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Knowledge into Practice

Darwin Living Lab Symposium 2022

Wednesday 3 August 2022, 8:30 AM – 4:30 PM (ACST)
George Brown Botanic Gardens, Event Centre

Chris Krishna-Pillay, CSIRO – MC

Chris is an experienced facilitator, communicator and educator. He has a background science, education and organisational culture, as well as extensive experience in theatre and the performing arts. Chris is frequently called upon to MC and facilitate events and workshops such as the Labs of the Future Symposium, D61+ Live and many webcasted programs.

Chris' performance experience includes theatre, music, radio and television. Chris wrote and performed 'Pre-Coital', 'Somnium' and 'Dante's Laboratory'. He was also commissioned to write 'Howard Florey – a Tale of Tall Poppies' and directed 'Faraday's Candle'. Chris occasionally appears on television, including on 'Outrageous Acts of Science' (Discovery Channel), is a regular panellist on popular radio program 'Einstein A Go' (Triple R) and performed with science-inspired rock band 'Ologism'.



Douglas Lesh, Executive Director Planning, Department of Infrastructure, Planning and Logistics

Doug is the Executive Director, Planning with the Department of Infrastructure, Planning and Logistics. He first moved to the NT in 1999 to work as city planner and has extensive experience in planning and development having held a number of positions in strategic planning and development assessment in Australia, as well as in his country of origin, the USA. Doug is a Fellow of the Planning Institute of Australia and holds a Masters of Urban and Regional Planning degree from the University of Sydney.



Emma Woodward, CSIRO

Dr Emma Woodward is a Senior Research Scientist and leader in co-design who brings together different knowledge systems and types to deliver collaborative solutions to land and sea management at regional and national scales. Based with CSIRO Land & Water, her research frequently involves partnering with Indigenous communities to co-develop methods, tools, protocols and guidelines that facilitate understanding and inclusion of diverse knowledges, values and interests in natural resource planning and management and enterprise development.



Raymundo Marcos-Martinez, CSIRO

Dr Marcos-Martinez is an economist with deep expertise in agricultural and natural resource economics that he couples with advanced spatial data science and digital technology skills. He leads research to support decisions and policies needed to address sustainability challenges in agricultural, food and urban systems. He has published 27 papers in top policy-oriented journals, four book chapters and 19 client reports. Dr Marcos-Martinez has led the development of novel Digital+Domain frameworks and tools to estimate the material footprint of Australian buildings and to value and analyse the provision of ecosystem services from urban forests in Darwin, Canberra, and Sydney. In collaboration with the Chinese Academy of Sciences, he is developing tools to estimate material consumption and the environmental impacts of urban sustainability policies. His ability to deliver high value to clients in projects requiring coordination with multiple partners has been recognised with the CSIRO's Land & Water Customer Engagement and Delivery Culture Award (2020), the CSIRO's Collaboration Medal (2019), and the CSIRO's Agriculture Director's Award for Impact Delivery (2015).



Alice Percy, City of Darwin

Dr Alice Percy completed her Bachelor of Science with Honours (Plant Science) and her PhD in Agricultural Science at the University of Tasmania. Dr Percy's research involved climate change, sustainable methods of food and beverage production, soil health and organic pest control. Following on from graduation, Dr Percy worked in the food and beverage industry for over 20 years in variety of roles.

Some of Dr Percy's key achievements include co-founding the organisation Sprout Tasmania, a not-for-profit that supports small, niche food and beverage producers through a year-long mentoring program; developing an Associate Degree at the University of Tasmania in fermentation and separation sciences; and managing a large global team in the Department of State Growth, where she held the position of Director of Trade and International Relations and delivered Tasmania's first ever Trade Strategy.

Dr Percy and her family made the move to the top end of Australia starting a new adventure in Darwin. Dr Percy is the General Manager Innovation for the City of Darwin. In this role she oversees the City of Darwin's Climate Emergency, Economic Development, Greening, Movement, Smart City and Waste and Resource Recovery Strategies.



Terry Williamson, Adjunct Professor, School of Architecture & Built Environment, University of Adelaide

Terry Williamson was educated in engineering and architecture in Australia. He is currently adjunct Professor in the School of Architecture and Built Environment, The University of Adelaide, Australia. Since "retiring" at the end of 2011 he has maintained an active role in the supervision of graduate students and research, including as a Chief Investigator on two Australian Research Council projects examining the comfort, health and wellbeing of older people.

Over a long career he has conducted research in range of related areas including adaptive thermal comfort, building energy efficiency, sustainable building design, building performance computer simulation, design for climate and methods of life-cycle assessment. Beginning as far back as 1988 he has been involved in projects that monitored the performance of houses in Darwin. He has provided advice to Commonwealth and State/Territory Governments (SA, Victoria, NSW & NT), Local Governments and a range of industry/professional bodies such as the Australian Building Codes Board.



Catriona Tatam, Chief Executive Officer, Urban Development Institute of Australia (UDIA) Northern Territory

Catriona is the current Chief Executive Officer of the Urban Development Institute of Australia (UDIA) Northern Territory (NT). Having been in the role for the past 18 months, Cat brings a wealth of planning and development industry experience in NT and across Australia in the private, Territory government and local government sectors.

As the independent voice for the industry, UDIA NT works collaboratively with Government, statutory agencies, service authorities and other industry bodies to represent their members to achieve a policy environment that enables and promotes best practice development.

Cat is a qualified Urban and Regional town planner and also runs her own planning company Tatam Planning Co. Cat's technical skill and broad knowledge of the planning and development sectors across Australia, assists the UDIA NT, members and clients to achieve good industry outcomes, project deliverables and innovative policy solutions.

Catriona is also the current Vice President of the Planning Institute of Australia (PIA) – Northern Territory Division, having previously been President from 2019-2021.



Sharon Campbell, University of Tasmania

Dr Sharon Campbell, Postdoctoral Research Fellow, Menzies Institute for Medical Research, University of Tasmania. Dr Campbell is a postdoctoral research fellow specialising in the human health impacts of climate change. Her main research interests include climate-related extreme events such as heatwaves and poor air quality, and the impact of these events on healthcare systems and vulnerable populations. With a background in public health policy, Sharon concentrates on the translation of research into policy and practice, emphasising the communication of research and public education. Sharon is an experienced public speaker and writer.



Brydie Hill, Department of Environment, Parks and Water Security

Brydie has worked as an ecologist with a focus on threatened species for over 20 years. Although she thoroughly enjoyed the grass roots threatened species work, Brydie felt she could make a bigger difference by influencing the impact of development on the environment of the Northern Territory. Recently, Brydie has moved into a strategic leadership role as a Senior Director in the Flora and Fauna Division of the Northern Territory Government. One of her key areas is negotiating for conservation outcomes within the current development environment. However, her key driver is to get environmental considerations more prominently included within territory planning processes. Brydie leads an interesting and diverse team that are responsible for the data management, NT herbarium, spatial planning and development assessment elements of the flora and fauna of the Northern Territory.



SESSION 1 – WELCOME AND INTRODUCTION TO DARWIN LIVING LAB

8:00	REGISTRATION AND ARRIVAL TEA AND COFFEE
8:30	Welcome to Country
8:45	Introduction and housekeeping • Chris Krishna-Pillay (Event MC) Engagement Manager, Organisational Development CSIRO
8:55	Opening remarks • Lord Mayor of Darwin the Honourable Kon Vatskalis
9:05	Darwin City Deal Overview • Tiffany Karlsson, Assistant Secretary City Deals (Tasmania, NT, WA & Melbourne) & Cities Policy at Department of Infrastructure, Transport, Regional Development and Communications
9:10	Darwin City Revitalisation • Bridgette Bellenger, General Manager for the Department of the Chief Minister and Cabinet
9:15	An Introduction to the Darwin Living Lab • Dr Chris Chilcott, Deputy Director, CSIRO Land and Water and Research Leader for Northern Australia
9:20	Keynote: Josh's House Living Laboratory – Monitoring, Evaluating and Communicating the Journey • Dr Josh Byrne, Josh Byrne & Associates

SESSION 2 – NAVIGATING CHANGE IN DARWIN

9:45	Keynote: Land use planning and development in a changing climate • Douglas Lesh, Executive Director Planning, Department of Infrastructure, Planning and Logistics
10:05	Keynote: The Future of Darwin • Alice Percy, General Manager Innovation, City of Darwin
10:20	Developing the Digital Twin of Darwin to monitor and navigate change • Dr Raymundo Marcos-Martinez, Senior Research Scientist, CSIRO
10:30	Perspective from the development sector in planning for a future Darwin • Catriona Tatam, Chief Executive Officer, Urban Development Institute of Australia (UDIA) NT
10:40	Panel discussion Q&A
11:00	MORNING TEA
11:30	Workshopping session on navigating change in Darwin

SESSION 3 – IDENTIFYING AND LEARNING FROM COMMUNITY AND INDIGENOUS WAYS OF IMPROVING HEAT-RELATED LIVEABILITY

12:10	Keynote: Larrakia-led Darwin biodiversity values • Lorraine Williams, Larrakia Elder and Dr Emma Woodward, Senior Research Scientist, CSIRO
12:25	Managing heat and smoke in the Top End: Stories from vulnerable groups • Dr Sharon Campbell, Menzies Institute for Medical Research, University of Tasmania
12:35	Strategic environmental planning for the Darwin Region • Brydie Hill, Senior Director, Information and Advice Flora and Fauna Division, Department of Environment, Parks and Water Security
12:45	Panel discussion and Q&A
13:10	LUNCH BREAK Optional activity during lunch break: 15-minute walking tour of Botanic Gardens highlighting relationship between species canopy density and cooling • Dr Stephen Reynolds (Charles Darwin University)
14:00	Active ideation session on improving heat-related liveability in Darwin

SESSION 4 – IMPROVING THERMAL COMFORT IN DARWIN'S INDOOR ENVIRONMENT

14:40	Keynote: Field validation of modelled thermal comfort and Darwinian's thermal comfort thresholds • Adj Professor Terence Williamson, School of Architecture and Built Environment, University of Adelaide
15:00	Energy efficiency options for tropical housing • Valerie Nullet, Project Director, Housing Program Office, Department of Infrastructure, Planning and Logistics
15:10	Introducing the Darwin Living Lab Darwin Home Comfort Rating Project • Jo Kieboom, Senior Engineer Ecological Sustainability, Infrastructure, Investment and Contracts – Strategic Asset Management, Department of Infrastructure, Planning and Logistics
15:20	AFTERNOON TEA
15:40	Workshopping session on thermal comfort metrics for improved housing outcomes for Darwin
15:55	Panel discussion and Q&A
16:15	• Reflections around the room and people to complete evaluation • Closing remarks
16:30	CLOSE
16:30-17:30	NETWORKING WITH REFRESHMENTS AND MINOR CANAPÉS

Josh Byrne, Josh Byrne & Associates



Dr Josh Byrne is an environmental scientist and urban design professional with a national profile as a consultant, researcher and communicator in urban sustainability. His approach is leadership through demonstration by engaging in projects that provide opportunities to test innovation, build capacity and share learnings with stakeholders and the wider community.

Josh has a long association with applied research and has authored a number of academic publications and industry guides in the areas of water sensitive design, energy efficient housing and sustainable urban development.

Josh is well known as the WA presenter on ABC TV's Gardening Australia program where over the past 20 years he has demonstrated how gardening can improve urban livability to a national audience. He is a regular contributor to print and radio media, and author of three popular books on sustainable gardening and low carbon living.

Jo Kieboom, Department of Infrastructure, Planning and Logistics



Jo Kieboom works as Senior Engineer Ecological Sustainability within the Strategic Asset Management branch of the Department of Infrastructure and Planning's Infrastructure, Investment and Contracts division. Jo has spent 18 of the last 24 years in NT Government roles aiming to reduce the carbon footprint of Northern Territory buildings. From 2002-2008 Jo was the NT Government representative on national committees that oversaw development of Second Generation Nationwide House Energy Rating Scheme (NatHERS) software. During this period she also chaired the NT House Energy Rating Industry Reference Group – the deliberations of which resulted in acceptance of the use of NatHERS energy ratings to verify that residential building designs meet National Construction Code minimum energy efficiency requirements. Jo is currently co-leading a joint CSIRO/DIPL project to develop voluntary 'for information' comfort ratings for Darwin residential building designs that will complement the energy ratings used to demonstrate compliance with National Construction Code energy efficiency requirements.

Lorraine Williams, Larrakia Elder



Lorraine Williams is a senior Gulumoerrgin/Larrakia woman, with extensive experience working on Larrakia Country in a number of roles and positions. Respected as a Larrakia cultural authority and ethnobotanist, she has worked in heritage roles advising archaeologists in research of the Darwin Harbour region; advised and directed Larrakia cultural engagement in large-scale Darwin infrastructure projects; has directed and contributed to Larrakia artistic and cultural installations; has worked with the Larrakia Ranger Program; supported the development and running of community-based Indigenous enterprise development initiatives, and led research projects revealing Larrakia values and interests in the Darwin region. Lorraine has co-authored many publications about ethnobotany in the Darwin area and is regularly sought as a guest speaker and presenter on aspects of Larrakia culture, language and science.

Valerie Nullet, Project Director, Housing Program Office, Department of Infrastructure, Planning and Logistics



Valerie Nullet is the Project Director, Housing Program Office, Southern and Big Rivers Region. In her current role, Valerie also manages the Specifications Unit within the Housing Program Office where she works to develop and implement sustainable built infrastructure outcomes in remote, rural and urban communities across the Northern Territory. Valerie has been engaged in the remote infrastructure field across Northern Australia for over 25 years with a particular interest in remote housing and health care facilities.