



ENVIRONMENT INSTITUTE OF AUSTRALIA AND NEW ZEALAND

# L2A ONLINE PROFESSIONAL DEVELOPMENT

5,12 AND 26 MAY 2021 | 9AM – 12.30PM

# L2A

## Strategic Water Management

### COURSE PROGRAM

*Climate change in environmental practice*



Environment Institute  
of Australia and  
New Zealand Inc.



**UTS**

Institute for  
Sustainable  
Futures

Series Education Partner



**Charles Sturt  
University**

Course Partner



**Sustainably...**  
Adapting in context

Student Membership supporter





The award winning learning to adapt professional development series is back in 2021, responding to the local, national and global challenges of climate change. This course will deliver targeted skills development on climate change in strategic water management. Guided by expert speakers from the research and policy communities and by case studies presented by practitioners, we will be considering how to manage water under the influence of climate change.

Water is foundational to urban and regional socio-ecological systems. These systems encompass a range of economic activities, important ecologies and human communities. This course explores strategies to build overall systems resilience as rainfall and runoff is increasingly subject to uncertainty and disruption. Our focus is on the NSW jurisdiction, exploring themes that apply just as well elsewhere.

## **OVER THREE HALF DAY INTERACTIVE ONLINE SESSIONS WE WILL LOOK AT:**

- » Climate projections and water security
- » Uncertainty in water resource planning
- » Considering social and economic impacts

## **L2A STRATEGIC WATER MANAGEMENT COURSE DETAILS**

**SESSION 1** The science of integrating climate projections into water modelling is developing rapidly and has major implications for strategic water management. We will explore how policy makers are addressing water security in light of this science and some of the implications for agriculture and mining.

**SESSION 2** Climate change and the associated political and market responses are major sources of uncertainty in water resource planning. We will survey some of the ways in which industry and policy makers are managing this uncertainty, particularly in relation to water security for communities.

**SESSION 3** Climate change is increasing uncertainty around rainfall and runoff, impacting on our social-ecological systems and economies. We will consider alternative social and economic approaches to accommodating this uncertainty in ways that enhance resilience.





## COURSE DELIVERY

To facilitate greater access across NSW and Australia, to minimise the risk of disruptions in response to Covid-19 and to maximise your opportunity to interact with peers and with our expert speakers this course will be delivered over 3 x half days, one week apart, live online, via zoom:

- » **SESSION 1:** 9.00am to 12.30pm Wednesday 5 May 2021
- » **SESSION 2:** 9.00am to 12.30pm Wednesday 12 May 2021
- » **SESSION 3:** 9.00am to 12.30pm Wednesday 26 May 2021

Participants will work together in breakout rooms, engage in facilitated discussion with speakers and have access to the course slides at the conclusion to their online professional development.

Participation in the course will be recognised through a Certificate of Attendance, supported by the Institute for Sustainable Futures, UTS and will attract 20 CPD points in the CEnvP program.



## WHO SHOULD ATTEND?

This course has been designed for practitioners looking to develop a specialisation or update their skills in natural resource management and looking to develop specialised skills in regulatory, policy, consulting responses to climate change and strategic water management.

Places are limited. L2A Strategic water management will run with a maximum of 30 participants to ensure quality of learning, and adequate scope for networking and engagement. The program will not be recorded to encourage open discussion.

## KEY DETAILS



- » To register visit <https://www.eianz.org/events/event/learning-to-adapt-strategic-water-management-2> and follow the registration details.
- » Registration will close 5 pm 4 May 2021, or when the course is full.
- » This course will take place subject to minimum registrations being met. Full refunds will be provided in the unlikely event that the course is cancelled and cannot be re-scheduled.
- » Cost is EIANZ Members - \$720, Non-members - \$1050.

# Summary program

## SESSION 1: CLIMATE PROJECTIONS AND WATER SECURITY

9.00AM TO 12.30PM 5 MAY 2021

<p><b>CLIMATE CHANGE AND WATER SECURITY IN AUSTRALIA</b></p> <p>Australia is a major net exporter of virtual water. Under climate change yields are projected to decrease in the Murray Darling Basin, with big implications for agriculture and resource industries, regional and urban communities and our environments.</p>	<p>Dr Fabian Sack, Director, Sustainably</p>
<p><b>CONSIDERING CLIMATE CHANGE IN REGIONAL WATER STRATEGIES</b></p> <p>NSW is developing Regional Water Strategies to address the challenges facing water management. A major component of this work involves understanding climate variability and change in a risk based context, and a new climate method has been developed to allow this analysis to be undertaken.</p>	<p>Mark Simons Director Regional Water Strategies - Coastal and Southern Water Group   Department of Planning, Industry and Environment</p>
<p><b>HYDROLOGICAL EXTREMES IN A CHANGING CLIMATE AND THE NEED FOR NATIONAL WATER INFORMATION</b></p> <p>The Millennium Drought (1997–2009) in south-eastern Australia was the most severe on record. This led to the federal Water Act 2007, which gave the Bureau of Meteorology responsibility for collating, producing and disseminating water information to enable more efficient water use and improve the health of Australian rivers. This presentation would focus on the hydrological extremes in Australia and the role of national scale authoritative water information to support water exposed sectors with management and adaptation of the hydrological extremes.</p>	<p>Dr Narendra Tuteja Hydrology Planning Lead, Bureau of Meteorology</p>
<p><b>TRENDS IN WATER SUPPLY AND DEMAND AND THE FUTURE OF AUSTRALIAN WATER MARKETS</b></p> <p>This presentation will summarise recent ABARES research on trends in water supply and demand in the Australian Murray-Darling Basin, and the implications of these trends for water market outcomes.</p>	<p>Dr Neal Hughes Senior Economist, Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES)</p>
<p><b>WATER STEWARDSHIP IN THE MINERALS INDUSTRY - A BRIEF OVERVIEW</b></p>	<p>Chris McCombe General Manager - Sustainability Minerals Council of Australia</p>
<p><b>STORMWATER TO POTABLE: DIVERSIFYING ORANGE'S URBAN WATER SUPPLY</b></p> <p>Challenges of population growth and climate change, coupled with a regional city's location near the top of a catchment without a major river, has highlighted the importance of source diversification. This presentation provides an overview of Orange City Council's incorporation of source diversity as a critical part of its water supply strategy.</p>	<p>Martin Haegel Principal Environmental Engineer, Premise Australia</p>

# Summary program

## SESSION 2: UNCERTAINTY IN WATER RESOURCE PLANNING

9.00AM TO 12.30PM 12 MAY 2021

<p><b>A HISTORY OF UNCERTAINTY IN WATER SUPPLY</b></p> <p>Building on a history of uncertain water supplies and growing demand, Australia's urban water industry is developing a range of approaches to address the increasing uncertainty arising from climatic change.</p>	<p>Dr Fabian Sack, Director, Sustainably</p>
<p><b>BEST PRACTICE CLIMATE CHANGE ADAPTATION FOR THE URBAN WATER INDUSTRY</b></p> <p>Our industry represents less than 1% of Australian national GHG emissions profile, yet we stand to be affected by climate change more than most sectors, as a result of the impacts on climate change on the resource we manage, and due to where our assets are located.</p> <p>To continue to provide the best quality services to our customers, we need to do our part to reduce our emissions, while simultaneously investing in key adaptation measures to improve our resilience and reduce risk. Best practice involves a strategic, whole of business approach.</p>	<p>Elliot Stuart Liveable Communities Advisor, Water Services Association of Australia</p>
<p><b>STRATEGIC THINKING – USING PLAUSIBLE FUTURES TO PLAN FOR FUTURE UNCERTAINTY</b></p> <p>Water is one component within a complex global system. Water managers are not able to control all factors that influence the future and there are limitations on using past events and data to predict future outcomes. As such, we need to adopt methods to understand future opportunities and risks and identify the most resilient way forward, such as plausible futures.</p>	<p>Marcia Dawson Senior Strategy Advisor, Sydney Water</p>
<p><b>NATIONAL WATER REFORM, A REFRESHED INTENT</b></p> <p>The National Water Initiative has served Australia well, but it is 17 years old. It has reached its use-by date and it will struggle in the face of the challenges ahead – increased population, increased community demands and the likely effects of climate change. Jane Doolan will discuss the Productivity Commission's recommendations and advice for National Water Reform, with a particular focus on environmental management, securing Aboriginal and Torres Strait Islander people's interests in water and urban water management.</p>	<p>Dr Jane Doolan Commissioner, Productivity Commission</p>
<p><b>ADAPTIVE INVESTMENT PLANNING: THE ART OF KEEPING OPTIONS OPEN</b></p> <p>Adaptive planning requires keeping viable options on the table to respond to changes in the planning assumptions and objectives. This session will demonstrate that it is a continuous flexible process, not an outcome.</p>	<p>Prof Pierre Mukheibir Institute for Sustainable Futures, University of Technology Sydney: Professor of Water Futures</p>

# Summary program

## SESSION 3: CONSIDERING SOCIAL AND ECONOMIC IMPACTS

9.00AM TO 12.30PM 26 MAY 2021

<p><b>CULTURAL VALUES OF WATER AND THE OPPORTUNITY TO INFLUENCE WATER MANAGEMENT</b></p> <p>Australia is the driest inhabited continent on Earth yet it has been the traditional lands of its original inhabitants Australia's First Peoples (its Indigenous people) for thousands of generations. Protecting water landscapes (surface and ground water) has always been a high priority for survival in a dry landscape, and protecting water remains a cultural obligation. The challenge for First Peoples is to ensure their value and relationship with water is not diminished or excluded by modern day water planning, ownership or from environmental flow management.</p>	<p>Associate Professor Bradley Moggridge University of Canberra, Centre for Applied Water Science, Indigenous Water Science</p>
<p><b>WATER FOR THE FUTURE STRATEGY - NAMOI UNLIMITED</b></p> <p>Water is a scarce resource in the Namoi Region and likely to become more so in the future. This is often viewed as a weakness in the regional economy, leading to solutions that focus on increasing water supply and security. This session will explore some of the strategic thinking and alternative approaches to addressing water scarcity in northern NSW.</p>	<p>Leo Drynan Director, Rhelm</p>
<p><b>TRANSFORMATIONAL ADAPTATION ON THE FARM: PROCESSES OF CHANGE AND PERSISTENCE IN TRANSITIONS TO 'CLIMATE-SMART' REGENERATIVE AGRICULTURE</b></p> <p>Alternative forms of agriculture hold promise for enhancing resilience on farms, including improving water retention in soils and on farms. This presentation draws on research with regenerative graziers as well as wider perspectives on transformation and rural change to consider how shifts to such forms of agriculture can be made and sustained.</p>	<p>Associate Professor Nicholas Gill Head of the School of Geography and Sustainable Communities, and The Australian Centre for Culture, Environment, Society and Space, University of Wollongong</p>
<p><b>THE ROLE OF GOOD WATER GOVERNANCE AND LAWS IN A CHANGING CLIMATE</b></p> <p>This presentation will discuss the crucial role of good water governance and laws in navigating the uncertainty and risk associated with a changing climate. It will unpack the notion of 'climate ready' laws and propose changes to the current regulatory and governance framework in various jurisdictions.</p>	<p>Dr Emma Carmody Managing Lawyer, Freshwater Team Environmental Defenders Office</p>
<p><b>RIVERS AS DYNAMIC AND SUSTAINABLE SOCIAL-ECOLOGICAL SYSTEMS – EXPANDING THE FRAMING OF RIVERS IN THE ANTHROPOCENE</b></p> <p>River systems are viewed from a range of different perspectives, and the way we interact with rivers is influenced by this framing. This session will discuss historical and contemporary approaches to river management, and the need for a paradigm shift in the context of climate change and the Anthropocene.</p>	<p>Professor Robyn Watts Professor of Environmental Science, Charles Sturt University</p>

## ABOUT EIANZ

[The Environment Institute of Australia and New Zealand \(EIANZ\)](#) is the leading not-for-profit professional association for environmental practitioners. The Institute supports the profession and promotes independent and interdisciplinary discussion on environmental policy and practice.

Our members come from all areas of environmental practice and are at the forefront of assessing and addressing complex issues such as climate change, sustainability and preserving biodiversity. Some members are at the start of their careers, while others are highly regarded experts in their field.

## PARTNERS



### SERIES EDUCATION PARTNER

[The Institute for Sustainable Futures \(ISF\)](#) is a university research institute that has been creating change towards sustainable futures by conducting independent project-based research for Australian and international clients since 1997. ISF's researchers and professional staff come from varied backgrounds, including engineering, architecture, management, economics, science, the social sciences, international studies and political studies.



### COURSE PARTNER

Our mission is to build skills and knowledge in our regions. We offer choice and flexibility to students and work hand-in-hand with our industries and communities in teaching, research and engagement. Growing from our historical roots, we share our knowledge and expertise as a significant regional export industry and we bring strength and learning from this back to our regions. Through our values, we create a welcoming community experience and learning environment that supports innovative research, advances society and gives back to our regions.



### STUDENT MEMBER SUPPORTER

[Sustainably Pty Ltd](#) specialises in working with organisations responding to emerging climate change risks and opportunities by delivering bespoke training and professional development, research, analysis and advice at scale across different sectors.

### KEY CONTACTS

<b>Registration:</b>	Environment of Australia and New Zealand (EIANZ) Phone: 03 8593 4140 Email: <a href="mailto:office@eianz.org">office@eianz.org</a>
<b>Course Content:</b>	Fabian Sack, Sustainably Pty Ltd <a href="mailto:fabian@sustainably.net.au">fabian@sustainably.net.au</a>
<b>Sponsorship:</b>	Fiona Gainsford, EIANZ NSW Division <a href="mailto:fiona@gainsford.com.au">fiona@gainsford.com.au</a>

# Expert Speakers

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## SESSION 1: CLIMATE PROJECTIONS AND WATER SECURITY

9.00AM TO 12.30PM | 5 MAY 2021



**Dr Fabian Sack**  
**Sustainably Pty Ltd**

Fabian is the founding Director of Sustainably, a consultancy specialising in climate change adaptation capacity building. Prior to this he held senior positions in the water, energy and infrastructure servicing sectors. Fabian has published on ecological economics, skills for sustainability and social impact assessment.

Fabian is a Fellow of the EIANZ and a credentialed Sustainability Expert Professional.



**Mark Simons**  
**Director Regional Water Strategies - Coastal and Southern**  
**Water Group | Department of Planning, Industry and Environment**

Mark is the Director of the Coastal and Southern NSW Regional Water Strategies team with the NSW Department of Planning, Industry and the Environment, leading a team developing strategies for the Lachlan, Murrumbidgee, Murray, South Coast, North Coast and Far North Coast, while implementing the completed strategy for the Greater Hunter.

Having worked with the Department for over 20 years, Mark has been involved in a wide range of activities across the business, including hydrologic modelling, Water Sharing Plan development, implementation, evaluation and audit, drought management, and Major Project Assessment.

Mark has worked closely with stakeholders to ensure that water management decisions are implementable and based on evidence. He has worked at both an interagency and interstate level to ensure that best available science underpins water management decisions.

Mark holds an Honours level Bachelor of Science and a Postgraduate Diploma of Arts from the University of Sydney.



**Dr Narendra Tuteja**  
**Hydrology Planning Lead, Bureau of Meteorology**

Narendra Tuteja has over thirty years of multi-disciplinary scientific and engineering experience in industry, applied research and academia in hydrology, water resources and natural resource management across Australia, Europe and South Asia. Narendra has supported development of policies and decision making in the water sector. He has guided development and delivery of Bureau's streamflow forecasts, long term water availability trends, flow and water quality predictions for the Great Barrier Reef catchments. He is a member of the Hydrology Coordination Panel of the World Meteorological Organisation.



# Expert Speakers

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## SESSION 1: CLIMATE PROJECTIONS AND WATER SECURITY

9.00AM TO 12.30PM | 5 MAY 2021



**Dr Neal Hughes**

**Senior Economist, Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES)**

Dr Neal Hughes is a Senior Economist at ABARES. Neal has over 15 years of experience as an economist at ABARES, researching agricultural and natural resource issues. Neal's key areas of expertise include the design of water markets, water policy outcomes in the Murray-Darling Basin and the effects of drought and climate change on Australian farms. Neal was a 2012 Sir Roland Wilson Scholar, and he currently holds an adjunct associate professor position at Deakin University.



**Chris McCombe**

**General Manager - Sustainability, Minerals Council of Australia**

Chris McCombe is General Manager of the MCA's sustainability agenda. Chris has been leading on sustainability issues in the MCA since 2010. Chris is currently overseeing the implementation the MCA's Towards Sustainable Mining (TSM) Initiative. Prior to the MCA, Chris worked as Manager, Major Projects for the Queensland Government's Abandoned Mine Lands Program and as an environmental scientist/hydrogeologist at both URS in the United Kingdom and Connell Wagner in Queensland.



**Martin Haege**

**Principal Environmental Engineer, Premise Australia**

Martin has over twenty eight years' experience in the fields of environmental engineering including hydrologic and hydraulic studies, water security projects, recycled water and risk management, catchment assessment and planning, engineering feasibility studies and environmental impact assessment. Martin has been working closely with Orange City Council in the assessment and design of alternate raw water sources including the first large scale stormwater harvesting scheme in Australia which intentionally harvests stormwater for addition to drinking water supplies.

# Expert Speakers

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## SESSION 2: UNCERTAINTY IN WATER RESOURCE PLANNING

9.00AM TO 12.30PM | 12 MAY 2021



**Elliot Stuart**

**Liveable Communities Advisor, Water Services Association of Australia**

Elliot has over 10 years' experience in the water industry, including nearly 7 years with the Victorian Department of Environment, Land, Water and Planning, in the Integrated Water Management group, and four in government and university in Finland.

During his time at WSAA he has led the Adaptive Planning & Integrated Water Management, Water Security, and Climate Change, Energy & Environment portfolios.

He played a key role in the development of the water industry's Climate Change Position, published in early 2021, and is working on a broader paper on climate change that will bring together the impacts of climate change on the urban water industry, as well as the breadth and diversity of their mitigation and adaptation strategies, showcasing best practice through case studies.



**Marcia Dawson**

**Senior Strategy Advisor, Sydney Water**

Marcia, has over fifteen years' experience in the water focused on merging strategic thinking process and evidence-based analysis to inform water related strategy, planning and policies. She is intrigued by the challenge of merging strategic thinking and data driven approaches to drive change. Marcia enjoys quantifying impacts and working the fuzzy area between what can be measured and what is unknown.

# Expert Speakers

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## SESSION 2: UNCERTAINTY IN WATER RESOURCE PLANNING

9.00AM TO 12.30PM | 12 MAY 2021



**Dr Jane Doolan**  
**Commissioner, Productivity Commission**

Dr Jane Doolan was appointed a Commissioner with the Productivity Commission in December 2016, and is currently working on the second inquiry into National Water Reform (2020). Jane has extensive senior leadership experience working in sustainable water resource and environmental management, providing policy advice to both State and Commonwealth governments on issues such as water allocation, river health and catchment management and water sector governance.

Previously held positions include Commissioner with the National Water Commission, Professorial Fellow in Natural Resource Governance at the University of Canberra and Deputy Secretary for Water in the Victorian Department of Environment and Primary Industries.

Jane is currently a Director on the Board of the Western Water Authority, and an Adjunct Professor at the University of Canberra.



**Prof Pierre Mukheibir**  
**Institute for Sustainable Futures, University of Technology Sydney: Professor of Water Futures**

Pierre is a professionally registered civil engineer with over 25 years' experience in the water sector. Before joining the Institute for Sustainable Futures, Pierre worked for three years as a senior planning engineer with an Australian water utility. He was the key developer of the framework developed for the Melbourne water utilities to address the uncertainty of climate change in ensuring a resilient water supply system, similarly more recently for the Lower Hunter Water Plan.

# Expert Speakers

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## SESSION 3: CONSIDERING SOCIAL AND ECONOMIC IMPACTS

9.00AM TO 12.30PM | 26 MAY 2021



**Associate Professor Bradley Moggridge**

**University of Canberra, Centre for Applied Water Science, Indigenous Water Science**

Bradley is a Kamilaroi Man living in Canberra with over 20 years' experience in Aboriginal engagement, water & environmental science research, policy development, regulatory enforcement, & legislative reviews, while participating & giving advice on local, national, and international committees. Bradley is currently an Assoc.Prof in Indigenous Water Science (hydrogeology & environmental science qualifications), currently P/T PhD candidate at University of Canberra, Indigenous Liaison Officer for the Threatened Species Recovery Hub & VP Australian Freshwater Society.



**Leo Drynan**

**Director, Rhelm**

Leo is a Director at Rhelm where he heads up the environmental economics discipline. With over 15 years experience in the valuation and management of environmental and infrastructure assets, Leo provides economic justification and decision making support for policy and project development. He has worked extensively across Australia and internationally, driving sustainable and value for money solutions to social and environmental issues.



**Associate Professor Nicholas Gill**

**Head of the School of Geography and Sustainable Communities, and The Australian Centre for Culture, Environment, Society and Space, University of Wollongong**

Nicholas Gill is a human geographer at the University of Wollongong. He undertakes research into social and cultural aspect of land use and environmental change, particularly in rural areas. He has worked on rural stewardship and change, conflict over arid pastoral lands, Indigenous pastoralism, and invasive plant management. His current research focuses on invasive plant management in high amenity rural landscapes and developing cultures of biosecurity practice in the Kosciuszko region.



# Expert Speakers

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## SESSION 3: CONSIDERING SOCIAL AND ECONOMIC IMPACTS

9.00AM TO 12.30PM | 26 MAY 2021



**Dr Emma Carmody**

**Managing Lawyer, Freshwater Team, Environmental Defenders Office**

Dr Emma Carmody is an international environmental lawyer. She is Managing Lawyer of the Australia-Pacific Freshwater Program at the Environmental Defenders Office, Legal Advisor to the Secretariat of the Ramsar Convention on Wetlands in Switzerland and on the Strategic Advisory Council of the Alliance for Global Water Adaptation in the USA. Emma is listed in Best Lawyers in Australia in two categories (Water Law and Environment and Planning Law).



**Professor Robyn Watts**

**Professor of Environmental Science, Charles Sturt University**

Robyn Watts is a Professor of Environmental Science at Charles Sturt University where she teaches and leads interdisciplinary research projects on the ecology, management and restoration of river ecosystems. For more than 25 years Robyn has worked in partnership with biophysical scientists, social scientists, natural resource managers, practitioners and the community to find practical solutions to improve outcomes for river systems and communities. Robyn sits on several advisory committees and contributes advice on flows in the Murray-Darling Basin.



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