

CHARLES STURT UNIVERSITY

Review of CSU Research Centres

Final Report

July 2011

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1.2 Abbreviations

ARC	The Australian Research Council, a statutory authority within the Innovation, Industry, Science and Research portfolio that manages the Nationally Competitive Grants Program as well as the ERA initiative
CAPPE	Centre for Applied Philosophy and Public Ethics
Cat 1	Category 1, or Nationally Competitive, (Research) Grants
Cat 2	Category 2, or other Public Sector research income
Cat 3	Category 3, or Industry and other research income
Cat 4	Category 4, or Cooperative Research Centre (CRC) income
CIH	Centre for Inland Health
CRiCS	Centre for Research in Complex Systems
CRGT	Centre for Research and Graduate Training
CRO	The CSU digital repository into which all publications reported to government are entered
CSU	Charles Sturt University
DIISR	Federal Government, Department of Innovation, Industry, Science and Research
DEEWR	Federal Government, Department of Education, Employment and Workplace Relations
EHG	The EH Graham Centre for Agricultural Innovation
ERA	Excellence in Research for Australia, the federal research assessment process undertaken by the ARC
HERDC	The Higher Education Research Data Collection, the process through which eligible research publications and external research income to the University for the previous year are reported to DIISR annually
ICW	International Centre of Water for Food security
ILWS	Institute for Land, Water and Society
PACT	Public and Contextual Theology
RIPPLE	Research Institute for Professional Practice, Learning and Education

2 Summary

This report is a Review of Research Centres currently at Charles Sturt University (CSU). The Review was commissioned by the Vice-Chancellor as part of the process for Centre re-accreditation and its Terms of Reference were approved by Academic Senate. The Review process was undertaken by a group of senior CSU staff plus an external representative.

The Review recommends that Research Centres continue as vehicles for research at the University.

The Review has found that there are a number of generic issues related to Centres that will need to be addressed in order to maximise their productivity and effectiveness into the future. There is some confusion about the roles of Centres and the extent to which they should represent all of CSU research versus areas of strategic interest and excellence. Processes such as how they are created, the level at which they are expected to perform, and the amount of funding they should receive are also areas where future clarification will serve to manage expectations of the University Community and serve to assist Centres in clarifying their membership and value. The roles of Centre Directors, outside their definition within the Academic Institutional Leadership Policy, are not well known, creating a lack of clarity in duties and professional development needs. The latter is particularly important in addressing succession planning. Membership of Centres appears to be broad and not particularly aligned to performance, and hence the benefit created through conferral of Centre membership is unclear.

Collectively the Centres claim a role in approximately 83% of CSU's external research income and are attributed with 58% of publications. The contribution of individual Centres to each of these metrics varied significantly, and it was particularly difficult to separate the roles of Centres and Schools in generating some income. The extent to which Centres have "value-added" to the research activities of their members more broadly is not easily discernable. Centres must provide a research focus and concentration that is recognisable both within and beyond the University. Their achievements should be more than the sum of their individual members, and act to boost high quality research activity. Collectively the current Centres benefit from an annual investment of around \$10 million (including Fellowships, key salaries and operational funding), and return approximately \$10 million annually. Clarity around their current and future operations linked to outcomes is therefore required. The Review examined data on the output of Centres, together with submissions from Centres, the University community and external referees. On the basis of this information, 24 recommendations for future action were made. In summary, these recommend the continuation of six of the existing Centres, that two are placed in alignment with Faculties and that one is discontinued with a view to future consideration of how that research area should be best represented at the University.

3 Recommendations

1. That Research Centres continue to be the structure within CSU for focussing research around areas of strength.
2. That the purpose, structure and link to the strategic direction of the University be clarified for all Research Centres, with consideration of creating a unified system within which all variants sit.
3. That the developmental trajectory and life cycle of a Research Centre, including establishment and dis-establishment processes be articulated, so they can be used to evaluate future applications for Centres.
4. That performance expectations and governance models for Centres be articulated and publicised.
5. That the funding mechanism for Research Centres be urgently revised to provide clear incentive for increased performance, transparency in their allocation, and to provide clear advice on the extent to which Centres are expected to become self-sustaining.
6. That future reconfiguration of CSU corporate systems provide the capacity to record both School/Faculty and Research Centre affiliations of staff, so that both groups are acknowledged and able to work together towards success. Particular attention should be paid to how external income associated with Research Centres can be readily identified within CSU systems.
7. That Centres work to clarify their membership basis, including the articulation of the criteria on which membership (including any categories of affiliate membership or student membership) is awarded to individuals, as well as what expectations and privileges accrue from membership.
8. That the position of Research Centre Director be clarified in line with the Academic Institutional Leadership Policy and broadly communicated within CSU, so that the role, duties, line-management and expectations can be managed in line with University objectives, and conditions between Directors rendered transparent.
9. That the type of professional development that would be appropriate for Research Centre Directors be clarified.
10. That succession plans for Research Centre Directors be considered within the context of organisational continuity.
11. That CSU continue to participate in CAPPE, and also continue to monitor the cost-benefit of this association into the future.
12. That CRiCS be placed under the governance of a Faculty from 2012, to enable governance support and alignment of activities with future Faculty functions.
13. That PACT continue as a Research Centre of the University.
14. That the NWGIC continue as a Research Centre of the University.

15. That researchers in the NWGIC be urged to seek external funding in order to broaden the income base of the Centre.
16. That RIPPLE continue as a Research Centre of the University.
17. That consideration be given to recruitment of key senior researchers in RIPPLE.
18. That the Centre for Inland Health be placed within a Faculty from 2012, to enable governance support and alignment of activities with future faculty functions.
19. That ILWS continue as a University Research Centre.
20. That the membership base and the complexity of ILWS be reviewed to promote the best balance between clarity of focus, a manageable membership base, and performance outcomes.
21. That the E. H. Graham Centre for Agricultural Innovation continue as a Research Centre of the University.
22. That the membership base of the E. H. Graham Centre be reviewed with an emphasis on performance.
23. That the administrative support roles of the E. H. Graham Centre be clarified.
24. That ICWater be discontinued as a Research Centre of the University after 2011 and consideration be given to how water research should be continued and represented at the University.

4 Background and context to the Review

4.1 Purpose of the Review

Centres and Institutes are a common structure invoked by Universities for focussing and projecting their research strengths. They provide a recognisable label for externally projecting an area of expertise and in internal label associated with a high level of accomplishment. Their operations are mostly via a matrix structure of management sitting across academic areas (Schools or Faculties). Charles Sturt University (CSU) has nine research centres at present, representing a mix of strategic external partnering, research excellence, and institutional positioning. They were developed from 2007 for a five year period until the end of 2011. They represent a considerable annual investment and constitute a major part of the public face of CSU research. The subject of this review was to understand if Centres remain the most appropriate structure for research foci at CSU and the extent to which current Research Centres adequately reflect and project the needs and performance of CSU. The outcomes of this Review will be used to inform the Senior Executive of the University on ways forward in research, to examine historical performance in research by each of the existing Centres, and to make recommendations about future structures, function, focus and continuation.

It is important to highlight that the recommendations of the Review contained in this report will describe future areas of action, including policy, procedures, structures and roles. They will not in themselves present the detail required in those areas of action, since collegiate input from the University community will in many cases be required to develop documentation. The report should therefore be seen as a guiding document that brings together a variety of information about the broader research environment that can assist in making decisions about the future direction of research at CSU.

4.2 Process of the Review

After a process of consultation with key University groups including Research Centre Directors, Heads of School, Deans, and members of the Research Management Committee, Terms of Reference for the Review (Appendix 1) were finalised and approved by Academic Senate.

A Review Panel was constituted with the following membership:

- Professor Sue Thomas (Deputy Vice-Chancellor, Research) (Chair)
- Associate Professor Andrea Bishop (Director, Research)
- Professor Mark Farrell (Associate Dean Research, Faculty of Arts, Professorial nominee of Academic Senate, not a Centre member)
- Professor Jane Goodman-Delahunty (Professor, not a Centre member)
- Professor Joseph Lai (Associate Dean Research, University of New South Wales at ADFA)
- Jason Levett, University ERA Officer, provided minutes support to the Review Panel.

This panel membership provided a combination of long-term CSU history, short-term CSU history and external input.

Research Centres were asked to confirm a list of members and the following attributed data from audited University records was provided back to them, as well as to the Centres Review Panel:

- HERDC publications 2007-9
- HERDC income 2007-9
- Applications for external grants lodged in CRGT records.

Members of the University, including Research Centres and Schools, were then invited to provide written submissions to the Review.

Concurrently, Centres were also asked to nominate two external individuals of national or international standing from whom references could be sought by the Deputy Vice-Chancellor Research, and a third referee of national standing was nominated for each Centre by the Deputy Vice-Chancellor Research. Noting the large volume of material provided, and the inherent sensitivity of content which led to some reviewers asking that their references be kept confidential, details of reviewers and references have been kept confidential to the Review Panel.

It is important to note that these processes resulted in several hundred pages of complex information and data that formed the basis of the Review, including:

- pivot tables of audited internal data on Centre Research outcomes
- submissions by Centres
- submissions from the University community
- external references.

This Report represents a summary of the information presented to the Review Panel and a list of their recommendations for future action.

5 The Research Centres being Reviewed

The Research Centres at Charles Sturt University were created from 2007 and funded for a five year period until the end of 2011. They were designed to create foci around areas of traditional strength and some newer interests so that the University would collectively achieve greater outcomes. Membership was implied to bestow advantage to research-active staff associated with Centres. Two types of Centres were created. The first group, called Centres of Research Excellence, were to be identified based on:

- Co-investment by external agencies
- The excellent track record of their substantial membership
- Their international competitiveness and strong links with a range of state and national agencies
- Their capacity to fund some of their own activities on a sustainable basis.

The second group, Strategic Research Centres, were composed of two categories, described as Tier 1 and Tier 2:

- Those who had developed a national competitive research track record, and
- Those who had potential to be nationally competitive.

The Strategic Research Centres were to be identified based on:

- Their inclusion of a core of members who attracted nationally competitive grants or internal funding, and who published predominantly in national journals
- Nationally competitive achievement, or potential, in securing research income and creating quality publications
- Links with national agencies
- Demonstrated capacity to develop into a Centre of Research Excellence.

The nine Research centres that are the subject of this Review are:

Centre of Excellence:

- The Centre for Applied Philosophy & Public Ethics (a consortium of CSU, The Australian National University and the University of Melbourne) (CAPPE)
- The E. H. Graham Centre for Agricultural Innovation (a partnership with Industry & Investment NSW) (EHG)
- The Institute for Land, Water and Society (ILWS)
- Research into Professional Practice, Learning and Education (RIPPLE).

Strategic Research Centres:

- The National Wine and Grape Industry Centre (a partnership with Industry & investment NSW and the NSW Wine Industry Association) (NWGIC)
- Public and Contextual Theology (PACT)
- The Centre for Inland Health (CIH)
- The Centre for Research in Complex Systems (CRiCS)
- International Centre of Water for Food Security (ICW)

It should be noted that this Review does not include the Centre of Excellence in Policing and Security, in which CSU is a participant.

6 General findings of the Review

6.1 What do Centres do and are they the most appropriate structure?

The issues of performance and appropriateness of the existing Research Centres at CSU should firstly be separated from the broader issue of whether or not Centres are the most appropriate structure for focussing areas of research strength at CSU. The Review Panel was of the view that Centres continue to be the most common structure within Australian universities for focussing areas of research strength. They are referred to by some different names in different institutions, e.g Areas of Research Strength (Flinders), but mostly as Institutes or Centres (Monash, Adelaide, Victoria, Southern Queensland, South Australia, La Trobe and Australian National University, to name a few). Similar structures are also reflected in some, but not all, tertiary institutes abroad (such as Auckland, Singapore and Stanford). Their structures and governance vary, and they have arrangements ranging from the comparatively informal and simple to the formal and complex. The uniting theme about them, however, is that they are designed to act as vehicles for the creation of communities of scholars across the disciplines and have the capacity to mentor early career researchers and doctoral

students in an environment with a strong research culture. From a practical point of view, however, they must enable their parent organisation to achieve something that would not be achieved in their absence. The considerable costs associated with servicing the administrative needs of Centres could otherwise be put more directly into researcher support. The questions with regard to Research Centres at CSU were therefore:

- 1.) Whether the structure remains appropriate
- 2.) If so, where the Centres should be embedded in the organisational structure
- 3.) What the governance model should be and what performance outcomes are appropriate.

The Review Panel recommends that Centres remain the appropriate structure at CSU. Some of the existing Centres (such as the E. H. Graham Centre and the National Wine and Grape Industry Centre) represent formal relationships between the University and external entities that could be negatively impacted in the event that Centres were discontinued.

The Review found that there appears to be a general lack of understanding by the University community about the purpose, structure and function of Research Centres. Centres were set up for different purposes under the same title: some for their research excellence, others for their link to external partners, or for their aspirational link to the University mission. While all these functions have clear value, the two tier system describing the intended differences between Centres is not well understood by staff, not well articulated in CSU policy, or reflective of the ways in which Centres function. The position of Centres at different stages of development and success should be clearly described in the future. There also appears to be a misconception that there should be Centres in place to cover all of the research interests of the University, rather than only in areas of particular strategic interest or areas with a track record of excellence.

Recommendations

- 1. That Research Centres continue to be the structure within CSU for focussing research around areas of strength.*
- 2. That the purpose, structure and link to the strategic direction of the University be clarified for all Research Centres, with consideration of creating a unified system within which all variants sit.*

6.2 How and why are Centres created?

The Review also found that there appears to be a lack of understanding about how Centres were selected to come into being, what the level of existing track record and future performance expectations are, and therefore what criteria will be used to evaluate other groups aspiring to Centre status. This has led to a range of competitive tensions and rivalries that have not always been productive. There are several groups in the University who are keen to acquire Centre status, though the optimal number of Centres and the extent to which the Centres structure should reflect all of CSU's research profile has not been articulated. Centres are sometimes seen primarily as a vehicle for receipt of additional funding rather than an acknowledgement of accomplishment that brings with it higher pressure around an expectation for future performance. As at 2010/2011 there are nine Centres at a time when total reported external research income of the University is around \$12 million. Some Centres are quite broadly based with large memberships, whereas others are much

smaller and more narrowly focussed. The governance models for the existing Centres appear to vary. There is also overlap in focus between some Centres, particularly those within the sciences. The Panel was of the view that Centre status should be a special accolade for highly performing groups, and that therefore the number of Centres at the University should be relatively few.

Recommendations

3. *That the developmental trajectory and life cycle of a Research Centre, including establishment and dis-establishment processes be articulated, so they can be used to evaluate future applications for Centres.*
4. *That performance expectations and governance models for Centres be articulated and publicised.*

6.3 How are Research Centres funded?

Centres have historically been funded via a central budget allocation that recognised an operating allocation (reflecting either tier status or external contractual agreements) plus a small performance component acknowledging external income and publication quality. Some administrative support salary components in some Centres were also directly funded. Collectively this has amounted to approximately \$3 million cash annually, plus (variably from VC, DVCR and Faculties) Director salaries, Research Centre Fellowships (reflecting either membership numbers or tier status), Strategic Professorial salaries, and PhD scholarship stipends, to a grand total in excess of \$10 million per annum. All of the Centres are dependent on this funding to function, none are financially sustainable in their own right, and it appears that total monetary investment to this point in time has exceeded total return. The appearance of new Centres would therefore increase pressure on splitting the same source of funding across more units, and yet some internal submissions to this Review queried whether current Centre operations simply increased bureaucracy at the expense of investing in more research. The Review Panel, drawing on external sectoral experience, viewed the current level of funding for Centres at CSU as being generous in comparison to some of CSU's competitors, where performance is judged in part by capacity to raise resources to support continued operating costs. It was noted that at The University of New South Wales, for example, Faculties contribute to Centres based on a business plan moving towards self-sufficiency in five years, starting with seed funding and co-investment. At the University of Canberra, the threshold in external income required before Centre status will be considered for a new group is \$1 million per annum. The Review Panel therefore recommends that future funding strategies for Research Centres at CSU articulate the desired balance between centralised internal funding allocations versus incentives to raise revenue that directly supports operations of centres. The strategy of focussing research into current or new Centres should constantly be balanced against their value-add. In order to engage a more entrepreneurial base within Centres, a longer term funding window, with annual review, might be preferable to the current annual method of budgeting.

Recommendation

- 5. That the funding mechanism for Research Centres be urgently revised to provide clear incentive for increased performance, transparency in their allocation, and to provide clear advice on the extent to which Centres are expected to become self-sustaining.*

6.4 Relationships between Centres and Faculties

Historically there were tensions between Faculties and Research Centres that did not promote a single University approach to increased research performance. This is changing but needs to be a part of ongoing effort. Part of the basis of the historical tensions were about where research successes were attributed that led to the award of internal performance-based funding. Previous formats for recording the successful research activities of CSU staff in CSU corporate systems (including those of Finance, CRGT and CRO) provided only a single option for attribution to School/Faculty or Research Centre. This resulted in the situation where attribution of a research output to a Research Centre by a staff member of a School resulted in an apparent parallel loss of performance by the School. While this approach decreased the risk of including duplicates that might have inflated data within external compliance reports, it gave a difficult message to Heads of School about promoting and rewarding research achievement in their areas.

In similar fashion however, it is not the intent that all publications, contracts and grants by a staff member be automatically claimed by a Research Centre unless there is a solid link to the focus and mission of the Centre. Even publications produced as a result of Research Centre Fellowships, for example, have been supported by the Centre for the duration of the Fellowship, as well as by the School in the time leading up to award of the Fellowship. Particular difficulty was experienced in the course of this Review in accurately reflecting external income claimed by Centres, not all of which has historically sat within Centre cost codes and been administered by Centres but, rather, was sometimes distributed within School and Faculty cost centres. One option considered by the Review Panel was that explicit by-lines might be used in future to clarify where work should be attributed. Regardless of what option is implemented, future systems must aim to capture and tag data in ways that encourage collaboration and facilitate detailed monitoring. The recent acquisition and current installation of a Research Management System should facilitate this.

Recommendation

- 6. That future reconfiguration of CSU corporate systems provide the capacity to record both School/Faculty and Research Centre affiliations of staff, so that both groups are acknowledged and able to work together towards success. Particular attention should be paid to how external income associated with Research Centres can be readily identified within CSU systems.*

6.5 What does it mean to be a member of a Research Centre?

At a broader level, the relationship between a Centre and Faculty is one where there must be an identifiable advantage in having a Centre. It must be clear what a Centre provides that would not

occur in its absence, and what the effect of its absence would be on both income and publications. There should be identifiable benefits and incentives in becoming a member of a Centre so that it is something to aspire to, both for the individual as well as their home academic area base. At present the memberships of the nine Centres list in excess of 500 staff, including around 300 salaried staff (CSU's total FTE staff is approximately 700). It appears the primary reason for staff to be a Research Centre Member is to be eligible for a Centre Fellowship. It was a perception of the Review Panel that some Centres appear to spend too much of their time trying to service large numbers of members with variable research performance instead of focussing on securing people to undertake specific projects leading to increased research outcomes. There is a need for a tighter performance basis underpinning membership, so that achievement of membership is seen within the context of a professional acknowledgement.

Research students are enrolled in Faculties and Centres offer a discrete number of PhD scholarships (two per year per Centre), though the number of PhD students listed as being associated with Centres during the course of this Review appeared to be much higher. This raised the question of what it means to be a Research Centre student. As with staff membership, the Review Panel were of the view that the Centre should be providing something tangible, such as:

- Some or all of the funding support for the student's project
- Project supervision
- Other financial or infrastructure support.

Recommendation

- 7. That Centres work to clarify their membership basis, including the articulation of the criteria on which membership (including any categories of affiliate membership or student membership) is awarded to individuals, as well as what expectations and privileges accrue from membership.*

6.6 What are the roles and responsibilities of a Research Centre Director?

The role of the Research Centre Director is unclear and the CSU Policy in which they are described (the Academic Institutional Leadership Policy) is not well known. The extent to which being a Centre Director of a small tightly focussed Centre is similar to being Director of a large more diverse Centre with membership in excess of 50 staff members is unclear. Directors do not feature in the hierarchy of management positions described within CSU, so their relationship to Deans and Heads of School is not explicit, and their entitlements are unclear. Reflecting this lack of clarity, current Directors are employed under a range of conditions, including pay and tenure, and operate with variable levels of administrative support supplied through recurrent Centre funds. This should be addressed explicitly in future through the Executive Remuneration Policy. Directors have historically been appointed half time, with the expectation that the other half of their time will be spent conducting their own research. Though the qualifications of Centre Directors have not been detailed, one might surmise that they are expected to be high quality researchers in their own right, and leaders, if not managers, of others. The Review Panel considered, but did not come to a conclusion about, whether Directors should be at professorial level, effectively full-time in their roles, which then include a research component. The Panel did express the view that they should continue to be individuals

who are heavily engaged with research, rather than research administrators, but that they probably need to have full-time roles in order that the expectations around Centre governance be clarified and enacted. Some internal submissions to the Review made comment on the effectiveness of individual Directors, and there appeared to be a mismatch between roles undertaken within Centres and the expectations of some of their members. With this in mind, clarifying the role of Directors and pro-actively considering what type of professional development that might be appropriate for individuals interested in undertaking such roles into the future will be essential. Concurrently clarifying the type of administrative support Directors may draw on from Centre funding allocations in order to optimise Centre efficiency and effectiveness would be useful.

It was clear to the Review Panel that Centre functions are at present very dependent on the individual who is the Director. Continuity of Centre functions depends on having succession plans in place, understanding what experience base and skills need to be developed. This should be considered as an early outcome of the Review.

Recommendations

- 8. That the position of Research Centre Director be clarified in line with the Academic Institutional Leadership Policy and broadly communicated within CSU, so that the role, duties, line-management and expectations can be managed in line with University objectives, and conditions between Directors rendered transparent.*
- 9. That the type of professional development that would be appropriate for Research Centre Directors be clarified.*
- 10. That succession plans for Research Centre Directors be considered within the context of organisational continuity.*

6.7 External visibility and profile of Centres

One of the interesting comments made regarding Centres during this Review was that the amount of information about them beyond CSU and their immediate collaborators was variable. Some referees who were contacted looked to website information as a source of detail. The websites of the Centres vary considerably, as does the extent of links to the parent organisation that is CSU. Since the websites are a potential portal through which new staff and doctoral students may see CSU, the Review Panel was of the view that content and messaging within Centre website should be examined and updated. It would also be beneficial for the Centres to establish links with the Marketing Division of the University, whose submission to the Review highlighted the positive financial impact of publicity. The Marketing Division also made the point that they would be in a better position to support research and researchers if they are made aware of research successes as early as possible, as “good planning is the key to good media relations”.

7 Collective data on past Research Centre performance

Note that the data shown in this section is that which has been attributed to a Research Centre, as shown as part of audited reports to DIISR. The focus of this data is on the period 2007-9, representing the most recent collections submitted by the University during the period of Centre accreditation. It

should be noted that some of the income claimed by Centres overlaps with that claimed by Schools and Faculties.

7.1 Proportion of CSU's collective research output attributed to Centres

Over the period 2007 to 2009 the Research Centres at CSU were attributed with 83% of the University's reported external research income, as shown in Figure 1 below.

Figure 1. 2007-9 % of total research income attributed to CSU Research Centres (noting that not all of this sits within Centre cost centres)

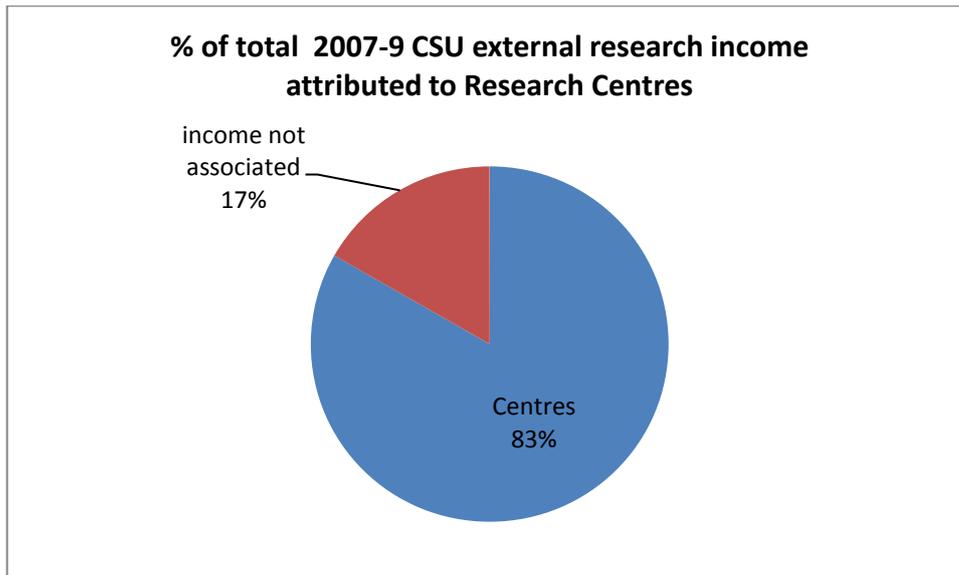
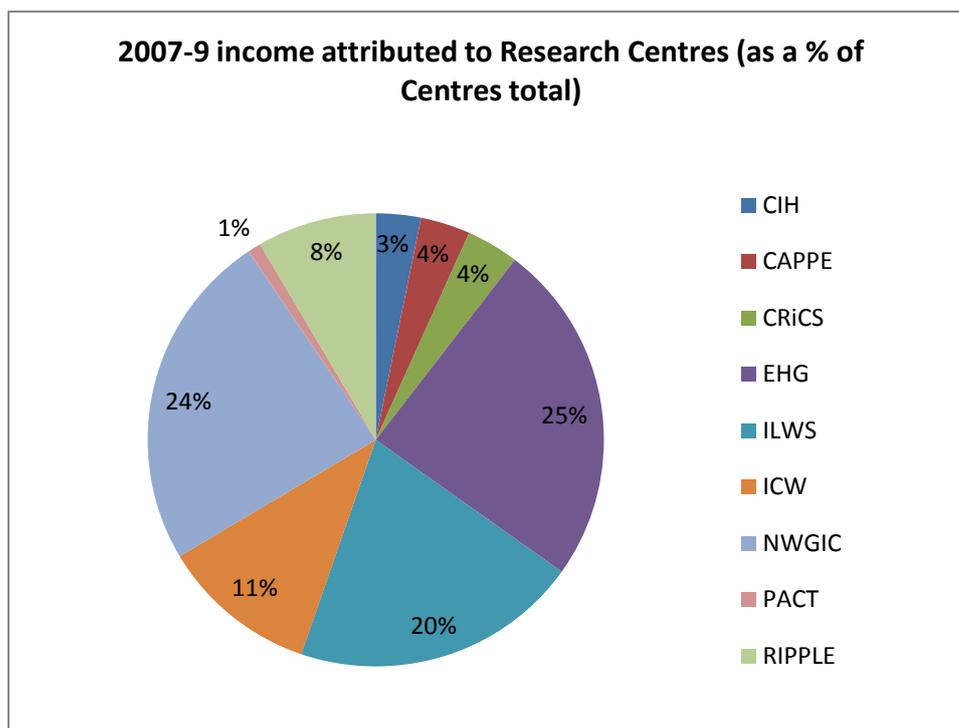


Figure 2. Breakdown of 2007-9 research income by Research Centre



A further breakdown of this data shows (see Figure 2 above) that the largest contributions to external research revenue were generated by the EH Graham Centre for Agricultural Innovation (EHG, 25%), the National Wine and Grape Industry Research Centre (NWGIC, 24%, primarily from a single external source), The Institute for Land, Water and Society (ILWS, 20%) and IC Water (ICW, 11%). These four Research Centres have therefore brought in 80% of the research income attributed to Centres.

Over the period 2007 to 2009 the Research Centres at CSU were attributed with 58% of external research publications, as shown in Figure 3 below. A further breakdown and yearly figures for output by are shown in Figures 4 and 5.

Figure 3. 2007-9 % of total research publication points attributed to CSU Research Centres

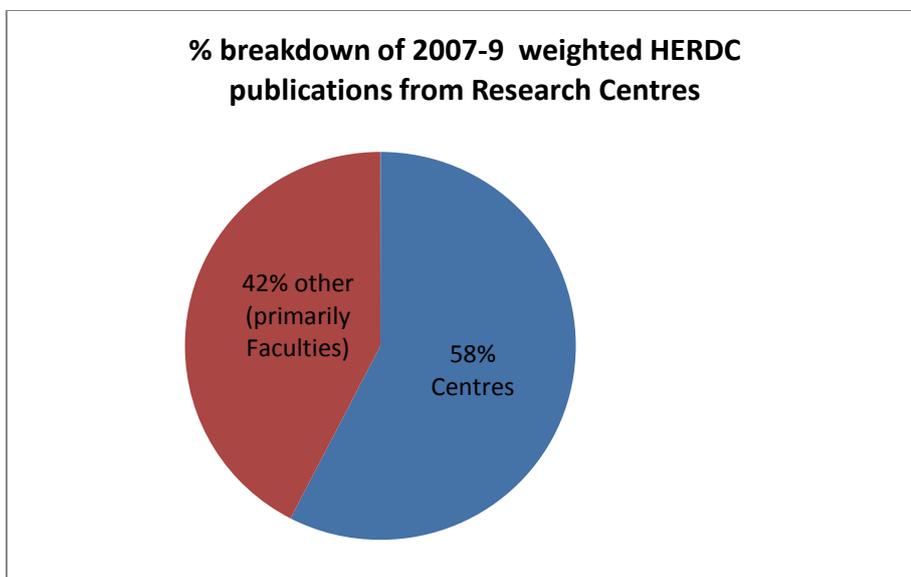
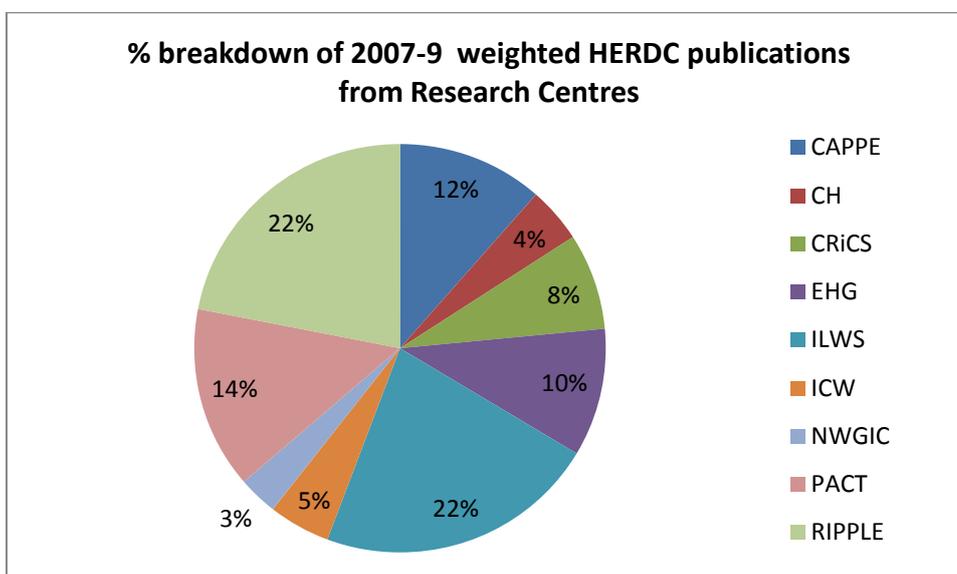


Figure 4. Breakdown of 2007-9 research publication points by Research Centres



The largest Centre contributions to research publications during 2007-9 were from The Research Institute for Professional Practice, Learning and Education (RIPPLE, 22%), the Institute for Land, Water and Society (ILWS, 22%), Public and Contextual Theology (PACT, 14%) and the Centre for Applied Philosophy and Public Ethics (CAPPE, 12%).

Figure 5. 2007-9 yearly weighted* research publication points by Research Centres

Research Centre	2007	2008	2009	Grand Total
Centre for Applied Philosophy and Public Ethics (CAPPE)	36.91	39.23	53.40	129.54
Centre for Inland Health (CIH) (* note formation in 2009)	3.67*	14.47*	31.07	49.20
Centre for Research in Complex Systems (CRiCS)	28.84	31.08	26.47	86.39
EH Graham Centre for Agricultural Innovation	35.17	42.99	35.95	114.11
Institute for Land Water and Society (ILWS)	82.71	88.69	78.47	249.87
International Centre for Water for Food Security	24.67	23.90	6.36	54.93
National Wine and Grape Industry Centre (NWGIC)	8.28	9.28	17.13	34.70
Public and Contextual Theology (PACT)	41.50	51.09	70.00	162.59
Research Institute for Professional Practice Learning and Education (RIPPLE)	85.73	91.25	70.55	247.52
Grand Total from Research Centres	347.49	391.97	389.38	1128.84

*Weighted HERDC publication points: Books receive 5 points each; journal articles, book chapters, conference papers receive 1 point. Points are shared on a pro rata by authorship.

8 Individual Research Centres

8.1 Centre for Applied Philosophy and Public Ethics

CAPPE, the Centre for Applied Philosophy and Public Ethics, was set up in 2000 as a research consortium between Charles Sturt University and the University of Melbourne, with the Australian National University being incorporated in 2003. In 2010 it reported 35 members (including full members, affiliates, adjuncts and visiting scholars) at CSU. It was awarded Special Research Centre (SRC) status and \$1 million funding per annum by the ARC to the end of 2008, after which it has retained the title of Special Research Centre and has been supported financially by its member Universities to a collective total of approximately \$3.7million in 2009. This Review considered the CSU component of CAPPE only, though it was somewhat difficult to determine the extent to which material submitted to the Review reflected only CSU activities because of the nature of the Centre.

By virtue of its attainment of the external accolade of ARC Special Research Centre status, and its long term partnership with two other quality Australian institutions, the Review Panel was of the view that CAPPE does meet the criterion of research excellence. In investing in CAPPE, CSU has bought into a strong group with a national and international profile. Consistent with this, CSU was rated as 4 out of a possible maximum of 5 in the 2009 ERA trial of the Humanities and Creative Arts. CSU results in the 2010 ERA are shown in an appendix to this report. In the 2010 ERA CSU was rated at 3 in Field of Research (FOR) 2201 Applied Ethics (one of 8 institutions nationally assessed under this code) and 2203 Philosophy. While this is a good result in its own right, the University has noted

that the University of Melbourne rated 4 (above world standard) in both fields and ANU was rated at 5 (well above world standard) in Philosophy.

Since 2005, CAPPE CSU has had 3 PhD completions, 8.3 FTE staff at CSU and had 11 full-time and 3 part-time PhD students as at 2010. Eight of these students are supported by scholarships from CSU. This appears to be a reasonable supervision load though there may be future opportunities to include student stipends in applications for external funding to increase numbers further in line with the new CSU Research Plan.

CAPPE CSU has been funded by CSU in excess of \$1 million per annum, including support for internationally regarded Strategic Research Professors (some internationally based and most employed part-time, a total of 8 individuals) and other professoriate reporting to the Vice-Chancellor and Deputy Vice-Chancellor Research. Research Centre Fellowship funding has historically been permitted to be used more flexibly by CAPPE than other Centres, to expand external international appointments, with a small number being awarded to CSU staff. Over 20% of CSU funding is used to employ general staff in the Centre, and over 20% is used on travel. During the review period 2007 to 2009 CAPPE brought in approximately \$1,080,000 in external research funds to CSU (see Figure 6), with 83% from Category 1 (national competitive grant) sources, though noting that CSU staff contributed to a range of externally funded projects within the Centre. CAPPE has indicated that a decline in CSU external funding in 2009 was due to a combination of events, including the end of SRC funding, some major grants coming to an end and some fractional grants to which CSU staff contributed being administered by CAPPE partner organisations, but they have also highlighted some additional income not included in HERDC. The result has been that external income competitively awarded to CSU through CAPPE has been substantially less than the level of internal funds used to support the Centre, and this was a source of concern to the Review Panel. The level of consulting activity undertaken by the Centre of which CSU was a part was also unclear.

Figure 6. CAPPE external research income 2007-9 by category

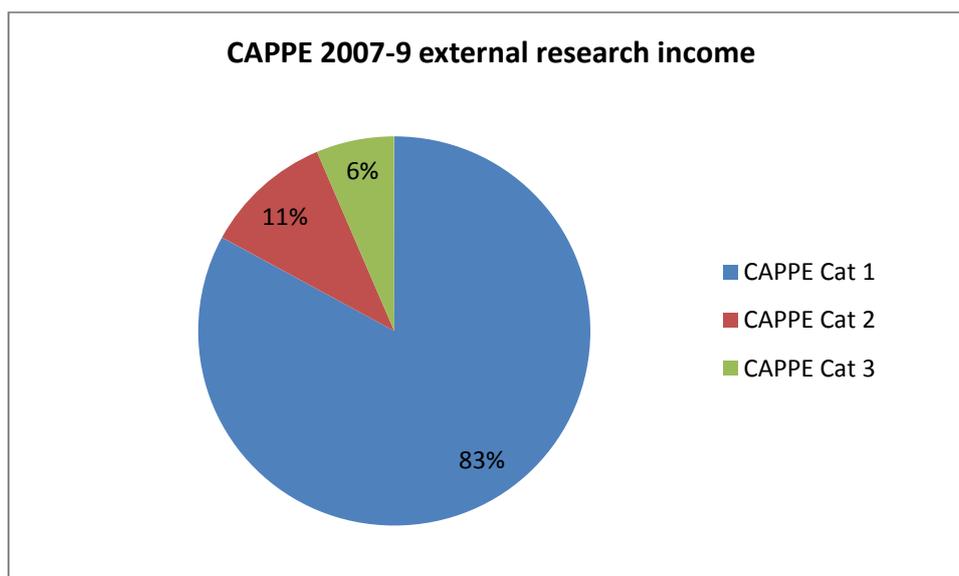


Figure 7. CAPPE 2007-9 reported research income by year

External income	2007	2008	2009	Grand Total
CAPPE	487,565.43	555,200.32	41,668.00	1,084,433.75

The publications profile of CAPPE includes a number of books and book chapters. Overall productivity of the Centre was higher than some other groups, though a smaller sub-group of members have been most prolific. The quality profile of publications output includes a high proportion of A-ranked journal papers (noting CAPPE has indicated that there are no A*-ranked journals in applied ethics), particularly in 2009 and is, in itself, very laudable. One external referee contacted during the Review did comment, however, that the publication profile was not quite as high as might be expected, and that it included a high proportion of edited collections.

Figure 8. CAPPE reported weighted research publication points 2007-9

Publication Type	Rank	2007	2008	2009	Grand Total
Book	(blank)	10.00	10.00	17.50	37.50
Book total		10.00	10.00	17.50	37.50
Book chapter	(blank)	16.91	19.39	7.00	43.30
Book chapter total		16.91	19.39	7.00	43.30
Conference paper	(blank)	2.00	2.00	2.00	6.00
Conference paper total		2.00	2.00	2.00	6.00
Journal article	A	2.00	1.00	11.50	14.50
	A*	1.00	3.50	2.00	6.50
	B	4.00	2.33	9.90	16.23
	C	1.00	1.00	3.50	5.50
Journal article total		8.00	7.83	26.90	42.73
Total weighted publication points		36.91	39.23	53.40	129.54

CAPPE also has a substantial editorial involvement in the production of four journals:

- Australian Journal of Professional and Applied Ethics
- Australian Journal of Legal Philosophy
- Criminal Justice Ethics
- Nanoethics

The Review Panel was concerned that this is a large and costly workload for staff of a single Research Centre, and that the mechanisms for funding such activities were unclear.

Indeed the spread of activities and interests embraced by CAPPE as presented was in general very broad. There were some excellent staff appointments and impressive external linkages, though there appeared to be some lack of clarity about what has driven the broad agenda of the Centre, with the result that it may at times have appeared somewhat temporary or ephemeral in nature.

More may be made of opportunities to engage with the mainstream of the university community at CSU, though CAPPE has clearly demonstrated its contribution to strategic direction and federal government research priorities.

In summary the review Panel was of the view that CAPPE has in the past and should in the future form a valuable vehicle for the creation and dissemination of CSU research. The cost-benefit of CSU's involvement in the CAPPE consortium, as well as disseminated value to other staff and students at CSU, should continue to be monitored carefully.

Recommendation

- 11. That CSU continue to participate in CAPPE, and also continue to monitor the cost-benefit of this association into the future.*

8.2 Centre for Research in Complex Systems

The Centre for Research in Complex Systems (CRiCS) was formed in 2005 as a Tier 2 Centre focussing around three themes. The annual budget invested in CRiCS by CSU is circa \$300,000 including Research Centre Fellowships, plus it has received direct cash support from the Faculty of Business. Its headquarters assumed their current accommodation on the Bathurst campus of CSU in 2008. In 2010 it reported 38 members (including full members, affiliates, adjuncts and visiting scholars), noting some previous staff turnover. ERA assessment details for the Fields of Research (FOR) at CSU can be found in an Appendix to this report. CSU was one of four institutions rated at 1 out of a possible maximum of 5 (well below world standard) in the 2 digit FOR code 08 (Information and Computing Sciences), from a total of 24 institutions assessed. There was insufficient volume of eligible research outputs in the 4 digit FOR code 0801 (Artificial Intelligence and Image Processing) to meet the threshold for evaluation under ERA.

Parts of the data provided by CRiCS for the purpose of this Review were found by the Review Panel to be difficult to evaluate because their lack of specificity. The Centre was clear, however, in its submission to the Review, that it believed that significant items of awarded funding and publications that should have been attributed to CRiCS had not been captured in CSU corporate systems, and that subsequent analysis of the performance of the Centre would be disadvantaged by this.

The Review found that CRiCS members have been active in undertaking national and international conference presentations, delivering keynote addresses and providing membership to expert grant assessment panels. Some of the external referees either contacted during the course of this Review, or who provided testimonials solicited by the Centre, praised the Director of CRiCS as a leading international figure in application of human theoretic techniques to the understanding of sensory systems. They also hailed the Centre as being "world class", noting its high publication citation rate, though suggesting concentration around a few key individuals. Another referee was more circumspect in describing "patches of excellence" and a high level of diversity. He also queried whether all of the publications listed on the website of CRiCS really fall within the Complex Systems arena, raising a question from the Review Panel about the extent of clear focus. The Review Panel noted the high number of conference presentations and both they and one of the referees suggest future success of the Centre could be increased by production of high quality journal papers.

CRiCS has provided a list of doctoral students associated with the Centre, 7 of whom appear to have commenced during the period 2008-9 and 5 pre-2008. Three are listed as completed. CRiCS indicated that it provided support for their projects through the funding of minor equipment and travel to attend conferences and progress research collaborations. HDR students were also included in a successful Early Career Researcher/PhD student workshop run annually in Canberra, as well as a not-for-profit Summer School supported by a number of organisations, including COSnet (the ARC Network in Complex and Open Systems) which has attracted a range of national and international speakers.

Between 2007 and 2009 external research income attributed to CRiCS in CSU’s annual HERDC return was approximately \$1,147,704 including category 4 income from the CRC for Spatial information (see Figures 9 and 10 below), though information provided by the Centre describes:

- Further ARC grants in which CRiCS members were Chief Investigators, some of which appear to have been administered through other institutions,
- A collection of smaller grants,
- Category 3 industry funding from the mining sector.

Many of the income items for CRiCS items appear to have been attributed to other parts of the University and sat in cost centres of Schools rather than those of the Research Centre. A full picture of income has therefore been difficult to define.

Figure 9. CRiCS external research income 2007-9, as reflected in CSU corporate systems

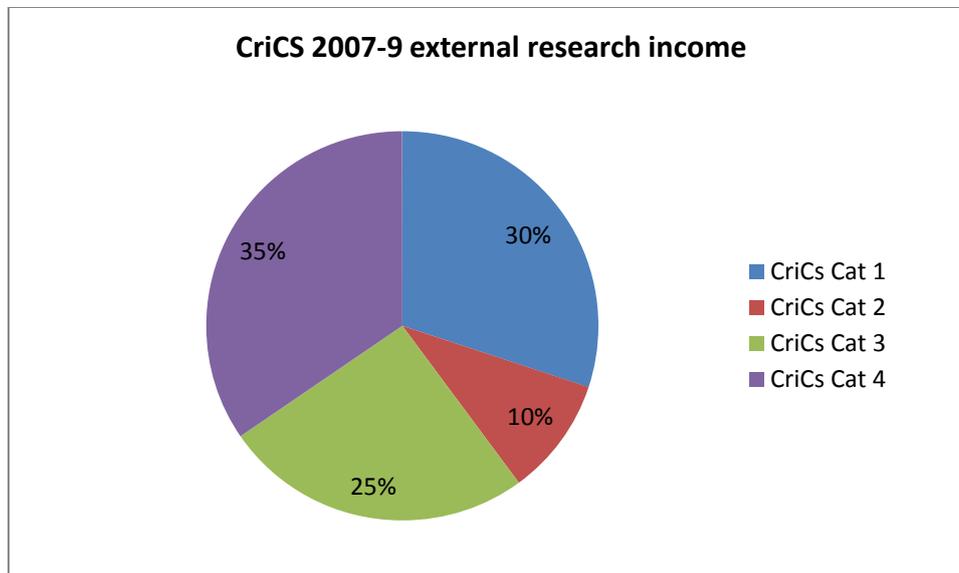


Figure 10. External research income accredited to CRiCS in CSU’s HERDC returns 2007-9

External income	2007	2008	2009	Grand Total
CRiCS	511,146.09	605,206.00	31,352.50	1,147,704.59

The publication profile of CRiCS includes a number of book chapters, and a high proportion of conference papers, as is typical in many parts of the ICT discipline (see Figure 11 below). There was comment in the submission by CRiCS to the Review on the accuracy of the data on CRiCS held in CSU systems (noting these were the audited data in CSU's historical compliance reports to DIISR). The Centre has provided the Review Panel with a copy of its own assembled publications list based on information from members, which includes a higher count of publications in 2009-2010 (for which the submission period was still open at the time of this Review). Not all of the items under contention appear to have been eligible for HERDC. Some were and appear to be missing. Further examination by Library staff has been undertaken to ensure there is no systems problem with the CSU digital repository CRO. This serves to emphasise that in future, Research Centres need to monitor the data of their members to ensure they are retained in CSU systems prior to external compliance reporting. Since the 2010 collection was not finalised at the time that purported gaps in publications lists were identified it would be expected that these would have been lodged prior to the collection deadline in 2011.

Figure 11. CRiCS weighted research publication points in CSU HERDC returns 2007-9

Publication Type	Rank	2007	2008	2009	Grand Total
Book	(blank)		5.00	5.00	10.00
Book total			5.00	5.00	10.00
Book chapter	C	1.00			1.00
	(blank)	1.00	5.00	4.51	10.51
Book chapter total		2.00	5.00	4.51	11.51
Conference paper	A	3.00	2.00		5.00
	B	0.50	3.42	2.00	5.92
	C	4.70	2.33		7.03
	(blank)	9.32	8.83	8.75	26.89
Conference paper total		17.51	16.58	10.75	44.84
Journal article	A	0.50	1.33	1.25	3.08
	A*			1.00	1.00
	B	3.83	1.00	2.47	7.30
	C	4.00	2.17	1.50	7.67
	(blank)	1.00			1.00
Journal article total		9.33	4.50	6.22	20.05
Total weighted publications		28.84	31.08	26.47	86.39

In summary, the Review Panel was of the view that CRiCS was yet to realise its full potential. While the activities it has undertaken have been sensibly aimed at increasing research culture, and there have been a range of successes associated with the Centre, its research agenda appears diffuse and outputs could be higher. The results in the 2010 ERA were disappointing. The Panel was of the view that future performance could be assisted by having greater oversight of the Centre by a Faculty.

Recommendation

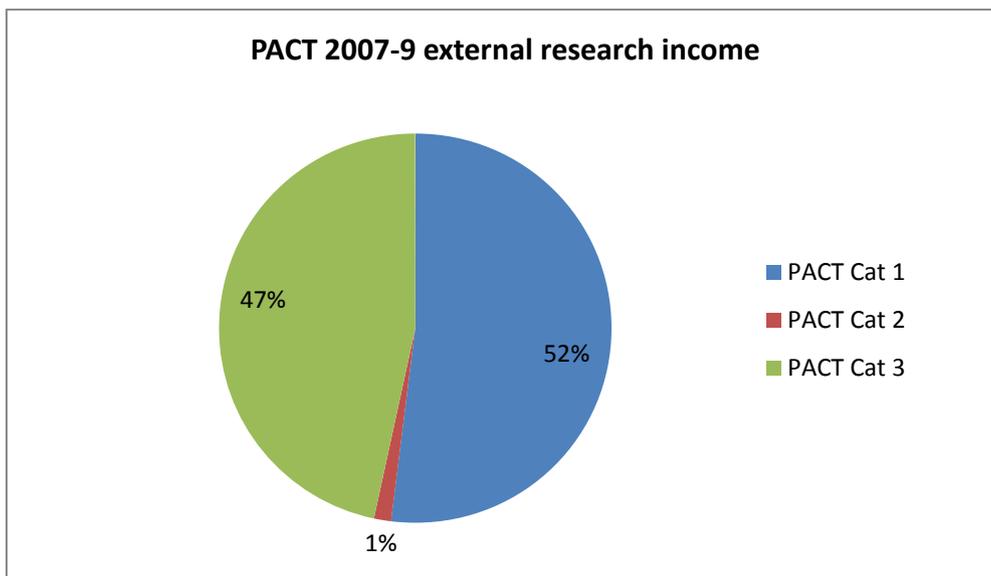
12. That CRiCS be placed under the governance of a Faculty from 2012, to enable governance support and alignment of activities with future Faculty functions.

8.3 Public and Contextual Theology

PACT, the Research Centre focussed on Public and Contextual Theology, brings together staff from the Australian Centre for Christianity and Culture (who also provide administrative support to the Centre that is partially reimbursed by CSU), staff from St Mark's Theological College in Canberra, and staff from the United Theological College in Sydney. A high proportion of PACT members are adjunct staff from these external organisations with whom CSU has partnered. The Centre reported 46 members in 2010 (including full members, affiliates, adjuncts and visiting scholars). PACT is focussed around a clear uniting theme of Theology, an area that achieved a rating of 4 out of a possible maximum of 5 in the 2009 ERA trial of the Humanities and Creative Arts. ERA 2010 assessment details for the Fields of Research at CSU can be found in an Appendix to this report. CSU was one of six institutions rated as 2 out of a maximum of 5 (below world standard) in FOR 2204 Religion and Religious Studies from a total of 15 institutions assessed.

PACT appears to be highly valued within the theological community, as evidenced by the comprehensive referee reports from international researchers and peers at similar institutions, and to contain capable scholars who have been producing good work. Referees commented on the extraordinary international profile of the Centre, its strength in linking academic scholarship to religious and secular civil society organisations and its role in interreligious dialogue.

Figure 12. PACT external research income profile 2007-9



PACT was attributed with attracting just over \$285,000 in external research income to CSU for the period 2007 to 2009, the vast majority of which was in the form of national competitive grants (Category 1) and other grants (Category 2) (see Figures 12 and 13 below). It has also more recently partnered in a bid for Collaborative Research Network funding from DIISR. During this period PACT

received approximately \$250,000 per annum from CSU in the form of Research Centre Fellowships and operational funds.

Figure 13. PACT external research income summary 2007-9

External income	2007	2008	2009	Grand Total
PACT	199,499	81,780	4,000	285,279

PACT’s research publications during 2007-9 consisted of a balanced output of books, book chapters and journal articles, with total output increasing (see Figure 14 below). Most of the journal articles were in C-ranked outlets, reflecting the publishing norms for this discipline. PACT has attributed its increased output in the period 2007-9 to its leadership of the Global Network for Public Theology, the setting up of the journal “International Journal of Public Theology”, and the creation of a book series published in Germany. The books published by PACT are produced by major houses such as Cambridge University Press, Brill and Ashgate.

Figure 14. PACT weighted research publication points profile 2007-9

Publication Type	Rank	2007	2008	2009	Grand Total
Book	(blank)	5.00	10.00	35.00	50.00
Book total		5.00	10.00	35.00	50.00
Book chapter	(blank)	20.50	24.59	15.00	60.09
Book chapter total		20.50	24.59	15.00	60.09
Conference paper	C	1.00			1.00
Conference paper total		1.00			1.00
Journal article	A	1.00	2.00	2.00	5.00
	A*		1.00		1.00
	B		1.00	2.00	3.00
	C	12.00	7.50	11.00	30.50
	Not ranked		1.00		1.00
	(blank)	2.00	4.00	5.00	11.00
Journal article total		15.00	16.50	20.00	51.50
Total weighted publications		41.50	51.09	70.00	162.59

Noting the excellent national and international networks of PACT and its close relationship with pastoral care groups, the Review Panel considered that an area of future potential for the Centre might be to develop ARC Linkage grant proposals partnering with Church-based organisations. This would have the advantage of providing expanded funding with which Centre members could undertake research. It would also provide an opportunity for the Centre to engage in future planning about what it will aim to achieve and what its focus will be in future. The curiosity of PACT noted by the Review Panel is that its output is essentially that of the Schools of Theology. The Centre must

therefore be in a position to add something extra that would not happen in its absence, and should be clear in articulating exactly what this is.

Recommendation

13. That PACT continue as a Research Centre of the University.

8.4 National Wine and Grape Industry Research Centre

The National Wine and Grape Industry Research Centre (NWGIC) is a partnership between Charles Sturt University, NSW Industry and Investment (I&I) and the NSW Wine Industry Association. It reported 27 members (including full members, affiliates, adjuncts and visiting scholars) in 2010. It is managed by a Director and reports to a Council consisting of the Vice-Chancellor of CSU, the Director General NSW I&I and the President of the NSW Wine Industry Association. Its activities include both research and industry extension, and therefore its output includes both research publications and industry communications. Post-review ERA assessment details for the Fields of Research at CSU can be found in an Appendix to this report, though the activities of NWGIC are spread over a number of FOR code areas and are therefore not all immediately visible. CSU was rated at 4 out of a possible 5 (above world standard) in FOR 0301 Analytical Chemistry and NWGIC work was also represented in the Fields of Research 0607 Plant Biology (rated 3, at world standard) and 0706 Horticultural Production (not assessed at the four digit level in 2010).

Figure 15. NWGIC external research income profile 2007-9

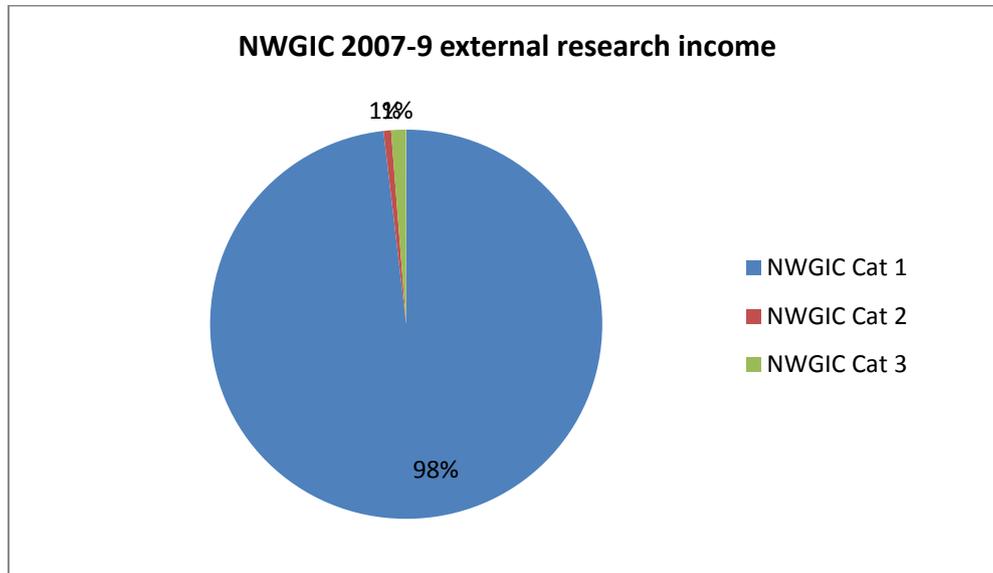


Figure 16. NWGIC external research funding by year 2007-9

External income	2007	2008	2009	Grand Total
NWGIC	2,804,534.95	923,956.68	3,742,919	7,471,410.50

CSU has provided circa \$400,000 annually to the Centre, including Research Centre Fellowships and excluding Strategic Professorial salaries. The Centre is also directly supported by NSW I&I. The most striking financial feature of the Centre has been that 98% of its substantial external research has been from a single Category 1 source, block-funded over several years (see Figures 15 & 16 below). The NWGIC's Winegrowing Futures Program was recently reviewed in detail by the funding body regarding the breadth, depth and quality of its activities. One external referee of this current Centres Review indicated a perception that while the Centre had delivered what had been required under the terms of its contract with its major funding agency, "only on a few occasions... had (it) exceeded expectations". A second referee commented that "none of the Centre members would be considered highly competitive for an ARC (Discovery) grant", "outputs are patchy" and that there was a general view that total outputs do "not reflect the investment". Yet the Centres Review Panel understood that NWGIC has a high impact on the wine industry through its research and extension work and a high profile nationally. Notwithstanding this, it felt that the heavy reliance on a single source of external income represented a risk that should be mitigated through applications to other agencies.

The reported research publication output of the NWGIC is shown in Figure 17 below. The majority of publications have been in the form of journal articles, with several in B-ranked outlets. The total output was viewed by the Review Panel as being comparatively modest in light of the very high level of funding, albeit with an increase in 2009.

Figure 17. NWGIC reported weighted research publication points 2007-9

Publication type	Rank	2007	2008	2009	Grand Total
Book	(blank)	1.00			1.00
Book total		1.00			1.00
Book chapter	(blank)			1.67	1.67
Book chapter total				1.67	1.67
Conference paper	B			0.72	0.72
	(blank)	0.50	3.20	1.67	5.37
Conference paper total		0.50	3.20	2.38	6.08
Journal article	A	0.53	0.33	3.20	4.07
	A*	0.83			0.83
	B	4.75	3.08	7.88	15.71
	C	0.67	1.00	1.80	3.47
	(blank)		1.67	0.20	1.87
Journal article total		6.78	6.08	13.08	25.94
Total weighted publications		8.28	9.28	17.13	34.70

The Centre is of strategic importance to CSU, and is linked to undergraduate outcomes, but the links between NWGIC and the School of Agriculture and Wine Science do not appear to be as strong as they could be. The Review Panel had the strong impression that there was a general lack of engagement between the Centre and the wider University community. The Panel queried whether NWGIC would have become a Research Centre in the absence of its funding and yet the Centre is a striking part of CSU's profile.

Recommendations

14. That the NWGIC continue as a Research Centre of the University.

15. That researchers in the NWGIC be urged to seek external funding in order to broaden the income base of the Centre.

8.5 Research Institute for Professional Practice, Learning and Education

RIPPLE, the Research Institute for Professional Practice, Learning and Education was accredited as a CSU Research centre in 2008, and reported 51 members (including full members, affiliates, adjuncts and visiting scholars) in 2010, drawn from all four Faculties, though the majority of members reside in the Faculty of Education. In the 2010 ERA CSU was rated as being 3 out of a possible 5 (at world standard) in FOR codes 13 Education (of 39 institutions assessed, of which 16 were deemed to be at world standard or better), 1301 Education Systems and 1302 Curriculum and Pedagogy, and was rated as 2 out of 5 (below world standard) in FOR 1303 Specialist Studies in Education. This places CSU research in the top echelons in Education research in Australian universities.

One external referee made a minor comment that the relationship between RIPPLE and the Education for Practice Institute (EFPI) was unclear, before noting that RIPPLE's researchers were seen as leaders in their field. In general terms, the Review Panel was impressed by the clarity with which RIPPLE's focus and mission was expounded in its submission. With some justification it could describe itself as a "coherent and distributed" research institute – coherent as a result of its unified research theme, and distributed between academic areas of the University community. It also appears to have a close and productive working relationship with the Faculty of Education. RIPPLE has had a number of positive and focussed aspirations that serve to demonstrate how it has considered its future. These have included aspiring to lead a Collaborative Research Network, to use the elevation in performance that such an injection of funding would provide to work towards Centre of Excellence status and, ultimately, to self-sufficiency as a Research Centre. RIPPLE researchers have also played a major role in the creation of a bid for a Cooperative Research Centre that would have placed CSU in the leadership position within Education Research nationally. This is exactly the type of entrepreneurial activity the Review Panel believe should be encouraged in Centres into the future.

Excellent national and international links have been formed with high quality partner institutions, such as the University of Gothenburg, Tromso, Utrecht and Western Ontario. One international referee commented on the high visibility of the Pedagogy, Educational and Praxis group internationally.

RIPPLE has a diversified research income portfolio, with the vast majority of its attributed funding in the period 2007-9 coming evenly from Category 2 grants and national competitive grants (see Figures 18 and 19 below). RIPPLE's own records show further ARC grants held by Institute members that were likely attributed to the Faculty of Education. Income increased dramatically during its second year of operation. Its researchers have a high success rate in applications for ARC grants, and its senior researchers are active in mentoring the work of their newer colleagues, demonstrating the value-add that a research Centre can provide. RIPPLE has received circa \$600,000 funding per annum from CSU including Research Centre Fellowships and operating funds.

Figure 18. RIPPLE external research income 2007-9

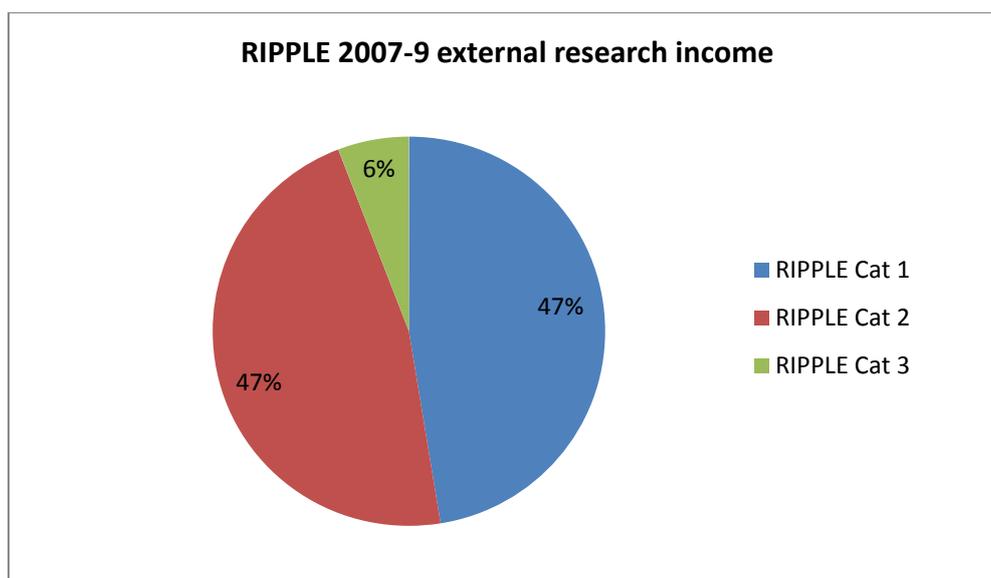


Figure 19. External income attributed to RIPPLE by year 2007-9 (noting establishment in 2008)

External income	2007	2008	2009	Grand Total
RIPPLE	946,529.84	746,070.77	921,652.80	2,614,253.36

RIPPLE’s publication record is strong, with the production of a large number of book chapters, books and journal articles, including many in A-ranked outlets and a smaller group in A* journals. RIPPLE is also actively engaged with the NSW Department of Education within the education practice arena.

Figure 20. RIPPLE weighted publication points profile 2007-9.

Publication type	Rank	2007	2008	2009	Grand Total
Book	(blank)	7.50	10.00	9.17	26.67
Book Total		7.50	10.00	9.17	26.67
Book chapter	(blank)	38.92	25.38	17.51	81.81
Book chapter Total		38.92	25.38	17.51	81.81
Conference paper	(blank)	5.42	17.67	8.67	31.75
Conference paper Total		5.42	17.67	8.67	31.75
Creative works	(blank)			1.00	1.00
Creative works Total				1.00	1.00
Journal article	A	8.95	9.37	9.83	28.15
	A*	2.50	5.42	1.00	8.92
	B	12.62	16.25	12.62	41.48
	C	7.33	6.50	5.17	19.00
	(blank)	2.50	0.67	5.58	8.75
Journal article Total		33.90	38.20	34.20	106.29
Total weighted publications		85.73	91.25	70.55	247.52

RIPPLE staff are active in PhD supervision of 18 HDR students associated with the RIPPLE research groups, as well as others who are not involved with RIPPLE. Students are involved in activities of the Centre such as joint doctoral schools with international partners.

One notable vulnerability for RIPPLE that was recognised by the Review Panel is the career stage of some of its most active researchers. Some of the most active and successful members of RIPPLE on whom the Centre relies for leadership and productivity may choose to retire in the next few years. This could leave a critical gap in the Centre unless succession plans are carefully thought out and enacted while those senior researchers are still on staff.

Recommendations

16. That RIPPLE continue as a Research Centre of the University.

17. That consideration be given to recruitment of key senior researchers in RIPPLE.

8.6 Centre for Inland Health

The Centre for Inland Health was formed as a Tier 2 Centre in January 2009. As at 2010 the Centre reported 65 members with 40 key researchers. The Review Panel was very positive about the strategic need for a focus on health and the health of inland communities in a regionally-based University at a time of workforce shortages. It was also very positive about the Centre's work with Indigenous communities within the region of CSU's operation. Given the short period that has elapsed since the formal commencement of the centre, however, the Review noted that it was still a work in progress and the success of this as a formal endeavour was somewhat hard to analyse.

Perhaps because of its recent history, the Review found it difficult to pinpoint a focus for the Centre, which seemed instead to operate as an umbrella for vastly different groups without a research home elsewhere. The activities of CIH staff would have fallen under a range of FOR code areas in the 2010 ERA, including a number of 4 digit codes within the 06 Biological Sciences cluster, and in cluster 11 (Medical and Health Sciences, where CSU was rated at well below world standard). The section on national links of the Centre is illustrative of this, including organisations as diverse as Defence, other universities, small granting bodies, community groups, professional societies and registration boards, state departments, area health services and more, multiplied through the various disciplinary groups who fall under the Centre. Several international links with prestigious organisations, such as the MRC Cambridge and the University of Tübingen are listed in the Centre's submission to the Review, though it was less clear in some of these examples how they were benefiting CSU. It was the considered opinion of the Review Panel that, as CIH develops further it will need to have greater focus, meaning that it may not continue to be the natural research home for all of the groups it currently includes.

Data on CIH within CSU systems includes some items that pre-date the formal establishment of the Centre in 2009 that are shown here for the sake of not biasing how CSU data is reflected beyond its systems. The current external income profile (see Figures 21 and 22) includes a majority of funding derived from Category 2 sources, suggesting funding through local rather than national sources. CSU provide approximately \$250,000 funding per annum to the Centre, including Research Centre Fellowships and operating funds.

Figure 21. CIH external income profile 2007-9

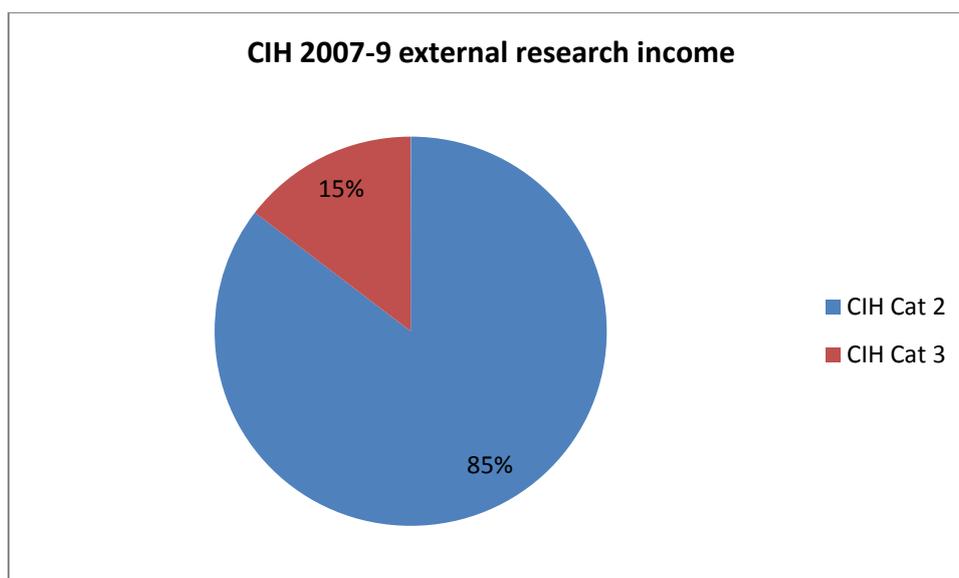


Figure 22. CIH external research income by year 2007-9 (noting establishment in 2009)

External income	2007	2008	2009	Grand Total
Centre for Inland Health		203,864.70	778,627.50	982,492.15

The publication profile of CIH includes predominantly journal articles in B and C-ranked outlets, as would be expected for an area that represents, amongst other disciplines, Allied Health, where there are few A or A* choices. It is too early to comment in any detail on the productivity of Centre members, though this should be a focus of future interest for the University. The initial year of reported data (2009) would seem to suggest that either not all of the identified members contributed or that their publications were attributed elsewhere in the University.

The Review Panel were of the view that the future activities of the Centre would benefit from aligning it more closely with a Faculty, so that the areas of research encompassed within the Centre would be those with elevated performance. This association would also assist in streamlining administrative functions between the two groups so that more funding could be put directly into researcher support.

Figure 23. CIH weighted publication points profile 2007-9

Publication type	Rank	2007	2008	2009	Grand Total
Book chapter	(blank)		3.27	1.50	4.77
Book chapter total			3.27	1.50	4.77
Conference paper	(blank)		1.50	1.67	3.17
Conference paper total			1.50	1.67	3.17
Journal article	A	1.00	0.50	2.49	3.99
	A*		0.33	0.93	1.26
	B	1.00	4.79	9.51	15.30
	C	1.67	3.08	11.78	16.52
	(blank)		1.00	3.20	4.20
Journal article total		3.67	9.70	27.90	41.27
Total weighted publication points		3.67	14.47	31.07	49.20

Recommendation

- 18. That the Centre for Inland Health be placed within a Faculty from 2012, to enable governance support and alignment of activities with future faculty functions.*

8.7 Institute for Land, Water and Society

ILWS, the Institute for Land, Water and Society, is one of the larger Research Centres at CSU. It has had a strong external public relations strategy, as a result of which it has enjoyed a comparatively high public profile, as attested to by one of the external referees to the Review. The research of ILWS members falls under a number of FOR code areas. In the 2010 ERA CSU was rated as being 3 out of a possible 5 (at world standard) in 05 Environmental Sciences, and 4 out of 5 (above world standard) in 0502 Environmental Science and Management.

The areas of interest of ILWS overlap somewhat with those of ICWater and the EH Graham Centre, and the Review Panel suggest this might be an area for future discussion. ILWS reported 109 members (including full members, affiliates, adjuncts and visiting scholars) in 2010, and has at least 3 Strategic Professors within its ranks. The internal structure of the Centre reflects a number of strategic areas of research focus. The Review Panel did wonder whether this was somewhat more complex than was required for streamlined operations and urged that issues of inclusivity be balanced against further possible productivity gains.

The CSU budget for ILWS has been circa \$1 million per annum including both cash and Research Centre Fellowships, but excluding Professorial and other academic salaries. ILWS had one of the most diversified portfolios of external research income of the Research Centres for the period 2007-9 (see Figure 24). It appears to be one of the few Centres attracting more external income than the level of internal funding used for their support. Category 4 income was the result of participation in a number of CRCs. Each of these was at a fairly modest level, and the Review Panel considered that an area of future focus might be the expansion of intellectual leadership in a smaller number of CRC partnerships. Category 1 national competitive grant funding was from agencies such as rural R&D

Corporations, ARC and others. Categories 2 and 3 funding reflect a mix of state, local and industry grants. The decrease in funding apparent in Figure 25 is partially explained through a performance-based reduction in membership numbers in the Centre, though there has been a consistent high level of external income awarded to ILWS. The data suggest that several of the projects undertaken by ILWS are low-cost low-return items. The Panel urges future consideration of the transaction costs associated with some of these and whether some of the work being undertaken has had its costing optimised.

Figure 24. ILWS external research income profile 2007-9

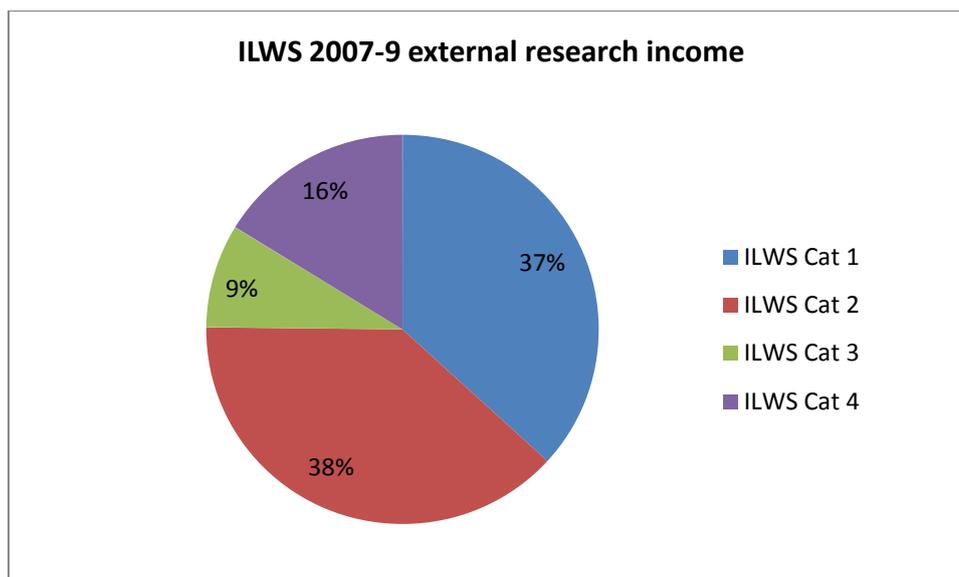


Figure 25. ILWS external research income by year 2007-9.

External income	2007	2008	2009	Grand Total
Institute of Land Water & Society Admin	2,741,916.44	2,021,502.38	1,536,012	6,299,430.35

ILWS members have contributed a significant body of work to the publication profile of CSU. During 2007-9 a number of book chapters, conference papers and journal articles were produced, most of the latter in ARC-ranked outlets, including A*, A, B and C journals. The Review Panel also noted that members had produced a number of technical reports. These are valuable in their own right as they reflect positive engagement with a range of different industries and research user groups. They should be reported separately so as not to conflate key metrics in the University Research Plan. One external referee did query whether all parts of the Institute were performing equally effectively given the number of publications outputs and the number of members, and this might be an area of further focus in future.

Figure 26. ILWS weighted publication points profile 2007-9.

Publication type	Rank	2007	2008	2009	Grand Total
Book	(blank)	5.00	7.50	5.00	17.50
Book total		5.00	7.50	5.00	17.50
Book chapter	(blank)	14.03	5.56	18.94	38.53
Book chapter total		14.03	5.56	18.94	38.53
Conference paper	B	1.00		0.14	1.14
	C			2.00	2.00
	(blank)	20.11	22.36	12.15	54.62
Conference paper total		21.11	22.36	14.29	57.76
Creative works	(blank)		8.50	4.10	12.60
Creative works total			8.50	4.10	12.60
Journal article	A	8.18	6.70	5.39	20.28
	A*	1.00	1.13	0.33	2.46
	B	12.91	20.61	14.89	48.41
	C	17.25	15.83	12.27	45.35
	Not ranked			0.33	0.33
	(blank)	3.23	0.50	2.92	6.65
Journal article total		42.58	44.76	36.14	123.47
Total weighted publications		82.71	88.69	78.47	249.87

Recommendations

19. That ILWS continue as a University Research Centre.

20. That the membership base and the complexity of ILWS be reviewed to promote the best balance between clarity of focus, a manageable membership base, and performance outcomes.

8.8 EH Graham Centre for Agricultural Innovation

The EH Graham Centre for Agricultural Innovation is the largest Research Centre at CSU, with a reported membership in 2010, including full members, affiliates, adjuncts and visiting scholars, of 121. It is a partnership between Charles Sturt University and NSW I&I. One external referee commented positively that the Graham Centre has been the core of University outreach to the farming community and was regarded for its core strengths in mixed farming and stubble retention. However, the referee also queried how the collaboration added value “that would not have been delivered independently by the two organisations”, and that the Centre suffered “from double management and reporting”. The ERA results of CSU are shown in an appendix to this report, and researchers from the E. H. Graham Centre contributed to a range of fields. CSU was rated as being at 4 out of 5 (above world standard) in 0703 Crop and Pasture Production, at 3 out of 5 (world standard) in 06 Biological Sciences, 0607 Plant Biology, and 07 Agricultural and Veterinary Sciences, at 2 (below world standard) in 0608 Zoology and 0707 Veterinary Sciences) and at 1 (well below world standard) in 0605 Microbiology. There is also some overlap between the research interests of the Graham Centre and those of both ILWS and ICWater.

The Review Panel queried the size of the Centre and the extent to which it constituted a structure that could be serviced adequately by a Director, given the large membership. Submissions to the Review also expressed concern about Centre focus and function. One described strategic initiatives of the Centre as being “a cobweb of projects” put forward by individuals, making it hard to see the point of difference and sustainable competitive advantage offered by the Centre. Other submissions expressed concerns about processes, support foci and visibility of senior researchers. There was a suggestion of a discrepancy between research activities attributed and reported through the Centre versus the range of activities administered by the Centre (as opposed to Schools and Faculty), making the extent of unaccounted subsidisation of Centre operations difficult to identify.

The CSU contribution to the Centre has been in excess of \$1 million annually, including Research Centre Fellowships and operating funds, and excluding at least three Professorial salaries. The Centre does report more external income than the internal income required to support it. The Graham Centre has a diversified portfolio of external research income, as shown in Figures 27 and 28 below. The majority of income during 2007-9 (as reported in HERDC) was from category 1 (national competitive grant) sources, including ACIAR. There has also been Category 4 income from CRCs (such as the Future Farming Systems CRC), and a smaller proportion of grants from Category 2 and Category 3 (industry) sources. Income to the Centre has been consistently high, though the extent to which all members have contributed to the award of this income is less obvious. There have been some very productive individuals. There has also been a range of research income that will not have shown up in CSU HERDC figures because when it was passed to third parties, including partner institutions abroad, it does not stay attributed with the total University income figure. The Review Panel urged the Centre to clarify the reporting of data in a format consistent with the CSU Research Plan, even if this resulted in presentation of more comprehensive details to suit both partners. Dual reporting mechanisms (to CSU and NSW I&I) need to be streamlined, but the Centre also needs a set of KPIs based only on CSU data for CSU reporting to understand how the CSU component is tracking.

Figure 27. E. H. Graham Centre external research income profile 2007-9

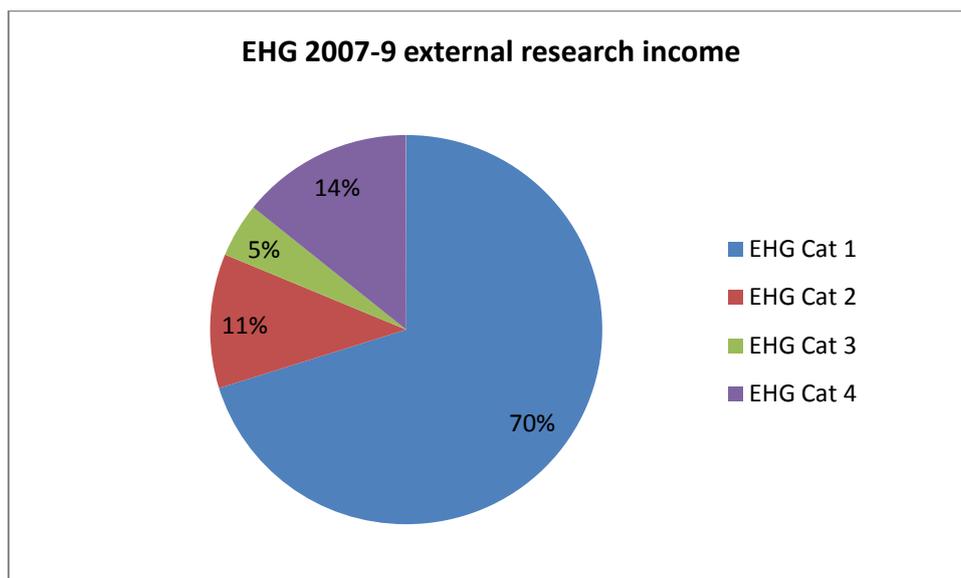


Figure 28. E.H.Graham Centre external, research income by year 2007-9.

External income	2007	2008	2009	Grand Total
Graham Centre	2,188,518.01	2,727,099.46	2,641,581.00	7,557,198.68

The publication output of the Centre has been predominantly in the form of conference papers and journal papers, many of the latter of which were in A-ranked outlets. The total body of published work during 2007-9 was consistent and significant in respect of the CSU total, though the membership of the Centre is high and productivity was not equal amongst all members.

Figure 29. E.H. Graham Centre weighted publication point profile 2007-9.

Publication type	Rank	2007	2008	2009	Grand Total
Book chapter	(blank)	0.53	1.55	1.62	3.70
Book chapter Total		0.53	1.55	1.62	3.70
Conference paper	(blank)	7.67	13.63	1.33	22.63
Conference paper Total		7.67	13.63	1.33	22.63
Journal article	A	12.16	15.32	10.30	37.78
	A*	2.24	2.99	1.50	6.73
	B	5.18	2.55	12.39	20.12
	C	6.64	4.40	5.99	17.04
	(blank)	0.75	2.55	2.82	6.12
Journal article Total		26.97	27.81	33.00	87.78
Total weighted publication points		35.17	42.99	35.95	114.11

The Centre submission to the Review includes a list of 66 affiliated PhD students, though the Review Panel noted some of these were also claimed by other Centres and enrolled through a Faculty. While there is no doubt that the cohort for which the Graham Centre staff undertake supervision is significant, future clarity around criteria that need to be satisfied before a student can be said to be part of a Centre, such as supervisory arrangement, and funding support, would be helpful.

Recommendations

- 21. That the E. H. Graham Centre for Agricultural Innovation continue as a Research Centre of the University.**
- 22. That the membership base of the E. H. Graham Centre be reviewed with an emphasis on performance.**
- 23. That the administrative support roles of the E. H. Graham Centre be clarified.**

8.9 International Centre of Water for Food Security

ICWater, the International Centre of Water for Food Security, was established in 2007 as an outgrowth of ILWS. Three Centres at CSU continue to have research interests in the water domain, including ICWater, the Graham Centre and ILWS, and the Review Panel was of the view that the extent to which this is desirable should be clarified into the future. As at 2010 the Centre reported 39 members, though the Panel queried the basis of this, believing the number to be lower, therefore giving rise to a question of future viability. External referees noted, on the one hand, the breadth of work undertaken prior to 2007 and the extent to which the Centre had been shaped by the work of its previous Director. They also expressed concern at the “ambitious and expansive” research priorities of the group (one noting 33 items listed under 6 themes) and the likelihood of them not being achieved. Referees were, however, very positive about the international engagement of the Centre.

ICWater received circa \$250,000 funding per annum from CSU. Its research portfolio has included a diversified mix of category 1 to 4 funding (see Figure 30). Category 4 funding was from the CRC Irrigation Futures which has since ceased operations. Total annual external research income has been consistently high (see Figure 31). In its submission to the Review, the Centre notes further income sources not showing in this data. They may have either been attributed elsewhere in CSU, are incomplete in CSU records, or were not tagged as research.

Figure 30. ICWater external research income profile 2007-9.

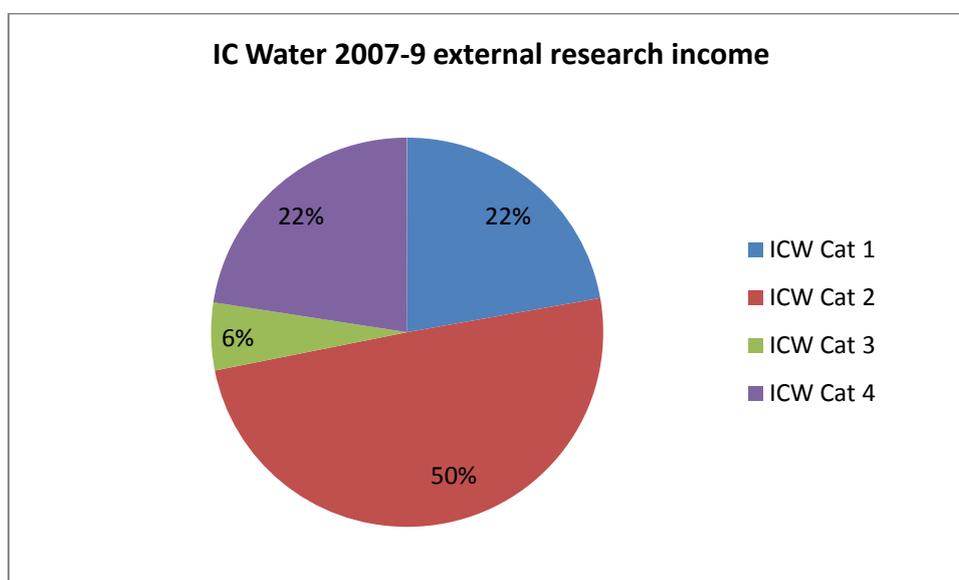


Figure 31. ICWater external research income 2007-9.

External income	2007	2008	2009	Grand Total
IC Water	755,250	1,680,083.59	1,002,423	3,437,756.64

IC water has been active in the recruitment of international HDR students and fee-paying students to CSU, using its substantial international network of contacts. The submission to the Review by the Centre cites support of 25 students (including PhD, Masters and Hons) and 13 completions.

The publications output of ICWater has consisted of a mix of predominantly conference papers and journal articles, including a number of A and B-ranked outlets. Output in 2009 declined significantly.

Figure 32. ICWater weighted research publication points 2007-9.

Publication type	rank	2007	2008	2009	Grand Total
Book	(blank)		5.00		5.00
Book total			5.00		5.00
Book chapter	(blank)		1.00		1.00
Book chapter total			1.00		1.00
Conference paper	(blank)	13.63	1.67		15.29
Conference paper total		13.63	1.67		15.29
Journal article	A	3.90	5.58	0.50	9.98
	A*	0.40	0.33		0.73
	B	2.91	7.25	1.58	11.75
	C	1.50	3.06	3.27	7.84
	(blank)	2.33		1.00	3.33
Journal article total		11.05	16.23	6.36	33.63
Total weighted publication points		24.67	23.90	6.36	54.93

The Review Panel was concerned about the future sustainability of ICWater, with low numbers of staff and decreasing publication output, albeit with a high income base. It was also clear that there has been a range of governance and structural issues that have impacted on the extent to which project and finance management could be undertaken to adequate standards. The University is in a geographical location where growing strength in water research is logical, though it was the view of the Panel that the activities of ICWater would benefit from being part of a greater critical mass of researchers with related interests. It was the view of the Panel that the Centre should be discontinued as a structure, but that its researchers continue under their current conditions within the School and Faculty with the most appropriate disciplinary links

Recommendation

24. That ICWater be discontinued as a Research Centre of the University after 2011 and consideration be given to how water research should be continued and represented at the University.

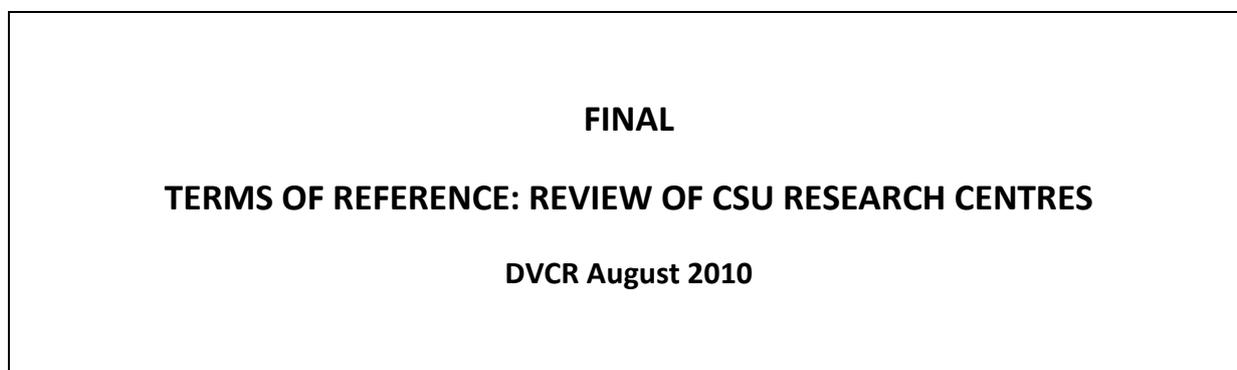
9 Conclusion

In conclusion, this Review has highlighted the range of achievements of nine Research Centres at CSU that were accredited until the end of 2011. Recommendations of the Review support continuation of 6 of the Centres, propose that 2 are aligned with Faculties, and that 1 be discontinued in favour of re-examining how that area of research is best represented at the University. The review further highlights areas of future policy development that need to occur to maximise the efficiency, effectiveness and accountability of Centres at the University.

The period 2011-2015 will be a critical one for CSU within a sector under increasing scrutiny and public focus on research achievement. This Review has been aimed at highlighting areas of strength and concern so that CSU is able to realise its vision of being a University that continues to be highly valued for its research.

10 Appendices

10.1 Appendix 1: Terms of Reference for the Review



Purpose

This document sets out the Terms of Reference for Review of University Research Centres at Charles Sturt University. It will review performance of the existing Centres and, in light of that, make recommendations on the processes by which the University identifies and supports foci of research strength into the future.

Scope

- This document applies to existing Research Centres either wholly or partly operated through CSU and accredited to 2011
- It does not cover applications for new University Research Centres or Problem-Focused Research Groups.

Context

University Research Centre (URC) status is the highest form of recognition bestowed upon a research grouping. It brings with it with an assumption of sustained success in an area of research that supports the strategic direction and KPIs of the University. It is a title that will only be awarded in circumstances when

- The current profile of a substantial group of researchers is significant and, where by creating a University Research Centre, it can become national or international in standing.
- Where the advantages of explicit recognition and separation of this group of researchers outweighs any disadvantages to their host Faculties.

University Research Centres are designed to synergistically bring together staff around a coherent research theme that has broad influence and engagement across the University. They have also been formed in some circumstances where there has been a desire to formalise collaborations with external parties. Their work will relate to agendas of national or international importance, including the Federal Government's national research priorities. The Council of the University has the power to accredit two types of Designated (accredited) Research Centres, namely Centres of Research Excellence and Strategic Research Centres.

Centres of Research Excellence, as defined in current CSU policy, will have:

- a) co-investment in the program of research by external agencies like the Australian Research Council, other granting bodies like Research Development Corporations, Federal or State Government bodies, and/or industry bodies. ARC Special Research Centres and ARC Centres of Excellence are automatically accredited as Centres of Research Excellence.
- b) a critical mass of research leaders and academics in a defined area with an excellent track record of attracting nationally competitive grants and external grant funding as well as high quality publications in international and national journals or leading publishers in the area of research strength. As an indicative guide there should be a minimum of ten Research Productive or fractional equivalent CSU Staff/Adjunct Staff with a strong research grant and publication profile in the area who are identified as Principal Researchers in the Centre.
- c) an internationally competitive level of achievement as demonstrated by nationally and internationally sourced research grants and the number and quality of research publications as determined by expert reviews, citation rates, and publications in high impact journals and publishing houses,
- d) strong and demonstrable links and/or collaboration with similar international and national research centres or agencies,
- e) strong links with national and State agencies like Cooperative Research Centres, other Universities and Research Bodies, CSIRO, Professional Bodies and/or NSW Agriculture, and
- f) demonstrated capacity to fund some of its activities on a sustainable basis.

Strategic Research Centres, which provide the University with the capacity to recognise and support two groups of researchers. *Category 1*: Those who have developed a nationally competitive research track record in a specific area and who demonstrate the potential to grow further. *Category 2*: Those who have a track record that indicates the potential to achieve a nationally competitive level of achievement. The establishment of these Centres provides the University with the mechanism to build research capacity in identified areas of strategic importance and to grow and develop new areas of research strength. The Deputy Vice-Chancellor (Research), in consultation with the Research Management Committee and in light of strategic directions for research, will initiate invitations for groups of researchers to make an application to become a Category 2 Strategic Research Centre.

Strategic Research Centres will have

- a) as an indicative guide a minimum of six Research Productive or fractional equivalent CSU Staff/Adjunct Staff in the area with a track record of attracting nationally competitive grants or internal grant funding as well as publishing predominantly in national journals in the area of research strength,
- b) a nationally competitive level of achievement or demonstrated potential to develop a nationally competitive level of achievement in the area of strength as demonstrated by the number and amount of nationally sourced research income and the number and quality of research publications as determined by expert reviews, citation rates, and publication in high impact journals and publishing houses,

- c) links with national agencies like Cooperative Research Centres, other Universities and /or research bodies, CSIRO, Professional Bodies and Federal or State Government agencies like NSW Agriculture,
- d) demonstrated capacity to develop and grow into a Centre of Research Excellence or a nationally recognised Research Centre.

Purpose of the Review

The purpose of the 2010 Review of Research Centres is to enable the University to review and inform its investment in Research Centres by:

- Considering the performance outcomes generated by the Centres against the purposes for which they were set up
- Considering performance of Centres against standard external metrics including those used for the 2010 ERA assessment
- Informing the University about whether Centres continue to be the appropriate structures for targeting research funding to areas of strength in moving forward to the next strategic Plan
- In the context of the previous point, considering the range and type of Research centres that are appropriate to represent the University's continuing research expertise (noting that, at this point, there is not a call for new groups seeking Centre status), alignment with internal priorities, and the extent to which they might align with government priorities.

The University is mindful that some Centres extend beyond CSU. In those cases the review is intended to inform the CSU component.

Terms of Reference

The Terms of Reference for review of Research Centres are designed to reflect the principles upon which University Research Centres were established.

1. Excellence in research, including performance in the 2010 ERA
2. Excellence in research training, as demonstrated by HDR student load, completions and experience
3. Success in attracting substantial research income
4. Contribution to the Strategic Plan of Charles Sturt University and to the federal government national research priorities
5. Engagement with external agencies, institutions, industry, and the community
6. Engagement with, and influence on, the relevant professions
7. National and international recognition
8. Prudent financial management
9. Appropriate and effective governance and leadership (extending to developmental role in capacity building).

The above shall take account of the varying structures of the current Centres, the length of time since their establishment, and their resource base.

Process of Review

Point 1: Internal Review

Point 1 aims to examine the CSU component of each Centre in line with the points above, and to clarify the current level of internal support.

Point 1 of the review will be conducted by

- The DVC Research
- Director, Research
- A representative of Academic Senate unconnected with the specific Centres under review
- A member of the professoriate unconnected with the specific Centres under review

This review will be based on:

- ERA and HERDC data (*this will require data sorting as Centres do not lie within specific FOR codes*)
- Information about existing resource arrangements with Centres

A brief written report will be provided to all Centres, and each Centre will be provided with a copy of its own data.

Point 2: Call for Submissions

Point 2 aims to capture a broad range of issues related to Centre functions and their relationships within and beyond the University.

There will be a general call for submissions from internal and external stakeholders about Research Centres. Submissions may concentrate on any broad aspects of:

- Research performance
- Developmental roles
- Centre operations, including staffing and funding
- External stakeholder relationships
- Internal relationships, including impact on other parts of the University and relationships with Faculties/Schools

Specific submissions will also be solicited as follows:

- Centres will be invited to make a submission regarding their own performance and functions.
- Three external referees for each Centre will be sought, two of whom will be nominated by the Centre, and a third nominated by the DVCR.

Point 3: Site visit

Point 3 aims to triangulate the information received through interaction with Centre staff and students.

A brief site visit may be conducted. For feasibility reasons this will be by a sub-group of the Review Panel. The site review may include an on-site agenda of presentations and discussions.

At the final stage of the Review, the Panel will be joined by an external member chosen for their expertise in research or research management.

The Panel will be provided with the following documentation:

- Material from Points 1 and 3 of the Review, including Centre data, all submissions to the Review, and referee reports
- Material provided during any site visits.

The Review Panel will meet in a closed session to discuss the material obtained and write a report on its recommendations.

10.2 Appendix 2: List of Submissions to the Review

1. Centre for Applied Philosophy and Public Ethics (CAPPE)
2. EH Graham Centre for Agricultural Innovation (E H Graham Centre)
3. Institute for Land, Water and Society (ILWS)
4. Research Institute for Professional Practice, Learning and Education (RIPPLE)
5. Centre for Research in Complex Systems (CRiCS)
6. Public and Contextual Theology Research Centre (PACT)
7. International Centre of Water for Food Security (IC Water)
8. Centre for Inland Health (CIH)
9. Shane Raidal, Associate Professor in Veterinary Pathobiology
Director Veterinary Diagnostic Laboratory
School of Animal & Veterinary Sciences
10. Ben Bradley, Presiding Officer, Academic Senate
Professor of Psychology, School of Psychology
11. Nick Sangster, Professor of Veterinary Pathobiology
Associate Head of School
12. Dr Jonathon Howard, Associate Head of School/Director of Courses
School of Environmental Sciences
13. Carmen Moran, School of Psychology
14. David Neville, Associate Head of School
School of Theology
15. Bruce Andrews, Media Office, CSU Media
16. Professor Len Wade, Strategic Research Professor
17. Faculty of Science

10.3 Appendix 3. CSU ERA 2010 results

ERA 2010 evaluated research within disciplinary groups (broad fields, represented by 2 digit codes) and sub-disciplinary groups (narrow fields, represented by 4 digit codes). Descriptors of how the ratings were applied are shown in Table 1. Evaluation was dependent on reaching a threshold quantum of work. CSU was evaluated in a total of 17 broad and 35 narrow fields (Table 2). Work was evaluated as being world standard or better in 5 broad and 9 narrow fields as follows:

Rating of 3 (at world standard)

03 Chemical Sciences
 05 Environmental Sciences
 06 Biological Sciences
 0607 Plant Biology
 07 Agriculture & Veterinary Sciences
 13 Education
 1301 Education Systems
 1302 Curriculum & Pedagogy
 1506 Tourism
 2201 Applied Ethics
 2203 Philosophy

Rating of 4 (above world standard)

0502 Environmental Science & Management
 0301 Analytical Chemistry
 0703 Crop & Pasture Production

Table 1: ARC research rating descriptors used in ERA 2010

Rating	Descriptor
5	The Unit of Evaluation profile is characterised by evidence of outstanding performance well above world standard presented by the suite of indicators used for evaluation.
4	The Unit of Evaluation profile is characterised by evidence of performance above world standard presented by the suite of indicators used for evaluation.
3	The Unit of Evaluation profile is characterised by evidence of average performance at world standard presented by the suite of indicators used for evaluation.
2	The Unit of Evaluation profile is characterised by evidence of performance below world standard presented by the suite of indicators used for evaluation.
1	The Unit of Evaluation profile is characterised by evidence of performance well below world standard presented by the suite of indicators used for evaluation.

Table 2: CSU 2010 ERA ratings by field

Field	Descriptor	CSU rating
03	Chemical Sciences	3
0301	Analytical Chemistry	4
05	Environmental Sciences	3
0502	Environmental Science and Management	4
06	Biological Sciences	3
0605	Microbiology	1
0607	Plant Biology	3
0608	Zoology	2
07	Agricultural and Veterinary Sciences	3
0703	Crop and Pasture Production	4
0707	Veterinary Sciences	2
08	Information and Computing Sciences	1
0807	Library and Information Studies	2
11	Medical and Health Sciences	1
1103	Clinical Sciences	1
1115	Pharmacology and Pharmaceutical Sciences	1
11	Medical and Health Sciences	1
1110	Nursing	2
13	Education	3
1301	Education Systems	3
1302	Curriculum and Pedagogy	3
1303	Specialist Studies In Education	2
14	Economics	1
1402	Applied Economics	1
15	Commerce, Management, Tourism and Services	1
1501	Accounting, Auditing and Accountability	1
1503	Business and Management	2
1505	Marketing	1
1506	Tourism	3
16	Studies In Human Society	1
1602	Criminology	1
1606	Political Science	1
1607	Social Work	2
1608	Sociology	1
1699	Other Studies In Human Society	1
17	Psychology and Cognitive Sciences	1
1701	Psychology	1
18	Law and Legal Studies	2
1801	Law	2

19	Studies In Creative Arts and Writing	2
1904	Performing Arts and Creative Writing	2
1905	Visual Arts and Crafts	1
20	Language, Communication and Culture	2
2001	Communication and Media Studies	2
2002	Cultural Studies	1
2005	Literary Studies	1
21	History and Archaeology	2
2103	Historical Studies	2
22	Philosophy and Religious Studies	2
2201	Applied Ethics	3
2203	Philosophy	3
2204	Religion and Religious Studies	2