Climate Research Forum Summary

The University of Sydney's first Climate Research Forum brought together over 150 researchers from across all Faculties who are currently researching climate topics or are interested in doing so.

The Forum had **three objectives:**
1. *Community building:* To create a sense of community among staff working in the climate space.
2. *Research ecosystem clarity:* To provide clarity on which climate-focused MDIs, Faculty centres and networks exist, what they work on and how they work together.
3. *Identifying research strengths:* To identify where our climate research strengths are and opportunities to build new multidisciplinary collaborations.

Three themes emerged from the day
1. **Systems change and holistic approaches**
    a. "We want the Uni to support us to take action for systems change. And for the Uni to take action for systems change."
    b. "That a solution for one area may directly contradict a solution for another. We have to approach the crises holistically and collectively."
    c. "We need to engage with social, cultural and political aspects of how we live, to begin to shift towards sustainability, in housing, transport, food etc."
2. **Community and collaboration**
    a. "The importance of community, at all levels."
    b. "It would be great to connect with people from other discipline - knowing their background and how to proceed from this event is important."
    c. "Community led value and relevance - grass roots up."
3. **Education, knowledge sharing, and innovative methods**
    a. "The amazing diversity and depth of knowledge across the University about the complexities of the climate crisis. Just need to harness this beyond the faculty silos."
    b. "How others are starting to incorporate Indigenous Knowledges into practice, policy reform, as a metric measurement and highly valued framework."
    a. "People want to do multidisciplinary research. Very excited by scale of participation. One day is hard for identifying projects, but a good start for relationships."

Breakout Session summaries

The Forum featured six breakout sessions which were led by Faculties, MDIs, Faculty Centres and informal networks who are interested in continuing these conversations. These groups offer research support through funding, professional staff support, facilitating the building of internal and external partnerships and amplifying research impact. Individual session summaries follow with next steps and ways to get involved noted in orange boxes.

Session 1: Centring nature in the transformation of urban spaces

Co-hosts: *[Sydney Environment Institute](); [Henry Halloran Research Trust]()*
Speakers: *Dieter Hochuli (Sci); Adrienne Keane (ADP)*

Participants discussed the major challenges and barriers of integrating nature into urban environments. These included:

- The costs involved, including maintenance, and economic imperatives that hinder integrating nature.
- Conflicting priorities between housing and green spaces.
- It's hard to quantify the value of nature given the complexity of biodiversity.
- Preconceptions and perceptions of nature, and the need to coexist with it.
- Addressing both the housing crisis and biodiversity crisis.
- The need for nature-centric laws and more holistic, long-term planning involving government and community.
- Reframing our perspective to integrate urban environments into nature rather than the other way around.
- The concentration of cities limiting space for nature and the influence of digital advancement on urban spaces.
- Using data sets and interactions to understand people and increase education.

Participants were then asked to brainstorm potential solutions to the challenges. These included:
- Increased collaboration with the financial sector and various stakeholders to understand the "value" of nature.
- Developing adaptation strategies for urban wildlife in the context of climate change.
- Engaging at the grassroots levels to raise awareness of biodiversity, how they can experience biodiversity and the benefits of integrating nature into cities.
- Enhancing political accountability and overcoming inertia with long-term solutions.
- Implementing small-scale projects that address both the housing crisis and the climate/nature crisis holistically.
- Changing human behaviour to incorporate biodiversity by examining the relationship between institutional structures and human agency.
- Using data gathering and social networking to strengthen connections to nature.

> If you are interested in exploring some of these challenges and solutions, please reach out to Ana Reilly (ana.reilly@sydney.edu.au) from the Sydney Environment Institute.

Session 2: Building resilient local food systems

Co-hosts: *[School of Life and Environmental Sciences](); [Charles Perkins Centre](); [Sydney Institute of Agriculture](); [Sydney Centre for Healthy Societies](); [Integrated Sustainability Analysis]()*
Speakers: *Joy Becker (Sci); Juliet Bennett (FASS); Rebecca Cross (Sci); John House (Sci); Arunima Malik (Sci); Richard Trethowan (Sci)*

Australia is a major contributor to the global food bowl, yet its food systems have become vulnerable to climate change and biodiversity collapse. This session brought researchers from across campus together to discuss how could Australia's food systems be reimagined by exploring agroecology practices, incorporating Indigenous food knowledge, and building food sovereignty for resilient local systems and more. A panel of speakers brought together big picture perspectives with practical examples which were discussed further through table discussions and mapping where researchers' work sat in food systems map which brings together biological, economic and social systems. Some of the key takeaways were:

1. **Understanding and reducing agri-food vulnerabilities**:
   a. Emphasising the value of anticipating agri-food vulnerabilities in the changing climate and proactively adapting to these challenges.
   b. Acknowledging the complexity of the threats posed to food systems and that a solution to one problem might have unintended consequences in another area (e.g. breeding resilient crops to drought reduces genetic diversity impact soil biodiversity).
   c. Addressing the critical decision-making process around land use, particularly avoiding unnecessary land clearing.
2. **Emissions and consumption**: Reducing emissions requires connecting across emissions in production and consumption in global markets and supply chains, including questioning what we eat and where we buy it from.
3. **Imagining local food futures**:
   a. Envisioning a future where local, seasonal food is purchased directly from farmers, and communities grow their own food, supporting the shift to localised food systems.
   b. Addressing the challenge of improving local supply chains and changing consumer habits, while balancing this against Australia's significant global food export markets.
   c. Considering the role of sacrifice, such as not eating non-seasonal foods, and framing it positively as something beneficial for personal, social, and planetary health.
   d. Highlighting the importance of well-being, and the need to get communities to feel better about their food decisions, linking these with biodiversity, sustainability, and healthier landscapes.
4. **Agroecology and Indigenous food sovereignty**: Highlighting the diverse, place-based, and community-led approaches of agroecology and Indigenous food sovereignty as key ways forward in building resilient food systems.
5. **Opportunities in sustainable agriculture at USYD's farms**: Highlighting the opportunities to implement integrated sustainable agriculture on university farms, including practices like zero waste (using by-products as a nutrient for another process) and achieving net-zero emissions in food production.
6. **Alternatives to profit-led models**:
   a. Recognising the unresolved tension between sustainability and profitability, highlighting the need for further discussion and diverse perspectives.
   b. Advocating for alternatives to profit-driven modes of operation, with "optimal scale" as a guiding principle for policy and decision-making.

    c.   Exploring the role of environmental markets, such as carbon credit generation, and agri-environmental schemes to support farmers transition to more regenerative farming practices.

    d.   Change starts at home, within our University, including seeking a better balance in our research activities and on-farm activities between the neo-productivist, reformist, progressive and radical modes of production (Watson 2024). Balancing the dominant focus on reformist approaches, with other approaches and forms of agriculture, can open up new opportunities for diversifying risk of food insecurity, as well as generating place-based approaches to climate change mitigation and adaptation.

        i.   Neo-Productivist – growing bioeconomy, synthetic foods (plant-based meat alternatives – PBMAs and cultured meat), biotechnology (GMO and gene editing), and vertical farming.

        ii.   Reformist – precision agriculture, climate-smart agriculture, and conservation agriculture.

        iii.   Progressive – regenerative agriculture, organic agriculture, and agroecological agriculture.

        iv.   Radical – permaculture, slow food, food sovereignty, free food, and degrowth.

7. Engaging with industry and communities:

    a.   Underscoring the importance of collaborating with industries, land care, and wildlife restoration groups to promote biodiversity, regeneration, and sustainable food production.

    b.   Advocating for the development of model farm systems and the role of farmer-to-farmer communication in driving change.

    c.   Highlighting the need to form a research collective with a shared vision of sustainable food production that promotes regeneration, biodiversity, and social engagement, and recognises the value of diverse perspectives.

Reference: Watson, D, 2024, *Transforming food systems: The quest for sustainability (1st ed.),* Burleigh Dodds Science Publishing.

An application is in preparation for a new Multi-disciplinary Initiative (MDI) focused on creating pathways towards equitable, healthy, and environmentally sustainable food systems. If the application is successful, the MDI will launch in 2025.

The discussions from this session reflect the holistic systems-based approach that is needed to transform our food systems. If you're interested in being involved in the consultation regarding the new MDI, please contact Elizabeth Cowley (elizabeth.cowley@sydney.edu.au). More details about the new MDI will be released in the coming months.

Session 3: Mental health impacts of climate change

Co-hosts: [Brain and Mind Centre](); [University Centre for Rural Health](); [Ecological Emotions Research Lab](); [CREATE Centre](); [Sydney Environment Institute]()
Speakers: Claire Hooker (FMH); Jo Longman (FMH); Paul Rhodes (Sci)

The session aimed to assess the strengths of climate and mental health research at the University of Sydney, identify connections between research interests, and facilitate discussions beyond participants' usual networks.

- **Interdisciplinary collaboration:** A diverse range of university groups are already exploring the mental health impacts of climate change or are interested in doing so, incorporating various methodologies and approaches. This includes examining stressors from climate disasters to eco-anxiety in youth. We began to visual the various internal and external groups working in this space.

- This topic is being explored by a range of groups across the University and several are interested in incorporating it into their work. It brings together a range of methodologies, approaches and entry points into the topic (e.g. stressors from climate disaster impacts to eco-anxiety amongst young people). We began to visualise the various internal and external groups working in this space below:
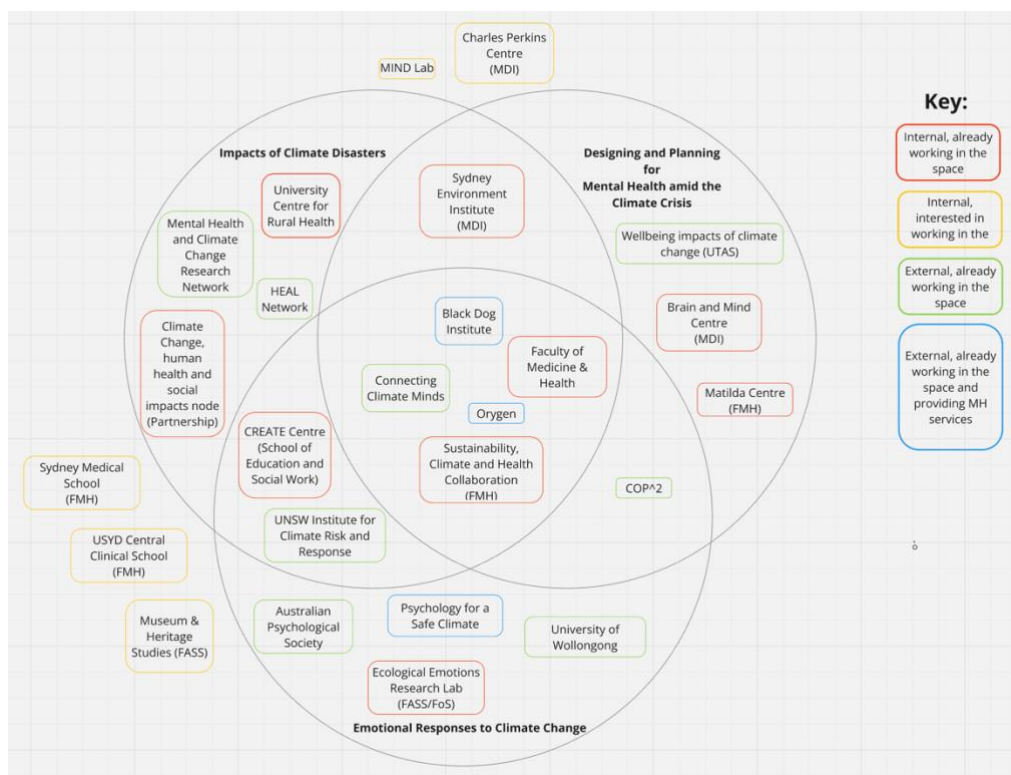
- **Multidisciplinary and participatory approaches:** The importance of integrating participatory methods, lived experiences, and [creative methodologies]() in climate mental health research to empower communities and challenge traditional notions of resilience and mental well-being. An ecological and activist approach is encouraged to drive impactful change. Giving space to Indigenous knowledges and collective ways of knowing and communicating through yarning. Multidisciplinary research is needed to address the cause of distress from a systems level and multi-sectoral approach (e.g. how could urban green spaces be reimagined to improve social

connectivity?). Academic institutional barriers often discourage more creative and multidisciplinary research, how do we overcome these barriers?

- **Multidisciplinary and participatory approaches:** The importance of integrating participatory methods, lived experiences, and creative methodologies in climate mental health research to empower communities and challenge traditional notions of resilience and mental well-being. An ecological and activist approach is encouraged to drive impactful change. Giving space to Indigenous knowledges and collective ways of knowing and communicating through yarning. Multidisciplinary research is needed to address the cause of distress from a systems level and multi-sectoral approach.

- **Vulnerable communities and resilience:** Climate change exacerbates underlying inequalities and inequities, leading to a lack of voice and agency amongst marginalised groups (e.g. women, Indigenous peoples, people living with a disability, LGBTQI+, regional and remote communities). Building community resilience through connection, education, advocacy, and community-driven approaches is essential to overcoming systemic barriers and ensuring informed choices.

- **Economic impacts of climate distress:** Climate change intensifies mental health stressors linked to financial instability, particularly among farmers and those in agriculture. The discussion highlighted how climate impacts on food security and production compound psychosocial hazards like isolation and financial uncertainty.

- **Displacement from climate disasters:** Climate disasters displace communities and lead to housing insecurity. Addressing these issues requires focusing on lived experiences, social connectedness and empowering communities in decision-making.

- **Ecological emotions and youth:** Young people are uniquely affected by the uncertainty of ecological collapse, societal breakdown, and rising financial and housing insecurity. It's important to avoid pathologizing climate distress, instead engaging in non-traditional, collective, and creative approaches to address these challenges.

Next steps:

- **The Brain and Mind Centre are hosting their 7th annual symposium on Thursday 5th November.** Climate and mental health will be a topic explored and more details about the program will be released soon. | Register here

- Now that researchers have begun to meet each other across campus, the organising team would like to host a research development workshop in 2025 to develop project ideas. More details will be shared with those who attended the session.

Session 4: Can the net zero transformation be nature positive?

Co-hosts: *[Net Zero Institute](); [Australasian Wildlife Genomics Group](); [Marine Studies Institute](); [Sydney Environment Institute]()*
Speakers: *Eleanor Bruce (Sci); Deanna D'Alessandro (Eng); Carolyn Hogg (Sci); Tamar Resnik (Eng)*

The topic, "Can Net Zero be Nature Positive" requires a comprehensive approach that addresses both climate change and biodiversity loss simultaneously. While net zero initiatives have gained momentum, biodiversity continues to decline globally, highlighting the need for integrated solutions.

The workshop was structured to consider the broader challenges and start developing capabilities through a thematic approach. Participants were asked to collectively debate and address these challenges. The following themes were discussed as well as any areas of conflict and complementarity between net zero & nature:

- Land use
- Energy transition
- Economic approaches
- Social and political factors
- Education and collaboration
- Circular economy
- Biodiversity and planning

> The discussions are informing a roadmap for the concept of the net-zero-nature nexus for 2025 and beyond. **If you missed out on attending this session, a follow-up workshop will be held online on 12 September 2024.** If you are interested in attending, please contact Tamar Resnik (tamar.resnik@sydney.edu.au) from the Net Zero Institute.

Session 5: Political inertia in planning solutions for sustainable transport

Co-hosts: *[Henry Halloran Research Trust](); [School of Architecture, Design and Planning]();
[School of Social and Political Sciences](); [Transport Lab](); [Institute of Transport and Logistics
Studies]()*
Speakers: *David Hensher (Business); Jennifer Kent (ADP); David Levinson (Eng); Dinesh
Wadiwel (FASS); Greta Werner (ADP)*

The session brought together a multidisciplinary group of researchers to explore what
sustainable transport could look like in Sydney. Some potential ideas for further exploration
emerging from the session include:

- Avoidance of risk may be a barrier for governments to implement bold sustainable
  transport policies, such as reducing speed limits. Providing information on community
  acceptance of sustainable transport initiatives could be useful to embolden decision-
  makers to act. Combining disciplinary understandings from the fields marketing and
  transportation could produce interesting insights on community acceptance.
- The geography of housing (un)affordability and employment location is contributing to
  travel demand, but higher density around train stations is only part of the solution.
  How can provision of affordable rental housing closer to employment centres be
  encouraged?
- Lack of trust seems to be a barrier to car sharing. Are existing community
  connections a vector for future shared transport?

If you are interested in contributing to this research, please contact Greta Werner
(greta.werner@sydney.edu.au) from the Henry Halloran Research Trust.

Session 6: Climate x Health

*Co-hosts: [Heat and Health Research Centre](); [Sustainability, Climate and Health Collaboration]()*
Speakers: Katy Bell (FMH); Shamila Haddad (ADP); Ollie Jay (FMH); Geoff Morgan (FMH); Federico Tartarini (ADP); Ying Zhang (FMH)

The University of Sydney has an expansive array of researchers working at the nexus of climate and health across the University. The purpose of this session was to highlight examples of research expertise in this topic and for those in the room to start identifying their personal interest in these topics and make connections. Some of the topics identified were:

- **Climate-responsive healthcare:** Decarbonising the healthcare sector, reforming the medical system to embrace holistic care, and addressing chronic illnesses in young adults linked to air pollution and diet.
- **Health impacts of climate change:** The effects of extreme heat and hot weather and air pollution on mental health and maternal health.
- **Sustainable and resilient communities:** Promoting nutritional low-carbon diets, addressing urban heat stress through green infrastructure, and improving pathways toward secure housing and social connectedness.
- **Cultural and community-based approaches:** Strengthening community responses by engaging with Indigenous knowledges, embedding cultural approaches, and utilising learning spaces to enhance resilience and reduce inequalities.

A/Prof. Ying Zhang, Co-Director of the [Sustainability, Climate and Health Collaboration](), hosted the morning session providing an overview of the breadth of work in the climate and health research at Sydney University. It featured two researchers they work with. **Prof. Geoff Morgan** shared his research on the [health impacts of bushfire smoke inhalation]() and **Prof. Katy Bell** shared insights about the need for [sustainable low carbon healthcare]().

The session then shifted to focus on an example of multidisciplinary research happening in the climate x health space. The [Heat and Health Research Centre]() in the Faculty of Medicine and Health, is a multi-disciplinary team of researchers striving to understand the causative pathways of – and develop evidence-based solutions for – the health impacts of heat exposure across the human lifespan. **Prof. Ollie Jay** explained the Centre's philosophy in that different expertise is needed to tackle heat-health problems and challenges, and that different expertise is needed at different stages of the path to a solution. The Centre emphasises that you do not need to know about heat to collaborate with the centre.
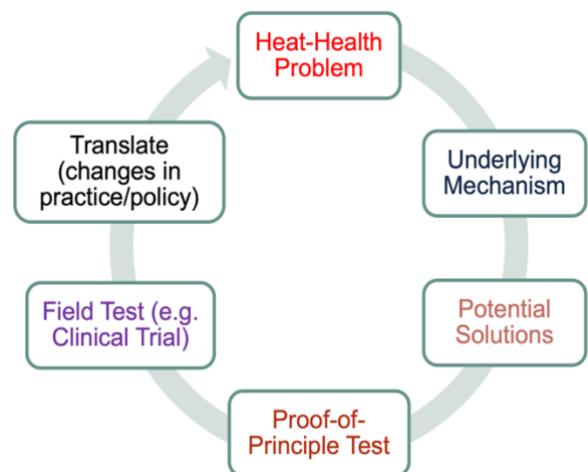
The Centre has five priority research themes:
1. Maternal and child health
2. Physical activity, sport and occupational health
3. Ageing and chronic diseases
4. Landscapes and the build environment
5. Humanitarian settings

The session featured talks from two Horizon Fellows in the School of Architecture, Design and Planning who both contribute to work within the Heat and Health Research Centre. **Dr Federico Tartarini** presented on the [HeatWatch application](#) which is a unique approach to heat risk management that allows for a personalised heat stress scale with specific and tailored heat-health advice on how to keep cool. **Dr Shamila Haddad** presented on work related to monitoring and understanding heat exposure in schools in NSW and VIC, with future work focused on the impacts of extreme heat on learning outcomes.

Next steps:

- **The Sustainability, Climate and Health Collaboration are hosting their 4th Annual Conference on September 11th**. Interactive sessions will promote solution-based transdisciplinary research and practice at the intersection of health, climate, environment and sustainability. | [Register here](#)
- **The Heat and Health Research Centre have four research projects in development** and would like your expertise along the solution cycles of the projects. If you're interested in any of the below project ideas, please contact Felicity Bright (felicity.bright@sydney.edu.au) from the Heat and Health Research Centre.
    1. Reducing the impacts of heat stress on workers in the ready-made garment factory industry in Bangladesh.
    2. Combatting Heat-Health impacts for people living in the Dagahaley Refugee Camp, Kenya.
    3. Understanding the potential implications of certain global regions becoming "too hot to live/survive".
    4. Creating a robust surveillance monitoring system for heat-related morbidity and mortality in Australia.

Afternoon session

The afternoon session brought together all Forum attendees to reflect upon what they heard throughout the day and provide feedback on what the University should be prioritising in terms of climate research topics and research support.

What are the most urgent climate research topics we should prioritise?
1. Community-centered approaches
2. Mental health and behavioural change
3. The need for both mitigation AND adaptation
4. Justice and power imbalances
5. Holistic and systemic solutions
6. Overcoming political and social inertia
7. Practical and translational research

How could the University support this work?
1. Training and support for meaningful community engagement and partnerships.
2. Support participatory action research and community-led initiatives.
3. Integrate climate change knowledge and competencies across all disciplines.
4. Embed climate research and sustainability into undergraduate and graduate programs.
5. Invest in unstructured, open-ended interdisciplinary time for innovative solutions.
6. Ensure research findings are translated into actionable policies.
7. Provide internal grants for community-led research and secure long-term funding.
8. Offer longer-term contracts, especially for Indigenous researchers, to ensure stability.
9. Foster connections between academia and practice and support multidisciplinary teams.