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Climate matters to western Sydney: Everyday sustainability practices in uncertain times

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UNIVERSITY OF WESTERN SYDNEY INSTITUTE FOR CULTURE AND SOCIETY

EXECUTIVE SUMMARY

Our study reports climate change is a top concern for western Sydney residents.

This report shows how residents of western Sydney practice environmental sustainability in their everyday lives and aspire for climate action. It analyzes the responses of 100 households in the LGAs of Parramatta, Blacktown, Canterbury-Bankstown, Cumberland, Camden, Blue Mountains, Hills Shire, Penrith, Liverpool, and Strathfield. Our respondents comprised a cross-section of age, genders, and ethnic groups including those who identify as residents and Australians from white, culturally diverse, and mixed racial backgrounds.

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EXECUTIVE SUMMARY

Given western Sydney is rapidly urbanising alongside vulnerability to climate and pandemic-induced events, we asked the region's residents what environmental practices were essential to their wellbeing and that of their family members, and what their aspirations were for a sustainable future. In a region managing the realities of heat, fears of water contamination, and preparing for the possibilities of flood and fire, practical responses for households are frequently woven into everyday life.

This report documents how residents of western Sydney are proactively coping with weather, climate and pandemic related events and caring for household members and their surroundings. This includes their own homes and the devices with them, as well as gardens and community spaces such as public parks. Instead of being passive recipients at the mercy of urban expansion, climate change and everyday weather-related events. Our findings demonstrate that western Sydney's residents are proactive agents.



One powerful example of proactiveness is in the management of air. At times, responding to everyday environmental conditions in western Sydney, such as summertime heat, involves opening the home or shutting it up tight.

At other times, it involves mobilising community connections and spaces like malls and libraries as refuge from heat waves and bush fire smoke. Out of necessity, western Sydneysiders are adept at responding to changing and uncertain futures.

Our study found that while for some residents in western Sydney affordability was an issue, others resisted turning on air conditioning for reasons of sustainability.

Our respondents exerted both high and low technology

control over their domestic spaces for balancing comfort, sustainability, and costs. 90% of residents used blinds, along with fans and cross flow ventilation to cope with increasing heat.

Many reported using air conditioning only sparingly. Residents took initiative to design solar-passive solutions themselves, including re-organising ventilation and closing windows and blinds, growing vines, trees, and bushes for shade.

Across age, ethnicity, and LGAs, people in western Sydney reported the use of purifiers, humidifiers, and growing plants to manage climate indoors and out. There was a higher proportion of 25–44-year-old respondents who tended to be techno-optimistic and early adopters of new technology.

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A SUSTAINABLE & THRIVING CITY

All residents in western Sydney, across age, genders, and ethnic groups have precise and sophisticated recommendations to plan for a sustainable and thriving city: the need for more green spaces, the reorganisation of the built environment, regular tree planting, and long-term planning for environmental issues and planned construction. In addition to proactively re-adapting their homes and surrounding spaces like gardens, residents expressed the need for progressive environmental legislations on climate, and campaigns including educational programs in schools.



KEY RECOMMENDATIONS



01. ENERGY SECTOR

Rather than assuming residents are uninformed consumers, a shared starting point would recognise that many residents are skilful and judicious in their use of energy and are keen for new technologies that expand these capabilities. Energy affordability is a key barrier to maintaining a comfortable household in summer. Many residents who are withholding their use of air conditioning are doing so due to concerns about cost.

02. LOCAL & STATE GOVERNMENTS

Green space, beaches and other cool environments are increasingly important to the life of the city as their access becomes increasingly difficult. Measuring and tracking the accessibility of cool environments should be a priority for government agencies responding to climate change and could comprise a central tenant of a 'wellbeing budget' considering the well documented health and community impacts of accessing and communally managing green space.

03. URBAN PLANNING AUTHORITIES

Include western Sydney residents more meaningfully in green space and climate related planning. New and existing developments must consider how to protect and expand parks, trees, community gardens and other green spaces as integral to the life of the city. Developing new tools to document the cumulative impacts of planning on green spaces could help highlight the need to protect these urgently.



CONTENT & MAJOR FINDINGS



01. SUSTAINABLE ENERGY USE & CONSUMPTION

Making a home in western Sydney requires continuous engagement with the local environment. Here, as elsewhere, the movement of air and water are pivotal to household comfort and urban sustainability. Energy, architecture and planning urban gardens mediate these movements: fans, windows, air conditioners and shading all determine our indoor comfort while ecological practices such as urban private and community gardening enhance liveability outdoors. Taken together, these linkages point to the distributed nature of homeliness within and beyond the walls of housing.

Climate change and everyday household practices are intimately linked. Households are big energy consumers (approximately one third of the total in developed countries), contributing to environmental pollution and greenhouse gas emissions. At the same time, households, as dynamic hubs of interpersonal, intergenerational, and material relations, engage in practices of care, including everyday care practices that are conducive to ecological sustainability. Despite their direct links to climate change, households and related ecological care practices including use of technology and automated smart home systems are substantially absent from the literature surrounding sustainability. This absence is problematic considering their increasing role in energy management and sustainable living.

Practices of everyday sustainability, coping and care in western Sydney include dealing with thermal discomfort, concerns about the quality of air and water, energy use and related aspirations towards negotiating and navigating climate change. All 100 residents in western Sydney, across age, genders and ethnic groups reported sophisticated practices to create a sustainable and thriving region. The practices of everyday sustainability in the household setting and in community and privately owned green spaces are also linked to normative and practical considerations. These include energy efficiency and conservation, growing and foraging food, managing water use and ensuring safety, gardening, and contributing to the local ecosystems.

All respondents and especially those with pre-existing health conditions expressed concerns about rising heat, air quality and water, climatic events, and the pandemic. Costs towards energy bills and affordability, and values like thriftiness in the use of energy and food were noteworthy. Residents especially attended to the creation of a comfortable and well-ventilated space at low costs. While all residents expressed concerns and demonstrated commitments to everyday and communal sustainability, women especially expressed these in ways that were also tied to caring for household members.

Respondents from the 100 households we surveyed were conscious and monitored time spent in cooking, washing, use of electricity and water. 50 out of the 100 households had climate control (portable or ducted air conditioning and gas heating). All respondents exerted both high and low technology control over their domestic spaces for balancing comfort, sustainability, and costs, including using blinds, fans, and other means such as thermal wear.



Lyla, a woman interviewee belonging to a culturally and linguistically diverse background, conveyed how she prefers a more hands on approach to controlling her indoor environment. She spoke about practices of temperature control, energy use, food dehydration/freezing, and foraging as everyday practices. These reflect how her intertwined environmental and culinary, practices including foraging enable her to lead a sustainable life.

“I am a bit old school. I do all my (kind of) heat related cooking early in the morning. So, we have a slow cooker...although the food takes longer, the energy consumption is still lower than the oven. So that helps both ways- like it’s producing a delicious meal at the end, but also kind of just the ease of preparing something and just forgetting for about an hour... It’s worth a dehydrator. Again, food related. Then freezing fruit... icebox offers ways of keeping cool. ...We went out mushroom picking... The other thing that I did from when I was a kid that my mom told me was to hang washing inside the house. that I guess absorbs the heat... then, I know, it’s counterintuitive, but opening windows. I think I need fresh air to come in. Even though it is hot air, but I feel like the fresh air is more important than the hot air. So, open the windows and generally the house is pretty cool.”



02. ADAPTION TO URBAN HEAT

Western Sydney's residents proactively engage in alternative practices to keep indoor temperature down during summers. 55% reported not having air conditioning at home. 90% of respondents, including those with air conditioning, used blinds to cope with increasing heat, as well as fans and cross flow ventilation to keep costs low.

Residents took initiative to design solar-passive solutions themselves including re-organising ventilation and closing windows and blinds, growing vines, trees and bushes for shade and redesigning clothing for thermal comfort.

For the 45 respondents with access to private ducted, wall mounted or portable air conditioning system, 75% stated they had a threshold for turning on these systems. While most set it at 32 °, others only turned it on when the heat was "unbearable" or "only at night."

Even those who reported they were comfortable with heat, had reliable private air conditioning/moved indoors during the heat, still moved out to cope with the rising heat.

Almost a fourth of the respondents moved outdoors to community libraries and shopping malls, the two most frequented sites. Others reported using community pools and travelling to the coast. 33% reported staying inside on really hot days.

"I wrap myself in wet clothes - neck, head, douse myself in water in the yard when working in the garden."
- Parramatta Resident



03. MAINTAINING AIR QUALITY

"We use the environment rather than appliances and ventilate through the house. We have a big open plan living area. It opens out onto the to the yard. We have staggered doors along the back, so they're open quite a lot of the time. We have the windows open, lots of airflow through the house through the day.

So, when the temperature is nice, we use the light... We make sure that we have good air quality when it's smoky and bushfire...So we kind of navigate those things as well. And we've had to do that over the last few years"
- Margaret (Interview respondent)



"The traumas are still very real. And every day where they feel where there's that smoke, it's very, you know... takes them back and elicits that flight or fight response. It's very, very difficult for a lot of people."

(Betty - Anglo Australian, lives on the base of the Blue Mountains, lost home to fire in 2013.)



Almost a third of the respondents reported indoor air quality as an ongoing concern for reasons of health and well-being of family members. 19 respondents had concerns with outdoor air on account of health reasons like asthma, hay fever, and allergies and living close to busy highways and roads. Across age, ethnicity and geographic locations, people in western Sydney reported the use of purifiers, humidifiers, and simple solutions like cross ventilation. Almost a fifth reported the use of air purifiers, humidifiers, and air conditioning to maintain indoor air quality. This concern became more acute in relation to the 2019-2020 bushfires. A fifth of the respondents experienced the severity of the bushfires including mental health concerns like depression, claustrophobia, anxiety, and fears. Respondents stated the conditions were: "hideous, unrelenting and exhausting", and "horrible, claustrophobic and depressing."



04. WATER SOURCES & CONCERNS

05. CULTIVATING GREEN SPACE



On concerns regarding safe drinking water from the tap, Beatrice who resides in Glenbrook notes:

“I don’t trust tap water because even at night-time when you brush before bed, it’s more like a bleach. I don’t even make coffee from the tap just like this. You need to be on the filter”

Echoing the same concern, Lilly who resides in Harris Park also explains her concerns about drinking water supplies in the old brick houses. She says,

“The flipside of having an old house brick house is that the pipes are very, very old. So, we have a water jug for that, you know, has come with us from the old house. You change the filter every 8-10 months, no problem, but you got to stick to the regime or by changing every like three or four months. And you can tell that there’s like a build-up of like, black stuff. I think it’s somehow the carbon coming out or just kind of whatever in the pipes that are going to have bleaching into the water.”

On practices of conserving water, Betty says:

“We don’t leave taps running; we have them off as much as possible. I only shower every couple of days. I mean to my eyes; people think I’m gross but it’s better for the environment and better for you”



The response rate to questions about water was relatively low. This should be of concern for the water industry. Of respondents, half drank unfiltered tap water and the remainder drank filtered or bottled water (4%). 11% expressed concerns about the quality of water including contamination from lead, fluoride, and other chemicals. Respondents reported water discoloration, and alteration in taste and smell. These included residents of Blacktown, Parramatta, Canterbury-Bankstown, Penrith, and Cumberland.

Reflecting on her experience of Springwood community garden, Betty says,

“it’s amazing. They have a relatively large space, they have an incredible diversity of fruit trees, and they’re always sort of planting, pruning, and harvesting. And there is a variety of people there from older to younger...more experienced and less experienced. You can just learn so much just by being there and hanging out with those people. It’s fully communal. Everybody goes and helps with everything. And yeah, at the end of each sort of Saturday morning, whatever is harvested gets divided up with whoever’s there”.

An Australian resident of Parramatta, describes the advantages of having a private garden as follows:

“provide benefits of growing herbs to eat, citrus, roses, flowers and ‘farm/collect’ various native grasses such as Oplismenus and Microlaena; provides herb and grasses (green protein seed) for pet Budgie breeding; garden provides diverse habitat for insects, bluetongue lizards, possum grazing, various large birds; provides heat reduction and psychological privacy and mental space for enjoyment”



97% of the respondents were involved in gardening; more than a third use and contribute to community gardens. Community gardens were popular in 10 western Sydney LGAs, with 10% of the respondents contributing to community gardens in Parramatta. Respondents felt that caring for green spaces and cultivating these were important for several reasons. People noted that gardens and green spaces have positive ecological impact, produced fresh food and herbs, reduced waste, and carbon footprint, and were a means for building community and developing place attachment. Almost a fifth of the respondents established a correlation between gardening and caring for green spaces and an improvement in their mental health and well-being. This is especially significant since the study was conducted during the COVID-19 pandemic (end of 2021).



06. ADOPTING NEW TECHNOLOGY

Most respondents considered themselves early adopters of new technology. 36% of the respondents in the region expressed a willingness in using new technologies at home, 9% expressed an ambivalence about it. Nearly 20% expressed a desire to purchase solar roof top arrays and electric vehicles, often in combination with energy or home management systems.



07. CLIMATE CHANGE CONVERSATIONS

We spoke to Margaret, an Anglo Australian woman who grew up in social housing, is now western Sydney resident and has solar power installed on her roof. She describes how she retains control over use of home appliances:

“I wash at certain times during the day, because we have solar, so I make sure that I do my washing and like, dishwasher and run any of those kinds of appliances. At that kind of peak period during the day when we’ve got lots of sun and it’s going to kind of save money and create better energy for us.

We also spoke to Beatrice, an Argentine national who migrated to Australia three decades ago and has lived in western Sydney for 38 years including in social housing in Cranebrook. She bought and renovated the public housing and has had solar power installed since 2009. She is very energy savvy and has an all-in-one electric washer/dryer and times it to take advantage of peak production time. Uses AC to cool home between 12 and 3 when she is generating power. She was aware of her running costs for electricity consumption and found that her energy bill dropped in summer (\$30-35 per month) because of her judicious use of AC. In winter it quadrupled (\$120)—mostly because she needed more heat.



“Check on the environment. Fix climate change. Plant more trees.”

A young Sydney resident who identified herself as a Black woman.



Climate change was a top concern for all respondents. In addition to proactively altering their built environments and surrounding spaces like gardens, residents expressed the need for progressive environmental legislations on climate, and campaigns including educational campaigns in schools. People took initiative to communicate with each other and those who may be unaware of the costs and impacts of climate change.

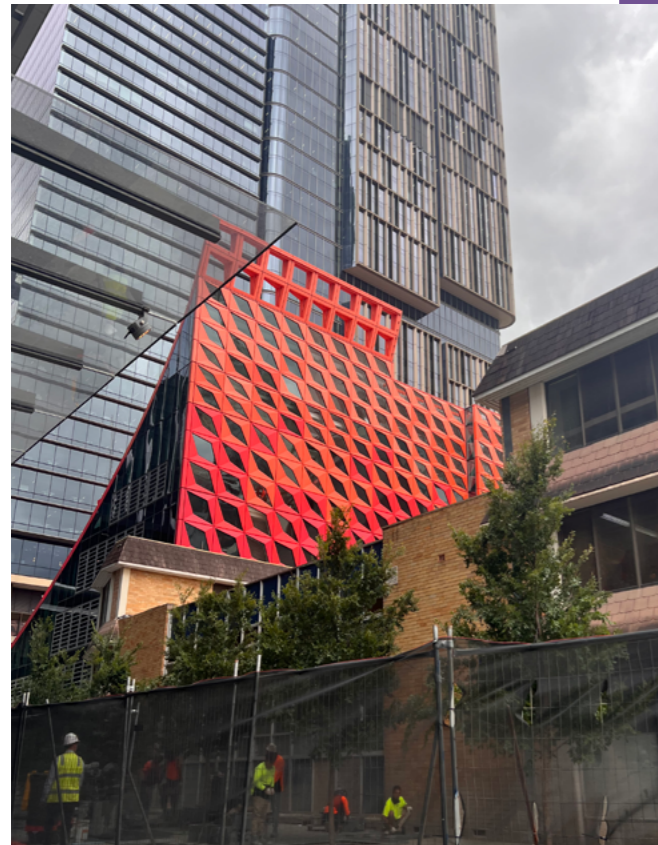
Some residents of western Sydney conveyed about the risks associated with flooding, and spoke about mould that comes along with warmer wetter summers. Others were well aware of the paradoxical/contradictory impacts of battery storage—both the cost and ecological consequence of lithium batteries. Lyla was “still researching” the impacts of photovoltaics and wanted a fuller consideration of these impacts.

She was equally concerned about soil contamination when it comes to gardening and was very risk averse in this regard.



More than half of all respondents had definite recommendations for local and state government. The most frequent suggestion was that state and local governments could do more to plan development and plant, protect and care for trees and green spaces.

A commitment to renewable energy and EV transit was also represented and many linked canopy cover and renewables as part of a strategy for responding to climate change. Both survey responses and in-depth interviewees evidenced a need to see social equity concerns as inseparable from ecological challenges.



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08. THE ROLE OF GOVERNMENT

“Stop excessive overdevelopment of high-rise buildings! Immediate and concerted campaign to create tree lined streets. This means not building close together, high or houses. Insisting developers pay for green lands/other amenities at a significant level to councils.

Insist that green cover be measured and monitored very publicly to insist that tree cover remains. Identify all sites that can remain parks and totally protect them from any private enterprises, leases and developments.

Pay to staff them appropriately. If this were done for western Sydney it would still cost much less than the tax concessions given to say Hancock mining annually”

- Resident of Parramatta (35-44 years).

“More trees! Better care taken with planning and development, old trees retained and protected, getting rid of black roads, more electric vehicle charging available, more encouragement for community involvement in greening activities, community based recycling centres”

- Resident of Parramatta (35-44 years) identifying as an British-Australian woman.



DETAILS OF THE STUDY: WHY WESTERN SYDNEY AND THE ENVIRONMENT?

This research aimed to understand how people in western Sydney responded to the environment and their everyday practices as well as their response to climatic events like the Black Summer Bushfires and the COVID-19 pandemic. Thereby, the project aimed to investigate the following research questions:

1. How do environmental sustainability practices for western Sydney residents operate both inside and outside of the home to aid in the maintenance of air quality, comfort, and wellbeing?
2. How, and to what extent, do western Sydney residents use technology to manage their indoor and outdoor home environment in ways that attend to their own needs and the needs of others they care for?
3. How have wider events, especially the bushfires and COVID19-related lockdowns impacted these practices?

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METHODS

The methods included a survey of western Sydney residents over 18 years of age (n = 100), and in-depth qualitative interviews with residents from the survey sample (n = 6). The inclusion criteria for the residents set out that they needed to have been living in a western Sydney Local Government Area (LGA) for at least a year prior to the survey or interview and could be in a range of housing types – own house/unit, rented house/unit or public housing. The methods selected aligned with different project stages.

The pilot survey targeted a broad population through council newsletters and relevant social media groups and posts to help us understand and map the nature of everyday sustainability practices and related use of automated household devices by residents. The questions related to people's everyday sustainability practices, use of devices for maintaining a comfortable home, and gardening in private or community gardens.

The in-depth interviews were conducted with those from the survey sample who were interested in being contacted for the interview, as well as those living in estates identified by council who were

already engaged in private or community gardening. Through the interviews, we aimed to explore further, along with the residents, their experiences, motivations, challenges, and limitations, including costs, benefits, and outcomes, of their everyday practices.

For the survey, a flyer was shared through the council newsletters of 2 western Sydney LGAs. This flyer contained detailed information about the project and its aims, details on the inclusion criteria for the study, the lead investigator's institutional email address and the survey link. The flyer was also posted in relevant social media groups specific to western Sydney residents that the investigators had access to. Survey participants were offered reimbursement for their time in the form of a grocery voucher.

Those from the survey interested in a follow-up interview had the opportunity to share their email address with the research team. The researchers then contacted the identified participants via email and shared the information sheet and consent form with them. Interviews took place online via Zoom and participants were offered reimbursement for their time in the form of a grocery voucher.

EVIDENCE BASE



Our respondents have shared how their practices of everyday sustainability, including the use of technology, work to create 'homeliness'. Western Sydney is a rapidly urbanising area particularly vulnerable to environmental stressors such as urban heat.

Maintaining air-quality and comfort, indoors and outdoors, would seem crucial, more so considering the impacts of the COVID-19 pandemic and the Black Summer bushfires (Lohm & Davis,

2015; Bardsley et al., 2018). While the former has raised concerns about air-borne infections leading to an increased emphasis on ventilation, the latter impacted air quality and led to households investing in inexpensive air purifiers.

Therefore, both events served as springboards for participants to consider broader practices of sustainability that contribute to homeliness within the home and in their immediate outdoor environments.



EVIDENCE BASE

Research conducted by Morrison and Piracha in the western Sydney context has found that half of its food-producing land may have been lost to housing development in the last decade (2022). Not only does it have implications for food security in the region and in Sydney more broadly, but the loss of land in this way also impacts the local environment of old and new residents.

With the increase in population in western Sydney alongside growing climate impacts, it becomes both timely and urgent to understand how its households are coping. It is also crucial to centre western Sydney voices and concerns in the debates about over-development and green spaces in Sydney given that they are the most impacted.

This research focused on how residents in western Sydney (including CALD communities) attended to the environment and wellbeing in their home and garden spaces (Law, 2018; Strunk & Richardson, 2019; Abramovic et al., 2019; Harris et al., 2014; Head et al., 2021). The empirical data around maintaining air quality, role of automated systems and use of community and private gardens by residents in everyday life during particular events, such as the COVID-19 lockdown and the Black Summer Bushfires, have helped highlight how these practices are not only private matters but are

socially shaped. These fire and flood events present immediate material challenges for infrastructure provision in and around western Sydney. For example, western Sydney local council's participants of Endeavour Energy, 2022 Local Government, Workshops rated 'Reliability as the climate changes' and 'helping cut greenhouse gases' as the key challenge facing the region. Furthermore, Sydney Water commenced a water saving campaign called 'Save it with me' in November 2022 due to organic debris from record rainfalls causing the amount of treatable water in Warragamba Dam falling to just 25% of the total dam volume.

The vulnerability and precarity of infrastructure under a rapidly changing climate underscores the need for collective organisation. Our findings point to a significant gap between mainstream visions of individualised, 'smart', high technology household futures and both the financial and practical realities of heat and disaster adaptation for many western Sydney households.

Heat adaptation is already collectively managed. Our findings are relevant to planners, councils, infrastructure providers, energy system modellers and community organisations grappling with climate breakdown and the events that accompany it.



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