REVIEW OF CSU RESEARCH CENTRES
Submission from the Institute for Land, Water and Society (ILWS)
Professor Max Finlayson, Director
21st August 2015
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Executive summary

The Institute for Land, Water and Society (ILWS) is one of six Research Centres of Charles Sturt University (CSU). Researchers from ILWS work in a world increasingly recognised as complex and replete with uncertainties. The linear, reductionist reasoning of the past is inadequate for managing the impacts of this new world, and is being replaced by systemic research and action, as, for example, expressed in the 2015 Australian Government research priorities. The Murray-Darling Basin, geographic home for most of CSU’s campuses, exemplifies the urgent need for systemic research and governance. As the systemic nature of issues becomes more apparent, the search for better ways to connect scientific and other knowledge, including that from local and Indigenous communities, with governance and policy becomes more pressing.

ILWS formed in 2005/2006 by combining CSU research strengths in biophysical, social and economic research. ILWS aims to undertake internationally recognised and integrated research in social and environmental sustainability to enhance the livelihoods and lifestyles of people in rural and regional areas. From its inception, ILWS has sought to facilitate trans and multi disciplinary approaches, underpinned by integration of social, ecological and economic research aims and practices. The early years of ILWS involved some trialling of institutional arrangements, and since 2010 ILWS has been consolidating its structure and prioritising its research agenda. The success of ILWS in developing a workable institutional framework for adaptive and integrated research positions it well to provide the leadership and policy advice for the forthcoming research climate described by both the Australian Government and its Chief Scientist. This unique and proven capacity for integrated inquiry and knowledge creation confirms ILWS as a leader and model for research within CSU.

ILWS addresses the six Terms of Reference for the review of CSU Research Centres through an articulated research agenda that aligns with the University Strategic Plan, Research Plan and Research Narrative themes. This includes four clear research objectives that encourage its researchers to seek opportunities for integrating their research interests with those of other researchers, and with their regional, national and international communities. The ILWS research agenda also encourages innovation and research ‘nimbleness’ as researchers learn from their peers and other communities, identify emerging issues of importance and establish appropriate responses. The ILWS organisational framework provides for both collegiate input into research direction as well as appropriate governance oversight of Centre activities.

In 2009 the ILWS governance structure was streamlined to consciously focus on its strengths in multi and trans-disciplinary research. To facilitate integration within ILWS, Strategic Research Areas (SRAs) were created as focal research units that align with the strategic research direction of the University. The SRAs are issue focused, team-based, interdisciplinary, underpinned by disciplinary excellence, and are oriented towards outputs and outcomes. Not all of the SRAs are trans-disciplinary, nor is all of the research within the SRAs multi or transdisciplinary; by operating within the ILWS structure, highly focused research is integrated into larger research outcomes, that is, into influence in the wider community.

ILWS has ‘critical mass’ currently comprising 40 full members, 22 early career researchers, seven post-doctoral fellows and 93 adjuncts. ILWS also has 62 post-graduate students enrolled through CSU Schools, and supervised by ILWS members. Through its membership ILWS is aligned with eleven Schools, and all four CSU Faculties. Member’s research areas include the arts, communication, education, economics, regional development, social science, natural resource management, ecology, biodiversity, cultural heritage, modelling, environmental management, eco-agriculture and aquatic science and management. Most
members are associated with one or more ILWS Strategic Research Area. Excellent leadership spanning a range of people provides a robust operating structure for the medium to long term.

Since reaccreditation in 2010 ILWS has earned $12,070,959 in research income, with just over half from public sector research grants, and much of the remainder as Australian Competitive Research Grants. This is 17% of the research income for CSU in this time. Over the same period, publication points have totalled 365.8 points, a 32% increase on the 249.87 points of the previous 5-year review period.

The outcomes of this large amount of research activity are high quality and influential. External measures of quality include metrics such as a Centre Scopus h-Index of 47, and an ERA ranking of 4 for the discipline area of Environmental Science and Management in the National ERA research assessment undertaken by the Australian Research Council. Other measures of quality include a variety of recognition awards received by ILWS researchers, and the many collaborative projects in which ILWS researchers engage within Australia and worldwide. ILWS is an important contributor to policy-making and management decisions that contribute to ensuring a sustainable future, with a number of its members on advisory boards and panels. It has well-established partnerships and linkages with State and Federal Government departments, agencies, organisations and other tertiary institutions both in Australia and overseas.

Ninety-four projects have been successfully managed and completed through ILWS since 2010. Seventy-three projects are currently underway, and another 13 are pending approval. Supporting and managing 180 projects in five years requires ILWS to have sound and effective business management processes. The ILWS business processes support the work of the CSU Research Office and that of other CSU departments. The ILWS Business Team handles all business and non-research related matters through the entire business development process. The Business Team also promotes ILWS and its research and researchers through a strategic, wide ranging and well coordinated communications media support strategy. In the period under review the ILWS Business Team has created an atmosphere of confidence for members such that they clearly know they will be supported in grant development and implementation, giving them the confidence to tackle larger initiatives. The ILWS Business Team provides such a research-output-conducive environment that it is doubtful that the same level of research activity would be possible in its absence.

After 10 years of consolidation and promotion ILWS has the capacity and the community profile to have substantial influence on local, regional and National policy relating to rural communities and their environmental resources, in particular to the Murray-Darling Basin. By developing workable institutional arrangements for systemic multi disciplinary research ILWS is five to ten years 'ahead' of many other Australian research establishments, and is in an excellent position to respond to the call from government and communities for integrated, multi and trans-disciplinary research. ILWS researchers facilitate knowledge creation and brokering, particularly within the Murray-Darling Basin. In this capacity ILWS is an important element in the creation and maintenance of CSU’s regional presence as the University of the land and its people.

In conclusion, the Institute for Land, Water and Society has become increasing recognised as a research establishment of excellence and integrity, both in Australia and internationally. The ILWS focus on facilitating systemic research that integrates social, biophysical and economic research positions it as a ‘go to’ institute to address the complex issues that arise when managing social ecological systems. The ILWS institutional structure is supportive, but flexible, enabling ILWS researchers to look to the future and expand their influence for the benefit of their communities and that of Charles Sturt University as a whole.
Introduction

The Institute for Land, Water and Society (ILWS), one of six Research Centres of Charles Sturt University (CSU), has a regional focus and international reach, reflecting its aim:

\textit{to undertake internationally recognised and integrated research in social and environmental sustainability to enhance the livelihoods and lifestyles of people in rural and regional areas}

Since its formation in 2005 ILWS has consolidated its structure to facilitate efficient, effective, high quality and influential research. The achievements of ILWS are detailed in the following submission to the Review of CSU Research Centres, which is presented in \textit{three sections}:

1. Context for the operation of ILWS
2. Responses to the Review Terms of Reference
3. ILWS into the future

This submission has been designed to be read as an electronic document. It includes internal links from the Table of Contents and numerous hyperlinks to additional information on ILWS activities, outputs and outcomes. Key material to address the Terms of Reference is provided in the text; the use of the hyperlinks provides further details if desired. Graphics have been used extensively in this submission, so colour printing will provide more detail if a hard copy is required.
1. Context for the operation of ILWS

Researchers from ILWS work in a world increasingly recognised as complex and replete with uncertainties. The Earth is in an era with accelerating impact of human activity on biogeochemical cycles, terrestrial water cycles, species extinction rates and climate (Baskin, 2015). In the past five decades there has been unprecedented worldwide human population growth, mechanisation and globalisation (Rockström, et al., 2009). The linear, reductionist reasoning that has supported the development of industrialisation is an inadequate model for managing the impacts of this worldwide growth, and such reasoning is increasingly complemented with, or replaced by, systemic research and action. For example, recent advice to the Australian Government from its Chief Scientist stressed that the important goal of supporting research in science, engineering, technology and mathematics can only be achieved within a broader context of understanding societal and community needs and contributions (Office of the Chief Scientist, 2014).

In practice the acknowledgement of the systemic nature of Earth’s environmental and natural resource issues means that researchers must be expert in their field, but also systemic in their approach, that is, they must research in ways that are integrating, transdisciplinary, innovative and relevant at a range of physical and temporal scales. In Australia this need is reflected in the latest articulation of Australian Government research priorities that emphasise that ‘Research will build Australia’s capacity to respond to environmental change. It will require the integration of research outcomes from biological, physical, social and economic systems’ (Australian Government, 2015).

Australia faces particular systemic issues: The country’s prosperity has been built on the use of natural resources which are intricately inter-connected with natural and cultural heritage. These natural and social resources are degrading, however, because of land clearing, river regulation, farming practices, industrial development, urbanisation and the introduction of non-indigenous plants and animals. Degradation threatens biodiversity, ecosystem services, water and food security, and ultimately the sustainability of Australia’s rural, regional and remote communities. Environmental and natural resource issues are attracting increasing attention from the communities themselves, as well as from governments and industry. The Murray-Darling Basin, the ‘food bowl of Australia’ and geographic home for most of CSU’s campuses, presents an example of the urgent need for systemic research and governance. Australia’s Millennium Drought (1997-2010) drew national and international attention to conflicts over water use, but the Murray-Darling Basin also has pressing issues relating to maintaining biodiversity, agricultural productivity and rural social sustainability in the face of climate change and globalisation; and all of these issues are linked. As the systemic nature of issues becomes more apparent, the search for better ways to connect scientific and other knowledge, including that from local and Indigenous communities, with governance and policy becomes more pressing.

ILWS was formed in 2005/2006, absorbing and building on the capacity and networks of the Johnstone Centre for Natural Resources and Society, the Centre for Rural and Social Research and the Economics and Regional Development capacity of CSU. ILWS thus has the research and networking capacity to influence the governance and management of regional scale issues. To address local, regional and global issues systemically, ILWS has, from its inception, sought to facilitate trans and multi disciplinary approaches, underpinned by integration of social, ecological and economic research aims and practices.
The original aims of ILWS in 2005 included:

- The development of the capacity for integrated research combining the discipline strengths of members;
- The provision of a “shop front” for interactions between CSU researchers, partners and research funding bodies; and
- The facilitation of national and international linkages

Ayre and Nettle (2015) suggest that integration of research is a process of knowledge production and learning. Their dynamic model of integration is useful for understanding not only research integration, but also the trajectory of integration in ILWS. Their model emphasises that integration is a dynamic process that moves through five phases:

1. Establishing the imperative for integration
2. Coordinating different discipline and knowledge commitments
3. Consolidating arrangement for integration
4. Prioritising outputs of integration
5. Presenting the outputs of integration.

The early years of ILWS relate to phases 1-3 in the Ayre and Nettle model. While researchers co-created shared understandings of the need for integrated research and developed new forms of research questions and new ways to learn, the organisational arrangements of ILWS were tested and revised. Since 2010 ILWS has been operating predominately within phases 3-5, that is, it has been consolidating its structure, prioritising its research agenda and presenting its multiple achievements.

ILWS has an adaptation friendly support structure, and researchers of global standing to operate within that structure. The success of ILWS in developing a workable institutional framework for integrated research means it is currently well placed to provide the leadership and policy advice for the forthcoming research climate described by both the Australian Government and its Chief Scientist. This unique, proven capacity for integrated inquiry and knowledge creation demonstrate ILWS is a leader and model for research within CSU.

The achievements of ILWS since 2010 are discussed in detail in Section 2, a response to the Review Terms of Reference. The discussions from Section 2 are then used to identify continuing and new directions or emphases for ILWS research in Section 3.
2. Responses to the Review Terms of Reference

2.1 TOR 1 An articulated research agenda that aligns with the University Strategic Plan, Research Plan and Research Narrative themes

2.1.1 The ILWS research agenda

As a designated Research Centre the central pillar of ILWS is its research agenda. The overarching goal of ILWS - to undertake internationally recognised and integrated research in social and environmental sustainability to enhance the livelihoods and lifestyles of people in rural and regional areas - aligns completely with CSU's goal to be a University of the land and people of its regions, and to be for the Public Good.

ILWS has four Objectives to facilitate achievement of the ILWS goal:

- To be an internationally recognised provider of integrated quality research that contributes to enhanced sustainability in rural and regional areas, in Australia and overseas
- To become a recognised leading research centre, in areas relevant to our communities, with an annual turnover of $5 Million per year by 2020
- To become a preferred provider for research that integrates biophysical, economic, social and cultural disciplines, with research that influences and informs our community of interest, the profession, governments and others
- To be recognised for its unique ability to bring social, economic, cultural and biophysical sciences together to address issues relating to sustainable communities and landscapes

These Objectives encourage ILWS researchers to seek opportunities for integrating their research interests with those of other researchers and with their regional, national and international communities. They also encourage innovation and research 'nimbleness' as researchers learn from their peers and other communities, identify emerging issues of importance and establish appropriate responses.

2.1.2 Centre planning documents that explicitly link to institutional agendas

The ILWS research agenda is articulated in its rolling Strategy (Appendix 1) and, as indicated above, it is congruent with the University Strategic Plan and embedded Research Plan, as well as the CSU Research Narrative themes. The ILWS Strategy document demonstrates how its aims and activities align with both National directions and CSU's research agenda. Three examples of this alignment, extracted from the full Strategy, are provided below.
<table>
<thead>
<tr>
<th>National Priorities</th>
<th>Examples from ILWS Strategy</th>
<th>CSU Strategy Reload</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘Research will build Australia’s capacity to respond to environmental change. It will require the integration of research outcomes from biological, physical, social and economic systems’</td>
<td>Actively visit funding bodies to promote ILWS capability, in particular integrated research</td>
<td>Engage strategically with relevant industry groups and agencies</td>
</tr>
<tr>
<td>‘The approach adopted by the Chief Scientist began with identifying areas where we need to be certain that we have activity in an appropriate quantity and of high quality, and that addresses matters of national interest or concern...The Chief Scientist identified five of the most important societal challenges: Living in a Changing Environment, Promoting Population Health and Wellbeing, Managing Our Food and Water Assets, Securing Australia’s Place in a Changing World, Lifting Productivity and Economic Growth’</td>
<td>Foster and support large initiatives through additional support and resources to encourage researchers to consider large initiatives where CSU is the lead organisation whilst using existing researcher lead large projects to champion the concept</td>
<td>Introduce reward funding in 2016</td>
</tr>
<tr>
<td>While continuing to study environmental and climate science in Australia, and connecting to global research, we must learn to mitigate and adapt to local and regional effects</td>
<td>Further develop the emerging strategic research area ‘Historical Ecology’ to develop a comprehensive knowledge of people’s interactions with the environment and address present and future issues around sustainable farming and landscape management</td>
<td>Identify opportunities for Indigenous participation in Research</td>
</tr>
</tbody>
</table>

In keeping with the CSU overarching research strategy, the ILWS strategy considers its goal and objectives in relation to outputs and outcomes, not just activities. While the ILWS Strategy outlines directions, and sometimes clearly measurable proposed outcomes, it is ‘rolling’ or ‘adaptive’; it is a dynamic document that acknowledges the constraints on practice imposed by fixed targets. Regular strategic review allows for consideration of changing internal and external conditions and, most importantly, of new knowledge.

ILWS outputs align with the CSU direction for embedding Research themes and existing and emerging strengths into practice, with the intended outcome of ‘Improved research output, impact and productivity focussed on issues relevant to our community and strengths’. How this is being achieved detailed in the remainder of Section 2.
2.1.3 Organisational framework that includes both collegiate input as well as appropriate governance oversight of Centre activities

ILWS operates through a Business Team that is influenced by external and internal (collegiate) input.

The roles of the Strategic Research Areas (SRAs), Management Team, Advisory Board and Business Team are detailed below.

**Strategic Research Areas**

Transdisciplinary research practice has traditionally aligned with synoptic disciplines such as geography (Thompson Klein, 2004). Increasingly, research that addresses complex environmental concerns is expected to take interdisciplinary and transdisciplinary approaches, bringing together researchers from different disciplines and professions into teams (Harris & Lyon, 2013). Strong intellectual capacity in universities is best achieved by combining disciplinarity with transdisciplinarity, and building capacity for holistic research and practice (Russell, Wickson, & Carew, 2008).

In 2009 the ILWS governance structure was streamlined to consciously focus on its strengths in multi and transdisciplinary research. To facilitate integration within ILWS Strategic Research Areas (SRAs) were created as focal research units that align with the strategic research direction of the University. The SRAs are issue focused, team-based, interdisciplinary, underpinned by disciplinary excellence, and are oriented towards outputs and outcomes. Not all of the SRAs are transdisciplinary, nor is all of the research within the SRAs multi or transdisciplinary; by operating within the ILWS structure, highly focused research is integrated into larger research outcomes, that is, into influence in the wider community.
The changing number and focus of the SRAs across time reflects and responds to the needs of the communities served, CSU and the individual researchers. For example, the Food Security and Regional Australia SRA was established in 2014, emerging from growing expertise in food security issues among some members of ILWS, and a growing global imperative. In the same year, but following a different pathway, the collaborative research undertaken by a group of ILWS terrestrial ecologists since 2007 was formalised as the Biodiversity Conservation SRA. The new SRA includes research previously reported under the Ecosystem Services SRA, but its scope has widened to better fit with current community priorities. The Sustainable Water SRA, in contrast, has developed three evolving research foci that are well connected, but also developing separately. The focus on outcomes, rather than an imposed structure, allows groupings to disband when needed; for example an SRA dealing with the Social Aspects of Climate Change Adaptation was trialled but, as improved research outcomes were not achieved, this work is now carried out by individuals.

How the SRAs govern themselves internally is also flexible, again reflecting the intent of the ILWS Strategy to facilitate relevant and useful research rather than dictate externally derived structures. Each SRA has, however a nominated Team Leader to represent the SRA members within the ILWS administrative structure.

The SRAs provide an excellent example of how the ILWS has sought to achieve integration, and how integrating is becoming more embedded over time. Integrating can and does occur within fairly narrow discipline areas, but the most groundbreaking changes are happening across discipline areas. Some SRAs- for example Environmental Justice and Governance for Social Change, Food Security in Regional Australia, and the Woody Regrowth in Rural Landscapes, as well as Sustainable Water- represent genuine efforts to step outside disciplinary enclosures and engage in a truly multi-disciplinary way with pressing issues that have consequences for land, water and society.

There is no accepted way to ‘measure’ or even ‘prove’ successful transdisciplinarity. It is clear that transdisciplinary practice requires formation of teams with people from different disciplines (Harris & Lyon, 2013) and that those teams should be producing systemic, holistic or synthetic research outputs (Russell, et al., 2008).
ILWS has had some success in developing a more integrated outlook for research, having moved far beyond the pedantic discussions that characterised some of its earlier efforts. There has been a focus on bringing individuals together in Teams through an emphasis on self-selecting mechanisms, and not a reliance on imposed combinations, while providing incentives and encouragement. In the process of forming Teams, the role of individuals in delivering successful research outcomes has, however, not been ignored. ILWS is working to ensure that its success is not the just the sum its parts, but rather the result of its combinations.

While the SRAs are a central component of ILWS they do not constrain its capacity to adapt, nor its capacity to turn potential disappointment into opportunity. For example, the collapse of CSU's International Centre of Water was considered an opportunity to develop new projects and working relationships with the Lachlan Catchment Management Authority, and with the Australian Centre for International Agricultural Research (ACIAR) in Pakistan. The ILWS structure was sufficiently flexible to facilitate this re-alignment of opportunities, partly into SRAs, but also into new alliances that in turn lead to new research income and opportunities to influence policy and practice; for example a new $2M project in Pakistan is currently being negotiated.

The ILWS Management Team

The leaders of each of the SRAs form the Management Team, providing a mechanism for dialogue between the SRAs and the ILWS Business Team. The Management Team provides advice to the Director who represents ILWs within the CSU structure. Because of the geographic distribution of CSU, efforts are made to ensure the major research campuses are represented in the Management Team alongside the research Teams. This structure has evolved over the past five years and will continue to do so as circumstances change. In developing this structure and allowing it to evolve ILWS has consciously acknowledged the personal development opportunities that participating provided for individuals.
The ILWS Business Team

The ILWS Business Team currently employs 4.2 Full Time Equivalent positions (not including the ILWS Director), to facilitate and support the research activities of all ILWS members. A primary role for the ILWS Business Team is to undertake business, contract and project management, grants coordination and promotional tasks, to allow ILWS researchers to concentrate on achieving research outcomes and outputs.

The Business Team supports and mentors ILWS members in all administration, contract, project management, grants and financial matters, including the production of expense forecasting reports when required. The ILWS Business Team is also very heavily involved in developing promotional material, and in positioning exercises both for individual members and ILWS as a whole, through both electronic and print media. These activities, while providing support for ILWS members are undertaken within the wider CSU structure and synchronized with the activities of other work units. Details of administration and promotion support are provided in sections 2.6 and 2.4.3.

Advisory Board

Established within the CSU guidelines for Advisory Boards, the ILWS Advisory Board is an external body of high profile public figures, who provide strategic advice to the ILWS Director and Management Team. This advice includes identifying emerging research opportunities and potential research partnerships, and showing pathways for linking science with policy.

Membership of the Advisory Board is carefully monitored and adjusted to ensure it provides current and effective support to ILWS researchers as ILWS adjusts to internal and external contexts.

Members were chosen with input from the ILWS Management Team, in order to get a reasonable representation of ILWS research interests. The role of the ILWS Advisory Board is purposely restricted to providing advice and does not entail a governance role.

ILWS Advisory Board members as of August 2015

**Professor John Williams**, Chair of the Board
ILWS Adjunct Professor; Director John Williams Scientific Services Ltd. (former Commissioner, NSW Natural Resources Commission)

**Dr David Godden**, Faculty of Agriculture and Environment, University of Sydney

**Ms Lorne Butt**, BSc (Hons) (UTS), MBA (CSU), PhD (Macq), AFAIM, MAICD, MANZAM
Ecological Sustainability Coordinator, TAFE NSW Western Institute

**Mr Paul Ryan**, Natural Resource Management Advisor, Interface NRM

**Ms Barbara Hull**, Chief Executive Officer, Regional Development Australia-Murray

**Professor Kathleen Bowmer** (BSc Hons, PhD Nott., MRACI, FAICD)
Institute adjunct Research Fellow, Water policy advisor
2.2 TOR 2 ILWS researchers and research investment

2.2.1 Membership

**Full member:** should have at least three single or co-authored research papers (or creative works), on average per year, over the preceding three years. Full members need to demonstrate participation in research projects, either as Chief Investigator or team member.

**Early Career member:** staff members who are within five years post PhD submission, Professional Doctorate or Masters by Research. They are expected to attain full membership within three years. Also includes staff members who do not yet have a postgraduate qualification but are within three years of commencing their appointment with CSU in a teaching and research or research only position.

ILWS has ‘critical mass’, currently comprising 40 full members, 22 early career researchers, seven post-doctoral fellows and 93 adjuncts. ILWS also has 62 post graduate students enrolled through CSU Schools, and supervised by ILWS members. Through this total membership ILWS is aligned with eleven Schools, and all four CSU Faculties.

![ILWS membership August 2015](image)

This number and range of members provides ILWS with the capacity to address natural resource management, biodiversity, social and economic issues; regionally, nationally and globally. Member’s research areas include the arts, communication, education, economics, regional development, social science, natural resource management, ecology, biodiversity, cultural heritage, modelling, environmental management, eco-agriculture and aquatic science and management. Most members are associated with one or more ILWS Strategic Research Area.

2.2.2 Leadership

The ILWS Centre Director, [Professor Max Finlayson](#) is an internationally renowned wetland ecologist who has participated in global assessments, including those undertaken by the Intergovernmental Panel for Climate Change, the Millennium Ecosystem Assessment, and the Global Environment Outlook 4 & 5 (UNEP). Professor Finlayson is often sought by international and national governments, agencies and research organisations for his expertise. For example, he was invited to the Conference of Parties to the Ramsar Convention on Wetlands in 2012 and 2015 to provide expert advice and assist Parties to negotiate formal resolutions on the contentious topic of climate change and wetlands. In 2012 a pre-conference information paper on climate change and wetlands was also provided by Professor Finlayson. This recent activity continues an association with the Convention that started in 1990 when he was working with a non-governmental organisation and based in the UK. It has included plenary presentations to the Convention on training and capacity
building for wetland management, assessing changes in the ecological character of wetlands, risk assessment and early warning systems for detecting change in wetlands, and a global overview of the extent of wetland inventory. From 2002-05 Professor Finlayson was Chair of the Convention’s Scientific and Technical Review Panel. Currently Professor Finlayson is the Ramsar Chair for the Wise Use of Wetlands, UNESCO-IHE, Institute for Water Education, Delft, The Netherlands.

Professor Finlayson leads by example to promote high research standards within ILWS, not only with his world-class reputation, but also with his many publications, including 98 quality journal papers, and internationally competitive research impact metrics. For example, Professor Finlayson’s Scopus H-index of 22 indicates that 22 of his papers have each been cited more than 22 times in that database. Similarly, his Google H-index is 40.

The 12 Professors and 12 Associate Professors whom constitute a significant proportion of the ILWS full membership provide important strategic research advice and leadership, both within SRA groups, and to the Institute Director.

Improving Rural Livelihoods and Environments in Developing Countries

This SRA includes eight senior ILWS staff and seven Institute adjunct researchers from other tertiary institutions, government agencies, and private enterprise.

Members have research experience in many developing countries including Laos, Indonesia, Bhutan, East Timor, Fiji, Nepal, India, Pakistan, Vietnam, China, Nepal, Vanuatu, Malaysia and Cambodia.

Currently there are 8 post-graduate students associated with this SRA from Nepal, Ghana, China, Bhutan, Pakistan, India and Zimbabwe who are undertaking research on a diverse range of topics from community forestry, property rights and rangeland management to communication for agricultural development.

Excellent leadership is not confined to the Professoriate; all full members and adjuncts of ILWS guide, lead and mentor other researchers, especially early career researchers and Doctoral students.

The SRA structure encourages sharing of expertise and knowledge, and provides opportunities for ideas and directions to come from anyone within ILWS.

With the Management Team an important part of the ILWS integrated structure, leadership within the SRAs can influence the research direction of ILWS.
2.2.3 Quantity output metrics reported to Government

The research income and publication output from the ILWS members since 2010 is impressive, as indicated in the following charts and tables provided by the Research Office for this review. The income for this period is roughly double that for the previous 5 years.

**ILWS research income 2010-2014**

<table>
<thead>
<tr>
<th>ILWS</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research income</td>
<td>$2,973,355</td>
<td>$2,076,533</td>
<td>$1,895,440</td>
<td>$3,176,511</td>
<td>$1,949,119</td>
<td>$12,070,959</td>
</tr>
</tbody>
</table>

Just over half of the $12M+ research income earned by ILWS between 2010 and 2014 was from Public Sector research grants, with the other major contributor being Australian Competitive Research Grants. ILWS earned 17% of all research income earned by CSU in this time.

**2010-2014 research income by category**

- 1 - Australian Competitive Research Grants
- 2 - Other Public Sector Research Funding
- 3 - Industry and Other Funding for Research
- 4 - Cooperative Research Centre Funding
- 0 - Research Income Excluded from HERDC

**2010-2014 - share of CSU research income**

- Non-Centre
- ILWS, 17%
- Other Centres
ILWS publications 2010-2014

<table>
<thead>
<tr>
<th>Research publication points</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research publication points</td>
<td>81.931</td>
<td>72.81</td>
<td>58.86</td>
<td>75.895</td>
<td>76.347</td>
<td>365.843</td>
</tr>
</tbody>
</table>

ILWS publication points show a 32% increase on the 249.87 points of the previous 5 year review period.
Between 2010 and 2014 ILWS researchers produced 21% of CSU Research Centres’ combined publications (and 10% of overall CSU publications), and attracted 25% of Centres’ combined income (and 17% of overall CSU Research income).

Most ILWS members are employed as teaching/research academics. Research Fellowships are used strategically to support the development of major projects including those funded by ACIAR and the Australian Research Council (ARC). A particularly pertinent example of the value of strategic use of Research Fellowships is the two Long Term Intervention Monitoring Projects that have received funding of over $6.5M from the Commonwealth Environment Water Office. The extensive input into developing the partnerships and projects, as well as ongoing project management, is only made possible through the use of Research Fellowships that allow for teaching releases for the project leaders and cash contribution towards the employment of postdoctoral researchers.

2.2.4 The quality of ILWS research outputs

The overarching aim of research is the creation and application of new knowledge and ways of understanding. Citation metrics are one measure of the research impact or influence of both individual scientists and research groups. The h-index is a frequently used measure of citations: an h-index of x for a particular citation data base means that this author or centre has published at least x papers that have each received at least x citations. Citation metrics should be viewed with caution in the following discussion as the data are contextual and are not readily comparable with either a standard or with citation data for other research groups (Marx & Bornmann, 2014). The h-index measure, for example, was developed for use on a discipline basis and is not perfectly suited to the trans and multidisciplinary approach of ILWS. Comparisons with the h-Index of other research institutions is therefore not attempted in this submission; rather the metric is included as evidence that research findings from ILWS are valued and used.

ILWS has a Scopus h-index of 47, that is, of the 946 documents listed in the Scopus database and considered for the h-index, 47 have been cited at least 47 times.

The h-indices of the full members of ILWS indicate that the research undertaken within ILWS is read and used by other academics, with over half the members having h-indices greater than 6 for the three major citation databases.

% ILWS Researchers per h-index class and per citation database

![Graph showing distribution of researchers per h-index class and citation database](image)
The National ERA research assessment undertaken by the Australian Research Council provides another measure of the academic quality of research. Researchers from ILWS were major contributors to CSU’s 2012 ranking of 4 for the discipline area of Environmental Science and Management. Environmental Science and Management is an integrating discipline, and the high ranking in this assessment is one vindication of the ILWS focus on integrating social, ecological and economic research.

### 2.2.5 Higher Degree by Research supervision and completion rates

At CSU, HDR supervision is typically administered through Faculties and Schools. Currently 62 Research Higher Degree students are associated with ILWS. Between 2010 and 2014 ILWS undertook 28% of principal, and 30% of co-supervision of the CSU Research Centres’ supervision, as indicated in the following table supplied by the Research Office.

<table>
<thead>
<tr>
<th></th>
<th>CAPPE</th>
<th>Graham Centre</th>
<th>ILWS</th>
<th>NWGIC</th>
<th>PACT</th>
<th>RIPPLE</th>
<th>Total*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principal Supervisor</td>
<td>13</td>
<td>115</td>
<td>98</td>
<td>29</td>
<td>54</td>
<td>70</td>
<td>355</td>
</tr>
<tr>
<td>Co-Supervisor#</td>
<td>11</td>
<td>118</td>
<td>106</td>
<td>33</td>
<td>44</td>
<td>63</td>
<td>358</td>
</tr>
</tbody>
</table>

Source: Research Master, Centre membership lists and ODVC RDI calculations.

*Some supervisors are members of more than one Centre and their supervision is counted for both Centres. Centre figures therefore sum to greater than the total. #Co-supervision figures relate to the number of co-supervisory roles undertaken by Centre members. Some students may be co-supervised by more than one Centre Member.

There were approximately 68 Research Higher Degree (PhD, DBA and Masters) completions between 2010 and 2014, with an overall completion rate over 90%. Exact figures are difficult to provide as the graduation date changed from April to December during the reporting period, and the Research Office do not collect the information on a Centre basis.

Within the figures cited above are students awarded the ILWS specific PhD scholarships that have been offered since 2007. Of those, five had completed by 2014, one completed in early 2015 and seven ILWS PhD scholarship recipients are currently working towards completion.
2.2.6 Funding and partnerships
Researchers at all levels are successful in attracting nationally competitive grants and external grant funding, and much ILWS research is made possible by significant financial and in-kind investment from funding bodies, government departments and agencies. ILWS has well-established partnerships with State and Federal Government Departments, agencies and other tertiary institutions in Australia.

ILWS members have partnerships, including funding partnerships, with a range of organisation types within Australia.

- **Farm Power and Conservation Agriculture for Sustainable Intensification**
  2013-2017
  ACIAR $544 000
  The project is running in Ethiopia, Kenya, Tanzania and Zimbabwe: [Project details](#)

- **Benchmarking values and attitudes to conservation in the Great Eastern Ranges**
  2009-2011
  For Department of Environment and Climate Change and Hawkesbury Nepean Catchment Management Authority
  [Project details](#)

- **Roadsides: Landholder Engagement Project**
  2010
  For Rural City of Wangaratta and Indigo Shire
  [Project details](#)
While the majority of ILWS research income is from Australia, the reach of ILWS is international, as ILWS members have funding, partnerships, connections and influence globally. The map below is a sample of the many professional partnerings over the past four years, and included activities such as co-authorship, visiting researcher arrangements, research collaborations, and long standing professional networks.

The global reach of ILWS researchers reflects their willingness to seek partnerships to complement knowledge and skill gaps, and their competency and esteem in being able to form and maintain those partnerships.
2.3 TOR 3 Evidence of the research undertaken being of high esteem nationally and internationally

2.3.2 Major projects with Category 1 funding
One measure of esteem for the work undertaken by ILWS researchers is success with major grants. Some recent successful grants are shown below; others appear as evidence in later sections of this document.

- **Predicting the delivery of ecosystem services in agricultural landscapes**
  - 2014-2017
  - ARC Discovery $360 000
  - [Project details](#)

- **Socio-economic study of fish harvesting and use by villagers around Pak Peung reservoir in Laos**
  - 2011-2015
  - Australian Centre for International Agricultural Research, $66,185
  - [Project details](#)

- **Engaging birdwatchers to monitor biodiversity by collaboratively collecting and analysing big audio data**
  - 2014-2017
  - ARC Discovery Grant $477 000
  - With Queensland University of Technology
  - [Project details](#)

- **Humanitarian immigrant entrepreneurs in private and social enterprises**
  - 2014-2017
  - ARC Discovery Grant $220 124
  - With University of Technology, Sydney
  - [Project details](#)

- **Managing Agricultural Landscapes to Maximise Biodiversity Gains: The case of the Regent Parrot**
  - 2008-2012
  - ARC Linkage Grant $397,892
  - [Project details](#)

- **Social Factors Influencing Technology Adoption in the Rice Industry**
  - 2014-2016
  - Rural Industries Research and Development Corporation, $129,000
  - With Swinburne University
  - [Project details](#)

- **Virtuous Practitioners: Empowering Social Workers**
  - 2014-2016
  - ARC Discovery Grant $220 130
  - [Project details](#)

- **National Centre for Groundwater Research and Training**
  - 2009-2014
  - ARC / NWC co-funded Grant $825,367
  - [Project details](#)
### 2.3.2 Recognition awards, external appointments

ILWS researchers are considered experts on particular issues, as evidenced by the large number and variety of recognition awards they receive. The full list of awards since reaccreditation in 2010 covers four A4 pages, and is provided as Appendix 2; four highlights from that table are presented below.

<table>
<thead>
<tr>
<th>Members</th>
<th>Awards</th>
<th>Keynote Addresses</th>
<th>External Appointments &amp; Memberships</th>
<th>Editorial Positions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Prof Max Finlayson</strong></td>
<td><strong>Director</strong></td>
<td>An Australian vision for water: Looking forward, 2014 irrigation Australia Conference, Gold Coast, June 2-4, 2014</td>
<td>Ramsar Chair for the Wise Use of Wetlands, UNESCO-IHE, Institute for Water Education, Delft, The Netherlands</td>
<td>Journal Marine &amp; Freshwater Research (Editor-in-Chief)</td>
</tr>
<tr>
<td><strong>Prof Kathleen Bowmer</strong></td>
<td>(Adjunct)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Featured in the book Fitzpatrick, J. (2012) <em>Heroes of Australian Science</em> published by Macmillan Education Australia</td>
<td>Australian Research Council (international peer reviewer); Qatar National Research Fund (international peer reviewer); CSIRO Land and Water (Honorary Research Fellow)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Prof Gary Luck</strong></td>
<td></td>
<td></td>
<td>Ecological Society of Australia (Council member)</td>
<td>Ecological Management and Restoration (Chair of the Editorial Board);</td>
</tr>
<tr>
<td><strong>Prof Manohar Pawar</strong></td>
<td></td>
<td></td>
<td>President, Asia-Pacific Branch of the International Consortium for Social Development</td>
<td>Asia Pacific Journal of Social Work and Development (Editorial Board Member);</td>
</tr>
<tr>
<td><strong>Dr Skye Wassens</strong></td>
<td></td>
<td></td>
<td>River Red Gum Adaptive Management Science Advisory Committee (member) (cross border NSW and Victoria), NSW OEH/DSE; Technical Advisory Panel (TAP) (member), BHP Billiton’s Litoria aurea Compensatory Habitat Program (CHP) as part of the Hunter River Remediation project</td>
<td></td>
</tr>
</tbody>
</table>
2.4 TOR 4 Evidence of the research undertaken having impact on end-users and communities associated with the University

2.4.1 Contributions to Industry and professions
As noted in Section 2.2.3 the total category 2, 3 and 4 funding for ILWS 2010-2014 was $7,524,437. The range of research undertaken

Testimonial
I am a Senior Research Fellow with the Faculty of Veterinary Science at the University of Sydney. Since 2006 I have been based in Indonesia, working full-time on projects funded by the Australian Centre for International Agricultural Research (ACIAR). Broadly, these projects have covered:
- Capacity-building for staff of the Brackishwater Aquaculture Development Centre (BADC) at Ujung Battee, Aceh;
- Post-tsunami rehabilitation of coastal aquaculture in Aceh;
- Diversification of coastal pond aquaculture production in Indonesia.

I have worked with Dr Joanne Millar of the Charles Sturt University Institute of Land, Water and Society in regard to socio-economic aspects of these projects. In particular, Dr Millar has been involved in training to improve the knowledge and skills of government staff in Aceh and in South Sulawesi regarding social evaluation techniques. She has worked with the same staff to undertake social evaluations of the farmers involved in our research activities.

Dr Millar’s involvement in the program has led to a much better appreciation by government staff of the social dimensions of aquaculture research. For example, staff at BADC Ujung Battee are now routinely undertaking socio-economic evaluations of the impacts of their activities on farming systems.

In addition, Dr Millar has mentored individual staff involved in the project, particularly those involved in social research. Dr Mardiana E. Fachry, Hasanuddin University, Makassar, South Sulawesi, improved her knowledge and skill regarding social research and writing up for formal publication through her association with Dr Millar on this project.

The feedback that I have received from our Indonesian partner agencies has been very positive in regards to the training and support provided by Dr Millar through the ACIAR projects. In addition, the most recent project (FIS/2007/124 – Diversification of smallholder coastal aquaculture in Indonesia) was reviewed by ACIAR in April 2015 and the project was described as having ‘Excellent overall project performance and outputs’, an outcome to which Dr Millar’s input contributed.

Michael A. Rimmer Senior Research Fellow,

The close relationships between ILWS researchers and Industry/Professions are also reflected in the numerous technical reports produced, including 27 ILWS technical reports. The exact number of technical reports produced for specific purposes is difficult to determine as this category of output is not readily extracted from CSU’s Research Output Repository, and many technical reports were submitted directly to funding bodies without being specifically formally badged as ILWS technical reports.
2.4.2 Contributions to public policy

ILWS researchers are involved in collaborative and commissioned work around Australia and the world. Such collaboration provides opportunities to influence local, regional, national geographic communities, and also Academic communities (internal and external, Australian and international), often through working closely with partner organisations and funding bodies. The box highlights just two of the many projects underway or completed. The ILWS website provides full details of all projects.

<table>
<thead>
<tr>
<th>Long Term Intervention Monitoring projects</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Edward Wakool Stage 2</strong></td>
</tr>
<tr>
<td>2014-2019</td>
</tr>
<tr>
<td>$3.36M</td>
</tr>
<tr>
<td><strong>Murrumbidgee Stage 2</strong></td>
</tr>
<tr>
<td>2014-2019</td>
</tr>
<tr>
<td>$3.5M</td>
</tr>
</tbody>
</table>

Each LTIM Project will be implemented at seven Selected Areas over a five year period from 2014-15 to 2018-19 to deliver five high-level outcomes:

- Evaluate the contribution of Commonwealth environmental watering to the objectives of the Murray-Darling Basin Authority's (MDBA) Environmental Watering Plan
- Evaluate the ecological outcomes of Commonwealth environmental watering at each of the seven Selected Areas
- Infer ecological outcomes of Commonwealth environmental watering in areas of the Murray-Darling Basin not monitored
- Support the adaptive management of Commonwealth environmental water
- Monitor the ecological response to Commonwealth environmental watering at each of the seven Selected Areas

The influence of ILWS research on policy may be direct, but may also be via high exposure to research outcomes

**Marvellous mistletoe: Giving forests the kiss of life**

Because of research undertaken at ILWS millions of people around the world, including policy makers, now know about the value of mistletoe.

Professor David Watson mistletoe research was featured in multiple news outlets, including ABC Sydney Breakfast and 3AW Melbourne breakfast radio, 36 separate Australian newspapers and the New York Times

**Ramsar Convention on Wetlands**

Professor Max Finlayson has direct input to development of international policy in Climate Change and Wetlands through formal decisions taken at the Ramsar Convention on Wetlands in 2012 and 2015.
ILWS has a high profile and is well respected, as evidenced by the Member for Albury’s address to the NSW Legislative Assembly, part of which is presented below.

"Located within the Charles Sturt University at Albury is the Institute for Land, Water and Security [sic], under the Directorship of Internationally renowned wetlands ecologist Professor Max Finlayson. The United Nations Regional Centre of Expertise–Murray-Darling, which was launched in October 2013, is also hosted within this Institute.

A good sign of the wide recognition attained by the institute and its research capabilities is its success last year in securing nearly $7 million in Commonwealth funding for two new five-year projects. The Institute for Land, Water and Security works collaboratively with community, regional and national partners. While the majority of its research projects are in the Murray-Darling Basin, I understand that its researchers are also involved in projects in other countries, including China, Austria, Italy and India...

Extract from recent address to the NSW Legislative Assembly by the NSW Member for Albury for World Environment Day 2015 by Greg Aplin

There are many real and useful impacts from the work undertaken by ILWS researchers- a few examples are showcased below.

**YouTube clip**

 policy impact of ILWS organised event

**Professor Vann said the two major environmental water monitoring projects funded by the Commonwealth Environmental Water Office "ticked all the boxes" in terms of what research he would like the University to be delivering. "These projects in particular are great examples of projects that are collaborative across universities, with government, with industry and with communities...they’re absolutely focussed on real, practical and tangible outcomes for the environment and the community and are great from every perspective. They’re ‘poster children’ of where I’d like research at CSU to be at." Connections, Issue 39, March 2015

**Natural regeneration after changing land use seminar and workshop**

Goulburn-Broken CMA offices Benalla, April 21, 2015

The Woody Regrowth in Rural Landscapes Strategic Research Area initiated a workshop with Victorian government natural resource management agencies.

The research of five PhD and one Honours student, along with related research from the University of Melbourne was presented, contextually framed by Team Leader Associate Professor Ian Lunt. In the presentations the same local landscape was considered from a variety of social and ecological perspectives, with the concept of social-ecological systems and integrated approaches foregrounded.

Following the presentations researchers joined with the other participants (who work in policy development or implementation) in three concurrent workshops that considered policy, organisation and on ground responses to the material presented.

Each group developed ideas for changed perception and management of woody regrowth in Victoria.
2.4.3 Media

The ILWS Business Team produces the *Connections* newsletter four times a year. Available in both electronic and paper formats, *Connections* showcases the research of ILWS to existing and potential external partners and funders. Aptly named, *Connections* is also an integrating tool, keeping members informed and in touch with the large range of projects occurring each year.

Another important communication tool produced by the ILWS Business Team is the ILWS *Biennial Report*. While *Connections* provides rolling updates on activities, the Biennial report summarises the major research initiatives and their outcomes in each two year period.

The extensive use of a range of other communication media by the ILWS Business Team engages with the wider community and promotes the work undertaken by ILWS researchers. The ILWS Communications coordinator has good working relationships with CSU Media (the group that ensures consistency and compliance with University process), and also with regional 'traditional' print, radio and TV media.

From 2011 to June 2015 ILWS researchers and ILWS projects and activities featured in nearly 200 media releases from CSU Media. Of these, about three-quarters were related to the work of the ILWS's SRAs. In addition, press articles were written by the Communications Coordinator, and by the individual researchers, mostly for online publication and magazines. These media releases resulted in 1790 media 'hits' between Feb 2011 and May 2015; details of ILWS related media activity is presented in the news.

Media coverage varied from ‘one off’ stories in regional newspapers or single radio interviews to stories that are quickly taken up by media across Australia. For example in May 2014, Prof John Hicks’ comments before the Federal Budget was handed down were used by 150 media outlets across Australia.

Similarly the ABC’s science program *Catalyst* featured A/Prof Ian Lunt’s research into using sugar to control weeds in grassy box gum woodlands stimulated much related media activity.
ILWS researchers have international, as well as Australian press coverage.

ILWS runs a number of events each year to engage with its stakeholders and the wider community. Often these events generate increased media interest. For example when the Institute held the “Food Security in Australia: Challenges and Prospects for the Future” forum and book launch in October 2012, the event was attended by over 60 people including local and state government representatives, health service providers, educators, landholders and community members. The ABC Victorian Country Hour’s presenter Libby Price held a live broadcast of her program from the Albury-Wodonga campus, and the whole program was devoted to the forum and its speakers.

The Communication Coordinator helps researchers get publicity for their projects. For example in 2013 she assisted with the organisation and associated media for a meeting of representatives from the Yackandandah CFA and a group of fire social

“Margrit, I just wanted to drop you a quick line and thank you for your assistance with our Outside Broadcast on Monday. I was really happy with the way it worked….and the interviewees were all great. Thank you for assisting Libby and getting them there all on time too. .....Cheers until next time.

from Helen Taylor, Executive Producer, ABC Rural (Victoria)"

“And...Cathy McGowan rang me yesterday to congratulate us on the day. In particular she commended Margrit on getting all the media organised and looked after...in her words “What a champ!”

From Cathy McGowan (via Jo Millar)
science researchers from Canada and the US working with the Institute on a fire trust project.

The ILWS Business Team is heavily involved in promoting and positioning both individual members and ILWS as a whole, through electronic, social and print media. It creates personal profile pages for full members on the ILWS website with contact details listed for adjunct members. ILWS PhD students work with the Team to develop their own individual project summary webpages in line with their thesis topics. New members are also welcomed and introduced through Connections.

The Team uses the ILWS website to position and promote its research projects and Strategic Research Areas, with individual projects pages created and summaries updated with latest findings as projects advance. The Team uses the ILWS website to record information, which forms the basis for project reports in Connections, the Biennial Report and other print and electronic media.

The ILWS’s Business Team helps researchers prepare in engaging with the media. This varies from one-to-one advice and feedback to researchers to formal training sessions such as the two “Working with the Media” workshops held in 2012 in Albury on Nov 15 (full day workshop for members) and Nov 17 (half day workshop for PhD students) in partnership with CSU Media.

Social Media and ILWS engagement
As one of the earliest adopters of a social media strategy within CSU, ILWS has been innovative in extending the reach of ILWS news. ILWS uses Social Media to communicate its research activities, including using live tweets from ILWS events. The extended reach with re-tweets by some ILWS followers has resulted in research featuring in traditional news services and further shared on Facebook and Twitter feeds.

The ILWS Social Media strategy was implemented with the initiation of the ILWS Facebook page in early 2012. The growth of the audience has been slow but steady with over 365 followers as of 13th August 2015. Facebook has become a platform to share and connect with a wider audience with many followers from around the world. The most popular Facebook posts have been news items relating to ILWS PhD students, specifically
international students whose wide network of friends, colleagues and family love to comment on and share their achievements.

<table>
<thead>
<tr>
<th>Platform</th>
<th>Established</th>
<th>Metrics</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>ILWS Youtube</td>
<td>February 2012</td>
<td>The channel has eight subscribers and has attracted 9,694 views. 55 videos uploaded</td>
<td>In 2014, the archives of 38 videos for the project &quot;Extension approaches for scaling out livestock production in Lao PDR&quot; were moved to the ILWS/CSU channel on YouTube bringing a new audience to the work. Most popular have been the videos in Khamu and Hmong language with hundreds of views</td>
</tr>
<tr>
<td>ILWS Twitter</td>
<td>April 2012</td>
<td>1,011 tweets posted followed by, 345 followers</td>
<td>ILWS also follows 355 accounts; this is a networking platform rather than one to broadcast information in a particular direction; it has been used for live tweeting during ILWS events, with material shared for example by Warwick Long of ABC Rural, Tim Beshara (former Executive Officer of NSW Landcare)</td>
</tr>
<tr>
<td>ILWS blog</td>
<td>June 2013</td>
<td>881 views in 2013, 1,733 in 2014 527 in 2015 so far</td>
<td>A blog article by PhD student Jess Schoeman on her experience at the 17th River Symposium in 2014 titled “Looking beyond the water” attracting 38 views; ILWS blog visitors are from 55 countries, with most from Australia, the USA and Singapore.</td>
</tr>
</tbody>
</table>

Engagement with social media audiences is dynamic and requires the continuous development of new approaches to increase reach, and to use multiple platforms. For example, in 2015 photo albums were added to Facebook, reaching a wider audience with each new photo post. Feature stories from Connections, are shared through the blog to further extend reach.
2.5 TOR 5 Strong and demonstrable links and/or collaboration with similar international, national or state-based research centres or agencies, Cooperative Research Centres, other Universities and Research Bodies, Publicly Funded Research Agencies and Professional Bodies

2.5.1 Membership of formal consortia, expert groups or professional bodies

Reflecting its multidisciplinary nature, ILWS is aligned with the University’s four Faculties, Arts, Business, Education and Science, with members from 11 schools including Environmental Sciences, Agriculture and Wine Sciences, Biomedical Sciences, Community Health, Humanities and Social Sciences, Communication and Creative Industries, the Australian Graduate School of Policing, Management and Marketing, Computing and Mathematics, Accounting and Finance, and Education.

ILWS is an important contributor to policy-making and management decisions that contribute to ensuring a sustainable future. It has well-established partnerships and linkages with State and Federal Government departments, agencies, organisations and other tertiary institutions both in Australia and overseas.
There are numerous examples of formal consortia with whom ILWS researchers work. One example that demonstrates both the richness of the collaborations and the size of financial investment from partners is demonstrated through the outstanding performance of the Sustainable Water SRA.

**Sustainable Water SRA**

- Rising income over time, with $5.48 M secured from 2010-2014.
- Since 2010 the Team has published:
  - 2 books, 20 book chapters, 122 refereed journal articles, 7 conference papers, 44 technical reports;
  - Numerous factsheets, newspaper articles, and media interviews.
- The group has completed several major research projects over the past five years:
  - Continued collaboration with CSIRO Flagship Cluster – Ecological responses to altered flow regimes project, a multidisciplinary national research collaboration;
  - Two projects on climate change mitigation and adaptation in catchment management context funded by the National Centre for Climate Change Adaptation Research Facility (2012-2013);
  - One project on fish friendly design for small hydro facilities funded by the Australian Centre for Renewable Energy (2012-2014).
- Involvement in four collaborative working groups funded by the Australian Centre for Ecological Analysis and Synthesis (ACEAS) focusing on freshwater ecosystems.
- Collaboration of 11 researchers (academics, Research Fellows and PhD students) from the ILWS Sustainable Water SRA to develop a synthesis paper ‘Environmental flows in complex social-ecological systems: what’s missing?’ (submitted); the paper integrates across disciplines (chemistry, ecology, policy, sociology) and researcher ‘levels’.
- Current supervision of 22 RHD students undertaking research on water related projects.
- Recipient of the 2015 Vice-Chancellor’s award for research excellence.
2.5.2 Joint research outputs or project applications

The value placed on the researchers of ILWS, and their research, is reflected in the many projects involving ILWS and other research institutions. Some joint projects have been presented in Section 2.3.2; a few more from the many undertaken since 2010 are presented below:

**Advancing Knowledge about Citizen-Agency Trust in Wildland Fire Management: A Collaborative Assessment Framework for the U.S. and Australia**  
2010-2013

With Oregon State University, USA Forest Service, University of Alberta, Canadian Forest Service Joint Fire Science Program (USA).  
[Trust Planning Guide Pdf](#)

**Determining the factors influencing the success of private and community-owned Indigenous businesses across remote, regional and urban Australia**  
2011 to 2013

ARC Linkage grant with partners Cultural and Indigenous Research Centre Australia, Indigenous Business Australia.  
[Project details](#)

**New ethical approaches to responsible research & innovation**  
CSU Global Alliance Grant $22,000

With University of Twente, The Netherlands

**CSIRO Flagship Cluster project "Ecological responses to altered flow regimes**  
2010-2013

With CSIRO, Griffith University, UNSW, Monash University, Latrobe University, the Arthur Rylah Institute and CSIRO.  
[Project details](#)

**Focus Farm Wetland Study**  
2010-2011  
For Murrumbidgee CMA, Caring For Our Country & NSW Government.  
This was a joint ILWS and EH Graham Centre project  
[Summary Sheet PDF](#)
2.6 TOR 6 Demonstrated capacity to fund activities on a sustainable basis, and evidence of sound administrative practices and use of financial resources

Data from the Research Office indicate that 94 projects have been successfully managed and completed through ILWS since 2010. Seventy three projects are currently underway, and another 13 are pending approval. Supporting and managing 180 projects in five years requires ILWS to have sound and effective administrative processes.

ILWS internal quality assurance system

Prior to submitting a grant proposal for an individual project, an appropriately skilled researcher (Project Manager) is identified together with a tailored Team for the duration of the project;

- The identified researcher develops the submission in collaboration with the ILWS Business Manager
- The proposal is submitted for approval to the Research Office
- Once approved, the proposal is lodged with the relevant funding body.

Within the project management system, procedures include:

Project management – These focus on budget control, invoicing, contract review, filing systems, project timing and critical timelines for key milestones, reporting and communication mechanisms, Team meetings to ensure consistency in approach and efficiency in task allocation and control of project deliverables including output revision control.

Quality assurance and deliverables sign-off – These focus on checking procedures and internal peer review mechanism for project deliverables prior to provision to the funding body, which ensure a consistent and high quality level of deliverables. Review and sign-off procedures include a minimum primary and secondary review by the lead researcher, and often, additional reviews (depending on the size and complexity of the project) by other members of the Institute.

Following the completion of each project, the final deliverables are stored electronically with a copy sent to the Research Office for record keeping.

ILWS administration guiding principles

- Compliance with overarching CSU administration processes
- Best practice administration
- Best practice project management (on time, on budget and to the agreed level of quality)
- Efficient and timely response to requests
- Customer and output focus
- Proactive business management
- Use of value for money principles (or Return on Investment)

The ILWS business processes support the work of the CSU Research Office, through managing and coordinating the entire grant application process (including the compilation of Notice to Submit (NTSs) and Budget Approval Forms (BAFs)) and submissions to funding bodies. Specifically ILWS leads the development of budgets and relevant charges, including personnel, whilst ensuring that salary increases and CPI changes are factored in long-term projects costing. In recent year, and after discussion with the DVC-R, ILWS has implemented a cost recovery levy on all allowable grants which can then be reinvested in the ILWS operations, to further support research development and assist with potential cash contributions required to secure internal and external funding applications.
The ILWS Business Team operates under the CSU-wide travel, procurement, human resources, risk management finance policies and procedures. ILWS expertise in, for example, Research Master enables concurrent monitoring of all ILWS research projects, with all contracting documentation, milestone, deliverables, budgets and actual expenditure available online. Banner finance feeds directly into Research Master, allowing the ILWS Business Team to track financial progress in ‘real time’.

The ILWS Business Team also handles the majority of project management and monitoring tasks for all ILWS managed projects, including raising travel plans and acquittals, as well as the casual contracts and academic / general staff appointment processes, contract variations for existing projects, purchasing of project related equipment and general project monitoring and contract management tasks.

The ILWS Business manager works in close cooperation with the Research Office, which is responsible for the coordination of all contractual arrangements with funding bodies, including execution of project agreements, and provides advice in relation to the generation of invoices to ensure that the relevant tasks have been completed in accordance with contracts.

The ILWS Business Team contributes significantly to supporting the CSU wide reporting process to government, including the ERA and HERDC processes. The Team was involved in both the input of publications into Research Master (on behalf of researchers) and the verification and attribution process of Field of Research codes.

In the period under review the ILWS Business Team has created an atmosphere of confidence where members can trust that they will be supported in the grant development process, especially when large initiatives are considered. The ILWS Business Team handles all business and non-research related matters through the

“Just wanted to let you know that I found the process for providing feedback on ARC Discovery grants this round to be timely, useful and collegial, with particular thanks due to three people—Mary Kelly, Gary Luck and Nikki Scott. Lastly, Nikki Scott went above and beyond her role as business manager for ILWS, going through my budget and budget justification with a fine-tooth comb. The resultant budget was larger, better justified, more internally consistent and organized in a far more accessible way… So, many thanks for everything you and the Research Office has done to improve the internal review process—I’m confident it will lead to greater National competitive grant successes for CSU.”
entire business development process including risk management, safety management, quality management and all aspects of finances, budgeting and cost control.

The ILWS Team has a strong track record in successfully providing such support. For example, the ILWS business manager developed the budget documents for the Edward Wakool and Murrumbidgee Long Term Intervention projects, and its subsequently revised iterations, as well as writing the required Safety Management, Risk Management and Quality Management plans for both projects, as part of the overall Monitoring Environmental Plans (MEP).

Hi Nikki, Simone, Margrit and Robyn,
I just wanted to congratulate you on organising such a successful showcase. It was an excellent opportunity to present our work and I think everyone really enjoyed it and found it very valuable. Thanks again.

Hi All,
I just wanted to thank you all for a great event on Wednesday. I have had many reports from people within and outside of CSU that they enjoyed it and thought that the event and catering etc was wonderful. I know that Nicole, Rick and I really appreciated the work you all put into the launch.

Hi Debra,
I just wanted to thank you sincerely for the payment of my invoice... I truly wasn't expecting the payment so quickly but can't express enough how appreciative I am that the payment has gone through so fast. So just a quick email to again thank you for your kind response and assistance with this matter.

Wonderful! Thanks so much Krissy. You are simply the best - thank you for being so quick and efficient, you are just wonderful and have made this so easy.

Dear Debra,
Thank you so much for having organised this thing in such a wonderful and efficient way. When things are done with passion and the heart the result is evident.

Hello [Kris]
Accommodation is booked for the two nights. Big Big thankyou for organising my Promaster. Seriously that place would grind to a noisy halt if you weren't there. Your the best :)
The ILWS Business Team excels in solving problems, focusing on continuous improvement and providing a high level of support to both internal and external stakeholders. Members are able to bring problems for us to solve and seek advice on how to best address administration, contract and project management issues. Having to deal with short deadlines and changing priorities, has carved a strong ability for the Team to work well under pressure. The Team likes to think outside the box and is always seeking new and innovative ways to approach challenges.

The ILWS Business Team is focused on identifying new external opportunities for research funding and monitors a number of tender websites in that respect including:

- Research professional (all available research funding)
- NSW eTendering (NSW Government opportunities)
- AusTender (Australian Government opportunities)
- NRM jobs

The ILWS Business Team regularly investigates participation on preferred supplier lists and has coordinated several submissions to that extent, including:

- Environmental Research and Analysis Panel 2014 (Australia Government)
- NSW pre-qualification scheme (in preparation)
3. ILWS into the future

The evidence presented in Section 2 to address the Terms of Reference demonstrates that ILWS facilitates the production of high quality research outputs that achieve useful and meaningful outcomes. ILWS research has real and positive influence at local, regional, national and global scales. Section 2 has suggested that ILWS is successful because its structure is supportive, flexible, proactive, influential, respected and engaging. This concluding section considers how the ILWS operational model will encourage and facilitate excellent research into the future.

After 10 years of consolidation and promotion ILWS has the capacity and the community profile to have substantial influence on local, regional, Murray-Darling Basin and National policy regarding rural communities and their environmental resources. By developing workable institutional arrangements for systemic multi disciplinary research ILWS is five to ten years ‘ahead’ of many other Australian research establishments, and in an excellent position to respond to the call for integrated, multi and transdisciplinary research. This call comes not just from the current Australian Government, but increasingly from global Institutions such as the World Health Organization, and the Intergovernmental Panel on Climate Change. Leading academics also emphasise the need to change how research is approached. For example, Shepherd, et al. (2015), in a key article in the journal Nature, suggest expert knowledge should be integrated in a framework that accepts uncertainty and complexity if sustainable outcomes are to be achieved in research and policy making.

The geographic span of ILWS researchers facilitates a knowledge brokering and sharing role for ILWS, particularly within the Murray-Darling Basin, as researchers can continue to replicate what is learned in one local area to others. In this capacity ILWS is an important element in the creation and maintenance of CSU’s regional presence as University of the land and its people.

The past performance of ILWS, and its future trajectory, suggest its researchers and research output are and will be major contributors to the current CSU Research Narrative profile that includes ‘agriculture, land and water, ethical care for the environment, its flora and fauna, and sustainable use of the resources it provides to nourish communities that are dependent on it locally, nationally and internationally’. ILWS research also contributes, and will contribute more, to the developing CSU profiles of sustaining resilient healthy communities beyond urban areas, regional development, cultivation of a civic and just society and Indigenous partnering and support.

The immediate future activities of ILWS are suggested in the rolling Strategy, and will further consolidate the focus on transdisciplinary outputs and outcomes at the SRA and ILWS scale while continuing to support individual discipline expertise. ILWS will work closely with the Research Office and other internal and external support structures to ensure this structure remains strong and workable. An institutional issue for early review is the role and best use of the external advisory process to ILWS. It is vital that ILWS take advantage of expertise offered by external partners, and the current Advisory Board process, while useful, may be improved.

Consolidation of purpose will not mean stagnation of approach or outputs; rather the structure encourages growth and responsiveness. For example, the establishment of the new Port Macquarie campus offers new opportunities and areas of research for ILWS, in particular research focussed on coastal environments and communities. Aquaculture, coastal recreation and tourism are avenues for exploration. Strong links have already been established with local businesses and organisations with interest in undertaking collaborative
projects with ILWS researchers based on the new campus. Potential collaborators include the NSW Department of Fisheries, The Observatory Hotel, The Chimney’s Sustainable Community Development and Point Plomer ecotourism development/CSU field studies centre). Further opportunities for research and partnership in the Port Macquarie area will be explored through the existing links that ILWS has with the Sustainable Economic Growth for Regional Australia (SEGRA) Foundation, particularly through CSU’s hosting of the SEGRA conference in Bathurst October 2015. Expanding research linkages supports both the expanding Port Macquarie campus, and the developing CSU Research Narrative profile of regional development.

Contributing to the research goals of CSU into the future remains the foundation of ILWS research. In addition to seeking new opportunities such as those provided by the new CSU campus, ILWS will build on large existing partnerships such as those with ACIAR, The Commonwealth Environmental Water Office projects and the numerous ARC Linkage and Discovery Grant projects currently underway. Smaller projects and partnerships will be nurtured, and researchers provided with assistance to build larger projects from the success of the smaller ones. The ILWS mentoring and personal development program for Early Career and Research Higher Degree Students, revised and renewed in 2015, is one mechanism for assisting the development of small projects into larger, highly influential research.

Over the next five years there will be greater emphasis on Cross Centre research within CSU. ILWS has had successful partnerships with other Centres, and is a currently developing a Distributive Justice and Water project with CAPPE, a food security project with the Graham Centre and Faculty of Science, a Forensic Environmental Investigation project with the Faculty of Arts, and a project on Indicators for Sustainability project with Graham Centre adjuncts. Further opportunities are being developed as intra-CSU collaboration is proving a mechanism for increasing research benefits and making the best use of CSU resources.

Researchers from ILWS will also expand into areas that are not currently considered as expert areas for ILWS, but which have strong societal imperatives for action. Conflict in communities over various resource issues is a clear area where ILWS can expand its influence. ILWS is one of the few research establishments that clearly combines social, economic and biophysical research expertise. Conflicts over water use in the Murray-Darling Basin and coal seam gas mining in rural landscapes are obvious areas where ILWS expertise will be helpful, but researchers may also make contributions to issues of rural town decline and fragmentation, fly-in fly out operations and the combined social, economic and environmental impacts of climate change in rural areas. In this respect ILWS is both innovative and adventurous by working within assured pathways and serendipitously.

In conclusion, the Institute for Land, Water and Society has become increasing recognised as a research establishment of excellence and integrity, both in Australia and internationally. The ILWS focus on facilitating systemic research that integrates social, biophysical and economic research positions it as a ‘go to’ institute to address the complex issues that arise when managing social-ecological systems. The ILWS institutional structure is supportive, but flexible, enabling ILWS researchers to look to the future and expand their influence for the benefit of their communities and Charles Sturt University. In doing this we have fostered an attitude that we work for CSU and for our communities, and are proud of our university as we seek to extend and improve its research profile and impact.
4. References


Appendix 1
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<thead>
<tr>
<th>GOALS &amp; OBJECTIVES - ILWS</th>
<th>ACTIVITIES - ILWS (what we do)</th>
<th>ACTIVITIES - CSU (what we do)</th>
<th>OUTPUTS - CSU (what we deliver)</th>
<th>OUTCOMES (what difference we make)</th>
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<tr>
<td>To be an internationally recognised provider of integrated quality research that contributes to enhanced biophysical, social, economic and cultural sustainability in rural and regional areas, in Australia and overseas. To become a recognised leading research centre, in areas relevant to our communities, with an annual turnover of $5 million by 2020. To become a preferred provider for research that integrates biophysical, economic, social, cultural and biophysical disciplines, with success in significantly informing our community of interest, the profession, governments and others. To recognize for our unique ability to bring social, economic, cultural and biophysical sciences together to address issues relating to sustainable communities and landscapes.</td>
<td>1. Align ILWS research themes with narrative in line with existing and emerging strengths (e.g. resilient communities). 2. Enhance the scale and focus of ILWS research priorities in the National Research Priorities area relevant to ILWS (Food, Soil &amp; Water, Resources, Environmental Change). 3. Develop emerging research themes in line with National Research Priorities and CSU Research Narrative (e.g. Regional Development). 4. Investigate and capitalise on the research opportunities provided by the 'Australia in the Asian Century' white paper for research that integrates biophysical, economic, social and cultural disciplines, with specific focus on large initiatives.</td>
<td>1. Approve narrative. 2. Implement internal/external communication plan. 3. Engage strategically with relevant industry groups and agencies.</td>
<td>OP1.1 Research themes and existing and emerging strengths embedded into practice.</td>
<td>OC1 Improved research output, impact and productivity focussed on issues relevant to our community and strengths.</td>
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<td>5. Finalise and implement ILWS Stakeholder Engagement Plan to position ILWS as a major player in integrated research covering environmental, social and economic fields externally and as a centre that facilitates business development internally; ILWS is one of the adaptable engine rooms to deliver on the CSU strategy and on outcomes to our community of interest at the regional, national and international levels. 6. Build and leverage on existing relationships and projects (e.g. with CEWO, LLSs, CMAs and ACIAR) to secure new project funding with specific focus on large initiatives. 7. Actively visit funding bodies to promote ILWS capability in particular integrated research. 8. Actively engage with our local communities (e.g. local councils) and industries to develop collaborative initiatives that serve their needs. 9. Where gaps in expertise exist within ILWS, continue to develop enduring partnerships with other agencies and institutions. 10. Support CSU in the various external compliance processes such as ERA and HERDC.</td>
<td>1. Engage with the office of DVC-R to provide relevant information in relation to Centres Review. 2. Coordinate and provide a submission to the review on behalf of ILWS. 3. Establish a forum with Deans, Sub-Dean research and Centre Directors to coordinate research activities within CSU and across faculties and centres. 4. Work collaboratively with schools and faculties when hiring new faculty staff to ensure that potential research gaps are addressed. 5. Assist other centres through transfer knowledge in particular in the area of large initiative coordination, business development, social media and project management.</td>
<td>1. Complete Centres review in 2015. 2. Engage with Faculties to consider how to build critical mass that supports OP1.1.</td>
<td>OP1.2 Research Centres and Faculties aligned to support OP1.1.</td>
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<td></td>
<td>1. Quarantine at least 25% of ILWS annual operating budget (excluding RCFs) as leverage fund to support the development of large initiatives. 2. Continue to support members through budget allocations to members support funds, Director’s fund and training / mentoring programs. 3. Continue to recover infrastructure costs through project administration levies whenever allowable by funding rules and conditions of grant. 4. Develop an ILWS Financial Strategy to reduce reliance on central funds allocations for ILWS activities and initiatives. 5. Further allocate funding to members and initiatives on a competitive basis using value for money criteria. 6. Re-invest recovered funds as further leverage for large initiatives where potential returned income to CSU is high (e.g. Category 1 funding). 7. Foster and support large initiatives through additional support and resources to encourage researchers to consider large initiatives where CSU is the lead organisation.</td>
<td>1. Introduce leverage funding in 2015. 2. Introduce reward funding in 2016.</td>
<td>OP1.3 Funding mechanism aligned to support OP1.1.</td>
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<td></td>
<td>1. Invest recovered funds as further leverage for large initiatives where potential returned income to CSU is high (e.g. Category 1 funding).</td>
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while using researchers leading large projects to champion the concept

8. Investigate alternate operating models to facilitate an increase in annual turnover including other commercial research organisations e.g. Sydney Institute of Marine Science and Water Research Laboratory

1. Build future capacity through collaboration with members, schools and faculties to develop to further develop the ILWS mentoring program for HDRs and ECRs
2. Continue to support and encourage members to take leadership roles in developing large initiatives
3. Continue to coordinate Grant submission process including budgeting and other business aspects
4. Assist in ‘brokering’ research teams for large initiatives
5. Continue to support researchers in all administrative, project and contract management areas including budgeting and forecasting, as well as communications and promotional activities
6. Contribute to policy making and management decisions through further developing capacity and mentoring in providing policy linked research that will assist communities and governments as well as facilitating attendance to think tanks and round tables
7. Investigate acquisition of research income in complimentary disciplines through targeting productive researchers outside the university with existing and strong potential research activity
8. Attract researchers with strong track records in attracting research income or policy outcomes, whilst not solely relying on publication records
9. Encourage innovative thinking and approaches and build capacity within the research community (as an additional medium to increase research outputs) to strive to world class approaches and technology
10. Clearly communicate the contributions of research income, publications and student completion to maximise the income returned to CSU as Block Grants
11. Investigate the establishment of a centre of excellence in a relevant research area, of such reputation in the wider community of interest that it will serve as a point of interaction amongst other higher education institutions, governments, industries, private sector and the wider community

- Implement research active model
- Develop plan to increase research activity
- Implement the plan
- Align EDRS with the goal of increasing research activity

| OP1.4 Increased percentage of research active staff. |
1. Leverage on existing projects to establish collaborative partnerships with indigenous groups through the integration of indigenous values and traditional scientific methods in monitoring programs.
2. Use existing project links to establish partnerships in other disciplines such as historical ecology.
3. Leverage on existing social science projects to further develop collaboration with local indigenous groups.
4. Further develop the emerging strategic research area 'Historical Ecology' to provide a comprehensive knowledge of people's interactions with the environment and address present and future issues sustainable farming and landscape management.
5. Consider collaborations with overseas indigenous groups (e.g. USA, Mexico) who are keen to collaborate on the type of initiatives being considered in Australia.

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<td>1.</td>
<td>Leverage on existing projects to establish collaborative partnerships with indigenous groups through the integration of indigenous values and traditional scientific methods in monitoring programs.</td>
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<td>2.</td>
<td>Use existing project links to establish partnerships in other disciplines such as historical ecology.</td>
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<td>Leverage on existing social science projects to further develop collaboration with local indigenous groups.</td>
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<td>5.</td>
<td>Consider collaborations with overseas indigenous groups (e.g. USA, Mexico) who are keen to collaborate on the type of initiatives being considered in Australia.</td>
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</table>

- Engage with Indigenous Communities through the Office of the PVC Indigenous Education.
- Establish Indigenous Community collaborative projects.
- Implement Empowerment Model.
- Identify opportunities for Indigenous participation in Research.
- Select target opportunities.
- Take action.

**OP2.1** Specific needs of Indigenous communities are accounted for in indigenous focused research.

**OP2.2** Increased number of indigenous people contributing to research (Research active staff, HDR students and Honours students).

**OC2** Establish the foundations for successful Indigenous research.
Appendix 2
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<tr>
<th>Members</th>
<th>Awards</th>
<th>Keynote Addresses</th>
<th>External Appointments &amp; Memberships</th>
<th>Editorial Positions</th>
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<tbody>
<tr>
<td>Prof Max Finlayson (Director)</td>
<td></td>
<td>Analysis of ecosystem services in pulse-flooded wetlands in northern Australia. Flood Pulsed Wetlands, Maun, Botswana, February 1-5, 2010. (Co-author Rudolf de Groot)</td>
<td>&quot;Wetlands and Climate Change&quot; theme leader on the Scientific and Technical Review Panel, Ramsar Convention on Wetlands; Ramsar Chair for the Wise Use of Wetlands, UNESCO-IHE, Institute for Water Education, Delft, The Netherlands; Visiting Research Professor, Institute for Wetland Research, Chinese Academy of Forestry, Beijing, China; IUCN Commission for Ecosystem Management (member); International Crane Foundation (Member of Board of Advisors); Sydney Olympic Park Authority, Wetland Education and Training (WET) (panel member); The Winton Wetlands Management Committee’s Environmental Strategy Advisory Panel (chair); The Society for Wetland Scientists, Oceania (Past President);</td>
<td>Journal Marine &amp; Freshwater Research (Editor-in-Chief); Encyclopaedia of Wetlands (General Editor) published by Springer Publishers</td>
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<td>Members</td>
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<tr>
<td>Dr Catherine Allan</td>
<td></td>
<td></td>
<td>Albury Conservation Company</td>
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<tr>
<td>Members</td>
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<td></td>
<td></td>
<td></td>
<td>(board member)</td>
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<tr>
<td><strong>A/Prof Rosemary Black</strong></td>
<td></td>
<td></td>
<td>NSW National Parks &amp; Wildlife Service, Southern Ranges Regional Advisory Committee, (Ministerial appointment); Global Sustainable Tourism Council Education and Training Working Group (member); Guiding Organisations of Australia (GOA) (Interpretation Australia representative); IUCN Commission on Protected Areas Tourism and Protected Area Specialist Group (member); Ecotourism Industry Reference Group, Yeppoon High School, QLD (former member); IUCN Commission on Education and Communication (former member)</td>
<td>Journal of Ecotourism (Editorial Board Member); Journal of Interpretation Research (Editorial Board Member)</td>
</tr>
<tr>
<td><strong>Prof Kathleen Bowmer (Adjunct)</strong></td>
<td>Featured in the book Fitzpatrick, J. (2012) <em>Heroes of</em></td>
<td></td>
<td>Australian Research Council (international peer reviewer );</td>
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<tr>
<td>Members</td>
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<td></td>
<td>Australian Science published by Macmillan Education Australia</td>
<td></td>
<td>Qatar National Research Fund (international peer reviewer); CSIRO Land and Water (Honorary Research Fellow)</td>
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<tr>
<td>Dr Colin Boylan</td>
<td></td>
<td></td>
<td>Society for the Provision of Education (Executive Board of Management member); International Advisory Panel for Centre for Excellence for Children and Adolescents with Special Needs (Executive Board of Management member); Office of the Board of Studies for New South Wales’ Higher School Certificate Examination Committee in Senior Science (past member)</td>
<td>Teaching Science; Education in Rural Australia (Editorial Panel member); Journal of Research in Rural Education (Editorial Panel Member)</td>
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<tr>
<td>Dr Andrea Crampton</td>
<td></td>
<td></td>
<td></td>
<td>Rural Society (Associate Editor)</td>
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<tr>
<td>Prof Allan Curtis</td>
<td>2014, Eric Anderson award from the Environment Institute of Australia and New Zealand for the “best paper published”</td>
<td>Water Reform and Climate Change, Australian Meteorological &amp; Oceanographic Society’s</td>
<td></td>
<td>Australasian Journal of Environmental Management (Editorial Panel)</td>
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<td>A/Prof Ian Gray (Adjunct)</td>
<td>in the Australasian Journal of Environmental Management (AJEM) in 2014</td>
<td>public lecture/forum: CSIRO Discovery Centre, Canberra, August 19, 2013.</td>
<td>Lachlan Regional Transport Committee (member)</td>
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<tr>
<td>A/Prof Jonathon Howard</td>
<td></td>
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<td>NSW Nature Conservation Trust (former board of directors member)</td>
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<tr>
<td>Dr Val Ingham</td>
<td></td>
<td></td>
<td>NSW-ACT PEN (Promoting Excellence Network) funded by the Office of Learning and Teaching (OLT) (CSU representative)</td>
<td>Salus Journal (Associate Editor); Australian Journal of Emergency Management (Peer Reviewer); International Journal of the Arts in Society (Peer Reviewer); International Journal of Interdisciplinary Social Sciences (Peer Reviewer)</td>
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<tr>
<td>Prof Gary Luck</td>
<td></td>
<td></td>
<td>Ecological Society of Australia (Council member); Parks Victoria Research Partners</td>
<td>Ecological Management and Restoration (Chair of the Editorial Board);</td>
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<tr>
<td>Richard Lyon (adjunct)</td>
<td>D.L. Serventy Medal (for outstanding published work on birds in the Australasian region) at the BirdLife Australia Congress at Portland, Victoria in October 4-5, 2014</td>
<td>From science to inspiration: 10 tips to promote ecological literacy and successful conservation in our communities, 6th Biodiversity Across the Borders Conference 2015, Federation University, Ballarat, June 12, 2015</td>
<td>Panel (University representative)</td>
<td>Faculty 1000 Research (Editorial Board Member); ISRN Ecology (Editorial Board Member); Nature Conservation Journal (Editorial Advisory Board Member).</td>
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<tr>
<td>A/Prof Ian Lunt</td>
<td></td>
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<td></td>
<td>NSW &amp; Victorian River Red Gum Adaptive Management Science Advisory Committee for OEH NSW (member); Coastal Woodland Adaptive Experimental Management Program, Parks Victoria, Technical Advisory Group (member); Victorian Northern Plains Grasslands</td>
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<td><strong>Technical Advisory group (former member); Oolambeyan Biodiversity Group, MSW National Parks &amp; Wildlife Service (former member); Scientific and Technical Advisory group, Winton Wetlands (former member)</strong></td>
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<tr>
<td>Dr Melanie Massaro</td>
<td></td>
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<td>Australasian Seabird Group (Treasurer)</td>
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<td>Dr Joanne Millar</td>
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<td><strong>Action Works Nepal (not for profit community development) (Advisory Board member)</strong></td>
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<td>Prof David Mitchell (Adjunct)</td>
<td>2014 Member of the Order of Australia (AM) for his significant service to</td>
<td></td>
<td><strong>Lake Cowal Foundation (Board Member) and the Board’s representative on the Cowal Gold</strong></td>
<td><strong>International Journal of Agricultural Sustainability (Editorial Board member); Mountain Research and Development (International Editorial Board Member); Extension Farming Systems Journal (Editorial Board Member).</strong></td>
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<td></td>
<td>conservation and the environment, particularly wetland and water research</td>
<td>Project Community Environmental Monitoring and Consultative Committee; Environment Working Group of the Anglican Church of Australia (Chair).</td>
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<td>Dr Susan Mlcek</td>
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<td>CSU Indigenous Board of Studies (member)</td>
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<td>Prof Kevin Parton</td>
<td></td>
<td>An invited paper to the</td>
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<td>Australian Farm Business</td>
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<tr>
<td>Dr Digby Race (adjunct)</td>
<td></td>
<td>The Norman Wettenhall Foundation (former Board member)</td>
<td></td>
<td>Indian Journal of Social Work &amp; Social Sciences (Advisory Board Member); Social Development Issues (Consulting Editor).</td>
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<tr>
<td>Dr John Rafferty</td>
<td></td>
<td>Australian Campuses Towards Sustainability (ACTS) (Past Vice President)</td>
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<tr>
<td>Dr Angela Ragusa</td>
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<td></td>
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<td>Rural Society (editor-in-chief); Information Resource Management Journal (Editorial Review Board Member); Open Sociology Journal (Editorial Advisory Board Member); Open Communication Journal (Editorial Advisory Board Member).</td>
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<tr>
<td>A/Prof Peter Simmons</td>
<td></td>
<td>Challenges for communicators in future local government.</td>
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<tr>
<td>Dr Hazbo Skoko</td>
<td>Best Professor in Economics Award’ for excellence in leadership, education and teaching, at World Education Congress, Global Asia Award, Dubai, Sept 25, 2011</td>
<td>International Communication and Media Conference, University Utara, Malaysia, October 18-20, 2014</td>
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<tr>
<td>A/Prof Dirk Spennemann</td>
<td></td>
<td>Historic Preservation, Republic of the Marshall Islands (Special Advisor to the Advisory Council); The Historic Preservation Office, Republic of Palau (Technical Advisory Board Member)</td>
<td>Campus-wide Information Systems (associate editor); Disaster Advances (Editorial Board Member).</td>
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<tr>
<td>Dr Peter Spooner</td>
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<td>VicRoads inaugural Environment Conference, Slopes to Summit Partnership (regional hub of the Great Eastern</td>
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<tr>
<td>Dr Iain Taylor (Adjunct)</td>
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<td>March 25, 2015</td>
<td>Ranges Initiative) (Founding committee member); IENE (Infra Eco Network of Europe) (Australasian representative member), a network of experts working with various aspects of transportation, infrastructure and ecology; Ecological Society of Australia (ESA) (member); VicRoads and the NSW Roadside Environment Committee (advisor on roadside environmental management)</td>
<td>Fivebough and Tuckerbil Swamps Management Trust (board member)</td>
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<tr>
<td>Dr Rik Thwaites</td>
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<td>Indigo Shire Environmental Advisory Committee (member); Cape Otway Conservation Ecology Centre (board member)</td>
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<td>Dr Robert Tierney</td>
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<td>The New Country (Editorial Board Member);</td>
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<td>Dr Skye Wassens</td>
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<td>River Red Gum Adaptive</td>
<td><em>International Journal of Organizational Analysis (Editorial Board Member).</em></td>
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<td>Management Science Advisory</td>
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<td>Committee (member) (cross border</td>
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<td>NSW and Victoria), NSW OEH/DSE;</td>
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<td>Technical Advisory Panel (TAP)</td>
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<td>(member), BHP Billiton’s Litoria aurea</td>
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<td>Compensatory Habitat Program</td>
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<td>(CHP) as part of the Hunter River</td>
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<td>Remediation project;</td>
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<td>Murray Darling Basin NRM Board,</td>
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<td>South Australia (was an expert</td>
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<td>consultant for ‘identifying climate</td>
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<td>change adaptation strategies to</td>
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<td>inform wetland and floodplain</td>
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<td>management along the River Murray</td>
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<tr>
<td>Prof David Watson</td>
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<td>New South Wales scientific</td>
<td><em>Austral Ecology (Associate Editor).</em></td>
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<td>committee (member);</td>
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<tr>
<td>A/Prof Robyn Watts</td>
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<td>Technical Advisory Group (member) for the Great Western Woodlands Project (jointly managed by Birdlife Australia and the Nature Conservancy); The National Threatened Bird List Committee (member); Slopes to Summit Partnership (regional hub of the Great Eastern Ranges Initiative)( founding member and senior ecologist) ; Wirraminna Environmental Education Centre (member of the management committee); Birds Australia (now Birdlife Australia) (former councillor)</td>
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<td>Environmental Water Scientific Advisory Panel (member) for the Department of the Environment; Australian Society of Limnology (member),</td>
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<tr>
<td>A/Prof Ben Wilson</td>
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<td>Australian Ecological Society (member); International Society of River Science (member)</td>
<td>Journal of Natural Sciences Education (Past Associate Editor)</td>
</tr>
<tr>
<td>Luisa Perez-Mujica (PhD candidate)</td>
<td></td>
<td>Among the 30 RHD students world-wide selected to attend the 59th Meeting of the International Society for System Sciences, Berlin, Germany, August 2-7, 2015</td>
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<td>Saideepa Kumar (PhD candidate)</td>
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