



Australian Government

Australian Research Council

**Excellence in Research
for Australia (ERA) Initiative**

**Making a Submission in Response to
the *ERA Consultation Paper***

June 2008

EXCELLENCE IN RESEARCH FOR AUSTRALIA (ERA) INITIATIVE: CONSULTATION PAPER

How to Make a Submission

This document contains notes to assist organisations prepare a submission, as well as the conditions for making a submission. Additionally it contains a submissions pro-forma that should be used for making a submission to the consultation paper on the ERA initiative.

How do I make a submission?

Submissions can be emailed, faxed and/or posted to the ARC.

Please note that only one submission can be made by each invited organisation.

Please provide your responses to the issues in the relevant spaces on the pro-forma.

If you choose not to respond to some of the issues, please do not delete the issue box, just leave the response area blank or enter 'Nil Response'. If you have any comments on areas not addressed in this pro-forma please enter them in the space provided at the end of your submission.

Will my submission be published?

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Where do I send my response?

Email submissions can be sent to era@arc.gov.au

Fax submissions can be sent to **(02) 6287 6601**.

A signed hard copy of the submission should also be sent to:

**The Submissions Officer
Research Excellence Branch
Australian Research Council
GPO Box 2702
CANBERRA ACT 2601**

The closing date for all submissions is **30 June 2008**.

If you have any questions regarding the pro-forma or any other aspect of making a submission, please contact the Research Excellence Branch at era@arc.gov.au.

**EXCELLENCE IN RESEARCH FOR AUSTRALIA (ERA) INITIATIVE:
CONSULTATION PAPER**

Submission Cover Page

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Does the organisation consent to having its submission identified in a report on the outcomes of this submission process to be prepared by the ARC, which could be made publicly available on the ARC's website? (Y/N)	Y
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Please ensure that all details on this page are completed.

Issues for Response

The ARC is seeking feedback from the sector on the issues raised in the Consultation Paper. These issues are highlighted in the pink boxes throughout the Consultation Paper and listed below.

Measures of Research Activity and Intensity, pages 7 and 8

1. *For the 2008 clusters of ERA, research activity and intensity data will be collected at the two-digit FoR level. Collecting this data at four-digit FoR level over the longer term would provide greater granularity of analysis and reporting. We welcome feedback on any implications that this requirement will have for the span of the reference period in terms of retrospective data collection.*

RESPONSE:

An overall concern about using different time periods for different indicators

In principle, Griffith believes that the time period used for activity or intensity indicators should be the same as that used for quality indicators. If this is not the case, it is difficult to see how the two sets of data could be meaningfully combined, given that one would be dealing with not only different time periods but also different staff complements and FTE. Even if one accepts the activity and intensity indicators as different and separate from the quality indicators, it is proposed to use peer reviewed research income as one of the suite of indicators for research quality. It would simply not be possible to present a credible picture of the research quality of any university using a suite of indicators based on different time periods and different people.

A concern about using FTE as a denominator for some indicators

This concern is made more serious by the intended use of FTE as the denominator for at least some of the proposed indicators. We assume that proposed FTE denominators are intended to reflect FTE for particular disciplinary clusters, as it would not be equitable to use total FTE for the institution when universities of roughly the same size (total FTE) might have very large or very small numbers of staff in any given discipline. However, given that the outputs of individual staff and research groups may well be split across two or more clusters, and hence different review years, it is not clear to Griffith how FTE would be calculated. If one adds to this the possibility that staff complements (and hence FTE) may be determined differently for attributions of publications (*eg based on census date*) and research income (*eg based on HERDC collections*), and that the time periods for some indicators may be different from that for others, we wonder how any meaningful quantitative profile of institutions is going to emerge. At the very least, we urge ARC to ensure that ERA reporting makes very clear how, and from what data and time period, each indicator has been derived, as well as emphasising the inappropriateness of combining such data to derive an assumed overall picture of an institution's research performance.

In summary, we are concerned that, in an environment where research quality indicators are based on research outputs allocated to disciplinary clusters on the basis of the particular journals they are published in, there will be little or no relationship between an individual staff member and their FTE, their chosen ANZSRC code in any given year, research income and research outputs.

Some practical problems with deriving FTE

Bearing in mind the above issues, we also point out that the provision of meaningful data on FTE presents a number of practical problems. Griffith collects annual staff FTE data for 31 March each year. These data are accurate at the time but it would be difficult to provide accurate full staff data at any other time. Employment data are not mapped to RFCD or ANZSRC codes, and such mapping would present significant challenges. It should also be borne in mind that staff counts change from year to year and the relationship of individual staff with FoR codes will also change over time. Hence the disciplinary break-up of FTE for one year may be quite different in the next year (and/or next review period). A given staff member's research outputs or income may also be submitted to different clusters and hence different review periods. It should also be noted that FTE data compiled for the annual staff collection does not relate easily to HERDC data for income.

Deriving and mapping research income

Some research income data for HERDC categories 1-4 can be mapped to four digit codes using the existing RFCD -> ANZSRC mapping tables. This will not be possible however with all existing RFCD codes, and Universities will need to develop internal systems to ensure

- a) mapped code conversions are checked by researchers for correctness; and
- b) codes which cannot be converted using the mapping tables are converted to ANZSRC codes by researchers.

This might be done by approaching individual researchers, Deans or faculty research committees. This is not impossible, but will take some time and effort.

Category 5 income will be more problematic. Some kinds of income (eg Australia Council, artistic commissions) are awarded direct to individuals and will not necessarily pass through a university's books. They are however very important income sources and important indicators of how work is valued in some disciplines including the creative arts. Other income (eg some research consultancies) is recorded at Griffith as total funding awarded, but information on how much income has passed through the institution's books on a particular project for a specific year may be difficult or impossible to source. Allocating such projects to ANZSRC codes may also be difficult.

ARC would need to establish clear rules for inclusion – eg, income per year or total of grant awarded, pro-rating of shared grants across both individuals and institutions, etc. If HERDC data can be used with little or no amendment, the whole exercise will be much simpler – though not necessarily more meaningful. If unmodified HERDC data is used, the number of years, or the particular years chosen, is relatively unimportant *in terms of workload for the submitting institution*.

Deriving and mapping RHD statistics

RHD statistics on load and completions can be provided for any time span (2 years or 6 years) but, as per our argument above, we believe the time period should be the same for all indicators. Types of higher degrees (masters, doctorate) can be distinguished. RHD statistics are currently based on Field of Education (FoE) codes. These do not correspond exactly to ANZSRC or RFCD codes, but at 2-digit level, there would be strong similarities, and it may be possible to develop mapping rules

for at least some conversions. Other conversions may need to be done manually in consultation with supervisors, past or present. Conversion to 4-digit codes would not be impossible given time and resources, but would certainly be more difficult. Obviously, the longer the time span for the data, the larger and more time consuming the task.

Choosing 2-digit or 4-digit codes

There are conflicting factors driving the choice of reporting at 2-digit or 4-digit code levels. In some cases, combining data to the 2-digit level would bring together quite disparate sub-disciplines, and yield results that are too broad and aggregated to be useful. In other cases, splitting to the 4-digit level will split coherent disciplinary groupings. As a Griffith-based example, political science (1606) is different from policy and administration (1605). In this case, reporting at the 4-digit level would turn one outstanding research group (Centre for Governance and Public Policy) into two small units, each possibly below "critical mass" for a good result. These conflicting drivers and the problems they will create further underline our concerns about the use of traditional disciplinary groupings as the fundamental basis of ERA evaluation and reporting.

Reporting at the disciplinary *cluster* level would lead to meaningless results. It would also risk removing incentives to improve for individual sub-disciplinary research units whose reported performance could be negatively affected by that of other sub-disciplines within the cluster. In some cases, this problem could also occur at the 2-digit FoR level.

2. *We recognise that non-salaried staff (honorary and adjunct) often contribute to the overall research effort of an institution. Therefore, we are seeking comments on the extent (if any) to which these researchers should be incorporated into staff FTE reporting.*

RESPONSE:

Given the specific basis of evaluation and reporting in ERA, Griffith does not support the inclusion of non-salaried staff outputs. Identifying all such staff and sourcing their publications and research income will be difficult. Many adjuncts often hold this status at more than one institution (and report their affiliation to both in published papers) leading to a need for more complicated attribution rules. Assigning FTE for non-salaried adjuncts would be virtually impossible. If adjuncts are included, we would strongly oppose inclusion of their FTE in indicator denominators. While some adjuncts and honorary staff do make an active contribution to the research effort, and continue to produce papers, many do not and their inclusion in FTE could artificially reduce indicator values.

Indicators of Research Quality, page 8

3. *Are there other core indicators of research quality that could readily be included?*

RESPONSE:

Quality indicators for multidisciplinary research units

Griffith is concerned to ensure multidisciplinary research units undertaking excellent research are appropriately evaluated and profiled in ERA reporting. One option would be to allow institutions to nominate units for a special multidisciplinary assessment

based on a "gateway" definition of what constitutes multidisciplinary. This might be no more complex than cases where a research unit which forms a real part of an institution's organisational structure is split across two or more ERA disciplinary clusters. These units could then be assessed in a separate process involving referral across RACs. Institutions could also be invited to nominate two or more similar research units of international standing (in Australia or overseas) for benchmarking using agreed quality indicators. ARC or the nominating institution itself could undertake the benchmarking. Suitable benchmarking bibliometrics might include

- comparative profiles of the total publications and average citation rates of each multidisciplinary unit
- comparative profiles of percentage publications in the four tiers of ranked outlets
- comparison of the extent to which each exceeds world averages for citation rates
- a composite unit-level H-index for each over the ERA census period.

This approach would have the significant advantage of allowing the government to profile and publicise areas of multidisciplinary excellence in which Australia can claim to be world-leading.

Mixing input and output indicators

Griffith is concerned that ERA intends to use a mixture of input and output indicators, including within the suite of research quality indicators. These indicators are inherently different in nature. Grant income does not represent an indicator of research excellence in the same way that publication does, though it is a significant *enabler* of excellent outputs which is iteratively influenced in its turn by those outputs. There is hence a risk of double counting – success with competitive grant income, for example, is based strongly on track record which in turn is based strongly on publication record.

Choosing quality indicators for HASS disciplines

Use of citations is problematic in at least some of the social sciences and humanities, especially if based solely on journal and conference articles. It is extremely important to make some attempt at extended referencing so that at least citations of books within journal articles are recorded. Books are considered the acme of research output in many HASS disciplines and numbers of books published, possibly ranked according to publisher, needs to be included as a central indicator. Specific indicators for the creative arts will need to be developed in close consultation with the sector.

Other possible quality indicators

For those disciplines where bibliometrics are appropriate, we also recommend use of the H-index for individual researchers within disciplines or institutions overall. H-index is a widely accepted and meaningful measure of research quality and consistency for many disciplines. It avoids the difficulties and disputes associated with outlet rankings, and the problems of ascribing outputs from a single researcher to different disciplinary clusters.

Other possible indicators of quality include:

- citations divided by the journal impact factor (allowing for the fact that articles published in top ranking journals have an increased likelihood of citation and

that therefore those which are published in such journals but not much cited should be weighted down accordingly – also makes some allowance for the fact that some excellent and much cited articles are published in mid-ranking journals while some articles published in top ranking journals are rarely or never cited)

- numbers of institutional researchers on editorial boards of A* and A journals
- numbers of invitations to review research grant proposals nationally and internationally
- international reach of research based on numbers of countries where the research is cited (though this would not be universally applicable – eg in a discipline where the focus is strongly on the Australian context, such as law)
- numbers of invited keynote addresses
- numbers of members of learned academies or prestigious societies (eg Royal Society, Australian Institute of Biology) or other international disciplinary bodies (eg UN advisory bodies)
- citations recorded in Google Scholar.

Indicators of Success in Applied Research and Translation of Research Outcomes, page 8

4. *What other discipline-specific measures of excellence in applied research and translation of research outcomes should be considered by the Indicators Development Group, and how should they be benchmarked?*

RESPONSE:

Creative arts

Indicators of research quality and applied research tend to merge for creative arts, and include such measures as critical reviews, audience numbers, status of exhibition or performance venues, commissions, etc. Distinguishing between applied research and research quality or intensity may be difficult and even artificial in these disciplines.

Practical issues in deriving data for indicators

Research income awarded in collaboration with end users can be sourced, at least for Linkage and similar grants. However, Griffith considers that use of most of the measures of applied research currently proposed (including by ourselves, below) will be problematic to derive, difficult to ascribe to ANZSRC codes, and variable in completeness both within institutions and from one institution to another. Hence they will not be credible comparators, and will not reliably measure "excellence" in applied research in any quantitative way.

Information on patents is neither a compulsory nor rewarded component of the HERDC publications collection, and available data is very incomplete and unverified. Completing the collection and verifying entries would be a large job.

Griffith believes it would be preferable to abandon this category of reporting, as results would be highly skewed and of doubtful value.

Possible additional indicators of applied research

Many Griffith researchers have argued for inclusion of examples where research outcomes have been adopted by end-users in developing new policies, practices interventions (eg child protection, disability services, curriculum development and a

wide range of other end-uses). Even if this kind of data does not lend itself to quantitative analysis it may provide useful examples for profiling Australia's excellence in applied research. A simple (albeit possibly simplistic) indicator of applied research would be the number of consultancies or research contracts, and/or the number of reports commissioned by government (including AusAid and Austrade) and industry. Government commissioned reports may include the development of guidelines which are later officially adopted (eg river management or pollution control guidelines in natural resource management). Others have suggested

- total income from consultancies or contract research (may be difficult to derive)
- entries in online sources such as Wikipedia
- web "hits" or downloads of reports
- sales of reports
- providing expert opinion (eg into development applications), acting as an expert witness
- invited membership of standards committees or prestigious government advisory bodies
- invitations to speak at industry or practitioner conferences.

We note however that all of these measures are likely to have the same problems as identified for the current ARC list of indicators.

5. *We would welcome suggestions regarding types of practitioner-focussed outlets that may indicate excellence in applied research or translation.*

RESPONSE:

Griffith researchers have suggested the following practitioner-focussed outlets

- NCVER newsletters
- Asia Pacific Journal of Health Management (some sections subject to peer review, some not)
- The Children's Guardian, published by the NSW Office for Children
- Discussion paper series for PeakCare Queensland (peak body for child and family welfare agencies)
- Horizons (quarterly newsletter describing recent research, published by Queensland Department of Child Safety)
- Physician and Sports Medicine journal
- Health and Fitness Summit and Expo (organised by the American College of Sports Medicine)
- News and Events (published online by Land and Water Australia at www.lwa.gov.au)
- Annals of Occupational Hygiene (peer-reviewed but focussed on practitioners)
- Journal of Occupational and Environmental Hygiene (peer-reviewed but focussed on practitioners)
- Scandinavian Journal of Work Health and Environment (peer-reviewed but focussed on practitioners)
- Journal of Occupational Health and Safety Australian and NZ (peer-reviewed but focussed on practitioners)
- any practitioner-based training courses, workshops or demonstrations intended to present or facilitate the adoption of new practices based on research findings

- invited presentations to government agencies (eg Queensland Department of Communities)
- invited talks and keynote addresses at industry or practitioner conferences
- performance venues and exhibition spaces for creative arts.

Research Income Data, page 9

6. *How feasible is it to collect category 2-4 research income data at four-digit FoR? Are there specific issues for each category for retrospective collection? Are there specific issues for future collections in Category 3?*

RESPONSE:

Please see answer to Question 1 above in relation to choosing between 2-digit and 4-digit codes. Using the mapping tables provided, we would be able to map some percentage of research income from the old RFCDC codes to ANZSRC codes at the 4-digit level. Mapped codes would need to be checked with grant holders for accuracy, and those which do not map readily will require advice from grant holders, deans or other senior academic staff. This may be more problematic the older the data is.

We do not see any specific issues for category 3. There will be significant problems however in collecting information for category 5, for which varying amounts of historical data, of variable accuracy and completeness, will be available. For at least some items under this category, Griffith would have recorded the amount awarded for a given year, but not necessarily income received in that year.

7. *Are all the income categories necessary or appropriate? What additional income streams could be collected under Category 5?*

RESPONSE:

Please see responses under questions 1 and 6 above. Griffith has reservations about mixing input measures with output measures in this exercise (particularly as measures of research quality). If research income is used as an indicator is confirmed, we are uneasy about using category 5 income as a comparative measure of intensity or quality, due to the incompleteness of historical data. If category 5 income is to be included, much clearer definition of what can legitimately be included, and how this information is to be used, would be needed. Otherwise data sets collected from one institution will not be comparable with those collected by another. For the creative arts, however, non-NCG sources of income including Australia Council grants, commissions, sale of works, grants or investments from the Australian Film Commission represent important sources of income as well as measures of both quality and application of research.

8. *What would the most useful research income reference period be for ERA, considering this does not need to be the same as the six-year publications reference period (see page 10)?*

RESPONSE:

Please refer to concerns about the use of different time periods for different indicators raised under Question 1 above. Even where the same time period is used, depending

on the choice of attribution rule for publications, older income data could be largely unrelated to publications output, involving different staff and even varying ANZSRC codes for the same staff, or different codes for a given grant and the research publication arising from it.

9. *How practical is it to request numbers of successful grants in addition to research income?*

RESPONSE:

This should be quite feasible, though ARC will need to present clear rules about attribution and eligibility for inclusion – eg where grants awarded include researchers across different institutions and where there are different categories of investigators. This kind of information should only be used to compare like with like – eg the HASS disciplines traditionally win fewer grants and individual grants tend to be of lower \$ value than for the sciences. The same issues about time periods and lack of correspondence between researchers, outputs, grant income and FoR codes apply to numbers of grants.

Research Publications Data, page 10

10. *A list of other possible publications types is provided in Appendix B of the Consultation Paper. We are seeking feedback on whether there is support for these types to be included for individual disciplines and whether these categories are appropriately identified.*

RESPONSE:

Griffith has a strong preference for use of core research outputs (HERDC categories A, B1 and C1, plus E1 for engineering and ICT) only for the majority of disciplines. Inclusion of other categories of outputs will raise difficult questions about what constitutes research, and make the calculation and comparison of bibliometric indices difficult. A small number of specific disciplines will, however, need to recognise a wider range of categories – in particular the creative and performing arts (CPA). For CPA sub-disciplines, the listed output categories may not be fine-grained enough. Appropriate peak bodies should be consulted to develop a spectrum of research outputs and outlets which are meaningful within the discipline and beyond (for example the SPIRI index for screen productions developed by ASPERA).

Publication Reference Period(s), page 10

11. *Should all non-publication data be collected over a shorter reference period? If so, what would that period be?*

RESPONSE:

See response to Questions 1 and 8. Griffith believes all data to be used for ERA profiles and comparisons should be collected over the same time period.

Attribution, pages 10 and 11

12. *Please provide comment on the above approaches for attributing publications.*

RESPONSE:

Griffith has a strong preference for attribution to be based on staff affiliation at an agreed census date. Current employment profiles give a much more accurate picture of the current and near-future spectrum of research focus, and research capacity, competency and excellence.

The ERA Discussion Paper states clearly that "In the longer term, ERA will provide a framework that gives government, industry, business and the wider community assurance of the quality of research in Australia's higher education institutions and ***guide future investment in that research effort*** [*emphasis added*]." We cannot imagine that government would wish to base significant national investment in research across higher education institutions on competency and quality derived from staff profiles up to 7 years prior to present, given that such data may bear little relation to an institution's current strengths. This becomes even more important if ERA results are expected to influence outcomes of the proposed "hubs and spokes" model.

The census date for attribution should be as current as possible. Given that the publications census period is proposed to be the six-year period ending two years prior to the evaluation year, significant numbers of staff movements could have taken place in the intervening period. We would suggest that the census date for attribution be 31 March in the year immediately prior to any given review (ie 31 March 2008 for a 2009 review).

Data Suppliers, page 12

13. *Which citation data suppliers in your experience result in the most meaningful citation analysis for each of the disciplines?*

RESPONSE:

Griffith is a subscriber to Thomson Reuters Web of Knowledge and has recently conducted an institution-wide trial of Scopus. Broadly speaking, researchers from the sciences found Thomson recorded more of their publications and more citations than Scopus, but Scopus provided better and more comprehensive results for some (but not all) of the HASS disciplines and for nursing. Please note however that these results were based on a relatively small sample, and at least some "worse" results may reflect lack of familiarity with Scopus. Different databases are likely to have advantages for different disciplines, and it is often the case that one database picks up publications or citations missing from another regardless of discipline. Griffith would encourage the use of the database(s) with the best coverage for any given discipline.

Some researchers, especially in HASS disciplines, regularly report that neither Thomson nor Scopus provide comprehensive data on their publications or citations, and that Google Scholar is preferable. In analysing performance during RQF preparations, Griffith noted a close correspondence between composite indices such

as the H-index derived from Thomson and from Google Scholar (via Harzing's POP) across a range of disciplines. This suggests that Google Scholar and Harzing may provide credible citation information for disciplines where coverage in Thomson is limited, and certainly supports further testing of these sources.

Research Training Data, pages 12 and 13

14. *Please provide comments regarding research training indicators. Is it possible to provide HDR completions data retrospectively at the four-digit FoR level?*

RESPONSE:

Yes, but this would require mapping from FoE codes to ANZSRC codes for which there is no current concordance. This would require considerable work and not every entry could be converted accurately. See answer to Question 1 above for issues around choice of 2-digit or 4-digit codes for reporting.

15. *Do you see value in tagging research outputs as authored by HDR students and value in the analyses this will produce?*

RESPONSE:

It would be possible to track publications by former or current RHD students in Thomson or Scopus, but not necessarily possible to be certain whether they were still RHD students at the time of publication. Thomson and Scopus also do not capture all research outputs, and student authorship of books, book chapters and conference papers would be much more difficult to track.

The value of such information is arguable. Practices in co-authorship with RHD students varies considerably across institutions, disciplines and even within departments or schools. If this indicator were to become an established quality measure, it will simply lead to routine inclusion of RHD students' names on papers in the future, regardless of their real contribution, rendering the indicator rapidly meaningless.

Submission, page 13

16. *Institutions are invited to comment on the ease or otherwise of meeting any of the data requirements outlined in this document in addition to the specific questions addressed under particular headings.*

RESPONSE:

Cross-institutional data

Tracking and identifying *cross-institutional publications* should not be difficult, provided we are not required to name the collaborating institutions in each case. This would be difficult for some papers, and an onerous task.

Collection and use of FTE data

As outlined at several points above, Griffith is concerned about the collection and use of FTE data in several indicators. A researcher who identifies totally with one discipline may have their entire research output, research income and other relevant

statistics distributed across several different FoRs and disciplinary clusters. Using criminology as an example, Griffith would have a significant FTE of criminologists (and hence a relatively large denominator for indicators where FTE is used), but the numerators for these indicators may be artificially quite low due to the dispersal of outputs, income, etc to other clusters.

Reporting, pages 14 and 15

17. *We propose there is considerable value in having maximum flexibility and utility with respect to reporting, however, we also recognise the workload involved for institutions in assigning reporting codes. We welcome feedback on this issue in respect to both the feasibility and value of such an approach.*

RESPONSE:

Griffith is deeply concerned about loss of visibility and recognition for its highly regarded and highly productive multidisciplinary research centres. In order to ensure research excellence in such elements is reported and receives due recognition, we would willingly embrace the assignment of an additional reporting code.

However, there are considerable practical problems in using such codes to report meaningfully on multidisciplinary centres. For a given multidisciplinary centre, it is highly likely that outputs will be allocated to several different disciplinary clusters. *(For example, environmental science is identified as a specific sub-discipline under cluster 3, but the outputs of Griffith's school of environmental science would be allocated in practice to at least 6 different clusters.)* Consolidated reporting might therefore not be possible until the end of the full review cycle (up to four years if two clusters are reviewed per year?). During this time period staff complements may change and research focus evolve considerably, and data sets for disciplinary clusters that are reviewed in different years will be based on different time frames. This would make consolidation of the various data sets into a single reporting framework invalid.

Moreover we understand from recent ARC briefing sessions that ARC itself would not be undertaking such reporting but would simply provide data sets to individual institutions which may wish to undertake such reporting themselves. If this is the case, we see little value in adopting the additional coding. We would be more likely to prepare our own benchmarked quality data and profiles for our multidisciplinary research units, based on a single time period and complement of researchers, and without the need to wait for an entire review cycle to complete.

We are concerned however about that the failure to report on multidisciplinary research excellence as such in published national reports, especially where these are intended to identify concentrations of research excellence in Australia, will have deleterious impacts on the sector and significantly fail to profile Australia's true research capacity. See additional comments on this issue below at item 19.

18. *Institutions are invited to comment on the feasibility or otherwise of institutions identifying student authorship in previous HERDC collections.*

RESPONSE:

See answer to Question 15 above.

19. Griffith wishes to make the following additional points:

i). Multidisciplinary research

Most of the significant problems confronting our nation today are multidisciplinary in nature and require answers based on intensely multidisciplinary research. A myriad of examples could be given, including "big ticket" items such as climate change, water scarcity, national security, combating terrorism, Asia Pacific regional relations, indigenous welfare, community health, drug abuse and crime prevention, and the promotion of a vibrant and recognisable Australian cultural identity. Both the Government and Minister have made numerous supportive statements on the importance of multidisciplinary responses to these major issues. The research and higher education sector understands the importance of this approach, and both the structure of modern universities and the organisation of their research efforts reflect this.

The ERA discussion paper lists the facilitation of interdisciplinary research as one of four policy imperatives that ERA should "*recognise*". It also indicates that ERA aims to identify excellence across "*the full spectrum of research activity*", "*create incentives to improve the quality of research*" and "*identify emerging research areas and opportunities for further development*". Yet contrary to this, ERA appears to be setting up a framework which fails to recognise the way many modern universities and their research efforts are structured, renders invisible a large part of the spectrum of Australia's research activity, discourages many emerging research areas, and not only fails to identify, recognise and report on excellence in multidisciplinary research, but actually provides strong disincentives for research and publication outside traditional disciplinary silos.

The discussion paper makes passing references to possible problems of assessing multidisciplinary research under the ERA framework but the (two) solutions proposed are insufficient and each has major practical problems. For example, the suggestion that individual multidisciplinary articles (outputs) could be referred to more than one disciplinary cluster RAC will not be feasible under a system of rolling cluster reviews which take place in different years. A paper referred to one cluster may not reach its second cluster until one or more years later, by which time it may no longer be eligible for consideration due to changing assessment time periods (eg a criminology paper published in 2002 in a law journal is referred to cluster 2 in 2009; cluster 4 [which includes criminology] is reviewed in 2010, by which time the date of publication makes that paper no longer eligible for consideration).

The most significant concern however relates to multidisciplinary research *units* in universities across the nation. It is these units which are principally targeting the issues of major national concern listed above. The Government has recognised this through investing substantially in a wide range of multidisciplinary centres of

excellence. Examples from Griffith alone include a national centre on policing and security, a national climate change adaptation research facility, and TRaCK (set up to study tropical rivers and their sustainable use). The range and significance of the contribution of these centres to the national research effort will not be recognised under ERA.

Water scarcity is one of the most critical issues affecting Australia today. We will therefore use as a more detailed example Griffith's Australian Rivers Institute (ARI), widely acknowledged as a national leader in water science, held in high regard internationally, and one of the largest concentrations of water researchers in the country. ARI's researchers publish in a wide spectrum of fields including chemistry, engineering, technology, freshwater and marine ecology, environmental science, hydrology, engineering, genetics, zoology, evolution, public health, microbiology, law, policy, economics, sociology, education, ICT and modelling. All of ARI's research is however directed at the single major national issue of water security. Under ERA, ARI's research outputs would be directed to at least 7 of the 8 disciplinary clusters, across different years. Within those clusters, ARI's unique and coherent research effort would be dispersed and submerged into traditional disciplines such as physics, engineering, law, and so on, for reporting purposes. Griffith would receive quality profiles and "report cards" on each of these traditional disciplines individually, but the concentration of excellence in ARI would have no profile. This must be of particular concern to any university with research peaks of excellence in multidisciplinary areas. In addition, the meaningfulness and coherence of the disciplinary profiles will be diluted by combining outputs from widely differing research groups.

While Griffith, and no doubt other institutions, is considering how to benchmark and report on its own multidisciplinary areas so that these will not disappear from view, our own institutional reporting will not have the status, distribution or influence of ERA's national reporting. Not only will this disadvantage individual institutions in national comparisons, it will also sell Australia's research capacity short in international comparisons. It is difficult to understand why the government would *not* wish to acknowledge, profile, report on, and promote to the world, its immense strengths in real-world multidisciplinary research.

How might we deal with the problem of assessing multidisciplinary research excellence?

A number of suggestions are embedded in this response. A non-exhaustive list of options for providing recognition and profile for multidisciplinary research under ERA includes:

- undertaking all reviews simultaneously and allowing cross-referral between cluster-based RACs;
- establishing criteria for designating research units within institutions as multidisciplinary (eg where a minimum % of the outputs of a real organisational unit are spread across two or more clusters) and allowing these units to be assessed by multiple RACs or special interdisciplinary RACs, with the latter equipped to undertake both metric analysis and peer review;
- allowing universities the discretion to group outputs for assessment into collections with common themes;

- allowing universities to allocate their own outputs (journal articles) to ANZSRC codes rather than basing cluster allocation solely on the journal of publication;
- inviting institutions to nominate comparable international research bodies for benchmarking with their own multidisciplinary units.

We strongly urge ARC to request the Indicators Development Group to address the question of profiling multidisciplinary research as a matter of the highest priority.

ii). Spread of disciplines across the 8 disciplinary clusters

The current spread of disciplines across the 8 disciplinary clusters exacerbates the problem faced by multidisciplinary research groups. There will also be cases where research areas which would normally be regarded as solidly within a single discipline or sub-discipline are rendered in effect multidisciplinary and become invisible or have their profiles seriously compromised. The outputs of such areas will be broken up into artificial new collections of outputs which are not related to one another in reality.

An illustration of this problem is provided by criminology. Griffith is widely acknowledged as a, if not the, national leader in criminology research in Australia. Many of Griffith's criminology researchers, however, publish in law journals, and law is in a different disciplinary cluster which will be reviewed in a different year from criminology. In addition, a number of Griffith's top criminology researchers publish in journals which relate primarily to psychology, social work or psychiatry. These outputs, wherever published, would be considered by the researchers themselves and their peers nationally and internationally as ***criminology*** research. For assessment purposes, however, they will be dispersed to some four or more different clusters. Griffith is therefore unlikely to receive a good "report card" for criminology in spite of its acknowledged national status, as it may well have relatively few outputs actually reviewed under the criminology discipline cluster. Another university with a smaller and less prominent group of criminology researchers, but who happen to publish in a narrower range of journals more strictly considered as criminology outputs, may well achieve a better profile. Many other similar examples could be given. This raises a significant concern that ERA assessment will produce artificial quality profiles which do not reflect the real-world distribution and concentration of excellence. It also has the potential to create significant disincentives for the continuation of strongly performing interdisciplinary research groups.

Other disciplinary cluster splits of significant concern include:

- ecology and environmental science are split across clusters 6 and 3; environmental science research outputs (at Griffith and probably elsewhere) would actually be split across 6 or 7 different clusters
- medical biochemistry and biochemistry (split across clusters 7 and 6)
- the location of urban and regional planning in cluster 2
- industrial relations is submerged into management, but would require very different indicators to profile quality
- the large number of very different disciplines grouped under cluster 2, many of which will require radically different indicators and approaches to assessment
- a possible split of creative arts research outputs concerned with new media or digital technology into cluster 5.

iii). Creative arts issues

Researchers in the creative arts have generally welcomed the advent of an independent national approach to research excellence evaluation. They have strongly welcomed Ministerial statements about the value of research in the humanities and creative arts. There is however a strong concern that ERA does not appear to recognise and value the creative arts appropriately, nor to recognise the particular challenges that evaluation of research provides in these disciplines. Concerns raised in the creative arts research community at Griffith include:

- The OECD definition of research used by ERA does not sufficiently recognise the different nature of creative arts research.
- Creative arts research income frequently comes from non-ACG sources.
- Outputs are not generally published in traditional research outlets – though it is recognised that the Indicators Development Group will examine some of these issues more closely.
- Some form of peer review will almost certainly be needed for CPA.
- Both the list of outputs provided at Appendix B (which are described as **publication** types) and the indicators at Appendix C will need considerable refining for CPA.
- For CPA, there is strong overlap between the indicators of research activity, intensity and excellence on the one hand, and those of applied research and translation on the other – to the extent that these indicators may be impossible to separate.
- Much of creative arts research is inevitably multidisciplinary in nature, especially in the newer art forms.
- The membership of the Indicators Development Group should include someone with an understanding of research in the creative arts and the different kinds of research outputs produced.

iv). Submission inclusions – setting the context

Griffith is concerned at the prospect of quantitative indicators being used in isolation of any contextual material. We urge ARC to allow inclusion in submissions of textual material which allows each institution to set the context in which the reported metrics should be read and interpreted. Such contextual material need not be lengthy, but should allow institutions to explain the actual spread of disciplinary research across its various internal elements, recent history and future plans as well as outstanding achievements and examples of peer esteem (eg awards for best paper or book).

v) The role of RACs and peer review

We would appreciate clarification on the role of the RACs. It appears that for most clusters they will not be undertaking traditional peer review. It is not clear what role the RACs could have in relation to the various metrics, indicators and quantitative profiles presented to them. In what way could the RACs query, moderate or adjust these objectively derived results?

Where the RACs do undertake peer review for particular disciplines (eg where bibliometric indicators are not meaningful), we would urge the ARC to base this peer review on institution-chosen "top four" (or other agreed number) of outputs. It would not be fair to institutions to allow RAC members to choose items at random from a listing of the full body of work for an entire discipline over a six year period. This

would require the institution to hold a complete collection of such outputs either physically or in repositories, representing a significant burden on the sector. It is also possible that the RAC could, in making arbitrary selections of items for review, choose all lower quality or minor items from one institution and all higher quality or major items from another.

vi) Verifying the results

As even the most reputable commercially available bibliometric databases contain errors, and the extraction and interpretation of results offers many opportunities for inadvertent error, Griffith urges the ARC to include in the assessment process the opportunity for institutions to check their own results before publication.