Australian Government
Australian Research Council

ARC Centres of Excellence Funding Rules for funding commencing in 2011

Australian Research Council Act 2001

This compilation was prepared on 11 January 2010
taking into account amendments up to *ARC Centres of Excellence Funding Rules for funding commencing in 2011* Variation (No.1)

Prepared by the Australian Research Council, Canberra ACT

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Acronyms

AEDT	Australian Eastern Daylight Saving (Summer) Time
AEST	Australian Eastern Standard Time
APD	Australian Postdoctoral Fellowship
APDI	Australian Postdoctoral Fellowship (Industry)
APF	Australian Professorial Fellowship
ARC	Australian Research Council
ARF	Australian Research Fellowship
ARF-I	Australian Research Fellowship-Indigenous
CI	Chief Investigator
CRC	Cooperative Research Centre
EOI	Expression of Interest
FTE	Full Time Equivalent
GST	Goods and Services Tax
HECS	Higher Education Contribution Scheme
HELP	Higher Education Loan Programme
IRF	Indigenous Researcher Fellowship
KPI	Key Performance Indicator
LIF	Linkage Industry Fellowship
NCGP	National Competitive Grants Program
NHMRC	National Health and Medical Research Council
PDF	Portable Document Format
PI	Partner Investigator
QEII	Queen Elizabeth II Fellowship
SAC	Selection Advisory Committee
UA	Universities Australia

Key Dates

Closing date for submission of Expressions of Interest	**5.00pm (AEDT) 25 November 2009**
Closing date for submission of Proposals	**5.00pm (AEST) 19 April 2010**

Contacts

The ARC deals with thousands of Proposals each year. Where possible, researchers should direct requests for information to the Research Office within their organisation.

Enquiries, requests for information and documents submitted as requested in these Funding Rules are to be directed to:

By mail:
Centres Scheme Coordinator
Australian Research Council
GPO Box 2702
CANBERRA ACT 2601

by courier:
Centres Scheme Coordinator
Australian Research Council
1st Floor, 8 Brindabella Circuit
CANBERRA AIRPORT ACT 2609

Email: centres@arc.gov.au
Phone: 02 6287 6600
Fax: 02 6287 6638
Web: http://www.arc.gov.au

1. Name of Funding Rules

These Funding Rules are the Australian Research Council *ARC Centres of Excellence* Funding Rules for funding commencing in 2011.

2. Commencement

The Funding Rules shall take effect upon registration on the Federal Register of Legislative Instruments.

3. Definitions

In these Funding Rules, unless the contrary intention appears:

Adjunct or Emeritus Appointment or equivalent means that an Eligible Organisation has a formal agreement with a researcher which establishes an ongoing association with the Eligible Organisation, of the nature of an emeritus or honorary academic or visiting fellow. The ARC may seek documentary evidence of such an association if it is considered necessary.

Administering Organisation means an Eligible Organisation which submits a Proposal for funding under the *ARC Centres of Excellence* scheme and which will be responsible for the administration of the funding if the proposed project is approved for funding.

Applicant means the Administering Organisation. Funding under the *ARC Centres of Excellence* scheme is provided to Administering Organisations, not to individual researchers.

ARC means the Australian Research Council, as established under the ARC Act.

ARC Act means the *Australian Research Council Act 2001*, or the Act.

ARC Centre means a research centre wholly or partly funded by the ARC and includes ARC *Centres of Excellence*, ARC *Centres*, ARC *Special Research Centres* and co-funded Centres of Excellence.

ARC Fellow means a researcher whose salary is funded wholly or partly under an ARC Fellowship.

ARC Fellowship means a position held by a researcher where the salary is funded wholly or partly by the ARC and where the researcher has been nominated in a Proposal to hold a Fellowship. An ARC Fellowship may be awarded at a number of levels and in various ARC schemes. ARC Fellowship includes Australian Postdoctoral Fellowship (APD), Australian Research Fellowship (ARF), Australian Research Fellowship – Indigenous (ARF-I), Queen Elizabeth II Fellowship (QEII), Australian Professorial Fellowship (APF), Australian Postdoctoral Fellowship (Industry) (APDI), Linkage Industry Fellowship (LIF), Federation Fellowship, Future Fellowship, Australian Laureate Fellowship, Super Science Fellowship and Indigenous Researcher Fellowship (IRF).

ARC website is www.arc.gov.au.

Centre Director means the person appointed to direct the programs of a Commonwealth-funded Research Centre.

Chief Investigator means a researcher who satisfies the eligibility criteria for a Chief Investigator.

Collaborating Organisation means an Eligible Organisation which is not the Administering Organisation but which is identified in the Proposal as a contributor to the project.

Commonwealth means the Commonwealth of Australia.

Commonwealth-funded Research Centre means a research centre substantially funded from Commonwealth funding sources and includes ARC Centres, CRCs and NHMRC Program Grants and Centres of Clinical Research Excellence. It does not include *Research Networks* funded by the ARC.

Conflict of Interest means an actual or perceived conflict between a person's public duty and their private or personal interest.

Consultancy means the provision of specialist advice, analysis, assistance, services or products to another organisation(s), generally where the consultancy services are for the sole or preferred use of that other organisation(s).

Eligible Organisation means an organisation which is eligible to apply for and receive funding under the *ARC Centres of Excellence* Funding Rules.

Expression of Interest means a preliminary request to the ARC for a research project which is submitted in accordance with Funding Rules approved by the Minister.

Funding Agreement means the agreement entered into between the ARC and the Administering Organisation if the Administering Organisation's Proposal is approved for funding. This Agreement sets out the terms and conditions under which the Commonwealth is to provide funding and the Administering Organisation is to be responsible for administration of the funding and the conduct of the project.

Funding Rules means this document.

GST has the meaning as given in section 195-1 of the *A New Tax System (Goods and Services Tax) Act 1999*.

Medical and Dental Research means research and/or training which, in the opinion of the ARC, has a significant focus on near-term clinical medical (including dental) outcomes. Additional information is available on the ARC website.

Minister means the Minister from time to time responsible for the administration of the ARC Act, or the Minister's delegate.

National Innovation Priority means a national innovation priority listed in Appendix E.

National Research Priority means a national research priority listed in Appendix D.

Partner Investigator means a researcher who satisfies the eligibility criteria for a Partner Investigator.

Partner Organisation means an organisation which is not an Eligible Organisation, but which is identified in the Proposal as a contributor to the project.

Proposal means a request to the ARC for the provision of funding for a research project which is submitted in accordance with Funding Rules approved by the Minister.

Research Office means a business unit within an organisation that is responsible for administrative contact with the ARC regarding Proposals and research projects.

Special Condition means a special condition specified in a Funding Agreement which governs the use of the funding provided by the ARC.

4. Introduction

4.1 Overview

4.1.1 This document sets out the Funding Rules for *ARC Centres of Excellence,* a scheme funded under the ARC National Competitive Grants Program (NCGP), which comply with the requirements of the ARC Act.

4.1.2 All Expressions of Interest (EOI) and full Proposals submitted to the ARC must be complete, accurate and comply with the *ARC Centres of Excellence* Funding Rules. Parties invited to submit a full Proposal should also read and understand the ARC draft Funding Agreement (which is available on the ARC website) before submitting the Proposal to the ARC.

4.1.3 These Funding Rules are current as at January 2010 and have been prepared in accordance with the requirements of the ARC Act in force then. These Funding Rules are subject to change at any time, for reasons including any subsequent amendment to, replacement or supplementation of the ARC Act.

4.1.4 Funding under the *ARC Centres of Excellence* scheme is provided to Administering Organisations, not to researchers. That is, the ARC will accept an EOI or a Proposal only from an Eligible Organisation through their Research Office and not from any individual researcher or researchers.

4.1.5 The ARC is an Australian Government statutory authority established under the ARC Act. The primary functions of the ARC, as specified by the ARC Act, are to make recommendations regarding the funding of research programs, to administer funding to support research programs, and to provide policy advice related to research. The ARC offers a range of funding schemes under the NCGP, details of which can be found on the ARC website.

4.2 ARC Centres of Excellence

4.2.1 *ARC Centres of Excellence* involve significant collaboration which will allow the complementary research resources of universities, publicly funded research organisations, other research bodies, governments and businesses to be concentrated to support research in all fields of research (except Medical and Dental Research).

4.2.2 The objectives of the *ARC Centres of Excellence* scheme are to:

a. undertake highly innovative and potentially transformational research that aims to achieve international standing in the fields of research envisaged and leads to a significant advancement of capabilities and knowledge;

b. link existing Australian research strengths and build critical mass with new capacity for interdisciplinary, collaborative approaches to address the most challenging and significant research problems;

c. develop relationships and build new networks with major national and international centres and research programs to help strengthen research, achieve global competitiveness and gain recognition for Australian research;

d. build Australia's human capacity in a range of research areas by attracting and retaining, from within Australia and abroad, researchers of high international standing as well as the most promising research students;

e. provide high-quality postgraduate and postdoctoral training environments for the next generation of researchers;

f. offer Australian researchers opportunities to work on large-scale problems over longer periods of time; and

g. establish Centres of such repute in the wider community that they will serve as points of interaction among higher education institutions, governments, industry and the private sector generally.

4.2.3 *ARC Centres of Excellence* will be selected through a competitive two-stage process. An Expression of Interest (EOI) must be submitted to the ARC in the first instance. Full Proposals will be invited by the ARC after assessment and shortlisting of all EOIs.

5. Selection criteria – Expression of Interest

5.1 All *ARC Centres of Excellence* EOIs which meet the eligibility criteria will be assessed and merit ranked using the following selection criteria.

Proposed research program (50%)

a. the proposed research to be undertaken and its innovative nature;

b. the researcher/institutional collaboration proposed, focusing on the integration of expertise and knowledge;

c. the development of collaboration and critical mass in the research field; and

d. the goals of the proposed research program.

Investigators (50%)

a. evidence of performance relative to opportunity, expertise, capacity and suitability of the Centre Director;

b. evidence of performance relative to opportunity and expertise of senior researchers; and

c. capacity and suitability of senior researchers for proposed roles.

6. Selection criteria – Proposals

6.1 All *ARC Centres of Excellence* Proposals which meet the eligibility criteria will be assessed and merit ranked using the following selection criteria.

A. Research program (25%)

1. The innovative and potentially transformational nature of the proposed research program, and its capacity to lead to a significant advancement of knowledge, expertise and technologies.

2. The degree to which the proposed research builds effective collaboration and critical mass across groups of researchers in the particular fields(s) of research.

3. The extent to which the proposed conceptual framework, design, human resource commitments, methods and analyses, project structures, budget

planning and risk mitigation strategies are assembled into an effective and integrated research program.

4. The likelihood that the proposed Centre will attain an international standing in the field of research.

B. Investigators (25%)

1. Evidence of performance relevant to the conduct and delivery of the proposed research program.
2. The commitment of Chief and Partner Investigators to the research program.

C. Governance, leadership and mentoring (25%)

1. The appropriateness of the organisational structure of the proposed Centre;
    a. adequacy of proposed management arrangements and responsibilities (including reporting arrangements both internally and externally);
    b. financial systems and business and strategic plans (draft performance indicators, milestones for achievement of objectives and delivery of outputs and outcomes).
2. The Director's capacity for leadership, vision, management and strategic planning.
3. The relevance of the performance measures listed in the application to the Centre's objectives, project outputs and outcomes, and their appropriateness for assessing the Centre's performance.
4. The potential contribution of the Centre to research training at the Honours, postgraduate and postdoctoral level.
5. The potential value of the education and outreach programs in professional and technical training.

D. Outcomes and linkages (25%)

1. The level of support and commitment, both in cash and in-kind, for the proposed Centre from the Administering Organisation, Collaborating and Partner Organisations.
2. The participation of end-users and partners in strategic research planning and Centre governance.
3. The adequacy of plans and strategies for facilitation of knowledge transfer, knowledge application, and if applicable, technology transfer, including fostering a culture of innovation and outcomes focus.
4. The adequacy of organisational arrangements and plans relating to ownership and potential exploitation of intellectual property and/or utilisation or commercialisation of research.
5. The extent to which the proposed research is likely to expand Australia's knowledge base and research capability.
6. The extent to which the proposed research is likely to contribute to the National Research Priorities and the National Innovation Priorities.

7. The potential of the research to deliver outcomes of economic, cultural, environmental and/or social benefit for Australia.

8. The potential of the Centre to develop and enhance international linkages that will benefit the research, training and knowledge transfer programs.

9. The planned links with Australian researchers in universities, other research organisations and strategic agencies working in, and applying the outcomes of, the proposed research.

7. Fundamental principles and requirements

7.1 Ethics and research practices

7.1.1 All EOIs and Proposals should conform to the principles outlined in the following and their successor documents.

a. NHMRC/ARC/UA *Australian Code for the Responsible Conduct of Research* (2007);

b. as applicable, the NHMRC's *National Statement on Ethical Conduct in Human Research* (2007); and

c. as applicable, the NHMRC's other codes on animal research.

7.2 Non-duplication

7.2.1 The ARC does not duplicate funding for research that has already been funded by the ARC or other Commonwealth bodies. The ARC reserves the right to determine if an EOI or a Proposal duplicates, or is likely to duplicate, research being funded by another Commonwealth source. In such circumstances, the ARC may, in its absolute discretion, decide not to recommend the EOI for shortlisting or the Proposal for funding.

7.3. Conflict of interest

7.3.1 All parties associated with EOIs and Proposals are required to disclose to the ARC, and the other parties involved in the EOI or the Proposal, any actual or potential conflict of interest. Conflicts of interest must be disclosed at the time of the submission of an EOI or a Proposal, or as soon as possible if a conflict arises during the course of an ARC-funded project.

7.3.2 If, in the opinion of the ARC, any party involved in or associated with an EOI or a Proposal has failed to disclose any such conflict of interest, the ARC may in its absolute discretion decide to not recommend any or all EOIs or Proposals involving that party.

7.3.3 If a conflict of interest exists or arises, the Administering Organisation must have established processes in place for managing the conflict of interest for the life of the project. Such processes must comply with the NHMRC/ARC/UA *Australian Code for the Responsible Conduct of Research* (2007) and any relevant successor document. In the event of any inconsistency between the original and any successor document, the latter document is to apply.

7.4 Acknowledging ARC support

7.4.1 The Funding Agreement requires that any ARC contribution to research and other activities be appropriately and prominently acknowledged (wherever possible) in any research output, or communication in any media.

7.4.2 Advice on acceptable forms of acknowledgement and use of the ARC logo is available on the ARC website.

7.5 Dissemination of research outputs

7.5.1 The Australian Government makes a major investment in research to support its essential role in improving the wellbeing of our society. To maximise research benefits and national impact arising from the *ARC Centres of Excellence* scheme, results should be disseminated widely.

7.5.2 The ARC strongly encourages researchers in *ARC Centres of Excellence* to consider the benefits of depositing their data and any publications arising from a research project in an appropriate subject and/or institutional repository.

8. Funding

8.1 Level of funding

8.1.1 All amounts referred to in these Funding Rules are to be read as exclusive of GST (if any), unless expressly stated otherwise.

8.1.2 The minimum level of ARC funding for an *ARC Centre of Excellence* is $1 million per calendar year. The maximum level of ARC funding for an *ARC Centre of Excellence* is $4 million per calendar year.

8.1.3 To maximise the impact of ARC funding, participants must obtain commitments for additional financial contributions from a variety of sources including the Administering Organisation, Collaborating Organisation(s) and Partner Organisation(s). Financial contributions from these sources can take the form of cash contributions and/or in-kind contributions.

8.1.4 The ARC reserves the right to recommend levels of ARC funding which may differ from those requested in the Proposal.

8.2 Period of funding

8.2.1 Funding may be payable under these Funding Rules for *ARC Centres of Excellence* in respect of financial year 2010-11 and any subsequent years to which the ARC Act applies. Funding for approved *ARC Centres of Excellence* will commence with effect 1 January 2011, unless other arrangements are approved by the Minister.

8.2.2 *ARC Centres of Excellence* may be funded for up to seven years, subject to sufficient funding being available for *ARC Centres of Excellence*, the provisions of the ARC Act, and continued satisfactory progress of the Centre.

8.2.3 The ARC reserves the right to recommend a period of funding which may differ from that requested in the Proposal.

8.3 Types of research supported

8.3.1 Subject to section 8.4, the *ARC Centres of Excellence* scheme supports all types of research including:

a. Pure basic research which is experimental and theoretical work undertaken to acquire new knowledge without looking for long-term benefits other than the advancement of knowledge.

b. Strategic basic research which is experimental and theoretical work undertaken to acquire new knowledge directed into specified broad areas that are expected

to lead to useful discoveries. Such research provides the broad base of knowledge necessary to solve recognised practical problems.

c. Applied research which is original work undertaken primarily to acquire new knowledge with a specific application in view. Such research is undertaken either to determine possible uses for the findings of basic research or to determine new ways of achieving some specific and predetermined objectives.

8.4 Project budget and use of funding

8.4.1 The *ARC Centres of Excellence* scheme supports direct costs for research projects. The ARC may, in its absolute discretion, determine whether any project costs meet this requirement. Funding assistance will be provided for eligible direct costs only. Eligible direct costs include:

a. salaries and on-costs for Centre personnel who perform research or activities that support the research, including Research Associates, Research Assistants, a Centre Manager or Chief Operations Officer, technicians and laboratory assistants but excluding the Centre Director, Chief Investigators, or Partner Investigators;

b. stipends for research students;

c. equipment used for the research program;

d. maintenance and consumables;

e. access to workshop services linked to the research program;

f. domestic and international travel costs for Centre personnel where this is related to the research program; and

g. domestic and international travel costs for visitors to the Centre where this is related to the research program or Centre governance.

8.4.2 All eligible direct costs must be justified in the Proposal to the satisfaction of the ARC.

8.4.3 The ARC will not provide funding for the following items:

a. Medical and Dental Research, as defined on the ARC website;

b. salaries and on-costs for the Centre Director, Chief Investigators or Partner Investigators;

c. capital works and general infrastructure costs, in whole or in part;

d. research support for Partner Investigators, apart from short-term project support for investigators visiting from overseas and domestic and international travel associated with a project;

e. fees for international students or the Higher Education Contribution Scheme (HECS) and Higher Education Loan Programme (HELP) liabilities for students;

f. teaching relief;

g. direct development of products and other commercialisation activities;

h. investigations that are more appropriately undertaken by way of a consultancy; or

i. costs not directly related to a project.

8.4.4 The ARC will not provide funding for indirect costs, including basic facilities and equipment, organisational overheads or infrastructure costs.

8.4.5 The Administering Organisation, Collaborating Organisation(s) and Partner Organisation(s) must agree to provide the following basic facilities (where relevant to the Proposal), which will not be funded under *ARC Centres of Excellence*:

a. accommodation (e.g. laboratory and office space, suitably equipped and furnished in standard ways);

b. access to film or music editing facilities;

c. access to a basic library collection;

d. provision of computers, including laptops (excluding access to high-performance computers or other specialised applications that are justified against the project) and basic computing facilities such as printers, word processing and other standard software; and

e. use of photocopiers, telephones, mail, fax, email and internet services.

8.4.6 The ARC may, in its absolute discretion, determine whether any project costs involve any of the items not permitted under sections 8.4.3, 8.4.4 and 8.4.5. If such a determination is made, then the ARC may, in its absolute discretion, decide to not recommend part or all of the Proposal for funding.

9. Number of Expressions of Interest and Proposals

9.1 Eligible Organisations may submit one or more EOIs for *ARC Centres of Excellence* in this funding round.

9.2 Eligible Organisations may be invited to submit Proposals following the conclusion of the selection process for EOIs.

9.3 The ARC will only consider Proposals preceded by a shortlisted EOI; that is, an EOI must have been submitted and shortlisted, and a full Proposal invited by the ARC.

10. Roles and eligibility for organisations

10.1 Eligible Organisations

10.1.1 An EOI or a Proposal must be submitted only by an Eligible Organisation, through its Research Office. Appendix C specifies Eligible Organisations for *ARC Centres of Excellence*.

10.1.2 The Eligible Organisation which submits the Proposal will be considered to be the Administering Organisation which will receive and administer ARC funding if the Proposal is successful.

10.1.3 More than one Eligible Organisation may be involved in a single EOI or Proposal.

10.2 Collaborating Organisations

10.2.1 An EOI or a Proposal may identify one or more Collaborating Organisations to be involved with the proposed project.

10.3.2 Proposals involving one or more Collaborating Organisations must demonstrate a significant contribution of cash, in-kind or other material resources from the

Collaborating Organisation(s), having regard to the total cost of the project and the relative contribution of each Chief Investigator.

10.3 Partner Organisations

10.3.1 An EOI or a Proposal may identify one or more Partner Organisations to be involved with the proposed project.

10.3.2 Proposals involving one or more Partner Organisations must demonstrate a significant contribution of cash, in-kind or other material resources from the Partner Organisation(s), having regard to the total cost of the project and the relative contribution of each Partner Investigator.

11. Roles and eligibility for researchers

11.1 Researcher roles and general eligibility

11.1.1 An EOI or a Proposal must nominate at least one of the following roles that may be undertaken by researchers at an *ARC Centre of Excellence*:

a. Centre Director;

b. Chief Investigator (CI); or

c. Partner Investigator (PI)

The Centre Director and all CIs and PIs nominated in an EOI or a Proposal must satisfy the eligibility criteria for the role they are to perform.

11.1.2 An EOI or a Proposal must nominate a Centre Director and at least one researcher as a CI.

11.1.4 A researcher nominated as the Centre Director, a CI or a PI must take significant intellectual responsibility for the proposed Centre, its conception, and any strategic decisions called for in its pursuit and the communication of results. The researcher must have the capacity to make a serious commitment to the project. The ARC reserves the right to determine whether a person has the requisite capacity to perform the role.

11.1.5 A researcher undertaking undergraduate or postgraduate studies is not eligible to be the Centre Director, a CI or a PI for *ARC Centres of Excellence*.

11.1.6 If the ARC considers that a researcher nominated in an EOI as a Centre Director, CI or PI does not meet the eligibility criteria for the role which that researcher is to perform, the EOI will not be recommended for shortlisting.

11.1.7 If the ARC considers that a researcher nominated in a Proposal as a Centre Director, CI or PI does not meet the eligibility criteria for the role which that researcher is to perform, the Proposal will not be recommended for funding.

11.2 Eligibility criteria for Centre Directors

11.2.1 The Centre Director must meet the eligibility criteria for a CI. He/she should be employed by the Administering Organisation.

11.2.2 The first-named researcher on an EOI or a Proposal will be considered the Centre Director. Where this researcher is to be replaced by another researcher as Centre Director should the Proposal be successful, the replacement researcher must be included in the EOI or the Proposal and the reasons for replacement justified to the satisfaction of the ARC.

11.2.3 The Centre Director is expected to work predominantly on the activities of the Centre. If a Centre Director is unable to meet this undertaking, the ARC may, in its absolute discretion, decide not to recommend the Proposal for funding.

11.2.4 If a Proposal has been approved for funding and the Centre Director is at any time during the project no longer able to undertake this role, the project may be continued under a replacement Centre Director provided that:

a. approval is obtained from the Minister for the change in Centre Director; and

b. a replacement Centre Director meets the eligibility criteria for a Centre Director and those for a CI at the time of her/his nomination and for the full term of her/his participation in the project.

11.3 Eligibility criteria for Chief Investigators

11.3.1 A researcher nominated on an EOI or a Proposal as a CI must meet at least one of the following two criteria at the time of her/his nomination, and for the full term of her/his participation in the project:

a. be an employee of an Eligible Organisation for at least 50 per cent (0.5 FTE) of his/her time; or

b. be a holder of an Emeritus, Adjunct or equivalent appointment at an Eligible Organisation and not have a substantive position or paid appointment elsewhere.

11.3.2 He/she must reside predominantly in Australia for the full term of her/his participation in the project. If the person does not have permanent resident status he/she must obtain temporary or permanent resident status from the Department of Immigration and Citizenship before he/she may commence on the project.

11.3.3 A CI may be nominated on a maximum of two EOIs or Proposals.

11.3.4 At the time of the submission of an EOI or a Proposal all obligations regarding previously funded projects involving the nominated CIs on the EOI or the Proposal must have been fulfilled to the satisfaction of the ARC. Such obligations include the provision of satisfactory progress and final reports.

11.3.5 If a Proposal has been approved for funding and a CI is at any time during the project no longer able to participate in the project, the project may be continued under a replacement CI provided that:

a. approval is obtained from the Minister for the change in CI; and

b. a replacement CI meets the eligibility criteria for a CI at the time of her/his nomination and for the full term of her/his participation in the project.

11.4 Eligibility criteria for Partner Investigators

11.4.1 A researcher nominated on an EOI or a Proposal as a PI, at the time of her/his nomination and for the full term of her/his participation in the project must not meet the eligibility criteria for a CI.

11.4.2 If a Proposal has been approved for funding and a PI is at any time during the project no longer able to participate in the project, the project may be continued under a replacement PIs provided that:

a. approval is obtained from the Minister for the change in PI; and

b. a replacement PI must:

i. meet the eligibility criteria for a PI at the time of her/his nomination and for the full term of her/his participation in the project; and

ii. not meet the eligibility criteria for a replacement CI.

12. Cross-scheme issues

12.1 Cross-scheme eligibility

12.1.1 Applicants should note the eligibility criteria for access to other ARC funding schemes, as expressed in the funding rules for those schemes. The ARC reserves the right to change these criteria in future funding rounds. Funding rules for all ARC schemes may be found on the ARC website.

12.2 Cross-scheme funding

12.2.1 The ARC does not duplicate funding for research programs. *ARC Centres of Excellence* funded in this round must relinquish any ARC funding as at 1 January 2011 that would result in duplication.

12.2.2 Subject to section 12.1.1, the Centre Director and CIs named on successful *ARC Centres of Excellence* Proposals may retain their current grants funded through other ARC schemes provided that:

a. the Proposal clearly demonstrates and explains, to the satisfaction of the ARC, the overlap between the proposed Centre research program and the research program of the existing non-Centre grant; and

b. funding for the overlapping aspect of the Centre research program is not requested in the proposed Centre budget for the duration of the existing non-Centre grant.

12.2.3 If, in the opinion of the ARC, a Proposal requests funding for research that has already been funded through another ARC grant, the Proposal may not be recommended for funding.

13. Preparation and submission – Expression of Interest

13.1 An EOI must be submitted as a comprehensive summary of the proposed *ARC Centre of Excellence*. The EOI must contain all the information necessary for its assessment without the need for further written or oral explanation, or reference to additional documentation. The ARC can request further explanation or additional documentation as part of the selection process. Such explanation or documentation may be used by the ARC and/or the Selection Advisory Committee (SAC) to inform its deliberations.

13.2 All details in the EOI must be current at the time of submission.

13.3 In submitting an EOI, the Administering Organisation and the Centre Director, CIs and PIs nominated in the EOI are consenting to the EOI's being assessed under the ARC's peer assessment procedures and agreeing to the release of the EOI to third parties for assessment.

13.4 The Administering Organisation must use the EOI form available on the ARC website.

13.5 Instructions on completing the EOI form are included in the form. These instructions specify a range of requirements for EOIs and will also assist parties in preparing EOIs.

13.6 All EOIs must be written in English and must comply strictly with the format, content and submission requirements as specified in these Funding Rules and the EOI form issued by the ARC.

13.7 When completing the EOI form, a highly legible font type must be used, such as Times New Roman, Calibri, Arial, Palatino or Helvetica. Font size must be 12-point, or equivalent to Times New Roman 12-point, and black type must be used. Variants such as mathematical typesetting languages may also be used. References may be reproduced in 10-point font size. All text pages must use a single column with all margins being at least 2cm. Colour graphs or colour photographs should not be included as they will be reproduced in black and white and the reproduction quality may not be optimal. Finely detailed graphics and grey scale may also not be precisely reproduced.

13.8 The Administering Organisation's Research Office must submit one electronic copy (in PDF format) and one paper copy of completed EOIs to the ARC by **5.00pm AEDT 25 November 2009**. Submissions must be made to the address and email address listed under 'Contacts' on p5 of these Funding Rules.

13.10 EOIs may be withdrawn but additions, deletions and modifications will not be accepted after the closing date for submission, unless invited by the ARC.

13.11 Applicants must note that Administering Organisations may have internal closing times which precede ARC closing times.

13.12 Assessment of EOIs is undertaken by the ARC, which reserves the right to make recommendations solely on the basis of its expertise, and which may:

a. consider if an EOI satisfies the eligibility criteria set out in the Funding Rules;

b. identify and consider any other matters that these Funding Rules state may result in the ARC's recommending that an EOI not be shortlisted;

c. assign assessors to review EOIs;

d. merit rank each EOI relative to the others on the basis of the EOI and any assessors' reports; and/or

e. shortlist EOIs and call for full Proposals from applicants for those shortlisted EOIs.

13.14 The ARC may exclude EOIs at any time during the selection process. Grounds for exclusion include, but are not limited to:

a. submission after **5.00pm AEDT 25 November 2009**, unless:

   i. exceptional circumstances apply in the opinion of the ARC; and

   ii. evidence is provided by the Administering Organisation that all EOIs were dispatched in sufficient time to reach the ARC by the closing time in the normal course of events;

b. not meeting the eligibility criteria set out in these Funding Rules;

c. providing incomplete, inaccurate or misleading information; or

d. designating some or all of the EOI as Commercial-in-Confidence.

Excluded EOIs will not be shortlisted.

13.15 The SAC may assist with the assessment of EOIs. The ARC has procedures for managing organisational and personal conflicts of interest experienced by members of the SAC, the ARC College of Experts, members of other ARC committees, ARC staff, and other assessors, and for enabling individuals to withdraw from the assessment process for particular EOIs where any actual or perceived conflict may exist.

14. Preparation and submission – Proposals

14.1 A Proposal must be submitted as a mature research plan presenting the proposed *ARC Centre of Excellence* ready for implementation. The Proposal must contain all the information necessary for its assessment without the need for further written or oral explanation, or reference to additional documentation. The ARC can request further explanation or additional documentation as part of the selection process. Such explanation or documentation may be used by the ARC and/or the SAC to inform its deliberations.

14.2 All details in the Proposal must be current at the time of submission.

14.3 In submitting a Proposal, the Administering Organisation and the Centre Director, CIs and PIs nominated in the Proposal are consenting to the Proposal's being assessed under the ARC's peer assessment procedures and agreeing to the release of the Proposal to third parties for assessment.

14.4 The Administering Organisation must use the Proposal form available on the ARC website.

14.5 All Proposals must be written in English and must comply strictly with the format, content and submission requirements as specified in these Funding Rules, the Proposal form and the *ARC Centres of Excellence* Instructions to Applicants for funding commencing in 2011 document issued by the ARC. These instructions specify a range of requirements for Proposals and will also assist parties in preparing Proposals.

14.6 When completing the additional text pages required for the Proposal, a highly legible font type must be used, such as Times New Roman, Calibri, Arial, Palatino or Helvetica. Font size must be equivalent to Times New Roman 12-point, and black type must be used unless text colour is automatically formatted (e.g. hyperlinks). Variants such as mathematical typesetting languages may also be used. References may be reproduced in 10-point font size. All text pages must use a single column with all margins being at least 2cm. Colour graphs or colour photographs should not be included as they will be reproduced in black and white and the reproduction quality may not be optimal. Finely detailed graphics and grey scale may also not be precisely reproduced.

14.7 The Proposal form will require CIs and PIs to agree to being listed on the Proposal. CIs and PIs should be familiar with these Funding Rules and their role within the proposed Centre before agreeing to participate. In agreeing to participate, the CIs and PIs nominated in the Proposal are making a commitment to the proposed Centre.

14.8 Letters of support from Collaborating Organisation(s) and Partner Organisation(s) must be included in the Proposal. These letters must specify financial commitments (both cash and in-kind) and the participation of researchers named on the Proposal, and be signed by a senior representative (Deputy Vice-Chancellor (Research) or equivalent) of the organisation. In providing and signing these letters, the organisations are certifying the support to, and researcher participation in, the proposed Centre.

14.9 The Administering Organisation must certify Proposals using the Proposal's certification form. If a Proposal has not been submitted through the appropriate Research Office/Chief Executive Officer for certification, the Proposal will not be recommended for funding.

14.10 The Administering Organisation's Research Office must submit one electronic copy (in PDF format) and one paper copy of completed Proposals to the ARC by **5.00pm AEST 19 April 2010**. Submissions must be made to the address and email address listed under 'Contacts' on p5 of these Funding Rules.

14.11 Proposals may be withdrawn but additions, deletions and modifications will not be accepted after the closing date for submission, unless invited by the ARC.

14.12 Applicants must note that Administering Organisations may have internal closing times which precede ARC closing times.

14.13 If a Proposal fails to meet any format, content or submission requirements, the ARC may in its absolute discretion decide to not recommend the Proposal for funding.

14.14 Assessment of Proposals is undertaken by the ARC, which reserves the right to make recommendations solely on the basis of its expertise, and which may:

a. consider if a Proposal satisfies the eligibility criteria set out in these Funding Rules;

b. identify and consider any other matters that these Funding Rules state may result in the ARC's recommending that a Proposal not be approved for funding;

c. assign assessors, from the ARC and/or a range of organisations, to review Proposals;

d. seek comments on assessors' reports from the parties involved in the Proposal;

e. merit rank each Proposal relative to the others on the basis of the Proposal, any assessors' reports, and/or any response to those assessment reports;

f. shortlist Proposals and interview representatives of the applicants for those shortlisted Proposals;

g. merit rank each shortlisted Proposal relative to the others on the basis of the Proposal and the interview;

h. assess and recommend the amount of funding to be made available for a Proposal; and/or

i. prepare funding recommendations.

14.15 The ARC may exclude Proposals at any time during the selection process. Grounds for exclusion include, but are not limited to:

a. submission after **5.00pm AEST 19 April 2010**, unless:

i. exceptional circumstances apply in the opinion of the ARC; and

ii. evidence is provided by the Administering Organisation that the Proposals were dispatched in sufficient time to reach the ARC by the closing time in the normal course of events;

b. not meeting the eligibility criteria set out in these Funding Rules;

c. providing incomplete, inaccurate or misleading information; or

d. designating some or all of the Proposal as Commercial-in-Confidence.

Excluded Proposals will not be recommended for funding.

14.16 The ARC has procedures for managing organisational and personal conflicts of interest experienced by members of the College of Experts, members of other ARC committees, ARC staff, and other assessors, and for enabling individuals to withdraw from the assessment process for particular Proposals where any actual or perceived conflict may exist.

14.17 Assessor's written comments, if obtained, may be provided to applicants to allow the opportunity for a rejoinder to the comments. Names of assessors are not provided. At the same time, the ARC may add questions to the material sent for rejoinder. A period of up to two weeks is given to submit a rejoinder to the ARC. The ARC may limit the length of rejoinders which can be submitted. Subject to section 14.18, rejoinders will not be accepted after the nominated closing time for rejoinder submissions.

14.18 The ARC may, in its absolute discretion, and only in exceptional circumstances, accept late rejoinders.

15. Recommendations

15.1 The ARC's recommendations will be submitted in accordance with the ARC Act to the Minister for consideration. The Minister determines which Proposals will be approved and the amount and timing of funding to be paid to Administering Organisations for approved Proposals.

15.2 Under the ARC Act, the Minister must not approve for funding any Proposal that fails to meet the eligibility criteria set out in these Funding Rules.

16. Offer of funding

16.1 Administering Organisations whose Proposals are approved will be:

a. notified in a letter of offer that will indicate the funding to be offered; and

b. provided with a copy of a Funding Agreement for signing.

17. Appeals process

17.1 Appeals will be considered only against administrative process issues and not, for example, against committee recommendations or assessor ratings and comments.

17.2 Appeals must be made on the appeals form available from the ARC website. The form must be lodged by the Administering Organisation and must be authorised by a Deputy Vice-Chancellor (Research), Chief Executive Officer or equivalent. Appeals must be received by the ARC within **28 days** of the date on the letter notifying the outcome of Proposals.

17.3 Appeals must be addressed to The Appeals Officer and sent to the postal or courier addresses listed under ‘Contacts’ on p5 of these Funding Rules.

Appendix A – Other Matters

A1 Applicable law

A1.1 The ARC is required to comply with the requirements of the *Privacy Act 1988* and the *Freedom of Information Act 1982*.

A2 Confidentiality

A2.1 The ARC will treat information contained in an EOI or a Proposal as confidential. However, the ARC may disclose information contained in an EOI or a Proposal, or otherwise provided to the ARC, to the extent that the information:

a. is disclosed by the ARC to its advisers (including external assessors), officers, employees or other third parties in order to assess, evaluate or verify the accuracy or completeness of an EOI or a Proposal;

b. is disclosed to the ARC's personnel to enable effective management or auditing of the *ARC Centres of Excellence* scheme or any Funding Agreement;

c. is disclosed by the ARC to the Minister;

d. is shared by the ARC within the ARC's organisation, or with another Commonwealth Department or agency, where this serves the Commonwealth's legitimate interests;

e. is authorised or required by law to be disclosed;

f. is disclosed in accordance with any other provision of these Funding Rules or the Funding Agreement; or

g. is in the public domain otherwise than due to a breach by the ARC of any obligation of confidence.

A2.2 Where information contained in an EOI or a Proposal is made available to third parties for evaluation or assessment purposes the ARC will require the third parties to maintain the confidentiality of the material.

A2.3 Notwithstanding the above, and in addition to the exemptions listed at section A2.1, the ARC may publicise and report offers or awards of funding, including information about the proposed research; the names of nominated Centre Directors, CIs and/or PIs and their organisations; the name of the Administering Organisation and any other parties involved in or associated with the project; the title and summary descriptions of the project and its intended outcomes (including the national/community benefits that are expected to arise from the research); and the level and nature of funding from the ARC. Administering Organisations should ensure that information contained in the project title and summaries would not, if released, compromise their own requirements for confidentiality (such as future protection of intellectual property).

A3 Project description

A3.1 In making public information about a Proposal which has been approved for funding, the ARC may use a project description, including title and summary, which may differ from that provided in the Proposal.

A4 Intellectual property

A4.1 The ARC does not claim ownership of any intellectual property in an EOI or a Proposal or which is created or developed from the conduct of a project funded under the *ARC Centres of Excellence* scheme.

A4.2 However, all EOIs and all Proposals become the property of the ARC on submission. Administering Organisations submit their EOIs and Proposals on the basis that the ARC may copy, modify and otherwise deal with information contained in an EOI or a Proposal (and allow any external assessor or other third party to do the same) for any purpose related to:

a. the evaluation and assessment of EOIs and Proposals;

b. verifying the accuracy, consistency and adequacy of information contained in an EOI or a Proposal, or otherwise provided to the ARC;

c. the preparation and management of any Funding Agreement; or

d. the administration or management of the NCGP.

A4.3 If an EOI or a Proposal contains information belonging to a third party, the Administering Organisation must ensure, prior to the Administering Organisation's submitting the EOI or Proposal, that it has in place all necessary consents to allow the ARC to deal with that information in accordance with these Funding Rules,.

A4.4 Except with written approval from the ARC, all EOIs and Proposals must comply with the *National Principles of Intellectual Property Management for Publicly Funded Research* (available on the ARC website) and accord with any intellectual property policies of the researchers' organisations.

A5 Incomplete or misleading information

A5.1 It is a serious offence to provide false or misleading information to the Commonwealth.

A5.2 If the ARC considers that an EOI or a Proposal is incomplete, inaccurate or contains false or misleading information, the ARC may, in its absolute discretion, exclude the EOI and not shortlist the EOI or exclude the Proposal and not recommend the Proposal for funding.

A5.3 If the ARC considers that omissions, or inclusion of misleading information, are intentional, or if there is evidence of misconduct, the ARC may refer the matter for investigation with a view to prosecution under Commonwealth criminal law.

A5.4 Examples of misleading information and misconduct include, but are not restricted to:

a. providing fictitious track records;

b. making false claims in publications records (e.g. describing a paper as accepted for publication when it has only been submitted); or

c. failing to disclose to the ARC the existence, and nature, of actual or potential conflicts of interest of any of the parties involved in the Proposal/project (e.g. any affiliations or financial interest in any organisation that has a direct interest in the matter or outputs of the project).

A6 Insurance and liabilities

A6.1 Administering Organisations are subject to the liability, indemnity and insurance provisions of the Funding Agreement.

Appendix B – Administration of Funding

B1 Funding Agreement

B1.1 All parties involved in a Proposal should familiarise themselves with the draft Funding Agreement, which is available on the ARC website. Only the Administering Organisation and the ARC will be parties to the Funding Agreement. Parties involved in a funded *ARC Centre of Excellence* must accept the terms of the Funding Agreement and the Administering Organisation must sign the Funding Agreement before the ARC will commence payments.

B1.2 *ARC Centres of Excellence* must commence as required by the Funding Agreement. Failure to do so will result in a termination of the Funding Agreement.

B1.3 Administering Organisations should note that the Funding Agreement covers the post-award management, including reporting requirements and financial management.

B2 Varying the Funding Agreement

B2.1 Requests to vary the Funding Agreement must be forwarded in writing by the Administering Organisation's Research Office to the ARC. Amendment of any clauses of the Funding Agreement will be at the ARC's absolute discretion.

B3 Varying the funding approval

B3.1 Requests to vary the funding approval must be forwarded in writing by the Administering Organisation's Research Office to the ARC. Amendment of the funding approval will be at the ARC's absolute discretion.

B3.2 Circumstances under which the funding approval may be varied include, but are not limited to:

a. the involvement of the Administering Organisation, Collaborating Organisation(s) and/or Partner Organisation(s) with the *ARC Centre of Excellence* ends or substantially changes;

b. the approved funding period changes;

c. the research program changes in such a way so that it is no longer consistent with the description in the approved Proposal; or

d. the person named as Centre Director ceases to lead the Centre.

B4 Reporting requirements

B4.1 Administering Organisations must submit reports to the ARC concerning *ARC Centres of Excellence*, in the format and by the due dates detailed in the Funding Agreement.

B4.2 *ARC Centres of Excellence* will be required to report on a range of Key Performance Indicators (KPIs) common to all *ARC Centres of Excellence*, as well as Centre-specific KPIs, to be developed within the first six months of a Centre's operation and approved by the ARC.

B4.3 *ARC Centres of Excellence* will be required to submit annual reports to the ARC covering both their financial operations and their research performance.

B5 Reviews

B5.1 *ARC Centres of Excellence* will undergo a rigorous and comprehensive external performance review arranged by the ARC in their fourth year of operation. Continuation of funding for the remaining three years of Centre operation will be dependent on the outcome of the review.

B5.2 *ARC Centres of Excellence* funded in this selection round will not be eligible to apply for funding in future *ARC Centres of Excellence* selection rounds until the scheduled fourth-year review is completed.

B5.3 Ad hoc reviews of *ARC Centres of Excellence* may be held at any time. A review will be triggered in special circumstances including, but not limited to:

a. change of Centre Director; or

b. proposed transfer of Administering Organisation.

B6 Governance

B6.1 Administrative operations of an *ARC Centre of Excellence* will normally be established within the academic, administrative and financial governance structures of the Administering Organisation.

B6.2 An *ARC Centres of Excellence* may be located at a single site, or comprise networked nodes, or operate as a 'virtual Centre', or adopt any other approach to research management, provided that it meets the objectives and selection criteria and is not contrary to the Funding Agreement.

B6.3 All *ARC Centres of Excellence* must have an Advisory Committee that provides broad representation of the research and end-user communities.

B6.4 Within the governance structures of the Administering Organisation, the Advisory Committee will offer advice to the Director and the Administering Organisation and the other Collaborating Organisations regarding the research focus of the Centre, its structure and general operating principles, and intellectual property and commercialisation management.

Appendix C – Eligible Organisations

New South Wales

Charles Sturt University
Macquarie University
Southern Cross University
The University of New England
The University of New South Wales
The University of Newcastle
The University of Sydney
University of Technology Sydney
University of Western Sydney
University of Wollongong

Victoria

Deakin University
La Trobe University
Melbourne College of Divinity
Monash University
Royal Melbourne Institute of Technology (RMIT University)
Swinburne University of Technology
The University of Melbourne
University of Ballarat
Victoria University

Queensland

Bond University
Central Queensland University
Griffith University
James Cook University
Queensland University of Technology
The University of Queensland
The University of the Sunshine Coast
University of Southern Queensland

Western Australia

Curtin University of Technology
Edith Cowan University
Murdoch University
The University of Notre Dame Australia
The University of Western Australia

South Australia

Flinders University
The University of Adelaide
University of South Australia

Tasmania

University of Tasmania

Northern Territory

Charles Darwin University
Batchelor Institute of Indigenous Tertiary Education

Australian Capital Territory

The Australian National University
University of Canberra

Multi-State

Australian Catholic University

Appendix D – National Research Priorities and associated Priority Goals

Research Priority 1: An Environmentally Sustainable Australia

Transforming the way we utilise our land, water, mineral and energy resources through a better understanding of human and environmental systems and the use of new technologies

Natural resources have traditionally fuelled our national and regional economies. They have the potential to generate further wealth and employment opportunities in the future. But our natural resources and biodiversity must be used on a sustainable basis so that the benefits continue to be enjoyed by future generations.

Australia faces significant environmental challenges:

- Efficient and sustainable water use is a critically important issue for our economic and social development;
- Significant land degradation issues, such as salinity, need to be arrested to underpin our agricultural production systems;
- Climate change can be expected to have complex, long-term consequences for the environment, for our agricultural and marine production systems and for communities; and
- The cleanliness and efficiency of our energy production systems should be enhanced.

There is substantial effort underway to develop more efficient water utilisation practices, to protect our rivers and groundwater resources, and to protect and remediate our fragile soils.

Our agricultural and mining industries are being transformed through the adoption of new technologies, and the development of new types of food.

This will help to revitalise our regional communities and generate substantial export earnings of the nation over the coming decades.

The Government is committed to meeting the greenhouse gas emissions target set for Australia at Kyoto.

Australia is well placed to take an international lead in developing new and improved energy technologies and in capturing and ‘sequestering’ carbon dioxide.

Other opportunities lie in managing and using our unique, rich land- and marine-based biodiversity, and in developing our deep earth resources.

Australia has a strong record of achievement in research in fields in the natural sciences, such as agriculture, natural resource management, climate change, horticulture, forestry, mining, energy, and marine sciences, as well as in the social sciences and humanities.

We must build on these strengths to improve our competitive advantages while enhancing our understanding of natural systems and the interplay of human activities.

In particular, there needs to be an increased understanding of the contributions of human behaviour to environmental and climate change, and on appropriate adaptive responses and strategies.

To understand and manage these complex interactions better will require significant collaboration within the research community and with other stakeholders.

Priority goals for research fall in the seven areas of water utilisation, transforming resource-based industries, overcoming land degradation, developing cleaner, more efficient fuels and energy

sources, managing biodiversity, deep earth resources and responding to climate change and variability.

Priority Goals

- Water – a critical resource

  Sustainable ways of improving water productivity, using less water in agriculture and other industries, providing increased protection of rivers and groundwater and the re-use of urban and industrial waste waters
  Australia is one of the driest continents and is dependent upon access to freshwater supplies for economic and social development. It has a complex geological structure, a highly variable climate, unique ecosystems, flora and fauna and a distinctive indigenous and settler history. Enhancing our understanding of the links between these factors and water availability will result in a better understanding of sustainable water management practices.

- Transforming existing industries

  New technologies for resource-based industries to deliver substantial increases in national wealth while minimising environmental impacts on land and sea
  Resource-based industries underpin much of Australia's prosperity and have the potential to do so in the future. For example, Australia remains highly prospective for minerals discoveries and highly attractive for the development of new era foods from agricultural and marine sources. Our competitive advantage and national well-being will depend on research and on the development and adoption of new technologies.

- Overcoming soil loss, salinity and acidity

  Identifying causes and solutions to land degradation using a multidisciplinary approach to restore land surfaces
  The Australian landscape is fragile: soil salinity, acidity, and nutrient levels pose significant, long-term challenges for agriculture and the environment. Research is helping to find solutions to these problems. For example, the National Land and Water Resources Audit shows the extent of salinity, soil erosion and soil acidification in the Australian environment and illustrates Australia's leading edge in national mapping of critical resource data. Further multidisciplinary effort is required to develop sustainable land management practices that are appropriate for Australian conditions and mitigate major land degradation processes and increase biodiversity.

- Reducing and capturing emissions in transport and energy generation

  Alternative transport technologies and clean combustion and efficient new power generation systems and capture and sequestration of carbon dioxide
  Australia is well positioned to produce world class solutions to reduce and capture greenhouse gas emissions and the Government is committed to meeting the emissions target set for Australia at Kyoto. We are also well placed to develop alternative energy technologies and ecologically sustainable transport and power generation systems.

- Sustainable use of Australia's biodiversity

  Managing and protecting Australia's terrestrial and marine biodiversity both for its own value and to develop long-term use of ecosystem goods and services ranging from fisheries to ecotourism
  Australia has a unique and rich flora and fauna. Many of our complex ecosystems – on which our agricultural, fisheries and tourism industries depend – have adapted to events such as drought and fire, and have been shaped by indigenous and settler management practices.

There is a need for a more comprehensive understanding of these natural systems and the interplay with human activities, and the effects of management and protection measures.

- Developing deep earth resources

  Smart high technology exploration methodologies, including imaging and mapping the deep earth and ocean floors, and novel efficient ways of commodity extraction and processing (examples include minerals, oil and gas) while minimising negative ecological and social impacts
  Many of Australia's known mineral assets may be nearly exhausted within the next decade. New land-based deposits are believed to be buried deeper in the crust and the deep marine areas surrounding Australia are also largely unexplored. New technologies, such as remote sensing, indicate scientists are on the brink of being able to 'see' inside the earth and identify deeply buried deposits.

- Responding to climate change and variability

  Increasing our understanding of the impact of climate change and variability at the regional level across Australia, and addressing the consequences of these factors on the environment and on communities
  Australia already has a highly variable climate, and climate change can be expected to have further significant impacts. It is important to enhance our understanding of the consequences of climate change and variability at the regional level across Australia, and the implications for the environment and for communities. It is also important to explore beneficial adaptation strategies to climate change and variability to ensure ongoing social, economic and environmental well-being.

Research Priority 2: Promoting and Maintaining Good Health

Promoting good health and well-being for all Australians

Average life expectancies have increased markedly in recent decades. Australians also expect to lead longer and healthier lives in the future, and to remain productive and independent over an extended period.

Enabling individuals and families to make choices that lead to healthy, productive and fulfilling lives will yield economic and social benefits and add materially to national well-being.

Australians expect that their children and grandchildren should have a healthy start to life.

Developing strategies to promote the healthy development of young Australians, and addressing the causes and reducing the impact of the genetic, social and environmental factors which diminish their life potential will be critical.

A revolution is also underway at the other end of the life cycle. Australia, like many other developed nations, is undergoing a major demographic shift involving significant growth in the aged population.

To meet this challenge, it will be important to promote healthy ageing by developing better social and medical strategies to ensure that older Australians enjoy healthy and productive lives.

Informed insights into the causes of disease and of mental and physical degeneration will contribute to the achievement of this goal.

All Australians stand to benefit from preventative healthcare through the adoption of healthier attitudes, habits and lifestyles.

Evidence-based preventative interventions may help reduce the incidence and severity of many diseases, including major health problems such as cardiovascular and neurodegenerative diseases, mental ill-health, obesity, diabetes, asthma and chronic inflammatory conditions. These could include interventions that reduce exposure to contamination of the of the physical environment (e.g. air pollution).

Improvements in the health and well-being of the young, of older Australians and in preventive healthcare will be underpinned by research.

However, while Australia has an enviable record in health and medical research, the research effort is spread across the many universities, hospitals and health and medical research institutes, resulting in critical mass only in limited areas of research.

There is also a need to draw on multidisciplinary approaches that include research contributions from the social sciences and humanities.

This priority is designed to promote health and prevent disease through a more focused and collaborative effort.

Priority goals for research fall in the four areas of a healthy start to life, ageing well, ageing productively, preventative healthcare and strengthening Australia's social and economic fabric.

Priority Goals

- A healthy start to life

  Counteracting the impact of genetic, social and environmental factors which predispose infants and children to ill-health and reduce their well-being and life potential
  Human health in the developing foetus and in early childhood is critical to the future well-being of the adult. Research shows that health and well-being in early childhood is predictive of later positive outcomes, and that health in middle and late childhood is also crucial. This goal supports the Government's National Agenda for Early Childhood initiative.

- Ageing well, ageing productively

  Developing better social, medical and population health strategies to improve the mental and physical capacities of ageing people
  Australia's population is ageing, with a significant projected increase in the number of people aged over 65 and over 85. While Australia is relatively well-placed compared with many OECD nations, major shifts in cultural expectations and attitudes about ageing are necessary to respond constructively, at both an individual and population level. A healthy aged population will contribute actively to the life of the nation through participation in the labour market or through voluntary work. This goal supports the Government's National Strategy for an Ageing Australia.

- Preventative healthcare

  New ethical, evidence-based strategies to promote health and prevent disease through adoption of healthier lifestyles and diet, and the development of health-promoting products
  Preventative healthcare research will improve the prediction and prevention of disease and injury for all Australians through the adoption of healthier behaviours, lifestyles and environments. Research will generate an improvement in the design, delivery and uptake of programs such as exercise-based rehabilitation. There are several major disease targets amenable to immediate study, such as cardiovascular health, neurodegenerative diseases, mental ill-health, obesity, diabetes, asthma and chronic inflammatory conditions. Research on prevention will emphasise interdisciplinary approaches, including research on ethics, drawing on contributions from the social sciences and humanities, as well as from the health and

medical sciences. It will also focus on developing new health-promoting foods and nutraceuticals. This goal supports the Government's Focus on Prevention initiative.

- Strengthening Australia's social and economic fabric

  Understanding and strengthening key elements of Australia's social and economic fabric to help families and individuals live healthy, productive and fulfilling lives
  Living in today's society involves a complex web of choices, yet many of the traditional support structures are weaker than they have been in the past. Enabling people to make choices that lead to positive pathways to self-reliance and supportive family structures is more important than ever. The interactions between the social safety net, social and economic participation, financial incentives and community and private sources of support are critical in helping people maximise their potential and achieve good, healthy, lifetime outcomes. In the decade ahead, it will be vital to understand and support the drivers for workforce participation and the broader social and economic trends influencing Australian families and communities. This goal supports the Government's welfare reform and participation agendas. Research in this area will emphasise interdisciplinary approaches, drawing on contributions from the economic, behavioural and social sciences.

Research Priority 3: Frontier Technologies for Building and Transforming Australian Industries

Stimulating the growth of world-class Australian industries using innovative technologies developed from cutting-edge research

Progress and wealth often derive from the unforseen application of new discoveries. Australian must be at the leading edge if it is to stay abreast of international developments and take advantage of opportunities.

Our national capabilities in emerging science and their underpinning disciplines determine our capacity to develop and implement new technologies. Australia has a strong base of expertise, skills and technological capacities in the fundamental sciences and key technologies.

Our strengths are in a wide range of areas such as biotechnology, material sciences, information and communications technology (ICT), photonics, nanotechnology and sensor technology.

ICT is currently the critical enabling technology and is a major contributor to national productivity and growth.

But breakthrough science underpins technological advancement in many areas and Australia needs to foster an environment that stimulates creativity and innovation.

Applications for frontier technologies are potentially very large. Australia has the capacity to exploit niche markets for new products and services.

Australia also has an enviable track record as an innovator and developer of advanced materials and must grasp the opportunity to stay ahead.

Smart information use involving improved data management, intelligent transport systems and digital media to develop creative applications for digital technologies provides huge opportunities to improve the performance of key Australian industries.

Australia needs to invest in this research area as it is fundamental to our future competitiveness and well-being.

This priority will help to strengthen the capacity of Australian researchers to participate in new areas of research, enhance Australia's international scientific reputation, stimulate local expertise, and help create vibrant new industries.

A better understanding of the conditions that are conducive to innovation will ensure that Australia's investment in research will maximise the benefits for Australia.

Enhanced research effort will also be achieved through initiatives that develop a critical mass of researchers in key areas.

Priority goals for research fall in the five areas of breakthrough science, frontier technologies, advanced materials, smart information use, and promoting an innovation culture and economy.

Priority Goals

- Breakthrough science

  Better understanding of the fundamental processes that will advance knowledge and facilitate the development of technological innovation
  Breakthrough science underpins technological innovation across a range of industries critical to maintaining Australia's position as a developed country. Some examples include bio-, cultural- and geo-informatics, nano-assembly and quantum computing. Technological advances are often unexpected and a strong foundation in mathematics and the fundamental sciences will provide an environment that fosters creativity and innovation. Early participation in leading-edge areas of research will enable Australian researchers to benefit more fully from international developments.

- Frontier technologies

  Enhanced capacity in frontier technologies to power world-class industries of the future and build on Australia's strengths in research and innovation (examples include nanotechnology, biotechnology, ICT, photonics, genomics/phenomics, and complex systems)
  The potential applications of frontier technologies across a range of industries in Australia are vast. Australia has significant capacity to exploit niche markets for new products and services emerging from frontier technologies. Australia has world-class research expertise in many such areas. Some examples include nanotechnology, biotechnology, ICT, photonics, genomics and phenomics. Also important are advanced frameworks such as complex systems in which these technologies are applied. Future directions in this priority area need to target the cutting-edge science critical for each emerging technology.

- Advanced materials

  Advanced materials for applications in construction, communications, transport, agriculture and medicine (examples include ceramics, organics, biomaterials, smart materials and fabrics, composites, polymers and light metals)
  The development of advanced materials will underpin growth in many areas of industrial and economic activity in Australia. Australia has substantial infrastructure in this area and an enviable track record as an innovator and developer of advanced materials. The era of advanced materials is just beginning, in spite of the tremendous progress in recent years. Substantial scientific and technological challenges remain ahead, including the development of more sophisticated and specialised materials. Some examples include ceramics, organics, biomaterials, smart materials and fabrics, composites, polymers, and light metals.

- Smart information use

  Improved data management for existing and new business applications and creative applications for digital technologies (examples include e-finance, interactive systems, multi-platform media, creative industries, digital media creative design, content generation and imaging)
  ICT applications are providing huge opportunities to deliver new systems, products, business

solutions, and to make more efficient use of infrastructure. Examples include e-finance, multi-media, content generation and imaging. Improved data management is central to the future competitiveness of key industries such as agriculture, biotechnology, finance, banking, education, transport, government, and health and 'info-tainment'. The ability of organisations to operate virtually and collaborate across huge distances in Australia and internationally hinges on our capabilities in this area. The media and creative industries are among the fastest growing sectors of the new economy. Research is needed to exploit the huge potential in the digital media industry.

- Promoting an innovation culture and economy

  Maximising Australia's creative and technological capability by understanding the factors conducive to innovation and its acceptance
  Understanding the factors that lead to highly creative and innovative ideas and concepts, and the conditions that lead to their introduction, transfer and uptake is critical for any nation that aspires to lead the world in breakthrough science, frontier technologies, and in other forms of innovation. Promoting an innovation culture and economy requires research with a focus on developing and fostering human talent, societal and cultural values favourable to creativity and innovation, and structures and processes for encouraging and managing innovation.

Research Priority 4: Safeguarding Australia

Safeguarding Australia from terrorism, crime, invasive diseases and pests, strengthening our understanding of Australia's place in the region and the world, and securing our infrastructure, particularly with respect to our digital systems

The importance of security and safety to Australia has been underscored by recent events.

Australia has to be capable of anticipating and tackling critical threats to society, strategic areas of the national economy and the environment.

The threats can potentially come from within and outside Australia.

The world is now characterised by the widespread and rapid movements of people, digitally coded data, goods and services, and exotic biological agents.

Critical infrastructure in Australia is increasingly dependent on digital technology for its management and integration.

Information protection and the integrity of security systems are now more important than ever before.

It is also necessary to protect the status of Australia as a nation free of many of the diseases affecting primary production around the world.

Terrorism has emerged as a very real global threat and crime is taking a significant toll on Australian society and economy.

Maintaining the operational advantage of Australia's defence forces through superior capabilities is also fundamental to our national security.

Enhancing our nation's understanding of social, political and cultural issues will help Australia to engage with our neighbours and the wider global community and to respond to emerging issues.

Leading-edge research in Australia is already yielding high dividends and as a national research priority will improve the effectiveness of that contribution.

Stronger research capabilities will ensure that solutions are tailored to Australia's unique circumstances, reflecting its geographic features and small population.

Greater collaboration within the research community and with other stakeholders will allow us to better understand and manage potential threats to Australia.

Harnessing the knowledge and capabilities across Australia offers us the best chance of developing innovative and rapid solutions to serious threats.

Australia's international relations and its regional influence will be strengthened through new collaborative approaches and new science and technologies that enhance security and safety.

The heightened interest in personal and electronic security across the world also provides opportunities for Australian solutions.

Priority goals for research fall in the five areas of critical infrastructure, understanding our region and the world, protecting Australia from invasive diseases and pests, protecting Australia from terrorism and crime, and transformational defence technologies.

Priority Goals

- Critical infrastructure

  Protecting Australia's critical infrastructure including our financial, energy, communications, and transport systems
  Protecting our critical infrastructure is important to national security and to the social and economic well-being of Australia. An important aspect of this priority goal is e-security which is an enabler of e-commerce. Maintaining a critical mass of research in e-security will be essential in providing Australia with the tools to protect our way of life.

- Understanding our region and the world

  Enhancing Australia's capacity to interpret and engage with its regional and global environment through a greater understanding of languages, societies, politics and cultures
  Social, cultural and religious issues are of growing significance due to the insecurities of globalisation and the increasing role of non-state players in the security environment. Australia's capacity to interpret and engage with its regional and global environment will be substantially improved by enhancing its research base in apposite languages, societies and cultures. An approach that enhances Australia's capacity to interpret itself to the rest of the world is also needed.

- Protecting Australia from invasive diseases and pests

  Counteract the impact of invasive species through the application of new technologies and by integrating approaches across agencies and jurisdictions
  Australia is free of many of the pests and diseases affecting primary production around the world. This status needs to be protected as the introduction of exotic species has the potential to adversely affect our exports and the environment. Australia already has strong skills and expertise in this area of research and further work will offer immediate benefits to the community. A greater level of coordination of our research effort will mean that Australia can more effectively develop innovative and rapid solutions to serious threats.

- Protecting Australia from terrorism and crime

  By promoting a healthy and diverse research and development system that anticipates threats and supports core competencies in modern and rapid identification techniques
  Protecting Australia from terrorism is now more important than ever before in light of recent events and our involvement in the 'war on terror'. The new threat requires a more sophisticated response which should harness Australia's research capabilities, and which will focus on all phases of counter-terrorism; prevention, preparedness, detection, response and

recovery. Crime takes a significant toll on Australian society and economy. The June 2000 report from the Prime Minister's Science, Engineering and Innovation Council estimated that crime costs Australia at least $18 billion per annum. Personal identification, information protection and the integrity of security systems are fundamental towards ensuring the national security of Australia. An effective solution will include building on Australia's existing strengths in rapid detection using new analytical technologies and managing significant data collections.

- Transformational defence technologies

  Transform military operations for the defence of Australia by providing superior technologies, better information and improved ways of operation
  Australia has a small defence force to protect a large continent and a substantial maritime region of responsibility. Its operational advantage has been maintained through a superior capability which is dependent on leveraging innovative technologies. Although some benefits can be gained from overseas research, Australia has to conduct its own research to address uniquely Australian demands. A systems approach which harnesses the research capabilities of all stakeholders is essential to the successful development and introduction of innovative technologies.

Appendix E – National Innovation Priorities

- Public research funding supports high-quality research that addresses national challenges and open up new opportunities
- Australia has a strong base of skilled researchers to support the national research effort in both the public and private sectors
- The innovation system fosters industries of the future, securing value from the commercialisation of Australian research and development
- More effective dissemination of new technologies, processes, and ideas increases innovation across the economy, with a particular focus on small and medium-sized enterprises
- The innovation system encourages a culture of collaboration within the research sector and between researchers and industry
- Australian researchers and businesses are involved in more international collaborations on research and development
- The public and community sectors work with others in the innovation system to improve policy development and service delivery