

# BOOK OF PROCEEDING

## AUSTRALIAN CLIMATE CHANGE ADAPTATION RESEARCH NETWORK FOR SETTLEMENTS AND INFRASTRUCTURE



EARL CAREER RESEARCHER

ELF H NA IONAL FOR M AND ORK HOP

*P . . . c . . . f M c ae Ta . . .*

NI ER I  
OF  
O HA RALIA

26-28 EP. EMBER 2016



# ACCARNSI 12TH NATIONAL ECR FORUM AND WORKSHOP PROGRAM

**DAY 1 Monday 26 September 2016**  
**University of South Australia -City East Campus**  
**Bonython Jubilee Building - Room BJ3-03**

11.00	<i>MORNING TEA ON ARRIVAL</i>
11.15	<b>ECR FORUM WELCOME:</b> Associate Professor Ron Cox, <i>Network Convenor, ACCARNSI</i>
11.30	<b>GUEST PRESENTATION:</b> Lucy Dodd, <i>Project Manager - Carbon Neutral Adelaide, SA Department of Environment, Water and Natural Resources</i>
12.00	<b>GUEST PRESENTATION:</b> 'Transport Infrastructure and Climate Change Adaptation' Emeritus Professor Michael Taylor, <i>University of South Australia</i>
12.30	<i>LUNCH</i>
1.30	<del>12.30</del> & <del>1.30</del> Dyer, <i>University of Tasmania, TAS</i>
Ø	<i>Discussion of key themes led by Associate Professor Ron Cox</i>
Ø	<i>AFTERNOON TEA</i>
3.20	SUSTAINABILITY STARTS WITH CHILDREN: CHILD FRIENDLY PRECINCT DESIGN FOR ACTIVE TRAVEL AND ACTIVE PLAY Hulya Gilbert, <i>University of South Australia, SA</i>
3.40	HOW THE PUBLIC AND POLICY COULD BE BETTER ENGAGED IN CLIMATE CHANGE ADAPTATION Li Meng, <i>University of South Australia, SA</i>
4.00	ADAPTATION OF TRANSPORTATION SYSTEMS TO CLIMATE CHANGE IN GHANA: POTENTIAL RISK, EXISTING POLICIES AND REQUIREMENTS Martin Larbi, <i>University of Adelaide, SA</i>
4.20	<i>Discussion of key themes led by Emeritus Professor Michael Taylor</i>
4.40	<b>DAY 1 WRAP UP - Associate Professor Ron Cox, Network Convenor, ACCARNSI</b>
4.45	<b>DAY 1 CLOSE</b>
7.00	<b>GROUP DINNER:</b> Daniel's Restaurant, 225 Rundle St Adelaide Booking is under Michael Taylor, meet at restaurant

**DAY 2    Tuesday 27 September 2016**  
**University of South Australia -City East Campus**  
**Bonython Jubilee Building - Room BJ3-03**

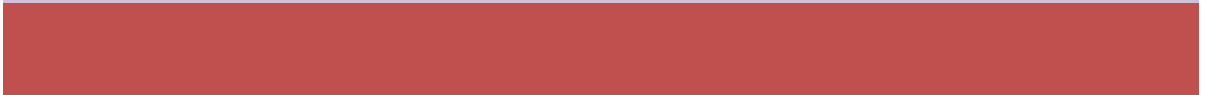
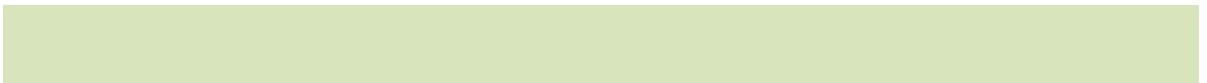
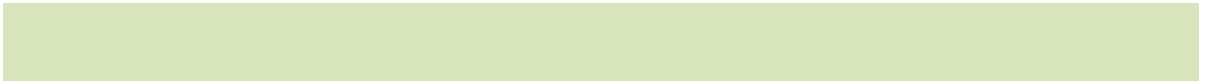
9.15    *TEA AND COFFEE ON ARRIVAL*

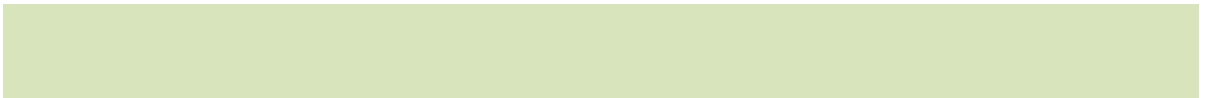
CLIMATE CHANGE ADAPTATION AND NEW MIGRANTS

9.30    Christina Ting, Swinburne *University of Technology, VIC*

PRO-ENVIRONMENTAL 'SPILL-OVER' FROM URBAN TWOWHEELERS TO THE WILDERNESS (12:00-12:30pm)

9.50





**Jacquelyn LAMB**

*Climate Risk, NSW*

[jackie@climaterisk.com.au](mailto:jackie@climaterisk.com.au)

## XDI – THE CROSS DEPENDENCY INITIATIVE

*Jacquelyn Lamb*

### **Abstract:**

Infrastructure is highly interdependent, which means that the ability to contain business disruption and assure climate resilience is quite limited without a system wide view. But taking a system-wide view involves multiple parties across multiple sectors, all-engaging in a single system to develop a cohesive outcome.

Can we integrate future planning across utilities? How can private and public sector share data in a secure way? How can utilities justify spending to the regulator under increased pressure to cut costs? How do we fund infrastructure resilience in the future if our governments don't have the funds? Can adaptation costs be shared across private and public sectors?

In April 2015 an East Coast Low caused Sydney Water to come within hours of an overflow event at the North Head Treatment plant in Manly because it had lost power and access was limited because of major flooding. It is located within a National Park and neighbours a marine reserve. Sydney Water was within hours of creating the largest toxic spill event in the city's history.

The Australian energy regulator is under pressure to reduce energy prices. This means less network redundancy, increasing the probability that similar events will occur in the future.

The Cross Dependency Initiative aims to bring the owners of critical infrastructure together for the purpose of understanding current and future risk and also to initiate collaborative adaptation opportunities. More integrated planning is required between utility managers to understand the interdependencies within their supply chain, to optimise adaptation planning and future investment in infrastructure solutions.



**Jack DYER**

*University of Tasmania, TAS*

[jack.dyer@utas.edu.au](mailto:jack.dyer@utas.edu.au)

## **PREDICTING CLIMATE CHANGE RISKS FOR PACIFIC COASTAL AND MARITIME SUPPLY CHAIN INFRASTRUCTURE**

*Jack Alban Dyer*

### **Abstract:**

Climate change risks present the greatest uncertainty to the future of Pacific coastal communities, ecosystems and maritime infrastructure. What will global climate change really mean for a world increasingly dependent upon seaborne trade, globalisation and supply chains? How much will it cost? Do we retreat; adapt or surrender? How do we predict the risks? For the Pacific, virtually all economic activity and development, key stakeholders and physical survival are vulnerable to this increasingly significant risk affecting the continuance and future of seaports, shipping, coastal ecosystems and communities. For example Australia estimated over 85% of its population and economy is vulnerable, being situated on its coast (Australian Government Department of Climate Change 2014). This thesis presentation provides tools, information and screening criteria aimed at assisting key vulnerable stakeholders with scarce resources/asymmetric information to minimize maladaptation and opportunity costs, to identify, analyse, evaluate and prioritise gradual and sudden climate change risks for Pacific coastal communities and maritime infrastructure. It's innovative, integrated method advocates a risk-vulnerability matrix, risk event impact tree, improvements to risk management techniques including calculating the probability of a climate-change related event and calculating existing/historic conditional probabilities of maritime infrastructure/ asset/ecosystem/system failures based on specific climate change risk events and factors affecting risk probability of occurrence . It identifies criteria on how stakeholders can determine which risks to prioritise, when, where and why to prioritise.





**LI MENG**

University of South Australia, SA

[li.meng@unisa.edu.au](mailto:li.meng@unisa.edu.au)

**HOW THE PUBLIC AND POLICY COULD BE BETTER ENGAGED IN CLIMATE CHANGE ADAPTATION**

*Li Meng*

**Abstract:**

The effect of climate change is becoming severe, as evidenced by extreme weather and natural disasters all around the world. Public engagement of climate change is a matter of urgency but seen as being in fairly slow motion, as is recognition in policy making. Investigating solutions to reducing the disparity of public awareness/concern between behavioural changes for low carbon living and developing measurements of behaviour change in the context of social, environmental and economic considerations are of vital importance.

This research focuses on revealing the barriers to engaging behaviour change related to domestic and travel energy consumption including travel choice, housing choice, domestic appliance operation and water usage behaviour. The methodology applied in this study is to combine qualitative and quantitative methods that utilize revealed preference data and stated preference data to develop logit models of discrete choice in order to interpret public perceptions of behaviour change and willingness to pay for a lower carbon consumption lifestyle. The results of the study should help in measuring and evaluating energy conservation behaviour change, and can assist carbon emissions reduction policy-making.

**Martin LARBI**

University of Adelaide, SA

[martin.larbi@adelaide.edu.au](mailto:martin.larbi@adelaide.edu.au)

ADAPTATION OF TRANSPORTATION SYSTEMS TO CLIMATE CHANGE IN GHANA:

Abstract ID: 1005 | Author: Martin Larbi | Email: martin.larbi@adelaide.edu.au

**Christina YP TING**

*Swinburne University of Technology, VIC*

[cting@swin.edu.au](mailto:cting@swin.edu.au)

## CLIMATE CHANGE ADAPTATION AND NEW MIGRANTS

*Christina YP Ting*

### **Abstract:**

Climate change is a global phenomenon but its impacts such as sea level rises and storm surges are localised. These changes in the physical environment affect the local communities' socio-economic processes. Climate change adaptation is thus community-based and is applied locally. Involving the local community is a way to build the residents' resilience and understanding of climate change and variability. Some researchers (Flint 2012, p.197) put forward that to assist the local community to adapt there is a need to 'reify, re-codify and translate the language of their assistance into meaningful and useful terminology that can be understood, consumed and deployed locally' and to 'transfer the knowledge and information that is desired and not to overload or send signals that may confu(e)4( .47 0 Td65]2(r)5(dm(MC /P #MCID 13 BD0.001 Tc 0.002om(MC /P #Mn)3w)3(tr)2(c)3(tIH)-

**Gabriele FITZGERALD**

University of South Australia, SA

[gabriele.fitzgerald@mymail.unisa.edu.au](mailto:gabriele.fitzgerald@mymail.unisa.edu.au)

**PRO-ENVIRONMENTAL 'SPILL-OVERS' IN COMMUNITY SETTINGS THREE YEARS ON**

*Gabriele B. Fitzgerald & Robert Crocker*

**Abstract:**

The dominant paradigm in organisations and in programs aimed at households has been based on psychosocial behavioural interventions that have evolved from approaches to changing bad habits such as smoking. In contrast, more recent practice-based approaches have emphasised the role of established routines and 'social practices' embedded in different social contexts, which become in themselves important determinants of existing behaviour.

This pilot study focuses on the contextual social processes that hinder or foster a 'spill-over' from pro-environmental practices established through an intervention in three community clubs three years ago, and then transferred (or not) through a 'spill-over' effect into household organic waste practices. The aim of this project was to learn about the long-term effects of such targeted interventions.

These interventions ranged from initiating water, and energy efficient practices to changing waste management systems in a communal kitchen. Overall, the results demonstrate the complexity and highly contextual nature of adaptive processes when implementing pro-environmental behaviours at considering the longevity of these practices. This case study also reveals that communal settings where multiple actors were attempting to implement a set of pro-environmental behaviours agreed to by their managers, their own inadequate knowledge of the requirements could lead to a failure of not only the correct implementation but also of any potential spill-over.

**James PLUMMER**

University of South Australia, SA

[james.plummer@mymail.unisa.edu.au](mailto:james.plummer@mymail.unisa.edu.au)

**PREDICTING THE IMPACTS OF URBANISATION ON BIODIVERSITY IN CLIMATE CHANGING TIMES**

*James Plummer, David Bruce, Philip Roetman & John Boland*

**Abstract:**

Currently, just over half of the world's population lives in urban places, but this is expected to increase to two thirds by the year 2050. One outcome of rapid urbanisation is a decline in biodiversity as urban landscapes are altered and become less natural. A case study of the Greater Adelaide Region of South Australia seems typical of many rapidly urbanising cities with official predictions that over the next 30 years an extra 560 000 people will need to be accommodated in 258 000 new dwellings, which will require an additional 14 000 Ha of new land.

This project is developing the relationship between urban development and biodiversity, and asks: what is the actual impact of urbanisation on biodiversity? And, can they both thrive together?

A complex geospatial model is currently being developed that will explain the relationship between the various forms of urban development in the Greater Adelaide Region and the distribution of birds, which are a good indicator for biodiversity. The model will predict the impacts of future urban development scenarios on biodiversity (e.g. ranging from low to high densities of housing) up to 30 years ahead, but also the potential impact of changing environmental variables (e.g. temperature, rainfall and vegetation variations), based on various climate change scenarios. Using the model, a set of tools are being developed that will be useful for planners, developers and governments. The approach is generic and can be applied to any urban landscape.





Nicole







NOTES

