sites of heatwaves become critical space for social work interventions and human solidarity. In light of the existential crisis climate change is posing - social and economic transformation based on social and climate justice has become a necessity

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