

STRATEGIC PLAN 2009 - 2014

'Improve our understanding and management of Australia's groundwater systems'...



NATIONAL CENTRE FOR
GROUNDWATER RESEARCH AND TRAINING
sustaining a vital water resource



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Contents

FOREWORD	4
ABOUT THE CENTRE	5
ORGANISATIONAL STRUCTURE	5
CONTEXT FOR OUR WORK	6
VISION	7
PURPOSE	7
MISSION	7
GUIDING PRINCIPLES	7
KEY OBJECTIVES	8
RESEARCH FOCUS	8
PARTNERS	9
FUNDING	9
STRATEGIC PLAN OVERVIEW	10
STRATEGIC PLAN OVERVIEW 2009 - 2014	12
FEEDBACK	14

Foreword

The National Centre for Groundwater Research and Training (Centre) aims to create, develop and grow a groundwater institution of national and international standing. It will provide people and knowledge to help better understand and manage Australia's groundwater resources – to ensure that they are managed in a sustainable and productive manner that delivers economic, social, cultural and environmental benefits for the Australian community. We will do this by undertaking world class research and training activities. The Centre will be a place of learning and discovery, a place with world class priority setting processes, and one whose work will have both international and national credibility, relevance and impact. The Centre will provide information and advice on groundwater and related issues, and will be respected globally as a leader in groundwater knowledge and capacity building. As a direct result, groundwater awareness, knowledge and our national ability to address urgent groundwater problems will be enhanced.

The next five years will be critical for the Centre as we seek to both invigorate and develop groundwater research and training activities across the nation. This Strategic Plan is intended to provide the Centre with a solid foundation for moving forward. In it we clearly describe where we want the Centre to be in years to come and describe how we will get there. We also clearly describe what success looks like to the National Centre for Groundwater Research and Training.

The plan is the result of a strong and transparent consultative process. It reflects extensive discussions and advice from a broad range of individuals and organisations including the Centre's Advisory Board, groundwater scientists (based in Australia and overseas), members of the professional bodies that represent the groundwater profession, and senior leaders and administrators in other research Centres who have generously shared their experiences in how to establish a successful research Centre.

The Plan has also benefitted from the input of the Centre's Program Leaders and Chief Investigators who helped test and refine the Plan during an intensive 2-day workshop in April 2010. At this two-day forum, more than 50 invited participants identified research trends and needs and also shared important recommendations for all key areas of the Centre activity. Forum participants represented a cross-section of investigators, groundwater professionals from industry, and other representatives of the Centre's core constituencies. Across this range of consultative activity, the Centre continues to be the beneficiary of the wisdom, advice, and judgment of a wide range of engaged individuals and organisations which continues to serve as a strong and important basis for our strategic planning.

The important work of delivering this strategic plan can only succeed with the involvement of the widest possible alliance. The successful implementation of our Centre plan will require us to continue working with our large number of extremely supportive and active University and Industry Partners. We will continue developing and exploring innovative new ways to partner with Commonwealth and State Government agencies, researchers, and a broad range of public and private sector organisations.

The Plan will continue to evolve in response to many new challenges, opportunities and discoveries that we expect to make over the next 5 years. It will be a living and breathing document. I look forward to working with the Centre and the Australian community to realise our plan.



Professor Craig T. Simmons
Director, National Centre for
Groundwater Research and Training

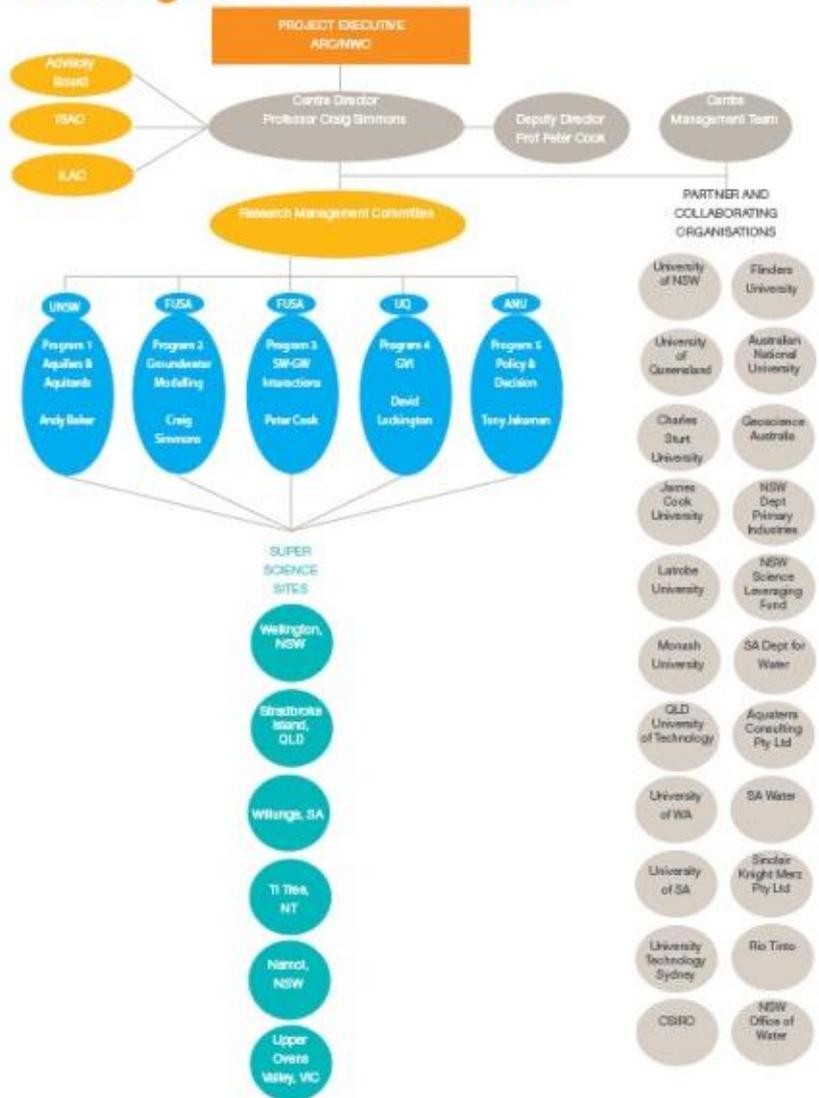
About the Centre

The National Centre for Groundwater Research and Training (Centre) was established in June 2009 to engage in understanding Australia's hidden groundwater resource, and how to preserve and manage it for generations to come. The Centre will support innovative and cross-disciplinary research and training in the groundwater field and undertake important work to help manage our groundwater in a more sustainable way. The Centre's activities will enhance and underpin the Commonwealth's National Water Initiative. It will also help state and territory governments deliver on reforms under the National Water Initiative to improve groundwater management and knowledge.

The Centre is jointly funded by the Australian Research Council (ARC) and the National Water Commission (NWC) under the Special Research Initiatives Scheme. Subsequent to the core funding, the Centre was awarded additional funds to develop groundwater research infrastructure as part of the Commonwealth Government's Super Science (Marine and Climate) initiative, funded by the Education Infrastructure Fund and administered by the Department of Innovation, Industry, Science and Research.

The research and training carried out by the Centre will play an important role in training the next generation of expert hydro-geologists and groundwater specialists. The Centre will bring together a critical mass of world-class scientists to provide postgraduate training and conduct internationally relevant research needed to improve groundwater understanding and use. We will also continue to run the successful national groundwater short course program.

Centre governance structure



The Centre's Governance structure provides strategic management, direction, reporting and financial administration. This structure allows the Centre to build strong relationships with its stakeholders, ARC and NWC, to deliver high quality information regarding their respective roles, decision making responsibilities and accountabilities and allow them opportunity to review and refine the Centre's strategic priorities on an ongoing basis. In addition to this, we will create opportunities for broader industry and public engagement in our strategy development process as part of our outreach activities.

Context for our Work

Groundwater is often called the forgotten resource. Despite the fact that groundwater accounts for over 30 per cent of Australia's water consumption, we simply do not know enough about this vital water resource, and how to manage it. With severe droughts and climate change placing extreme pressure on existing water supplies, there is an urgent need to expand Australia's groundwater knowledge base.

With the increased use of groundwater across the country and the long-running drought decreasing surface water availability, the need to better manage groundwater and connected resources has become paramount. Improved understanding of groundwater and management of groundwater-surface water interactions is fundamental to this.

Under the National Water Initiative (NWI) all governments of Australia have acknowledged the importance of groundwater and committed to a 'whole of water cycle' approach, including the following actions:

- improve our knowledge of groundwater-surface water connectivity, with significantly connected systems to be managed as one integrated resource
- complete the return of all currently over-allocated or overused systems to environmentally-sustainable levels of extraction
- improve understanding of sustainable extraction rates and regimes, and develop common approaches to achieving sustainability
- develop better understanding of the relationship between groundwater resources and groundwater-dependent ecosystems.

The National Groundwater Assessment Initiative (NGAI) Priority Investments Areas of the NWC include the following themes:

- Harmonisation of groundwater definitions and standards and improve governance and management practices;
- Northern Australia Groundwater Stocktake;
- National assessment of sites suitable for managed aquifer recharge and recovery;
- Vulnerability of groundwater dependent ecosystems;
- Investigation of groundwater-surface water inter-connectivity;
- Strategic aquifer characterisation to quantify sustainable yields;
- National review of groundwater potential for deep fresh, saline and brackish waters; and
- Managing risks to groundwater quality.

Vision

The Centre will develop into a groundwater institution of national and international standing with the capacity, through new people and knowledge to better understand and manage our vital groundwater resources.

Mission

Our mission is to create a National Centre of Excellence in groundwater research and training that will enhance Australia's future environmental, economic, social and cultural wellbeing. The Centre will achieve this by undertaking the critical scientific research needed to improve our understanding and management of Australia's groundwater systems. It will also train the next generation of expert researchers and professionals in groundwater related fields, filling a significant gap in Australia's current resource management capabilities.

Guiding principles

The Centre will be guided by a strong commitment to the following principles:

- *rigorous intellectual enquiry;*
- *fairness, integrity and respect for others;*
- *equity and diversity;*
- *collaboration and teamwork;*
- *environmental sustainability; and*
- *respect for and recognition of all individual perspectives.*

Key objectives

The Centre has four key objectives and one cross-cutting management objective:

Key Objectives		
1	RESEARCH	<ul style="list-style-type: none"> a) Undertaking highly innovative research at the forefront of developments within areas of national importance with a scale and focus leading to outstanding national and international collaboration and recognition b) Enhancing the scale and focus of research in the designated National Research Priority: An Environmentally Sustainable Australia c) Undertaking research and training relevant to the management of Australia's groundwater resources, which underpins and enhances the National Water Initiative
2	CAPACITY BUILDING	<ul style="list-style-type: none"> d) Linking existing Australian research strength and building new capacity for interdisciplinary research, collaborative approaches to address the most challenging and significant research problems e) Building Australia's human capacity in range of research areas by attracting, from within Australia and abroad, researchers of high international standing as well as the most promising research students f) Providing high quality postgraduate and post-doctoral training environments for the next generation of groundwater professionals and researchers in innovative and internationally competitive research g) Offering Australian researchers access to world-class infrastructure and equipment to key research technology
3	INCREASE NATIONAL AND INTERNATIONAL LINKAGES	<ul style="list-style-type: none"> h) Linking existing Australian research strength and building new capacity for interdisciplinary, collaborative approaches to address the most challenging and significant research problems i) Developing relationships and building new networks with major international centres and research programs that help achieve global competitiveness and recognition for Australian research
4	INCREASE PUBLIC ENGAGEMENT WITH GROUNDWATER SCIENCE	<ul style="list-style-type: none"> j) Establishing a Centre of Excellence of such repute in the wider community that it will serve as a point of interaction among higher education institutions, Governments, industry and the private sector
5	MANAGEMENT AND GOVERNANCE	<ul style="list-style-type: none"> • Build an adaptable and sustainable organisation • Implement efficient, effective and transparent systems for defining the Centre's objectives and assessing its performance • Implement clear rules and procedures for making decisions that impact on the Centre's corporate affairs

Research focus

The Centre has developed five Research Programs that are built around core groundwater science and its associated economic, environmental and social interfaces. They are intended to address major national and international knowledge gaps and cover the critical role of groundwater and its vital biophysical and social interfaces. The Centre's Research programs are:

- Program 1** – Innovative characterisation of aquifers and aquitards
- Program 2** – Hydrodynamics and modelling of complex groundwater systems
- Program 3** – Surface water-groundwater interactions
- Program 4** – Groundwater-vegetation-atmosphere interactions
- Program 5** – Integrating socioeconomics, policy and decision support

For more information about the Programs visit our website www.groundwater.com.au

Partners

Implementing our Strategic Plan requires a shared agenda. The Centre recognises that its work and success depends on the ongoing support and commitment of a broad range of government, university and industry partners. These include:

Our Principal Funders:

Australian Research Council and the National Water Commission

Our Research Nodes:

- Australian National University
- University of New South Wales
- University of Queensland
- Flinders University

Our Partner Organisations:

- Aquaterra;
- Charles Sturt University;
- Commonwealth Scientific and Industrial Research Organisation (CSIRO);
- DHI;
- Geosciences Australia;
- James Cook University;
- Latrobe University;
- Monash University;
- The New South Wales Government through its Department of Primary Industries;
- Queensland University of Technology;
- SA Water;
- Sinclair Knight Merz;
- The South Australian Government through the Department for Water;
- University of South Australia;
- University of Technology Sydney; and
- University of Western Australia.
- NSW Office of Water
- Rio Tinto

To ensure integrated and cohesive operation The Centre's activities and processes will be designed to bring this diverse list of partners together to facilitate cooperation and avoid the risk of fragmentation.

Funding

During the five year period covered by this Strategic Plan the Centre will receive:

- \$29.5 million from the Australian Research Council and the National Water Commission;
- \$15 million from Super Science (Marine and Climate);
- \$10 million from University, Industry partners & State Governments; and
- \$15 million in-kind contributions.

Strategic Plan Overview 2009 - 2014

The following table provides an overview of the Centre's 2009-2014 Strategic Plan.

PRIORITY AREAS	GOALS	OBJECTIVES	STRATEGIES	MEASURING PERFORMANCE
RESEARCH	We will be recognised as a world leader in groundwater research, and in the provision of science for the sustainable management of groundwater systems	a) Undertaking highly innovative research at the forefront of developments within areas of national importance with a scale and focus leading to outstanding national and international collaboration and recognition b) Enhancing the scale and focus of research in the designated National Research Priority: An Environmentally Sustainable Australia c) Undertaking research and training relevant to the management of Australia's groundwater resources, which underpins and enhances the National Water Initiative	<ul style="list-style-type: none"> Deliver world class research; and Promote the Centre as a world centre for groundwater research and training 	<ul style="list-style-type: none"> Provide guidelines on the required quality standards for research conducted by Centre staff and students and, how to undertake best practice research activities Measure and evaluate research performance at the program and individual level Produce and publish high quality, evidence based research Implement web-based processes that enable easy access to the Centre's research outputs
BUILD RESEARCH CAPACITY	We will provide world class training and support to postgraduate students and ECRs in order to build capacity and capability in groundwater science	d) Linking existing Australian research strength and building new capacity for interdisciplinary research, collaborative approaches to address the most challenging and significant research problems e) Building Australia's human capacity in range of research areas by attracting, from within Australia and abroad, researchers of high international standing as well as the most promising research students f) Providing high quality postgraduate and post-doctoral training environments for the next generation of groundwater professionals and researchers in innovative and internationally competitive research g) Offering Australian researchers access to world-class infrastructure and equipment to key research technology	<ul style="list-style-type: none"> Manage our skills and talent effectively; Make career opportunities in groundwater more visible to students and early-career researchers; Provide a research environment that supports our staff and students to achieve their research goals; Provide excellent research facilities and equipment; and Provide high quality non-research and professional training programs. 	<ul style="list-style-type: none"> Develop processes that will enable us to recruit, retain and grow the Centre's skills and talent base Develop systems that will enable us to capture stakeholder feedback on research priorities and training needs Pursue collaboration and partnership opportunities that will enable Centre staff and students to access world class scientific expertise and infrastructure Implement effective facilities management and procurement policies that enable staff and students to access high quality research infrastructure at home

<p>INCREASE NATIONAL AND INTERNATIONAL LINKAGES</p>	<p>Our reputation for research and training excellence will provide a strong platform for collaboration with other institutions and researchers throughout Australia and the world</p>	<p>h) Linking existing Australian research strength and building new capacity for interdisciplinary, collaborative approaches to address the most challenging and significant research problems</p> <p>i) Developing relationships and building new networks with major international centres and research programs that help achieve global competitiveness and recognition for Australian research</p>	<ul style="list-style-type: none"> • Identify the key stakeholders who will help us drive and support change; • Develop a range of formal and informal mechanisms to support knowledge, skills and resource changes; and • Value feedback. 	<ul style="list-style-type: none"> • Collaborators • Develop international visitor and exchange programs to enhance research capacity • Ensure that the Centre research and management staff make external engagement a priority • Develop an organisational culture that values external feedback and uses it to help refine research and training priorities
<p>INCREASE PUBLIC ENGAGEMENT WITH GROUNDWATER SCIENCE</p>	<p>We have processes and systems that increase the flow, value and impact of its knowledge and research outcomes to policy makers, industry and the wider public</p>	<p>j) Establishing a Centre of Excellence of such repute in the wider community that it will serve as a point of interaction among higher education institutions, Governments, industry and the private sector</p>	<ul style="list-style-type: none"> • Create genuine opportunities for our stakeholders to influence the shape and direction of our research and training activities; • Implement systems and processes that encourage successful knowledge transfer; and • Raise public awareness of the important of groundwater resources. 	<ul style="list-style-type: none"> • Develop a Communications and Marketing Plan identifying the most effective strategies and processes that we can use to engage with our stakeholders in a professional manner • Capture and refresh data on our stakeholders' information needs • Deliver intelligent search and query tools to enable stakeholders to access information in a timely manner • Maximise media opportunities • Deliver a program of public events (e.g. talks, workshops) and maintain topical high quality web content
<p>MANAGEMENT AND GOVERNANCE</p>	<p>We will manage our activities in a collaborative and transparent manner that responds to the needs our stakeholders and, the challenges and opportunities associated with a changing environment</p>	<ul style="list-style-type: none"> • Build an adaptable and sustainable organisation • Implement efficient, effective and transparent systems for defining the Centre's objectives and assessing its performance • Implement clear rules and procedures for making decisions that impact on the Centre's corporate affairs 	<ul style="list-style-type: none"> • Implement efficient, effective and transparent systems for defining the Centre's objectives, determining how those objectives will be achieved and how our performance will be measured; • Implement clear rules and procedures for making decisions that impact on the Centre's corporate affairs; and • Provide our internal stakeholders with high quality information regarding their roles, decision making responsibilities and accountabilities. 	<ul style="list-style-type: none"> • stakeholders with opportunities to present their views on the Centre's strategic direction • Implement effective priority setting processes that enable the Centre to respond to new opportunities and emerging risks • Leverage the data generated by our financial management and reporting systems to effectively measure our performance • Deliver our corporate documents (Strategic Plan, Business Plan, Annual Report) within the required timeframes

Key Performance Indicators

KEY PERFORMANCE INDICATORS: RESEARCH					
Measure	Target 2010	Target 2011	Target 2012	Target 2013*	Target 2014*
Number of peer-reviewed journal papers	10	90	180	TBD	TBD
Research quality % of category A or A* journal papers	30%	30%	50%	TBD	TBD
Number of citations ²	N/A	800	1,250	TBD	TBD
Number of invitations to present talks, papers and keynote lectures at major national and international meetings	10	70	90	TBD	TBD
KEY PERFORMANCE INDICATORS: CAPACITY BUILDING					
Measure	Target 2010	Target 2011	Target 2012	Target 2013	Target 2014
Number of Postdocs recruited each year	19	12	10	4	0
Number of PhD students	33	15	6	3	0
PhD student completion rate (Target 90% all students will complete)	90%	95%	95%	95%	95%
Number of Honours students	22	11	10	19	0
Honours student completion rate	100%	100%	100%	100%	100%
Number of professional training courses run by the Centre for non-NCGRT staff and students	10 courses 500 attendees	15 courses 550 attendees	10 courses 400 attendees	TBD TBD	TBD TBD
Number of participants in Field Schools	25	30	N/A	TBD	TBD
KEY PERFORMANCE INDICATORS: LINKAGES					
Measure	Target 2010	Target 2011	Target 2012	Target 2013	Target 2014
Number of new Partner or Collaborating Organisations	1	2	2	TBD	TBD
Number of international visitors and exchanges	8	10	30	TBD	TBD
Number of national and international workshops organised and managed by the Centre	0	2	20	TBD	TBD
Number of visits to overseas laboratories and research facilities	0	35	50	TBD	TBD
Number of successful joint grant and/or scientific applications with national and international collaborators	1	10	15	TBD	TBD
Number of industry engagement meetings per year	2	50	100	TBD	TBD
Participation on significant national and international bodies	N/A	5	40	TBD	TBD

*TBD targets are set as part of the business planning process on an annual basis.

KEY PERFORMANCE INDICATOR: OUTREACH					
Measure	Target 2010	Target 2011	Target 2012	Target 2013	Target 2014
Number of media articles and segments that mention the Centre	10	20	30	TBD	TBD
Number of significant public talks delivered by Centre staff	4	4	30	TBD	TBD
Stakeholder awareness survey results	N/A	Undertake survey to establish baseline and define targets	Set and exceed 2011 baseline	TBD	TBD
Number of publications produced by the Centre promoting research and training activities	1 Public Annual Report 4 Quarterly newsletters	1 Public Annual Report 4 Quarterly newsletters 5 Program specific fact sheets 2 ABC of groundwater fact sheets	1 Public Annual Report 4 Quarterly newsletters 2 Magazine quality reports	TBD	TBD
Number of web-based outreach tools	N/A	2 YouTube clips 5 Podcasts 4 Media Releases	4 Online videos 5 Podcasts 12 Media releases 12 Targeted industry publications	TBD	TBD
KEY PERFORMANCE INDICATOR: MANAGEMENT AND GOVERNANCE					
Document			Due Date		
<i>Period 1 June 2009- 31 December 2009</i>					
Draft Strategic Plan 2010-2014			30 November 2009		
Draft Business Plan for 1 January 2010 – 31 December 2010			30 November 2009		
2009 Draft Annual Report			31 January 2010		
2009 Public Annual Report			31 March 2010		
<i>Period 1 January 2010 – 31 December 2010</i>					
Draft Mid-year report for 1 January 2010 – 30 June 2010			31 July 2010		
Draft Business Plan for 1 January 2011- 31 December 2011			30 November 2010		
2010 Draft Annual Report			28 February 2011		
2010 Public Annual Report			15 April 2011		
<i>Period 1 January 2011 – 31 December 2011</i>					
Draft Mid-year report for 1 January 2011 – 30 June 2011			15 August 2011		
Draft Business Plan for 1 January 2012 - 31 December 2012			30 November 2011		
2011 Draft Annual Report			13 February 2012		
2011 Public Annual Report			15 April 2012		
<i>Period January 2012- 31 December 2012</i>					
Draft Mid-year report for 1 January 2012 – 30 June 2012			15 August 2012		
Draft Business Plan for 1 January 2013 - 31 December 2013			30 November 2012		
2012 Draft Annual Report			28 February 2013		
2012 Public Annual Report			15 April 2013		
<i>Period 1 January 2013- 31 December 2013</i>					
Draft Mid-year report for 1 January 2013 - 30 June 2013			15 August 2013		
Draft Business Plan for 1 January 2014 – 30 June 2014			30 November 2013		
2013 Draft Annual Report			28 February 2014		
2013 Public Annual Report			15 April 2014		
<i>Period 1 January 2014 – 30 June 2014</i>					
2014 Draft Annual Report for 1 January - 30 June 2014			15 August 2014		
Final Report 2009-2014			15 August 2014		

Feedback

Comments on the Strategic Plan should be sent to:

Director

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