



Climate Adaptation in Action 2012

Sharing knowledge to adapt

26-28 June 2012

Sebel Hotel Albert Park,
Melbourne

Conference handbook



NCCARF

National
Climate Change Adaptation
Research Facility



We gratefully acknowledge the considerable time and effort invested by many individuals and organisations in planning for and running this Conference.

Special thanks go to:

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Published by the National Climate Change Adaptation Research Facility

Email: nccarf@griffith.edu.au

Website: www.nccarf.edu.au

ISBN: 978-1-921609-51-0

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NCCARF Publication 14/12

The National Climate Change Adaptation Research Facility hosted by Griffith University is an initiative of, and funded by, the Australian Government, with additional funding from Griffith University, the Queensland Government, Macquarie University, the Queensland University of Technology, James Cook University, The University of Newcastle, Murdoch University, University of Southern Queensland, and University of the Sunshine Coast.

The role of the National Climate Change Adaptation Research Facility is to lead the research community in a national interdisciplinary effort to generate the information needed by decision makers in government and in vulnerable sectors and communities to manage the risks of climate change impacts.

Disclaimer: the views of expressed herein are not necessarily the views of the Commonwealth, and the Commonwealth does not accept responsibility for any information or advice contained within.

Contents

Welcome	4
About the National Climate Change Adaptation Research Facility	5
About CSIRO Climate Adaptation Flagship	6
Sponsors	7
Supporters and Exhibitors	11
Conference Program	15
Plenary Speakers	28
Panel Sessions	39
Guide to the Parallel Sessions	42
Speedtalk Sessions	43
Poster Presentations	44
Abstracts	51

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Welcome to the 2012 National Adaptation Conference *Climate Adaptation in Action: Sharing Knowledge to Adapt.*

We are delighted to welcome approximately 700 participants to this event.



*Professor Jean Palutikof
Director, NCCARF*

This 2012 Conference will showcase the growing body of climate change adaptation knowledge in Australia and internationally, how this knowledge is being used by communities, governments and industry to adapt to the impacts of climate change, the contribution of adaptation science to planning and policy making across Australia, and how robust adaptation decisions can be made in the face of uncertainty.

Climate already has a significant impact on our lives and livelihoods, particularly through extreme events such as storms, cyclones, floods and droughts. Climate change, brought about by increasing greenhouse gas emissions, will result in even greater impacts through warmer temperatures, rising sea levels and more intense floods, droughts, and bushfires. While change is inevitable, there is little to be gained by getting caught up in doom and gloom scenarios of the future. Instead, we must proactively plan for and adapt to change, in order to minimize the negative impacts and take advantages of any opportunities that arise. This is a challenge for decision-making at all levels.



*Dr Andrew Ash
Director, CSIRO Climate
Adaptation Flagship*

Recognition of this challenge led to the formation of the National Climate Change Adaptation Research Facility and the CSIRO Climate Adaptation Flagship approximately 4 years ago. Since then, these initiatives have worked to progress climate adaptation research and knowledge transfer in Australia in partnership with the communities, governments and industries that have the responsibility to adapt Australia successfully to climate change. Building on the success of the NCCARF/CSIRO 2010 International Climate Change Adaptation Conference, the 2012 National Adaptation Conference provides an ideal platform to highlight Australia's growing and significant contribution towards global understanding of climate change impacts and opportunities and options to adapt to these impacts. With an exciting program of over 270 presenters, focused plenary and panel sessions, together with side meetings, and social functions, we are sure that the Conference will provide a golden opportunity for participants to discuss the latest developments in adaptation research, and to share information, practical experiences and contacts.

Conference Hosts

About The National Climate Change Adaptation Research Facility

An initiative of the Australian Government, the National Climate Change Adaptation Research Facility (NCCARF) was established in 2008 to lead the Australian research community in a national inter-disciplinary effort to generate the information needed by decision-makers in government, and in vulnerable sectors and communities, to manage the risks of climate change impacts.

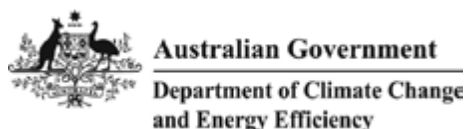
NCCARF has established and coordinates eight National Adaptation Research Networks, hosted by Australian Universities, with over 5000 members across Australia. It has developed a series of National Adaptation Research Plans which guided investment of approximately \$28 million for close to 100 research projects; and funds a program of synthesis and integrative research with over \$4 million invested in 40 projects.

NCCARF works to engage with practitioners to better understand their research needs, and to improve their access to information to support climate adaptation. The establishment of a Local Government Climate Adaptation Portal, and the Forum for NCCARF Interaction with State and Territory governments, are examples of these activities. NCCARF also played the lead role in hosting and organizing the 2010 International Climate Change Adaptation Conference, the first in what has now become a regular series of international adaptation conferences.

Based at Griffith University's Gold Coast campus, NCCARF is a partnership between the Australian Government Department of Climate Change and Energy Efficiency, Griffith University, the Queensland Government, James Cook University, Macquarie University, Murdoch University, Queensland University of Technology, The University of Newcastle, University of Southern Queensland, and the University of the Sunshine Coast.



NCCARF Partners



CLIMATE ADAPTATION
www.csiro.au

ABOUT THE CSIRO CLIMATE ADAPTATION FLAGSHIP

The goal of CSIRO's Climate Adaptation Flagship is to equip policy makers, industries and communities with practical and effective adaptation options to climate change and variability and in doing so create \$3 billion per annum in net benefits by 2030.

To achieve this CSIRO's leading scientists work in partnership with governments, industries and communities to deliver integrated solutions to this urgent national challenge. This research falls into four theme areas each providing insight in different aspects of adaptation.

- Climate change projections and improved understanding of drivers of seasonal climate variability and extreme events are developed to inform decision-making in many sectors, as well as underpin our adaptation research across the Flagship. Basic and synthetic research on cross-sectoral issues centres on vulnerability assessment and adaptive capacity, behavioural aspects of adaptation, and the economics of adaptation.
- Revitalising Australia's cities and urban coasts to be resilient, liveable, sustainable and productive in response to changing climate is another focus area. The effects of extreme events such as bushfires, storm surges, heat waves and cyclonic winds on people and infrastructure in the built environment are used to engage with stakeholders' day-to-day decision-making. Climate-affected urban development is explored in terms of these extremes and through the need to achieve low carbon adaptations.
- Developing and delivering adaptation options to protect Australia's marine and terrestrial species, ecosystems and the services they provide as they respond to the impacts of climate change is the third focus area. These explore: terrestrial landscapes, marine and coastal areas, decision making approaches in conservation management and the genetic ability for adaptation.
- Working to deliver adaptation solutions for Australia's primary industries, enterprises and communities in a variable and changing climate is the final area of focus. It addresses specific adaptation practices and technologies, such as climate-ready crops; seeks to quantify vulnerability; and identify limits to adaptation in different primary industries, including agriculture, marine fisheries, forestry and mining. It also pays specific attention to transformative adaptation in rural industries and regions, and the interactions between mitigation and adaptation in this sector.



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Australia is founding its future on science and innovation. Its national science agency, CSIRO, is a powerhouse of ideas, technologies and skills for building prosperity, growth, health and sustainability. It serves governments, industries, business and communities across the nation.

FOR FURTHER INFORMATION

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Conference Program

Day 0 – Monday 25th June Evening

5:00 – 7:00pm Climate Adaptation in Action 2012 Welcome Reception **Grand Lobby**

Day 1 – Tuesday 26th June Morning

8.45am – 10.20am **Opening Plenary – Climate change adaptation in Australia today** **Room:** Grand 1-4
 Welcome to country
Jean Palutikof (NCCARF) & **Andrew Ash** (CSIRO) – Welcome to conference
Simon McKeon (CSIRO Chairman) – Official opening of Conference
Hon. Greg Combet MP (Minister Department of Climate Change and Energy Efficiency) – Video Message
Blair Comley (Department of Climate Change and Energy Efficiency)
Wendy Craik AM (Productivity Commission) – *Regulatory and policy barriers to climate adaptation: draft report*
Lesley Hughes (Climate Commission) – *The climate commission: conversations with the Australian public*
 Voice of Youth

10.20 – 10.50am Morning Tea **Grand Lobby**

10.50 – 12.30pm **Plenary 2 – Health, society and adaptation** **Room:** Grand 1-4
Chair: Elizabeth Hanna (Australian National University)
Tony McMichael (Australian National University) – *Reducing health risks: Setting the adaptation task in context*
Kris Ebi (Stanford University, IPCC Working Unit) – *But is it adaptation?*
Alistair Woodward (University of Auckland) – *Adapting to protect health under climate change: general or specific?*
Neville Nicholls (Monash University) – *Improved weather forecasting as an adaptation to climate change* (by video)

12.30 – 1.30pm Lunch **Grand Lobby**

12.40 – 1.30pm Workshop Opportunity: Systems Thinking Tools for Overcoming Decision Challenges for Climate Changes Adaptation
(Presenter: Kambiz Maani) **Room:** Park

Day 1 – Tuesday 26th June Afternoon

1.30 – 3.00pm	Panel Session 1 Room: Grand 1&2 The trend toward effectiveness (Chair: Andrew Ash) Will Steffen (ANU) Russell Wise (CSIRO) Kate Nelson (East Gippsland Shire Council) Habiba Gitay (World Bank)	Panel Session 2 Room: Grand 3&4 Barriers to Adaptation (Chair: Graeme Pearman) Simon Torok (CSIRO) Neil Byron (Productivity Commission) Joe Reser (Griffith University) Jan McDonald (University of Tasmania)	Panel Session 3 Room: State 1&2 Policy-relevant knowledge for adaptation: bridging the science-policy gap (Chair: Francis Zwiers) Karl Jones (Willis Re) Steve Dovers (ANU) Jason Alexandra (MDBA) Rohan Hamden (SA Department of Environment and Natural Resources)	Panel Session 4 Room: State 3 Collaborative adaptation: How university government partnerships turn adaptation research into policy and practice (Chair: Rod Keenan) Hartmut Fuenfgeld (RMIT) Halley McCann (DSE Vic) Paula Arcari (RMIT) Christine Kilmartin (DPCD Vic) Lauren Rickards (Melbourne University) Leon Soste (DPI Vic) Sponsor: VCCCAR
3.00 – 3.30pm	Afternoon Tea Grand Lobby			

3.30 – 4.30pm	Parallel Session 1 Measuring the success of adaptation Room: Park	Parallel Session 2 Human impacts and health adaptation Chair: E Hanna Room: State 1&2	Parallel Session 3 Local Government Room: Lake 1&2	Parallel Session 4 Communication and Engagement Fostering Adaptation Room: Grand 1&2	Parallel Session 5 Adapting agriculture to climate change Sponsor: PIARN Room: Grand 3&4	Parallel Session 6 Climate Adaptive Infrastructure and the Built Environment. Chair: R Cox Room: State 3	Parallel Session 7 Barriers and limits to adaptation Room: Lake 3&4
	Learning from Failure (or Benefitting from Success) in the Management of the Gngara Groundwater System. E Yuen	Dengue Transmission Under Climate Change in Northern Australia: Linking Ecological and Population-based Models to Develop Adaptive Strategies. E Viennet	Making Climate Change Adaptation 'business-as-usual' for Local Government – the Role of Good Governance Arrangements. D Corkill	Enabling Stories of Change – A Narrative Case Study of Adapting to Coastal Change in Port Fairy, Victoria. J Paschen	"It's a Part of Who We Are": The Influence of Beef Producers' Sense of Place on Their Capacity to Adapt to Change. A Lankester	Climate Resilient Seaports: Adapting Critical Infrastructure. J Mullett	Addressing Barriers to Adaptation in Australian Resource Communities. B Loechel
	IUPA: A proposal of an index for the evaluation of practices for adaptation to climate change and variability. P Aldunce	The Environmental Epidemiology of Climate-sensitive Diseases in Fiji: Early Results from Fiji's Piloting Climate Change Adaptations to Protect Human Health Project. L McIver	Connecting with Local Government. C Young	The Use of Information and Communications Technology for CBA in the Pacific. R James	Adapting to Climate Change in Queensland's Primary Industries Using a Risk Management Approach. D Cobon	Climate Change Adaptation Within the Rail Industry. A Salardini	Orthodoxy in Decision-making: The Regulatory Legacy for Climate Change Adaptation. J Lawrence
	Learning from People's Experiences of Adaptation: Monitoring What's Working, for Whom, and Under What Conditions. T Lynam	Assessing Climate Change Adaptation Interventions: Health Impacts of Extreme Temperatures and Air Pollution in Cities. S Vardoulakis	The Three R's of Adaptation: Risk, Resilience and Responsibility. D Lorenz	Using a Game-workshop to Explore and Discuss Farm Adaptation. J Fisher	Earlier Wine Grape Ripening Driven by Warming, Drying, and Changes in Management. L Webb	The Insurance Council of Australia's Building Resilience Rating Tool: Providing the Tools for a Climate Adapted Built Environment. J Bonnitcha	Health Adaptation Policy for Climate Change: Global and National Deficits, Local Rural Disadvantage. E Bell
	Dodging Avalanches: Risks in the Prospective Measurement of Adaptive Capacity. J Gardner	Breathing Easy into the Future: Adaptation for Impacts of Climate Change on Aeroallergens and Allergic Respiratory Diseases. P Beggs	Development of Tools That Allow Local Governments to Translate Climate Change Impacts on Assets into Strategic and Operational Financial and Asset Management Plans. J Balston	Social Networks and Climate Change Adaptation: a Case Study on Regional Governance Arrangements. P Fitzsimons	Priorities for Managing Climate Risk and Adaptation in the Northern Grains Region. J Clewett	Can Major Infrastructure Procurement Adapt to Climate Change? D Hand	Limits and Benefits of Using Water-Trading As a 'market-based' Instrument (MBI) for Climate Change Adaptation. A Kiem
4.30 – 4.35	Short break Grand Lobby						

4.35 – 5.35pm	Parallel Session 8 Managing Biodiversity for Adaptation Room: Park	Parallel Session 9 Human impacts and health adaptation Chair: E Hanna Room: State 1&2	Parallel Session 10 Local Government Room: Lake 1&2	Parallel Session 11 Communication Room: Grand 1&2	Parallel Session 12 Adapting agriculture to climate change Sponsor: PIARN Room: Grand 3&4	Parallel Session 13 Climate Adaptive Infrastructure and the Built Environment Chair: R Cox Room: State 3	Parallel Session 14 Barriers and limits to adaptation Room: Lake 3&4
	Climate Change, Fire Regimes and Ecosystems Resilience in Alpine Vegetation: Not So Much Doom and Gloom. D Williams	Challenges for Services to Homeless Persons in Adapting to Predicted Extreme Weather Events Under Climate Change. M Carey	A Decision Support Guide for Local Government Practitioners: Key Enablers to Enhance Effective Use of Adaptation Tools and Processes. P Booth	Communicating Across the 'Theory Versus Practice' Divide – the Barriers in the Basics. M Bainbridge	Will Primary Producers Continue to Adjust Practices and Technologies, Change Production Systems or Transform Their Industry – An Application of Real Options. G Hertzler	Road Pavement Design and Assessment Under Climate Change. M Taylor	Climate Change Adaptation in the Coorong, Murray Mouth and Lakes Alexandrina and Albert. M Finlayson
	Adaptation or Transformation: Adjusting to the Consequences of 40 Years of Hydrological Change in the Jarrah Forest. G Wardell-Johnson	Community Welfare Sector: Coal Mine Canary or Bastion of Societal Resilience. C Goldie	Computational Methods for Combined Adaptation Cost-Benefit Analysis for Insurance and Local Government. K Mallon	Communicating Climate Adaptation: the Journey and 'are We There Yet?' A Leitch	The Basis for Successful Transformation of Farming Industries As an Adaption to Future Climates. P Thorburn	A Framework for the Adaptation of Australian Households to Heat Waves. M Belusko	Understanding How Our Institutions of Governance Support or Impede Australia's Climate Adaptation Planning and Practice: Two Case Studies. K Hussey
	Biotically-scaled Environmental Stress: an Approach to Assessing Climate Change Threats to Inform Adaptation. D Hilbert	Assessment of the Health Impacts of the 2011 Summer Floods in Brisbane. S Tong	Collaborative Governance: How a Geographically-remote Community Established an Exemplar, Bottom-up Adaptation Governance Model. C Woolford & B Foster	REDMAP: Engaging Australia's Marine Communities and Industries on Climate Change Through Citizen Science. G Pecl	Agricultural Adaptation to Climate Change: Perenniality in Southern Australian Dryland Farming Systems. R Farquharson	Performance and Adaptation of Low Income Housing. G Barnett	What Role for Government in Supporting Autonomous Adaptation?: An Analysis of the Electricity Supply Network and Its Institutions. J McAllister
	Translocations and Mixing Gene Pools of Fragmented Populations to Cope with Climate Change. A Weeks	Is Drought Bad For Mental Health and Wellbeing? It Depends... H Berry	Downscaling of Climate Change Projections to Produce Sector-relevant Information – the Case of Tourism in the Southern Lakes, New Zealand. S Becken	Climate Change Adaptation Today: Local Knowledge and Dynamics Across Borders. L Petersen	Potential Shifts in Frost Risk for Pome Fruit in Australia. R Darbyshire	Urban Green Cover As an Adaptation Mechanism for Increased Heat Impacts Under Climate Change. H Lochhead	Influences on the Capacity to Adapt to Climate Risk in an Australian Primary Industry. N Marshall
5:45 – 6.00pm	Welcome from Cr Rachel Powning – Mayor of Port Phillip Room: Grand 1-4						
6.00 – 7.30pm	Poster Presentations and mixer Grand Lobby						

Day 2 – Wednesday 27th June

7am – 8.30am	Business Breakfast with Mark Rogers and AECOM Ticket holders only		Room: Lake 1&2	
7am – 8.30am	Who's doing what? Catching up with adaptation research across Australia Open to all delegates		Room: State 3	
9am – 10.30am	Plenary session 3 – Business as usual? How is business adapting Chair: Gareth Johnston (Future Ready) John Trowbridge (Natural Disasters Insurance Review) – Climate Change: Industry Impact and Response Mark Howden (CSIRO) Mark Rogers (Colonial First State) - Infrastructure Assets and Climate Change Action – Funding Resilience John Thwaites (Australian Building Codes) - National Construction Code facilitating adaptation to climate change		Room: Grand 1-4	
10.30 – 11.00am	Morning Tea Grand Lobby			
11.00 – 12.30pm	Panel Session 5 Room: Grand 1&2 Science for Adaptation (Chair: Jean Palutikof) John Church (CSIRO) Malte Meinshausen (University of Melbourne) Nathan Bindoff (University of Tasmania) Andy Pitman (University of NSW)	Panel Session 6 Room: Grand 3&4 Supporting Adaptive Decision Making in the Pacific Basin (Chair: Rob Kay) Chalapan Kaluwin (PNG University) Kevin Henessy (CSIRO) Arthur Webb (SOPAC) Vic McGrath (TSRA)	Panel Session 7 Room: State 1&2 Maladaptation, misguidance and missed chances (Chair: K Auty) Roger Jones (University of Victoria) Fran Thorn (former Secretary, Victorian Department of Health) Peter Christoff (Melbourne University) Sponsor: Commissioner Environmental Sustainability Victoria	Panel Session 8 Room: State 3 Marine Panel (Special Marine symposium) (Chair: Marcus Haward) Kevin Stokes (NZ Seafood) Alistair Hobday (CSIRO) Eric Perez (Qld Seafood Industry Association) Nick Caputi (Department of Fisheries Western Australia) Gretta Pecl (UTas)
12.30 – 2.15pm	Lunch Grand Lobby			
12.40 – 2.00pm	IPCC workshop (Chair: Andy Reisinger) Registered reviewers only		Room: Grand 1&2	
12.45 – 1.45pm	Climate Change Readiness – A new legislative proposal for Western Australia. (Lynn MacLaren)		Room: Lake 1&2	

2.15 – 3.45pm	Parallel Session 15 Ecosystems Room: Park	Parallel Session 16 Human impacts and health adaptation (Heat) Chair: T McMichael Room: State 1&2	Parallel Session 17 Finance and business Room: Lake 1&2	Parallel Session 18 Communication Room: Grand 1&2	Parallel Session 19 Supporting climate adaptation in agriculture Sponsor: RIRDC Room: Grand 3&4	Parallel Session 20 Adapting cities for future climate change Room: State 3	Parallel Session 21 Strategies for Supporting Reef Ecosystem Resilience. Chair: K Anthony Sponsor: AIMS Room: Lake 3&4
	Developing and Assessing Strategies for Managing Biodiversity Under Climate Change. M Dunlop	Vulnerability of Low Income Households to Extreme Heat M Beaty	Sir Sidney Kidman: Australia's Cattle King As Pioneer Of Adaptation To Climatic Uncertainty. L Dobes	Worldviews, Framings and Language: Adapting Our Conversations About Climate Change to the People We Are Communicating With. T Lynam	Adaptation to Climate Change: How is It Any Different to Normal? The Case of Agriculture. L Rickards	Adapting the City of Melbourne's Urban Forests. I Shears	KEYNOTE: A Decision Science Perspective on Climate Adaptation Strategies for Reefs. H Possingham
	Identifying Terrestrial Refugia for Biodiversity. A Reside	Preparation of Victorian Public Sector Residential Aged Care Services for Extreme Heat. J McInnes	Enhancing the Adaptive Capacity of Small-to- Medium Enterprises (SMEs) to Climate Change and Variability in Australia. N Kuruppu	Lessons from the Bush: Climate Communications with Victorian Farmers. G Anderson	Adapting Agricultural Management Strategies to Cope with Climate Extremes in Northern Tasmania. J Salinger	The Challenge for the Built Environment – Adapting to Climate Change. T Roper	
	Underestimating the Fingerprint of Climate Change: Consequences for Adaptation. J VanDerWal	Effects of Extreme Temperatures on Years of Life Lost for Cardiovascular Deaths: a Time Series Study in Brisbane, Australia. C Huang	Market Mechanisms for Dealing with the Increasing Cost of Catastrophe Losses. R Crompton	Providing Application-specific Climate Projections Datasets for Australia and the Pacific: CSIRO's Climate Futures Framework. P Whetton	Managing Current Climatic Uncertainty and Adapting to the Future Climate Change in the SAT of Africa and Asia : ICRISAT" Approach. D Asamoah	Planning for Food Security in Climate Changeable Australian Cities. P Burton	Adapting to Climate Change via Strengthened Ecosystem Resilience. K Anthony
	Translocation Scenarios to Inform Biodiversity Management Strategies Under Climate Change. K Williams	Heat-health Behaviours of Older Persons During the 2009 Heatwave in South-eastern Australia. A Hansen	Climate Adaptation and The Boardroom. G Johnston	Building Climate Change Resilience from the Source – the NERSA Experience. R O'Hagan	Adaptation and Transformation in Action: Insights from Climate Change Responses in Five Australian Case Studies. A Fleming	Water Sensitive Urban Design As Key Adaptation to Climate Change. N Tapper	Application of Resilience Concepts for Coral Reef Management. P Mumby
							EReefs - Improved Decision Support for the Great Barrier Reef. T Fyffe
							Multi-sector Climate Change Adaptation in the Great Barrier Reef, Australia. P Fidelman

2.15 – 3.30pm continued	Conservation Planning for Vulnerable Species. D Summers	Adaptation to Climate Change: Does the Public Associate Heat Waves with Global Warming in Adelaide, Australia? D Akompab	Climate Change Adaptation In Industry And Business - A Framework for Best Practice in Financial Risk Assessment, Governance and Disclosure. J West	Successful Climate Change Adaptation Approaches Used in Michoacan, Mexico. D George	Drought or Aridity – Notes from the Northern Edge of the South Australian Grains Belt and the Southern End of the Murray Darling Basin. P Hayman	AdaptWater: A Climate Change Adaptation Tool for the Australian Urban Water Sector. J Sullivan	Fast-tracking Coral Climate Adaptation Research – a Genomics Approach. E Abal
	Predicting Water Quality and Ecological Responses to a Changing Climate: Informing Adaptation Initiatives. S ElSawah	Adapting to Working in the Heat. E Hanna	Insurance Innovations and Incentives for Adaptation Using Weather Reanalysis Tools for Contract Pricing. D. Burton	Assessing Adaptation Actions from the Ci:grasp Database. T Lissner	AusAgLCI – Building National Lifecycle Inventory for Green House Gas Emissions for Australian Agriculture. S Eady	Progress on Adaptation in a Vulnerability Hotspot: the Case of South East Queensland. F Crick	Understanding Reef Resilience to Manage Climate-driven Shift to Barren Ground: Prevention is Far Better Than Cure. S Ling
							Managing Regional Stressors Reduces the Vulnerability of Coral Reefs to Climate Change. K Fabricius
							Discussion
3.45 – 4.15pm	Afternoon Tea Grand Lobby						
4.15 – 5.45pm	Parallel Session 22 Avoiding extinctions in a changing climate. Sponsor: EDG Chair: R Fuller Room: Park	Parallel Session 23 Climate change adaptation and Indigenous communities Room: State 1&2	Parallel Session 24 Legal, Regulatory and Governance Room: Lake 1&2	Parallel Session 25 Cognitive barriers Room: Grand 1&2	Parallel Session 26 Social and equity issues Room: Grand 3&4	Parallel Session 27 Adapting cities for future climate change Room: State 1	Parallel Session 28 Managing Australia's marine ecosystems and resources for a warmer climate Sponsor: GBRMPA Chair: Neil Holbrook Room: Lake 3&4
	Where Should We Invest to Adapt Coastal Ecosystems to Sea Level Rise? R Fuller	The Role of Culture and Traditional Knowledge in Climate Change Adaptation in Northern Australia. M Parsons	Regulatory Responses to Facilitate Adaptation of Existing Infrastructure to Climate Change. D De Sousa	Making Sense of Nonsense: Contradiction and Malleability of Views About Climate Change and Climate Change Actions. I Walker	Who Wants to Participate? Evaluating the Benefits of Public Participation in Climate Adaptation Policies. J Mustelin	Community Led Planning for the Impacts of Climate Change. R Hamden	An Indicator Framework to Operationalize Resilience Thinking in Australian Marine Sectors Dealing with Climate Change. J Davidson
	Optimal Habitat Protection and Restoration for Climate Adaptation. R Maggini	Future Change in Ancient Worlds: a Preliminary Understanding of Indigenous Adaptation in Northern Australia. D Bird	Legislation, Land Tenure and Climate Change Adaptation in Australia: the Hothouse Between Public and Private Interests. E Gerrard	Psychological Barriers and Promoters for Climate Change Adaptation. R Sapiains	Cultural Resources for Climate Change Adaptation: Identifying Opportunities in Abundance, Scarcity and Variability. L Head	A Resilient Mob': Media Analysis of How Australian Communities Construct Their 'resilience' Following Natural Disasters. A Leitch	Fisheries Management and Adaptation – the Need for a Double Adapter...? A Sullivan

4.15 – 5.45pm continued	Developing Strategies to Combat Increased Coextinction Rates of Plant-dwelling Insects Through Global Climate Change. P Vesik	Adaptation Options for Australian Indigenous Women Living in Remote Coastal Regions. L Petheram	Legal & Institutional Dimensions of Adaptation to Climate Induced Disasters. M Eburn	Finding Positive Change: How Mental Models Frame Risk Perception. L Lim-Camacho	Impacts of Climate Change on Livelihood Conditions: Assessing Adaptation Requirements. T Lissner	Development of a Climate Change Adaptation Evaluation Matrix. A. Rance	Seabird and Marine Mammal Management Options in the Face of Climate Change. L Chambers A Climate Change Adaptation Planning Framework for the Great Barrier Reef. R Beeden Climate Change and Coral Trout: Adaptation Options for Reef-based Fisheries. M Pratchett Vulnerability Assessment and Adaptation Planning in Queensland Fisheries Using a Multi Stakeholder Approach. N Cliffe Challenges with Developing Adaptation Pathways for Australia's Fisheries: Lessons Learned from Iconic Fisheries in South-east Australia. G Pecl Seasonal Forecasting As Stepping Stone for Marine Industries Adapting to Climate Change. A Hobday
	Incorporating Climate Change Adaptation into National Conservation Assessments. E Game	Urban and Peri-urban Indigenous People's Vulnerability and Adaptive Capacity to Climate Change. D Jones	A New Legislative Approach to Coastal Planning Adaptation. M Baker-Jones	A Computational Model of How People Reason About Climate Change. F Boschetti	Rental Housing, Climate Change and Adaptive Capacity: an Asset-Based Approach. M Lockwood	Implementation of City of Melbourne's Climate Change Adaptation Strategy. B McLachlan	
	Ecological-economic Optimization of Biodiversity Conservation Under Climate Change. B Wintle	Indigenous Voices in Climate Change Adaptation: The Challenges Facing Yorta Yorta People. D Griggs	The Encroaching Sea and Shifting National Boundaries: Integrating Law with Uncertain Scientific Predictions in Addressing Climate Change Impacts in the Coastal and Marine Environments of Australia and Its South Pacific Neighbours. N Rogers	The Inter-relatedness of Psychological Adaptation, Psychological Impacts, and Behavioural Engagement. J Reser	Impact of Climate Change on Disadvantaged Groups: Issues and Interventions. A Sevoyan	Evaluating the adaptive capacity of local government in South Australia. J Doogue	
	Detecting Unexpected Climate Impacts to Guide the Management of Species Threatened by Climate Change. E McDonald-Madden	Building the Resilience of Ahus Island Community and Its Ecosystems to the Impact of Climate Change Through Local Initiatives: A Bottom -Up Strategy for Climate Change Adaptation. R James	The Economics Of Adaptation: Government Acting As Insurer Of Last Resort. L Dobes	The Impact of Corrective Normative Feedback on Pro-environmental Intentions and Behaviour. M Hurlstone	What About Me? The Role of Emotion for Individual Climate Change Adaptation. S Russell	A Local Response to Adapting Cities for Climate Change: Western Creek Pilot Study. M Webster-Mannison	
6:00 – 7:00pm	Poster Presentations and pre-dinner bar Grand Lobby						
7:00 – 11:00pm	Conference Dinner Announcement of the Climate Adaptation Champions. Dinner Speaker: David Karoly (University of Melbourne) – <i>Climate Change and Societal Responses: Reflections from a Slow Learner</i> Room: Grand 1-4						

Day 3 – Thursday 28th June Morning

8am – 9am	Breakfast poster session Grand Lobby						
9am – 10.30am	Plenary 4 International developments Room: Grand 1-4 Chair: Kris Ebi Francis Zwiers (Pacific Climate Impacts Consortium, University of Victoria, BC) – On the attributes and challenges of regional climate services Mark Stafford Smith (CSIRO) – Planet under pressure: new knowledge towards solutions in 2012 Neville Smith (Bureau of Meteorology) – Progress with the IPCC Fifth Assessment Report on Impact, Adaptation and Vulnerability Ian Noble (Global Adaptation Institute)						
10.30 – 11.00am	Morning Tea Grand Lobby						
11.00 – 12.30pm	Parallel Session 29 Regional case studies Room: Park	Parallel Session 30 Climate change adaptation and Indigenous communities Room: State 1&2	Parallel Session 31 Turning science into policy Room: Lake 1&2	Parallel Session 32 Climate extremes and disaster management Room: Grand 1&2	Parallel Session 33 Adapting water policy and planning to climate change Sponsors: MDBA, SEACI & NWC Chair: J Alexandra Room: Grand 3&4	Parallel Session 34 Adaptation for coastal systems Room: State 3	Parallel Session 35 Enhancing Resilience at the Marine-Land Interface Sponsor: FRDC Chair: C Creighton Room: Lake 3&4
	Building Adaptation Capabilities: Learning by Doing and Sharing. B Webb	Responding to Climate Change – Indigenous People's Experiences of and Ideas About Climate Change in Four Sites in Victoria. A Bhathal	Why Science Does Not Drive Wicked Problems of Adaptation. B Head	Looking into the Past to Learn for the Future: Climate Extremes Informing Climate Change Adaptation. S Boulter	An overview of Australian Climate Research and its Role in Supporting Adaptation. G Pearman	Living Beside The Rising Tide: Adapting to Coastal Change in Auckland, New Zealand. A Reisinger	Australia's Most Prospective Opportunity for Action Across Adaptation and Mitigation – Australia's Estuaries and Wetlands. C Creighton
	Exploring the Need for Adaptation in Government Service Provision to Future Climate Through Integrated Regional Vulnerability Assessment (IRVA). C Lee	Changes to Climate, Changes to Culture: Native Title Holder Experiences in the Kimberley and Cape York. T Tran	When Science Meets Policy - Connecting Differing Paradigms, Cultures and Mindsets. L Soste	Rethinking the Policy/ planning Approach to Climate Change Adaptation and Disaster Risk Management. M Howes	Making Use of Climate Scenarios in Water Policy and Planning. D Post	Challenges to Adaptation in Coastal Australia and Implications for Strategic Planning. T Mackenzie	
	An Eyre Peninsula Report Card: Adaptation Practice and Research in the Far West of South Australia. D Jones	NCCARF Projects Speedtalks: Indigenous Communities Learning from the past, adapting in the future. M Parsons Living Change: Adaptive housing responses. R Horne Indigenous voices in climate change adaptation. D Griggs	The Role of Social Capital in Transferring and Integrating Adaptation Science in Public Policy: A Survey of Australian and Canadian Government Agencies. J Sandall	Disaster Resilience: How Different Stakeholders Frame Resilience and How Useful is the Concept for Policy and Practice. P Aldunce	Science Supporting Adaptive Water Planning. J Alexandra	Participatory Mapping of Coastal Adaptation Pathways in Mandurah, WA. L Stocker	Wetlands Role in Great Barrier Reef Coastal Ecosystems – Their Multiple Values in Biodiversity, Fisheries and Water Qualities and the Opportunities for Repair. D Audas

11.00 – 12.30pm continued	Evaluating Policy Networks for Science Impact: Planning for Climate Change Adaptation in South East Queensland. R McAllister	Aboriginal responses to climate change in arid zone Australia. P Memmott	TREND – An Example of Science - Policy Translation from the South Australian Government. S Sweeney	Costs And Benefits of Public And Private Provision of Post-Cyclone Emergency Services in Coastal Queensland. L Dobes	Climate Change Adaptation Planning in the South Australian Murray-Darling Basin. M Siebentritt	Coastal Residents, King Canute and Foaming Brine. A Leitch	Estuaries & Wetlands – Critical for Key Commercial and Recreational Fisheries and the Frontline for Adaptation to Rising Sea Levels. M Sheaves
	Comparison of Four Australian Regional Cross Border Governance Arrangements: Implications for Climate Change Adaptation. S Shearer	Understanding the use of intertidal marine resources by Indigenous women in the Northern Territory. L Petheram	Integration of Science and Policy in Implementing the New South Wales and Australian Capital Territory Regional Climate Modelling Project. C Lee	Determining Heat – health Thresholds for Urban Populations in Australian Capital Cities. M Loughnan	Climate Change and the Draft Murray Darling Basin Plan. T Stubbs	Managing the Risks of Inundation and Erosion for Coastal Property and Ecosystems. R Wise	Exploring the Land of Blue Carbon Opportunities – Australia! A Lawrence
	Lines on Maps: Where Do We Put Them - and Why! G Hunt	Understanding Coastal Urban and Peri-urban Indigenous People's vulnerability and adaptive capacity D Low Choy Future change in ancient worlds: Indigenous adaptation in northern Australia. D Bird Towards climate change adaptation in Indigenous communities. M Nursey-Bray	Understanding End-user Decisions and the Value of Climate Information Under the Risks and Uncertainties of Future Climates. T Capon	Extractive Resource Development in a Changing Climate: Lessons from a Decade of Extreme Weather Events in Queensland (2000-2011). V Sharma	Water and Climate Change: Interactions and Responses. K Olsson	Retreat or Defend? Planning for Change in Tasmania's Coastal Zone. J Harkin	
12.30 – 1.30pm	Lunch Grand Lobby						

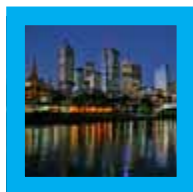
1.30 – 3.00pm	Parallel Session 36 Learnings from Around the World Room: Park	Parallel Session 37 NCCARF Projects Speedtalks: Social, Economic and Institutional Dimensions Chair: D Stock Room: State 1&2	Parallel Session 38 Decision support tools Room: Lake 1&2	Parallel Session 39 Disasters, people and climate what does the future hold? Sponsor: Bushfire CRC Chair: TBC Room: Grand 1&2	Parallel Session 40 Adapting water policy and planning to climate change Sponsors: MDBA, SEACI & NWC Chair: Sam Capon Room: Grand 3&4	Parallel Session 41 Scenarios for the future of adaptation Room: State 3	Parallel Session 42 Closing panel of Marine special symposium Room: Lake 3&4
	Migration As an Adaptation to Climate Change in Western China. X Liu	Extreme heat and climate change: adaptation in culturally and linguistically diverse communities. P Bi Heat Ready: Adapting Aged Care Facilities to cope with heatwave. D Black What about me? Factors affecting individual adaptive coping capacity. K Unsworth	Quenching the Thirst: How Much Detail is Enough for Effective Adaptation Decisions. M Dunn	Climate Change, Fire Regimes and Landscape Management in Australia: What Does Climate Change Mean for Risk Mitigation? D Williams	An Economic Assessment of Trade Constraints on Environmental Flow Applications Under Climate Change in Australia. A Loch	Improving Climate Intelligence – a Framework for Better Informing Adaptation Decisions in a Variable Climate. A Watkins	A Diagnostic Approach to Climate Adaptation for Australian Fisheries. P Leith
	When Not Every Response to Climate Change is a Good One: Identifying Principles for Sustainable Adaptation. P Aldunce	Preferences for the Distribution of Responsibility for Adaptation to Sea Level Rise. J Barnett Developing Adaptively: Understanding the urban climate adaptation role of the private development sector. E Coiacetto	Flexible Guidance on Adaptation Planning and Decision-making: the Adaptation Navigator Application. H Fuenfgeld	Psychological Preparedness for Disaster Threat. H Zulch	Climate Change Adaptation for Water Resources and Freshwater Biodiversity. N Grigg	Opportunities and Challenges for Climate Adaptation – a National Approach Across 4 Climate Impacts. H Schandl	Building Social-ecological Resilience: the Adaptation of Coral Reef Management. P Marshall
	Climate Change Adaptation Planning in Cambodia and Potential for Improvements. V Dany	Every state for themselves? Learning from cross-border regulatory instruments. W Steele A national strategy for climate adaptation: rationale, scope and limitations. K Hussey Market Mechanisms for dealing with the Increasing Cost of Catastrophe Losses. R Crompton	Foreseeing the Health Effects of Climate Change in Rural Communities: A Translational Research Approach. E Bell	Optimal Time for Catastrophic Losses Mitigation Investment Under Climate Change. C Truong	Joining the Dots: Connecting Downscaled Climate Projections, Hydrology, Ecosystem Values, and Management Frameworks to Conserve Biodiversity in Freshwaters. L Barmuta	Envisioning Alternative Adaptation Futures for Coastal Settlements and Communities. E Trammell	Panel: Final discussion and wrap-up of Marine Symposium

1.30pm – 3.00pm continued	Mainstreaming Climate Change into the Red Cross Red Crescent Movement: a Solomon Islands Case Study. R McNaught	Social networks analysis. S Kinnear Costs and coasts. R McAllister Native Title and Climate Change Adaptation. J Weir	Overcoming Challenges for Decision Making About Climate Change Adaptation. K Maani	Drought and Fire Micro-refuges, Resilience and Climate Change. B Mackey	Planning For Adaptive Urban Water Systems Under An Uncertain Future. P Mukheibir	Coastal Urban Futures: from Wollongong to Lakes Entrance. B Norman
	Migration, Climate Change and Environmental Security: a Case Study of Two Coastal Districts in Bangladesh T Sarker	Rental housing, climate change and adaptive capacity. J Palmer Enhancing the Adaptive Capacity of Small-to-Medium Enterprises. N Kuruppu Impact of Climate Change on Disadvantaged Groups. A Sevoyan	FORAGE – a Web-based System for Delivering Climate, Remote Sensing and Model Calculations for Individual Grazing Properties on a 'Lot on Plan' Basis. K Day	Effective Communication for Community Adaptation to Bushfire in a Changing Climate – A Role for Local Government. S Chaplin	How to Balance Urban and Agricultural Water Related Needs Under Changing Conditions in the Maipo Catchment, Chile? H Lehn	Climate Change Assessment for Possible Future Landscapes: Hunter and Central Coasts. P Morley
	Story-telling -the Use of Participatory Video in Communicating CBA Within and Between Communities, and Influencing Policy Decisions in Pacific Island Countries. R James	Cognitive and affective barriers to climate change adaptation. P Bi Climate Change Beliefs and Irrigator Adaptability. S Wheeler TBC	Preparing for the Impacts of Sea Level Rise in South Western Australia M. Woolf	Reflecting on the adaptive capacity of the public policy sector of fire management. K Bosomworth	Emerging Issues for Climate Change Adaption in Water Management. B Rhodes	Using Scenarios to Identify Adaptive Governance Regimes for Marine Biodiversity in a Changing Climate. M Lockwood
3.30 – 3.30pm	Afternoon tea Grand Lobby					
3.30 pm – 5.00pm	Closing Plenary 5 Visioning a climate change adapted Australia in 2050 Room: Grand 1-4 Jon Barnett (University of Melbourne) – It 'aint what you do, it's the (why) and way you do it: characteristics of an adapting Australia Peter Cosier (Wentworth Group) – What is Failure and What is Success? Dave Griggs (Monash University) – Visioning a climate change adapted Australia in 2030 Voice of Youth Conference Wrap-up Jean Palutikof (NCCARF) & Andrew Ash (CSIRO)					

Plenary Speakers

Tuesday 26th June

Welcome to country



Aunty Diane Kerr, Wurundjeri Elder

The territory of the Wurundjeri lies within the inner city of Melbourne and extends north of the Great Dividing Ranges, east to Mt Baw Baw, south to Mordialloc Creek and west to Werribee River. They are the 'Witchetty Grub People' ('Wurun' meaning the river white gum or *Eucalyptus viminalis*, and 'jeri' meaning the grub that lives in the tree).

Aunty Diane Kerr will offer a traditional Welcome to the Land, as is her right and traditional role as senior woman of the Wurundjeri People.

Aunty Diane Kerr Wurundjeri Elder has worked tirelessly for the last 20 years on social, health and well-being issues that affect Indigenous People. Her working career has included community work at Dandenong & District Aboriginal Co-operative, child-care, Native Title, link up (part of Stolen Generations), education and cultural awareness to the wider community. All of this has led her to her current path of looking for ways to strengthen the social and emotional well-being of Aboriginal Peoples. Currently Aunty Di is working on a research project which looks at chronic conditions and how it affects people's emotional health and wellbeing.

Plenary Session 1 – Climate change adaptation in Australia today



Simon McKeon, Chairman of CSIRO

Simon McKeon is Executive Chairman of Macquarie Group's Melbourne office and was the 2011 Australian of the Year. He is also Chairman of CSIRO and Business for Millennium Development. Simon is Chairman of the Federal Government's Panel conducting a Strategic Review of Health and Medical Research. Simon is a Director of VisionFund, World Vision International's microcredit arm, Global Poverty Project and Red Dust Role Models.

He is an Australia Day Ambassador for the Victorian Government and serves on the Federal Government's Human Rights Grants Scheme Advisory Panel, the Federal Government's AusAID Business Engagement Steering Committee and the Victorian Government's NDIS Implementation Task Force. He previously served as Founding President of the Federal Government's Australian Takeovers Panel, Founding Chairman of MS Research Australia and Founding President of the Federal Government's Point Nepean Community Trust.

Simon is the helmsman of *Macquarie Innovation* which in March 2009 became the first sailboat in the world to sustain more than 50 knots and in so doing, peaked at a speed of 100 kmh (54 knots). He is also a Patron of the Australian Olympic Sailing Team which won 2 gold and a silver medal at the 2008 Beijing Olympics.



Hon. Greg Combet AM MP, Minister Department of Climate Change and Energy Efficiency; Minister for Industry and Innovation

Greg Combet comes from a wine making family, growing up at Penfold's Minchinbury cellars in the western suburbs of Sydney.

He studied mining engineering at the University of New South Wales, working in the coal industry and later in community organisations. After working in the field of occupational health and safety, he went on to become a union official, at the same time graduating with a Bachelor's degree in Economics from the University of Sydney. He also has a Graduate Diploma in Labour Relations and the Law. He was awarded a Member of the Order of Australia in 2006.

Following the Labor Party's Federal Election win in November 2007, Greg was appointed Parliamentary Secretary for Defence Procurement in the Rudd Labor Government.

In February 2009 he was appointed the Parliamentary Secretary for Climate Change and in June 2009 was appointed Minister for Defence Personnel, Materiel and Science and the Minister Assisting the Minister for Climate Change.

After the 2010 Federal Election, the Gillard Labor Government was formed on 7th September. Greg was promoted to Cabinet in the role of Minister for Climate Change and Energy Efficiency. In December 2011, Greg took on the additional responsibility as the Minister for Industry and Innovation.

Greg is a keen student of Australian labour history, a long time fancier of Gouldian finches and has a natural interest in the méthode Champenoise as it is applied to the production of sparkling Shiraz.



Blair Comley PSM, Department of Climate Change and Energy Efficiency

Blair Comley commenced as Secretary of the Department of Climate Change and Energy Efficiency in February 2011.

Prior to this appointment, Blair was a Deputy Secretary in the Department of Climate Change and Energy Efficiency with executive oversight for the climate change strategy and market instruments, international climate change policy and issues related to the land sector.

Previously, Blair held a range of senior positions in the Treasury including as General Manager of the Business Tax Division, Indirect Tax Division, Macroeconomic Policy Division and the Debt Management Review Team. Blair also represented Australia for three years on economic matters at the OECD and was the Acting Chief Executive Officer of the Australian Office of Financial Management with responsibility for managing the Australian Government's debt and related derivative portfolio.

Blair previously worked on competition policy, environment policy and welfare reform. Before joining the Treasury in 1994, Blair worked at the Industry Commission and was a lecturer in the Department of Economics at Monash University.

Blair holds a Bachelor of Economics (Honours) and a Master of Economics from Monash University and a Graduate Diploma in Legal Studies from the Australian National University.



Wendy Craik AM, Productivity Commission

Regulatory and policy barriers to climate adaptation: draft report

In this presentation, Dr Craik will outline the key recommendations from the Productivity Commission's draft inquiry report into Regulatory and Policy Barriers to Effective Climate Change Adaptation.

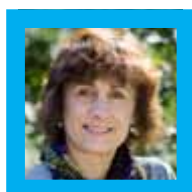
The Productivity Commission received terms of reference to commence this inquiry in September 2011. In response, the Commission has examined potential barriers in areas such as information provision, land-use planning and building, local government and emergency management. The Commission will hand the final report of the Inquiry to Government in September. The Commission is accepting submissions on the draft report, and will hold public hearings in July.

Wendy Craik AM was appointed a full-time Commissioner of the Productivity Commission in June 2009 and is currently the Presiding Commissioner on the inquiry into Barriers to Effective Climate Change Adaptation and a Commissioner on the Electricity Network Regulation inquiry. Wendy previously worked on Australia's Urban Water Sector, Economic Regulation of Airport Services and the Wheat Export Market Arrangements inquiries.

Wendy was Chief Executive of the Murray-Darling Basin Commission from 2004 to 2008. Prior to this Wendy was President of the National Competition Council, Chair of the Australian Fisheries Management Authority and Chair of the National Rural Advisory Council. Other former positions include Chief Executive Officer of Earth Sanctuaries Ltd, a publicly listed company specialising in conservation and eco tourism, Executive Director of the National Farmers Federation, and Executive Officer of the Great Barrier Reef Marine Park Authority. She has also worked as a consultant for AcilTasman Consulting.

Wendy holds a Bachelor of Science (Hons) from the Australian National University, a PhD (Zoology) from University of British Columbia, Vancouver, and a Graduate Diploma in Management from the Capricornia Institute of Advanced Education, Queensland.

Wendy was awarded the Member of the Order of Australia in 2007 for service to the natural resource sector of the economy, particularly in the areas of fisheries, marine ecology and management of water reform, and for contributions to policies affecting rural and regional Australia.



Lesley Hughes, Climate Commission; Macquarie University

The Climate Commission: Conversations with the Australian public

The Climate Commission was established by the federal government in February, 2011 to provide an independent voice on climate change and to help build the consensus required to move to a competitive, low carbon economy. The terms of reference for the Commission are to explain the science of climate change and the impacts on Australia, to report on progress of international action, and to explain the operation of a carbon price.

The Commission has now held 16 public outreach events, visiting every state and territory. We have also held many meetings with business and community organisations, schools, local, state and federal government representatives, and research organisations, and produced a series of thematic and regional reports on climate change impacts.

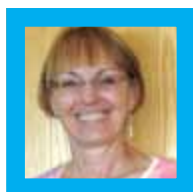
Overall, the Commission has found that the Australian public has a hunger for clear and credible information about climate change, and that many people are eager for advice about how they can personally contribute to climate change mitigation. We have also found that there is a very wide range of preparedness amongst businesses and local governments with regard to climate change adaptation but that many are factoring in climate change risks into their future planning.

Lesley Hughes is an ecologist at Macquarie University who researches the impacts of climate change on Australian species and ecosystems. She was a Lead Author for the IPCC Fourth Assessment Report and is continuing in this role for the Fifth Assessment Report. She is a former Chair of the NSW Scientific Committee and former co-convenor of the ARC Earth System Science Network. She currently co-convenes the Terrestrial Biodiversity Network for the National Climate Change Adaptation Research Facility (NCCARF), is a member of the Land Sector Carbon and Biodiversity Board, and is one of the six federal Climate Commissioners.

Plenary session 2 – Health, society and adaptation**Tony McMichael, Australian National University****Reducing health risks: Setting the adaptation task in context**

Adaptation in relation to health requires, first, a fuller knowledge of climate-health risk relationships, including for higher-risk sub-populations. That knowledge is now accruing. Meanwhile some initial, intuitively obvious, adaptation is beginning to happen (e.g. early warning systems for heatwaves, stricter protocols for avoiding workplace heat stress, controls on mosquito breeding sites). There are three generic pitfalls if adaptation is pursued at the expense of mitigation. First, we may delude ourselves into thinking this is all we need to do – i.e. marginal muddling through over time (with a misplaced linear 'model' of future increased stress). Second, we may forget our privileged position and drift into the 'Going It Alone' adaptation elite, while poorer countries lack resources to do likewise. Third, the health sector, specifically, is (naturally) more comfortable in shoring up response capacities against increased future demand for services than in joining inter-sectoral planning of genuine preventive strategies (housing design, food system resilience, low emissions transport modes to pre-empt amplification of ambient air pollution). As counterpoint, adaptation can not only protect against the climate change-related risk increment but can extend its reach to reduce the underlying pre-existing component of the problem. Mitigation skims off the increments (for all sectors); adaptation can dig deeper into any one or more sectors.

Tony McMichael, medical graduate and epidemiologist, helped to pioneer research on the human health impacts of climate change. He leads the climate change and health research program at the National Centre for Epidemiology and Population Health, Australian National University, studying recent, emerging and modelled future health risks, and adaptive strategies. He is ex-President of the International Society of Environmental Epidemiology, a Science Advisor to the (Australian) Climate Commission, and was elected to the US National Academy of Sciences in 2011. He has been an advisor on environmental health to WHO, UNEP the World Bank and other international bodies."

**Kristie Ebi, Stanford University****But is it adaptation?**

Public health and health care institutions and organizations are increasingly incorporating weather, climate variability, and other environmental variables into programs and measures designed to reduce the burden of climate-sensitive health outcomes; doing so can improve the efficiency and effectiveness of early warning systems and other activities. Reducing the current adaptation deficit is presumed to increase the resilience of communities, regions, and nations to future climate change. However, mainstreaming consideration of current weather patterns into public health activities facilitates adaptation to climate change only when there was explicit consideration of short- and longer-term projected changes in the means and extremes of weather variables over time, factoring in uncertainties about the implications of development pathways for the health outcome, and taking into account multiple stakeholder objectives and preferences. It is important for programs and measures to be designed from the perspective that decisions are provisional and modifications are to be expected. Adaptation explicitly incorporates iterative monitoring and evaluation of programs and measures to determine their effectiveness in avoiding, preparing for, and responding to ongoing changes in climate and other drivers, using this information to update knowledge and adjust programs accordingly.

Kristie L. Ebi is a Consulting Professor in the Department of Medicine, Stanford University and the Executive Director of the IPCC WGII Technical Support Unit. Prior to these positions, she was an independent consultant conducting research on the impacts of and adaptation to climate change, including on extreme events, thermal stress, foodborne safety and security, and vectorborne diseases. She has worked with WHO, UNDP, USAID, and others on assessing vulnerability and implementing adaptation measures in Central America, Europe, Africa, Asia, and the Pacific. She facilitated adaptation assessments for the health sector for the states of Maryland and Alaska. She was a coordinating lead author or lead author in the IPCC Fourth Assessment Report, the Millennium Ecosystem Assessment, the International Assessment of Agricultural Science and Technology for Development, and two US national assessments. Dr. Ebi's scientific training includes an M.S. in toxicology and a Ph.D. and a Masters of Public Health in epidemiology, and two years of postgraduate research at the London School of Hygiene and Tropical Medicine. She has edited four books on aspects of climate change and has more than 100 publications.

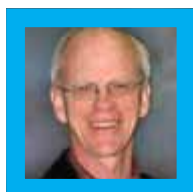


Alistair Woodward, University of Auckland

Adapting to protect health under climate change: general or specific?

There is plenty of evidence that climate change acts largely as a risk multiplier – the present and projected effects on human health are concentrated in populations that already carry relatively large burdens of disease and injury. What does this mean for adaptation? How far will improved disaster preparedness and better public health, in general, take us? And, what are the special elements of climate change that require special responses? In an attempt to answer these questions, I will draw on the experience of coping with earthquakes in Christchurch, the challenges of providing sanitation in Kiribati and the long-term consequences of the 2003 French heat-wave.

Alistair Woodward is Head of the School of Population Health at the University of Auckland. He is a medical graduate from the University of Adelaide, and has worked in universities in Australia, the UK and New Zealand. His research interests are in environmental epidemiology and tobacco control, and he has been involved in work on climate change for more than 15 years. He and Kirk Smith are leading the writing of the health chapter for the 5th assessment report of the IPCC.



Neville Nicholls, Monash University

Neville Nicholls spent 35 years in climate research in the Bureau of Meteorology before joining Monash University in 2006 where he is an Australian Research Council Professorial Fellow.

His research has included using the El Niño – Southern Oscillation to predict climate variations such as droughts and seasonal tropical cyclone activity, examining climate and weather impacts on agriculture, ecosystems, and human health, and developing and analysing data sets for monitoring climate variations and change.

Neville is President of the Australian Meteorological and Oceanographic Society, and an editor of the journal Wiley Interdisciplinary Reviews: Climate Change. He was a Coordinating Lead Author for the Intergovernmental Panel on Climate Change (IPCC) Special Report “Managing the risks of extreme events and disasters to advance climate change adaptation” released in 2012.

Evening poster session



Cr Rachel Powning, Mayor City of Port Phillip

Rachel Powning was elected to Port Phillip Council in 2008 and to the role of Mayor in 2010. She has lived in Port Phillip for almost 25 years.

As a Councillor Rachel is committed to accelerating action on climate change, including the important role for local government of advocating to other levels of government. She is also strongly committed to equity and diversity in her community, and to improving access to critical community services such as quality childcare.

Rachel sits on a number of Port Phillip committees and also currently serves on the Boards of Community Chef and the Linden Gallery.

Prior to her now full time role as Mayor, Rachel worked as a management consultant to state and local government, and has had prior careers in the international development sector, local government and public relations. Rachel qualifications include a BA Hons, a MA in International Relations, and she is a Graduate of the Australian Institute of Company Directors.

Wednesday 27th June

Plenary session 3 – Business as usual? How is business adapting



Gareth Johnston, Future Ready

Gareth Johnston, Executive Director and Founder of Future Ready, has spent the last 15 years advising Australian and international public and private companies, government and community on environmental risk, climate response, adaptation and resilience. While Victoria's bush fires and Queensland's floods have heightened risk managers adaptation awareness and prompted some directors to prepare and act earlier than in the past Gareth believes much still remains to shift thinking from short term through medium to long term planning.



John Trowbridge, National Disaster Insurance Review

Climate Change: Insurance Industry Impact and Response

The insurance industry has an abiding interest in climatic events e.g. cyclones, storms, bushfires, floods, landslides, tsunamis and coastal storm surge. Accordingly it has a major stake in any changes to the climate that might alter the frequency, severity and locations of climatic events. When severity of events increases there can be an exponential increase in property damage. Even without climate change, the industry is concerned about increasing exposures through greater aggregations of property risk (urbanisation and development of coastal areas, riverfronts and floodplains). Climate change 'ups the ante'. But note that the industry manages much of the temporal risk of climate change by operating mainly with one year policies. Hence much of the risk of climate change is transferred through premium adjustments to the buyers of insurance.

John Trowbridge was a government appointed Member of the Executive Group of the Australian Prudential Regulation Authority (APRA) from 2006 – 2010 after a distinguished career in the actuarial profession and in the insurance industry, holding consulting, executive and director roles. After completing his consulting career in 2002, he led Suncorp's insurance business for a period and was subsequently a local director of Munich Reinsurance. He was the panel Chairman of the Natural Disasters Insurance Review that released its final report in 2011.



Mark Howden, CSIRO

Australian agriculture – adapting as usual?

Australian agriculture is constantly adapting. These adaptations have changed the face of the industry, and the communities which depend on them. Changes in relative profitability caused by changes in markets, productivity and technology have led to changes in the numbers and size of farms, and their location. Drivers include product and input prices, market access, technology, policy and climate. This presentation addresses whether 1) there is evidence of adaptation to climate changes already across parts of the agricultural value chains and 2) adapting to climate change is different from adapting to other driving variables. There is strong evidence of high rates of adoptions of incremental adaptations (e.g. changes in inputs to existing systems) such as zero tillage in cropping systems but the drivers of these are generally confounded with other changes consistent with good practice in dealing with Australia's variable climate. There is similarly some evidence of systemic change (adoption of fundamentally new practices) but these are often confounded by changes in total factor productivity for other reasons. Perhaps the clearest climate adaptation signal comes from the small number of transformational adaptations so far, such as the partial relocation of the wine, rice and peanut industries. We suggest that adaptation to climate change is qualitatively different from dealing with other drivers of change, and requires holistic responses that integrate farm-level management practice, industry and government policy. Hence climate adaptation in this sector is somewhat 'business as **unusual**'.

Dr Mark Howden is a Chief Research Scientist with CSIRO Ecosystem Sciences, Canberra, Australia. He is also the Theme Leader of the 'Adaptive primary industries, enterprises and communities' theme in the CSIRO Climate Adaptation Flagship and is an Honorary Professor at Melbourne University, School of Land and Food. Mark's work has focussed on the impacts of climate on Australian ecosystems and urban systems dealing with amongst other things: the dynamics of grazed and cropped ecosystems, development of innovative and sustainable

farming systems, biodiversity, energy systems and water use. He has also developed the national (NGGI) and international (IPCC/OECD) greenhouse gas inventories for the agricultural sector and assessed sustainable methods of reducing greenhouse emissions from agriculture. Mark has worked on climate change issues for over 22 years in partnership with farmers, farmer groups, catchment groups, industry bodies, agribusiness, urban utilities and various policy agencies. He has been a major contributor to the Intergovernmental Panel on Climate Change (IPCC) Second, Third, Fourth and Fifth Assessment reports, the IPCC Regional Impacts Report and the IPCC Special Report on 'Land use, land use change and forestry' that addressed issues of carbon sequestration and the Kyoto Protocol, sharing the 2007 Peace Prize with other IPCC participants and Al Gore.



Mark Rogers, Colonial First State Global Asset Management
Infrastructure Assets and Climate Change Action - Funding Resilience

Summary: a broad discussion on infrastructure asset resilience to climate change and the necessity to build business cases around climate change mitigation to protect asset value and the operational integrity of infrastructure assets. Many infrastructure assets operate as critical components of domestic and international economies and provide crucial social services in a community, the evidence points to climate change posing significant additional operational pressure on existing and new build assets as storm events, sea level rises, floods and droughts change the operating environment of these assets. Infrastructure assets are also typical very long life assets (beyond 50 year operating life). A case study will be provided outlining how climate change can be factored into asset resilience for long life assets.

Mark Rogers was appointed Asset Manager, Infrastructure Investment at Colonial First State Global Asset Management in March 2007. Mark is responsible for the development and implementation of asset management strategies for the various portfolio assets and is involved in due diligence during the investment decision processes for Colonial First State's Infrastructure Investment team. Prior to joining Colonial, Mark was a senior policy officer working on the Federal airport sale process and the development of the regulatory framework for the newly privatised Federal airports. He has also been involved in government liaison, regulatory approvals and regulatory compliance issues for a large number of major infrastructure projects in Australia and New Zealand. Mark has over 16 years experience on all sides of the infrastructure sector from his involvement with the Department of Transport and Regional Services, his private consulting experience in major infrastructure projects and his work with Origin Energy in project construction and operation in the oil and gas sector. He is also Deputy Chair of the Australian Green Infrastructure Council.



John Thwaites, Australian Building Codes Board

National Construction Code facilitating adaptation to climate change

In 2007, COAG endorsed a National Adaptation Framework as part of its Plan of Collaborative Action on Climate Change. A focus of the Framework is to support decision-makers understand and incorporate climate change into policy and operational decisions at all scales and across all vulnerable sectors. An area of action identified in the Framework is the revision and development of codes, standards and guides to increase resilience to climate change.

Buildings have a major role in reducing the impacts of natural hazards. Because buildings are usually expected to last at least 50 years, it is important they can cope with future natural hazard events. This is particularly so when considering that half of all buildings expected to exist in 2060 have yet to be constructed. So, the Code can contribute to positive adaptation of the Australian building stock to climate change.

The paper will outline where the National Construction Code (NCC) fits: in the adaptation to climate change. The paper will focus on the impact of the NCC on business, how business is adapting and how business is involved in the development of the NCC. Case studies relating to climate change will be presented. The paper will also outline the research needs to assist in the development of the NCC in response to climate change.



John Thwaites was appointed Chair of the Australian Building Codes Board in November 2011. John is a Professorial Fellow at Monash University and Chair of ClimateWorks Australia and the Monash Sustainability Institute which promotes interdisciplinary sustainability research including building energy efficiency. He is a consultant at Maddocks Solicitors providing advice to the firm and its clients on climate change, water, sustainability and corporate social responsibility. He also chairs a number of other groups looking at climate change, culture and social responsibility. In 2008-2009, John was a special adviser to the Timor-Leste Minister for Infrastructure and helped develop an Infrastructure plan for Timor-Leste. John was Deputy Premier of Victoria from 1999 until his retirement in 2007 during which he held Ministerial portfolios responsible for health, planning, environment, water and communities. He was Victoria's first Minister for Climate Change. He has degrees in Law (Honours) and Science from Monash University.

Conference dinner speaker



David Karoly, University of Melbourne

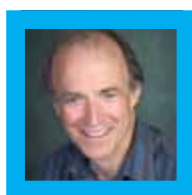
Climate Change and Societal Responses: Reflections from a Slow Learner

David Karoly will reflect on 25 years of climate change science and action on adaptation and mitigation, as well as political and societal responses in Australia and overseas. This journey will wander from the first CSIRO Greenhouse conferences in the 1980s and the first IPCC assessment report in 1990 to where we are now, and how these experiences can shed light on the path ahead.

David Karoly is leader of the Climate Change theme in the Melbourne Sustainable Society Institute and Professor of Climate Science in the School of Earth Sciences at the University of Melbourne. Professor Karoly is an internationally recognised expert in climate change and climate variability, including greenhouse climate change, stratospheric ozone depletion and interannual climate variations due to El Nino-Southern Oscillation. He was heavily involved in preparation of the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) released in 2007, in several different roles. Professor Karoly was Chair of the Premier of Victoria's Climate Change Reference Group during 2008 and 2009. He is a member of the Science Advisory Panel of the Australian Climate Commission and a member of the Wentworth Group of Concerned Scientists. His international activities include as a member of the Joint Scientific Committee of the World Climate Research Programme.

Thursday 28th June

Plenary session 4 – International Developments



Francis Zwiers, PCIC, University of Victoria

On the attributes and challenges of regional climate services

The ultimate measure of the success of the Global Framework for Climate Service will be whether it succeeds in delivering “actionable” climate information to those who must make decisions that affect outcomes that are sensitive to the state of the climate. That is, the GFCS will be successful if it delivers information that is useful for adaptation, in a broad sense, to climate variability and change on timescales from a season to decades or centuries. Success will be determined (i) by the means that are used to determine what information is delivered, (ii) by the quality, utility and timeliness of the information that is delivered, and (iii) by how and to whom the information is delivered. Regional climate service providers will play an important role in that success. This talk describes some of the attributes of a regional climate service, and how it relates to climate services that are delivered on a wider scale. It is based on our experience in Canada, which is a large and regionally diverse country. The delivery of climate services in Canada is evolving towards a multi-tiered system that involves international providers, national providers, regional services (such as PCIC), and private sector consultants.

Francis Zwiers is the Director of the Pacific Climate Impacts Consortium at the University of Victoria, a regional climate service for British Columbia and surrounding areas. He is well known as an expert on the application of statistical methods to the analysis of observed and simulated climate variability and change, and for his participation in the IPCC as an author and Bureau member.



Mark Stafford Smith, CSIRO

Planet under pressure: new knowledge towards solutions in 2012

2012 could and should be a seminal year in earth system history. In March 2012 the *Planet Under Pressure: New Knowledge Towards Solutions* conference brought together scientists, policy makers, industry and civil society to discuss the increasingly urgent issues about global sustainability that are facing us, and resulted in the first State of the Planet Declaration. Its highest level conclusion was that the Anthropocene – a new geological epoch based on the recognition that the impact of humanity on the world is now of geological proportions – symbolises the need for a profound re-assessment of our relationship with, and responsibility for, our planet. If we want it to continue to deliver the goods and services – clean air, stable climate, adequate freshwater, food, energy – that have benefitted the development of civilisation during the Holocene, then we must take on planetary stewardship to ensure this. As a consequence, the Rio+20 UN global sustainability summit in June 2012 takes on a new significance – it must commit to establish the changes in institutions which could make this possible. The message from science is one of *urgency* – we cannot delay in the face of an accelerating suite of complex, interconnected problems – and yet *opportunity* – the past decade has seen an explosion of understanding not only about what to do, but how to do it.

Mark Stafford Smith is Science Director of the CSIRO Climate Adaptation Flagship, coordinating science undertaken across the Flagship's research themes. He was co-chair of the *Planet Under Pressure: New Knowledge Towards Solutions* global change conference in London in March 2012, and has contributed to feeding its results into the Rio+20 process. By background, he is a desert systems ecologist and past CEO of the Desert Knowledge Cooperative Research Centre (CRC), focusing on the science of desert living and sustainable management of outback environments.



Neville Smith, Bureau of Meteorology

Progress with the IPCC Fifth Assessment Report on Impact, Adaptation and Vulnerability

The Intergovernmental Panel on Climate Change is mid-way through the Fifth Assessment cycle and is due to consider and approve the Synthesis Report toward the end of 2014. Working Group II which has responsibility for the scientific assessment of impacts, adaptation and vulnerability is due to accept its Report and approve the Summary for Policy Makers in March 2014. The Working Group II Expert Review of the First Order draft runs for eight weeks commencing 11 June. The second order draft is due in early March 2013. This presentation covers the Working Group II approach to the fifth assessment, the expert meetings and workshops that are informing the assessment, and the outcomes from the two Special Reports that have been completed during this cycle. Coordination of cross-cutting issues that involve other working groups will also be addressed. The Intergovernmental Panel on Climate Change has undergone significant transformation during 2011 and 2012 and the implications of this transformation for Working Group II will be discussed.

Neville Smith is the Deputy Director (Research and Systems) at the Bureau of Meteorology. Dr Smith was previously the Bureau Chief Scientist and head of the Bureau of Meteorology Research. He is currently responsible for the Research and Systems Division in the Bureau, including the Bureau's observing system and communications and computing infrastructure.

Dr Smith is a member of the Intergovernmental Panel for Climate Change Bureau as vice-chair of Working Group 2, the Group responsible for impacts, adaptation and vulnerability scientific assessments. He is also national focal point for the Intergovernmental Oceanographic Commission. He was elected to the Academy of Technological Sciences and Engineering in 2005.



Ian Noble, Global Adaptation Institute

Ian Noble is Chief Scientist at the Global Adaptation Institute. He recently retired as Lead Climate Change Specialist at the World Bank.

Before joining the Bank in 2002 he was Professor of Global Change Research at the Australian National University. An ecologist by training, he held senior roles in the IPCC process and in international cooperative research on climate change as part of the International Geosphere Biosphere Program (IGBP) including chairing the Global Change and Terrestrial Ecosystems (GCTE). In Australia he participated in the public and policy debate over responses to climate change and served as a Commissioner in an inquiry into the future of the Australian forests and forest industries.

Plenary session 5 – Visioning a climate change adapted Australia in 2050



Jon Barnett, University of Melbourne

It 'aint what you do, it's the (why) and way you do it: characteristics of an adapting Australia

In order to adapt we need to know why we are adapting. This is of course a matter for deliberation through democratic institutions. But that takes time, and not all voices are equal, which is why democracy produces least-worst outcomes, not necessarily good ones. So instead, in this paper I explain why we should adapt, and how we should do it (I was asked, I said yes).

The goal of this adaptation manifesto is fairness, with respect to both the distribution of social opportunities, and with respect to influence in social processes. The problem with changes arising from climate change is that they seem likely to undermine this goal of a fair Australia: through changes in environments, and changes in institutions in anticipation of or response to the changes in environments. So, adaptation is a matter of ensuring fairness despite climate change.

To achieve fairness in a climate change future the state will need to be more purposeful, including with respect to: the deepening of government, including formalizing the place of local governments in the Australian system of governments; greater protection of public goods, including water and carbon; transformation of vulnerable sectors and places; and selective opening of Australian labour markets to the world.

Jon Barnett is a Professor in the Department of Resource Management and Geography at Melbourne University. He is a political geographer whose research investigates the impacts of and responses to climate change on social systems, with a focus on risks to human insecurity, hunger, violent conflict, and water stress. He has done extensive field-work in the South Pacific, China, and East Timor. Jon is convenor of the national research network on the social, economic and institutional dimensions of climate change, which is part of the National Climate Change Adaptation Research Facility, and is a Lead Author for the forthcoming Fifth Assessment Report of the IPCC. He is the Executive Editor of the adaptation domain of *Wiley Interdisciplinary Reviews Climate Change*.



Peter Cosier, Wentworth Group of Concerned Scientists

What is failure and what is success?

If Australia has failed to adapt in 2050, many formerly high conservation value ecosystems would have been locked up disconnected from the landscape and unable to adapt. Land would have been carved up into 'food producing' and 'biodiversity producing' leaving no space to move as species and communities shift. Threats of fires and invasive species would find it easy to move across the landscape as a result of poorly thought out wildlife corridors. We would have covered large parts of the continent in trees for carbon sequestration leaving no room for water or food. And we would be flying blind without systems of environmental information.

On the other hand, a well-adapted Australia in 2050 would have seized the opportunities presented by a new terrestrial carbon economy, created by climate change mitigation policies, to rehabilitate degraded land and build resilience into Australian landscapes and. We would have rethought our traditional preservationist approach to nature conservation and have worked out environmentally sustainable ways to increase food production to meet rising demand. We would have reduced other threats to biodiversity, for example, by returning enough water to river systems to ensure their health. We can only achieve all this if we build a system of environmental accounts that enables us to detect and measure change in the condition of our environmental assets to inform economic and environmental decision-making.

Peter Cosier is the Director and a Founding Member of the Wentworth Group of Concerned Scientists, a privately funded institution established in 2002 with the aim of connecting science to public policy in Australia. He has a background in science, specialising in natural resources management and urban and regional planning. His expertise is environmental policy. The Wentworth Group's recent work: Optimising Carbon in the Australian Landscape blueprint, outlined how terrestrial carbon offsets can be used to repair degraded landscapes, restore and conserve biodiversity and improve the condition of agricultural soils.



Dave Griggs, Monash University

Visioning a climate change adapted Australia in 2030

The presentation will use generic stepwise approach to adaptation but will populate this approach with examples specific to coastal communities. The first part of the approach is to reduce risks. This is done in two ways, reducing vulnerability of the community, for example through poverty reduction and livelihood diversification, and also reducing the communities exposure to those hazards, for example through building regulation and defensive infrastructure such as sea defences.

However, it is not possible practically or financially to avoid all risk so at some point a level of residual risk must be accepted. This residual risk and uncertainty must then be managed. The second part of the approach sets out three steps to do this. Firstly risks can be pooled, transferred or shared, e.g., through insurance. Secondly, communities will need to prepare for and respond effectively to unavoidable events, for example through early warning, evacuation plans and post disaster support. Finally the community needs to increase its capacity to cope with "surprises". This requires flexibility in decision-making, adaptive learning and management and improved knowledge and skills.

The talk will also present the findings of a recent consultation exercise that has taken place with two small coastal communities in Gippsland (Sandy Point and Inverloch) and their vision for a well adapted community.

Dave Griggs In September 2007 Dave moved to Australia to become Director of the Monash Sustainability Institute (MSI) which aims to deliver solutions to key sustainability challenges. In November 2008 he also became CEO of the newly created organisation ClimateWorks Australia (CWA), focussed on action to reduce greenhouse gas emissions. Previous positions he has held include UK Met Office Deputy Chief Scientist, Director of the Hadley Centre for Climate Change, and Head of the Intergovernmental Panel on Climate Change (IPCC) scientific assessment unit. Dave is a past vice-chair of the World Climate Research Programme and member of the Victorian Ministerial Reference Council on Climate Change Adaptation. He is a Fellow of the Australian Academy of Technological Sciences and Engineering (ATSE), a member of the Australian Council of Environmental Deans and Directors and the Climate Institute Strategic Council. Dave was awarded the Vilho Vaisala award (World Meteorological Organization) in 1992.