



Australian Government
Australian Research Council

Linkage Learned Academies Special Projects (LASP) Funding Rules for funding commencing in 2010 Variation (No. 1)

Australian Research Council Act 2001

I, KIM CARR, Minister for Innovation, Industry, Science and Research, having satisfied myself of the matters set out in section 59 of the *Australian Research Council Act 2001* (the Act), approve, in accordance with section 61 of the Act, variation of the ARC *Linkage Learned Academies Special Projects Funding Rules for funding commencing in 2010* in the manner set out in the attached Schedule.

Dated 16 November 2009

Kim Carr
Minister for Innovation, Industry, Science and Research

I, MARGARET SHEIL, Chief Executive Officer of the Australian Research Council, having satisfied myself of the matters set out in section 59 of the *Australian Research Council Act 2001* (the Act), vary in accordance with section 61 of the Act the ARC *Linkage Learned Academies Special Projects Funding Rules for funding commencing in 2010* in the manner set out in the attached Schedule.

Dated 9 November 2009

Margaret Sheil
Chief Executive Officer, Australian Research Council

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Acronyms

The following acronyms are used in the *LASP* Funding Rules for funding commencing in 2010.

| | |
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| AEDT | Australian Eastern Daylight Saving (Summer) Time |
| AEST | Australian Eastern Standard Time |
| ARC | Australian Research Council |
| CEO | ARC Chief Executive Officer |
| GST | Goods and Services Tax |
| HECS | Higher Education Contribution Scheme |
| HELP | Higher Education Loan Programme |
| LA | Learned Academies |
| LASP | ARC Linkage Learned Academies Special Projects |
| NCGP | National Competitive Grants Program |
| NHMRC | National Health and Medical Research Council |
| SAC | Selection Advisory Committee |
| UA | Universities Australia |

Key Date

| | |
|---|--|
| Closing date for submission of Proposals | 5.00pm (AEDT) 20 January 2010 |
|---|--|

Contacts

Enquiries about *LASP* may be addressed as follows:

By Post to:

Scheme Coordinator
Linkage Learned Academies Special Projects
Australian Research Council
GPO Box 2702
CANBERRA ACT 2601

OR

By Courier to:

Scheme Coordinator
Linkage Learned Academies Special Projects
Australian Research Council
1st Floor, 8 Brindabella Circuit
CANBERRA AIRPORT ACT 2609

Other:

Email: laspl@arc.gov.au

Phone: 02 6287 6600

Fax: 02 6287 6638

Web: www.arc.gov.au

1. Name of Funding Rules

- 1.1. These Funding Rules are the Australian Research Council *Linkage Learned Academies Special Projects (LASP) Funding Rules for funding commencing in 2010*.

2. Commencement

- 2.1. These Funding Rules shall take effect upon registration on the Federal Register of Legislative Instruments.

3. Definitions

- 3.1. In these Funding Rules, unless otherwise stated:

Administering Organisation in the *LASP* scheme means a Learned Academy or the National Academies Forum, the Eligible Organisations which can submit a Proposal for funding and which will receive and be responsible for the administration of the funding if a Proposal is approved.

Applicant means one of the Learned Academies and/or the National Academies Forum.

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

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

ARC website is www.arc.gov.au.

Collaborating Organisation in the *LASP* scheme means an organisation which is identified in a Proposal as providing a participant in the List of Researchers.

Commonwealth means the Commonwealth of Australia.

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

Eligible Organisation means an organisation eligible to apply for and receive funding as listed in Appendix 1.

Funding Agreement means the agreement entered into between the ARC and the Administering Organisation if that 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 given in section 195-1 of the *A New Tax System (Goods and Services Tax) Act 1999*.

Learned Academies means the Learned Academies, comprising the Academy of the Social Sciences in Australia, the Australian Academy of the Humanities, the Australian Academy of Science, the Australian Academy of Technological Sciences and Engineering, whose national body is the National Academies Forum.

List of Researchers means the list of researchers from the Learned Academies who will be the research team for a Proposal. That list of names must also include the names of researchers from Collaborating Organisations if there are researchers on the Proposal from Collaborating Organisations.

Member of the Learned Academies means a Fellow, Corresponding Member, Royal Fellow, Honorary Fellow, Foundation Fellow, Foreign Fellow or Overseas Fellow of, or holding equivalent status in, one of the Learned Academies.

Minister means the Minister from time to time responsible for the administration of the

ARC Act (currently the Minister for Innovation, Industry, Science and Research), or the Minister's delegate.

National Research Priority means a national research priority referred to in Section 4.2.3 and further detailed in Appendix 3.

Project Leader means the first-named researcher in the List of Researchers named on a Proposal.

Proposal means a request to the ARC for the provision of funding for a research project.

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

Themes means the set of strategic research themes that are for research programs in *LASP* proposals that deal with advancement of Australian research or with substantive research topics, as outlined in Section 5.1.3 of this document

4. Introduction

4.1. Overview

- 4.1.1.** *LASP* is funded under the ARC's National Competitive Grants Program (NCGP). The Proposals submitted for *LASP* will be for the conduct of a research program by the Learned Academies and/or the National Academies Forum. All parties involved in Proposals should read and understand these Funding Rules and the ARC's draft Funding Agreement (which is available on the ARC website) before submitting a Proposal to the ARC. Applicants are responsible for ensuring that their Proposals are complete and accurate.
- 4.1.2.** The requirements in these Funding Rules have changed since the previous selection round of *LASP*. Changes to eligibility, funding duration, Proposals and proposed research projects have been made. Section 7 lists important difference between the Funding Rules for 2009 and the Funding Rules for 2010.
- 4.1.3.** These Funding Rules are current as at October 2009 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, replacement or supplementation of the ARC Act.
- 4.1.4.** Funding under *LASP* is provided to the Learned Academies or the National Academies Forum, as listed in Appendix 1, and not to individual researchers.

4.2. NCGP Objectives

- 4.2.1.** The ARC is an Australian Government statutory authority established under the ARC Act whose primary functions are to make recommendations regarding the funding of research, to administer funding to support research programs, and to provide policy advice related to research.
- 4.2.2.** The ARC, through a range of funding schemes under the NCGP, aims to:
- a)** maintain and build on existing research and research training;
 - b)** build the scale and focus of research and research training;
 - c)** encourage cross-disciplinary approaches to research and research training;
 - d)** facilitate collaborative approaches to research and research training; and
 - e)** support research and research training of national benefit, including in the following National Research Priority Areas:

- i. An Environmentally Sustainable Australia;
- ii. Promoting and Maintaining Good Health;
- iii. Frontier Technologies for Building and Transforming Australian Industries;
and
- iv. Safeguarding Australia

4.2.3. Descriptions of these National Research Priorities and their associated Priority Goals are given in Appendix 3.

5. LASP Objectives

5.1.1. The objective of the *LASP* scheme is to support the development of Australian research. *LASP* aims to provide the Learned Academies and/or the National Academies Forum with the flexibility to achieve that objective.

5.1.2. To support the development of Australian research and to provide the Learned Academies with flexibility, research programs must encompass research that advances Australian research itself and/or addresses substantive topics, as listed in 5.1.3.

5.1.3. The Themes for research programs for 2010 to 2012 are concerned with, or include:

- a) The advancement of Australian research itself.
The broad Themes under which research Proposals are to fall are:
 - i. National and international collaboration in research;
 - ii. Discipline research development;
 - iii. Professional development for early and mid-career researchers;
 - iv. Science, humanities, social science and technical and engineering research policy;
 - v. Multidisciplinary, interdisciplinary, or crossdisciplinary research;
 - vi. Other areas, as approved in advance of the closing date by the ARC; and/or
- b) Research programs that are to do with substantive topics.
The broad Themes under which research Proposals are to fall are:
 - i. Climate change/water/sustainability;
 - ii. Energy;
 - iii. Security and safety;
 - iv. Knowledge acquisition and transfer and social inclusion;
 - v. Industry development;
 - vi. Indigenous research;
 - vii. Australia and the Asia-Pacific region;
 - viii. Health, nutrition and disease;
 - ix. Other areas, as approved in advance of the closing date by the ARC.

6. Selection and approval process

6.1. Selection criteria

All Proposals which meet the eligibility criteria set out in these Funding Rules will be assessed and merit ranked using the following criteria:

- a) The contribution to the development of Australian research;
- b) Collaborative approaches to research and research training;
- c) Research and research training in the Themes listed in 5.1.3;
- d) The merit of the Proposal in relation to its:
 - i. goals and potential outcomes;
 - ii. conceptual framework, design, methods and analyses;
 - iii. budget justification and value for money;

- e) The extent to which the Proposal may be expected to have results of broad benefit for research and scholarship in the natural and applied sciences, technological development and applied technology, the social sciences and/or the humanities; and
- f) The potential for the research to contribute to issues of national significance.

6.2. Fundamental principles and requirements

6.2.1. Ethics and research practices

6.2.1.1 All Proposals and ARC-funded research projects should conform to the principles outlined in the following and their successor documents:

- a) the 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.

6.2.2. Non-duplication

6.2.2.1 The ARC will not provide funding to meet the costs of a project to the extent that those costs have been, or are likely to be, met by Commonwealth funding obtained from another source (including other ARC funding). The ARC reserves the right to determine if a Proposal includes such costs and to deem a notional amount for such costs.

6.2.2.2 Where a significant portion of the costs for a proposed project has been, or is likely to be, funded by the Commonwealth from other sources (including other ARC sources), the ARC may decide to recommend that the Proposal not be funded at all. In other cases, the ARC may decide to recommend a reduced amount of funding for the proposed project.

7. Changes from last year

7.1.1. The majority of changes made in the Funding Rules for funding commencing in 2010 are to meet the new objective of supporting the development of Australian research and providing greater flexibility to the Learned Academies and the National Academies Forum to meet this objective.

Significant changes from the 2009 *LASP* Funding Rules include:

- a) A Proposal is for the conduct of a three year research program (a single project or a number of projects) conducted by researchers named in the List of Researchers.
- b) The Learned Academies and/or the National Academies Forum are the Applicants, not individual members of the Learned Academies as in previous years.
- c) The members of each research group, who are named in the List of Researchers, are not required to provide evidence of their past performance record in the Proposal, noting the competitive peer-reviewed process for election to the Learned Academies in the first instance. The ARC reserves the right to seek further information should it be necessary, for example, with respect to any researchers from organisations which are not Eligible Organisations.
- d) Proposals are to be called for every three years and research programs will be funded for a three-year period.
- e) Themes are set for each three-year period in areas that: (a) advance the development of Australian research itself, and/or (b) address substantive topics of research, as set out in section 5.1.3.
- f) Learned Academies and/or the National Academies Forum must assess the progress of each research program each year and provide a one page report of progress to the ARC, including in the final year of the project.
- g) A final report providing the outcomes of each research program must be submitted to the ARC to assess whether the funds awarded have enabled the objectives to be met

and to report the specific outcomes achieved or to be achieved (e.g. future publications). There is a requirement for the Learned Academies and the National Academies Forum to make final reports publicly available and accessible.

- h) In each round, the ARC will accept submission of no fewer than four and no more than eight Proposals, unless prior approval has been given by the ARC. Individual Learned Academies may submit one Proposal each on which it is the sole Applicant. Up to two joint Proposals, on which two Learned Academies are listed, may be submitted. Up to two Proposals may be submitted by the National Academies Forum, on which at least three Learned Academies would be listed.
- i) Medical and dental research is not excluded from Proposals.
- j) Partner organisations are no longer included in Proposals.
- k) Funding limits will apply; unlike 2009, the new minimum limit is \$30,000 per Proposal.
- l) Some administrative aspects that apply to all ARC schemes, for example in relation to Conflict of Interest, have been moved to Appendix 2.

The list of changes above is not comprehensive. Applicants and other parties involved in Proposals should read and understand the entire Funding Rules and draft Funding Agreement before a Proposal is submitted to the ARC.

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 funding which will be provided for a research program is \$30,000 per year.

8.1.3. The maximum level of funding which will be provided for a research program is \$120,000 per year. In exceptional circumstances, the ARC may consider higher funding levels where an outstanding case is made.

8.1.4. The Learned Academies and/or the National Academies Forum may request the maximum amount per Academy (up to \$120,000 per annum), but the ARC will recommend the level of funding and budget for each research program. This recommendation will be based on the quality of the research program proposed relative to the other Proposals.

8.1.5. The ARC reserves the right to recommend levels of funding and a budget which may differ from those requested in a Proposal.

8.2. Period of funding

8.2.1. Funding may be payable for research programs in respect of financial year 2009-10 and any subsequent years to which the ARC Act applies. Funding for approved projects will commence with effect 1 January 2010, unless other arrangements are approved by the Minister.

8.2.2. Projects will be funded for three years, with the full period of funding being approved before the project begins.

8.2.3. Each three-year scheme will be advertised at the end of the second year in the previous three-year *LASP* round.

8.3. Types of research supported

- 8.3.1.** The *LASP* scheme supports research in particular Themes, as set out in section 5.1.3.
- 8.3.2.** Each Learned Academy and/or the National Academies Forum from which a Proposal emanates is to assess whether a Proposal is in the broad thematic areas stipulated in section 5.1.3 prior to its submission to the ARC. This will assist in determining the eligibility of Proposals prior to their submission to the ARC, or allow discussions to take place between the ARC and the Applicant in advance of the due date should the Proposal fall in 5.1.3a (vi) and 5.1.3b (ix).
- 8.3.3.** Proposals that do not fall within the Themes set out in section 5.1.3 must gain approval from the ARC before submission or the Proposal may be deemed ineligible.
- 8.3.4.** Subject to meeting the requirement of the Themes set out in section 5.1.3, *LASP* supports all types of research, consistent with the objectives, including:
- a) pure basic research which is experimental and theoretical work undertaken to acquire new 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; and
 - 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.** Funding is provided to support project costs which directly support research programs. The ARC may in its absolute discretion determine whether any project costs meet this requirement.
- 8.4.2.** The following project costs may be supported:
- a) personnel (salaries and on-costs), including research assistants and associates, technicians and laboratory assistants. However, salaries and on-costs will not be supported for researchers named in the List of Researchers for a Proposal;
 - b) teaching relief, for members of the Learned Academies named in the List of Researchers for a Proposal, may be considered by the ARC if such a request is fully justified in terms of achieving a successful outcome for the project. If approved, the funding contribution is limited to a maximum rate of \$32,972 (2008\$) for six months per year (or pro rata for a lesser period) per member, and is a Special Condition;
 - c) maintenance; and
 - d) travel expenses for members of the Learned Academies named in the List of Researchers for a Proposal may be considered by the ARC if the Proposal clearly demonstrates that such expenses are not covered by a Special Studies Program, that the research to be undertaken directly relates to the conduct of the project, and is a Special Condition.
- 8.4.3.** Funding will not be provided to projects which, in the opinion of the ARC, are more appropriately funded from other ARC or Commonwealth Government funding sources including publicly funded research agencies.
- 8.4.4.** The following items will not be supported:

- a) activities leading solely to the creation or performance of a work of art, including visual art, musical compositions, drama, dance, film, broadcasts, designs, and literary works. These areas are generally covered by other Commonwealth Government funding agencies;
- b) production of teaching materials, even though some research may be involved in their production;
- c) compilation of data, unless this is an integral part of a project, in which case the Proposal must include a detailed statement indicating the research objectives to which the data would contribute and provide the specific research questions to be addressed based on their significance and academic argument;
- d) development of research aids and tools (including computer programs), unless they form an integral part of the Proposal, in which case the Proposal must include a detailed statement indicating the research objectives to which these activities would contribute and provide the specific research questions to be addressed based on their significance and academic argument;
- e) capital works and general infrastructure costs (in whole or in part);
- f) international students' fees and Higher Education Contribution Scheme (HECS) and Higher Education Loan Programme (HELP) liabilities;
- g) the Administering Organisation must give a commitment that a researcher nominated in the List of Researchers for a Proposal has access to the following basic facilities (where relevant to the Proposal), which will not be funded by the ARC:
 - i. accommodation (e.g. laboratory and office, suitably equipped and furnished in standard ways);
 - ii. access to a basic library collection;
 - iii. standard reference materials or funds for abstracting services;
 - iv. provision of computers, including laptops (excluding access to high-performance computers or other specialised applications) and basic computing facilities such as printers, word processing and other standard software; and
 - v. use of photocopiers, telephones, mail, fax, email and internet services.
- h) costs not directly related to a project.

8.4.5. If the ARC considers that a Proposal seeks funding for a project that involves any of the items not permitted under Section 8.4, then to that extent, part or the entire Proposal will not be recommended or approved for funding. However, if the ARC considers that other parts of the proposed project remain worthy of support, the ARC may recommend that a reduced amount of funding be approved for the Proposal.

8.5. Number of Proposals and funded projects

8.5.1. In each round, the ARC will accept submission of no fewer than four and no more than eight Proposals, unless prior approval has been given by the ARC. Individual Learned Academies may submit one Proposal each on which it is the sole Applicant. Up to two joint Proposals, on which two Learned Academies are listed, may be submitted. Up to two Proposals may be submitted by the National Academies Forum, on which at least three Learned Academies would be listed. Where more than one Learned Academy or the National Academies Forum is listed on a Proposal, it must be agreed between the organisations which of them is to be the Administering Organisation for that Proposal.

8.5.2. Learned Academies and the National Academies Forum may consult in advance with the ARC in regard to the number of Proposals, the combination of Learned Academies within any three-year time frame, and the Themes of Proposals to be submitted.

8.5.3. Any research program covered in a Proposal submitted to the ARC is to be considered within the Learned Academies as meeting one or more of the proposed Themes and to be

of sufficient quality to meet the ARC's standards in promoting and funding excellence in research.

- 8.5.4.** Only one Proposal may be submitted in respect of a particular project in the same funding round. The ARC reserves the right to determine whether Proposals are duplicates or sufficiently similar to warrant one or more Proposals being not recommended for approval.

9. Roles and eligibility for researchers

9.1. Researcher roles and eligibility

- 9.1.1.** Each Proposal must include a List of Researchers who will form the research group conducting the research program. The research group must contain at least two Members of the Learned Academies and/or the National Academies Forum. The List of Researchers must include Members of the Learned Academies and/or National Academies Forum to be considered as eligible.
- 9.1.2.** Proposals may also include researchers from Collaborating Organisations. A Proposal may identify one or more Collaborating Organisations to be involved in the proposed projects. Researchers from the Collaborating Organisation must be included in the List of Researchers for a Proposal.
- 9.1.3.** A Proposal must nominate a Member of the Learned Academies to be the Project Leader. The first-named researcher will be considered the Project Leader.
- 9.1.4.** The Administering Organisation will provide a commitment that the researchers named in the List of Researchers for a Proposal have the capacity to make a serious commitment to the project. The ARC reserves the right to determine whether the Administering Organisation can provide a commitment that the capability exists to conduct the research program.
- 9.1.5.** Notwithstanding a researcher's eligibility under any criteria stipulated in these funding rules, a researcher undertaking undergraduate or postgraduate studies is not eligible to be a member of the List of Researchers for a Proposal.
- 9.1.6.** If the ARC considers that a member of the List of Researchers does not meet the eligibility criteria specified in these Funding Rules, the Proposal may not be recommended or approved for funding. The ARC will give prior warning and provide the Learned Academies and the National Academies Forum with an opportunity to provide information to inform any eligibility ruling made with regard to a member of the List of Researchers.

9.2. Eligibility Criteria for those in the List of Researchers for a Proposal

- 9.2.1.** A researcher named as a member of the List of Researchers for a Proposal must meet at least one of the following two criteria as at 1 January 2010, and for the full term of her/his participation in the project:
- a) be a Fellow, Corresponding Member, Royal Fellow, Honorary Fellow, Foundation Fellow, Foreign Fellow or Overseas Fellow of, or hold equivalent status with, an Eligible Organisation as listed in Appendix 1; or
 - b) be an employee of, and be employed for at least half-time of full-time equivalent hours by, an Eligible Organisation as listed in Appendix 1.
- 9.2.2.** At the time of the submission of a Proposal, all obligations regarding previously funded projects for those named in the List of Researchers for a Proposal must have been fulfilled

to the satisfaction of the ARC. Such obligations include the provision of satisfactory progress and final reports.

9.2.3. If a Proposal has been approved for funding and any of those in the List of Researchers are at any time during the project no longer able to participate, the project may be continued under replacement researchers if there is only one member of the original List of Researchers remaining, provided that:

- a) approval is obtained from the Minister for the change in researchers; and
- b) there is at least one member of the original List of Researchers remaining on the project,
- c) a replacement researcher meets the criteria stipulated in Sections 9.1 and 9.2 when he/she is nominated as a replacement and for the full term of her/his participation in the project.

10. Applications

10.1. Proposals

10.1.1. The Proposal must fall within the Themes set out in section 5.1.3.

10.1.2. In the majority of cases, a three-year research program will comprise more than one research project. All of a research program need not have all of its research projects determined in the Proposal. A research program may also comprise a single large research project.

10.1.3. 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, unless requested by the ARC.

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

10.1.5. In submitting a Proposal, the Administering Organisation, Collaborating Organisations, and the List of Researchers named in the Proposal are consenting to the Proposal being assessed under the ARC's peer assessment procedures and, if needed, to agree to the release of the Proposal to third parties for assessment.

10.1.6. A Selection Advisory Committee will make recommendations on funding to the ARC CEO. The Selection Advisory Committee will ensure that the Proposals have met ARC requirements, for example, with respect to falling within the Themes set out in section 5.1.3.

10.2. Application process

10.2.1. Applications are to be submitted on the ARC application form provided on the ARC website.

10.2.2. The application form will include:

- a) The name of the Applicant (the Learned Academies and/or the National Academies Forum) which will be the Administering Organisation;
- b) A list of the researchers who will participate in the particular research program, designating those who are Members of the Learned Academies and those who are researchers from Collaborating Organisations (names, titles, affiliations);
- c) The title of the Proposal;
- d) A 100-word summary outlining the proposed research program;
- e) A three page document describing the proposed research program; and

f) A half-page document outlining the budget and its justification.

10.2.3. The Administering Organisation must submit one electronic copy by email (attachment in Microsoft Word) and one paper copy of a Proposal to the ARC using the “*LASP* Application Form for Funding Commencing in 2010” available on the ARC website.

10.2.4. All paper copy Proposals must be signed by the President of the National Academies Forum or a similar officer in a Learned Academy who has the power to make and vary contracts on behalf of that organisation. The paper copy must be otherwise identical to the copy submitted by email.

10.2.5. The Administering Organisation must obtain the agreement, attested to by hand-written signatures and certifications, of all relevant organisations necessary to allow the proposed project to proceed. These agreements, certifications and signatures are to be retained by the Administering Organisation which must provide them if requested by the ARC. A form is available for this purpose on the ARC website.

10.2.6. Formal eligibility exemption and eligibility ruling processes do not apply to Proposals for *LASP*.

10.2.7. If a Proposal fails to meet any format and content requirements the ARC may in its absolute discretion decide to not recommend the Proposal for funding.

10.3. Closing Time for Proposals

10.3.1. Subject to subsection 10.1, 10.2 and 10.3, the paper copies of a Proposal must be received by the ARC, and the electronic copy of the Proposal must be submitted to the ARC, by **5.00 pm (AEDT) 20 January 2010**.

By mail to:

Scheme Coordinator
Linkage Learned Academies Special Projects
Australian Research Council
GPO Box 2702
CANBERRA ACT 2601

Or, by courier, to:

Scheme Coordinator
Linkage Learned Academies Special Projects
Australian Research Council
1st Floor
8 Brindabella Circuit
CANBERRA AIRPORT ACT 2609

By email to: laspp@arc.gov.au

10.3.2. If a Proposal is received by the ARC after **5.00pm (AEDT) 20 January 2010**, the ARC may, in its absolute discretion, decide to not recommend the Proposal for funding. In deciding whether to recommend or not recommend such a Proposal, the ARC may take into account whether:

a) in the opinion of the ARC, exceptional circumstances apply, and

- b) the Administering Organisation is able to provide evidence to the satisfaction of the ARC that all documents were despatched by the Administering Organisation sufficiently in advance of the closing time for the documents to have been delivered to the ARC by the closing time in the normal course of events

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

10.4. Format

10.4.1. If the application form is altered, including additions and/or deletions other than as explicitly noted in the form, the ARC may in its absolute discretion decide to not recommend the Proposal for funding.

10.4.2. All documents must be written in English and must comply strictly with the format and submission requirements.

10.4.3. When completing the application form, a highly legible font type must be used, such as Times New Roman, Calibri, Arial, Palatino or Helvetica. Font size must be equivalent in size 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.

10.4.4. All pages of the Proposal must be numbered consecutively starting from page 1.

10.5. Assessment and Selection Process

10.5.1. 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) assign assessors to review Proposals;
- b) seek comments on assessors' reports from the parties involved in the Proposal;
- c) 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;
- d) prepare funding recommendations for the Minister as required by the ARC Act.

10.5.2. Where an actual or perceived conflict of interest exists or arises in relation to the assessment of a Proposal, the ARC has established procedures for managing the conflict and for enabling individuals to withdraw from the assessment process for particular Proposals.

10.5.3. The ARC will consider the request to exclude any person as an assessor, but may choose not to give effect to such a request.

10.5.4. The ARC reserves the right to negotiate amendments to a Proposal if it believes that the Proposal or project outcomes will be improved by such changes. An Administering Organisation is not obliged to accept amendments, but the ARC may decline to recommend funding whether or not amendments are made.

11. Exclusion of Proposals

11.1. The ARC will not recommend for approval, and the Minister will not approve for funding, any Proposal that fails to satisfy the eligibility criteria set out in these Funding Rules, including:

- a) if the Proposal is not for a program of research or a program that supports the conduct of research in the Themes set out in section 5.1.3, or has otherwise been approved by the ARC;
- b) if the ARC considers that the Proposal is more appropriately funded from other ARC or Commonwealth Government funding sources;
- c) if the ARC considers that the Proposal seeks funding for projects of the type referred to in (b) above, or for any of the items listed in section 8.4.4, and the ARC considers no other part of the proposed project remains worthy of support;
- d) if the Proposal was not submitted by an Eligible Organisation; or
- e) if a Proposal has not been signed by the President of the National Academies Forum or a similar officer in a Learned Academy who has the power to make and vary contracts on behalf of that organisation (section 10.2.4).

11.2. The ARC may in its absolute discretion decide not to recommend for approval a Proposal if:

- a) in the opinion of the ARC, any researcher nominated in the List of Researchers in the Proposal has caused or has significantly contributed to the failure of an organisation to meet its obligations under any current or previous funding agreement with the ARC;
- b) in the opinion of the ARC, the Proposal duplicates or is likely to duplicate research already being funded, or which is likely to be funded, by the Commonwealth (section 6.2.2);
- c) in the opinion of the ARC, any party involved in or associated with the Proposal has failed to disclose any conflict of interest (Appendix 2 section 6);
- d) the limits on the number of Proposals submitted are exceeded (section 8.5.1) unless approval has otherwise been gained in advance from the ARC. The ARC would determine the Proposal(s) to exclude in that instance ;
- e) the ARC considers that the project described in the Proposal is the same as or similar (in whole or in part) to a project described in another Proposal that is submitted in the same funding round (section 8.5.4);
- f) the electronic copy of the Proposal is submitted, or the paper copy of the Proposal are received by the ARC, after the closing time (section 10.3.1);
- g) the Proposal fails to meet any format or other submission requirements (section 10.4);
- h) the ARC considers that incomplete, inaccurate, false, or misleading material has been provided in relation to the Proposal or if the Administering Organisation and/or researchers nominated in the List of Researchers for a Proposal have provided the ARC with incomplete, unsatisfactory, inaccurate, or misleading information in the provision of advice relating to, or in the reporting of progress of, a funded project (Appendix 2 section 13); or
- i) if the ARC considers that a researcher nominated in the List of Researchers for a Proposal does not meet the eligibility criteria as specified in sections 9.1 and 9.2.

12. Recommendations

- 12.1.** The ARC's recommendations will be submitted in accordance with the ARC Act to the Minister for Innovation, Industry, Science and Research (the Minister) for consideration. The Minister determines which Proposals will be approved and the amount and timing of funding to be paid to an Administering Organisation for an approved Proposal.
- 12.2.** Under the ARC Act, the Minister may not approve for funding any Proposal that fails to meet the eligibility criteria set out in these Funding Rules.

13. Offer of funding

- 13.1.** 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.

14. Appeals process

- 14.1.** Appeals will be considered only against administrative process issues and not, for example, against committee recommendations or assessor ratings and comments.
- 14.2.** Appeals must be submitted on the appeals form available from the ARC website. The form must be lodged by the Administering Organisation and must be authorised by the President of the National Academies Forum or equivalent officer. Appeals must be received within **28 days** of the date on the letter notifying the outcome of Proposals.
- 14.3.** Appeals must be addressed to The Appeals Officer and sent to the postal or courier address at section 10.3.1.

15. Reports

- 15.1.** Administering Organisations must submit reports to the ARC concerning funded projects, in the format and by the due dates detailed in the Funding Agreement.
- 15.2.** The Learned Academies will submit a one page yearly report of progress and a final report listing current and future outputs for each research program funded. The reports will include mention of any new projects that were undertaken as part of the broader research program. The final report must include a 200 word summary of outcomes for evaluation and dissemination purposes.

Appendix 1: Eligible Organisations

Academy of the Social Sciences in Australia

Australian Academy of the Humanities

Australian Academy of Science

Australian Academy of Technological Sciences and Engineering

National Academies Forum

Appendix 2: Administration of funding and Other Aspects of Administration

1. Funding Agreement

- 1.1.** All parties involved in a Proposal should familiarise themselves with the draft Funding Agreement, but only the Administering Organisation and the ARC will be parties to the Funding Agreement. Parties involved in a funded project must accept the terms of the Funding Agreement and the Administering Organisation must sign the Funding Agreement before the ARC will commence payments.
- 1.2.** Projects must commence as required by the Funding Agreement. Failure to do so may result in termination of the Funding Agreement.
- 1.3.** Administering Organisations should note that the Funding Agreement covers post-award management, including reporting requirements and financial management. The draft Funding Agreement can be viewed on the ARC website.

2. Varying the Funding Agreement

- 2.1.** Requests to vary the Funding Agreement must be forwarded in writing by the Administering Organisation to the ARC. Amendment of any clauses of the draft Funding Agreement will be at the ARC's absolute discretion.

3. Varying the Funding Approval

- 3.1.** Requests to vary the funding approval must be forwarded in writing by the Administering Organisation to the ARC.
- 3.2.** The funding approval may be varied by varying the amount of financial assistance, the period of financial assistance, the name of the person leading the research project, and/or the name of the organisation receiving financial assistance.
- 3.3.** The Minister may vary the funding approval if:
 - a)** any of the organisations involved in the project end, or substantially change, their involvement with the project;
 - b)** the research project changes so that it is no longer consistent with the description in the funding approval as previously approved or as otherwise varied;
 - c)** the desirable period of funding for a project is not consistent with the period in the funding approval as previously approved or as otherwise varied;
 - d)** the person nominated in the funding approval as the person leading the research project, or any such replacement person approved by the Minister, ceases to lead the project; and/or
 - e)** the ARC considers and recommends that the particular circumstances of the project warrant variation of the funding approval, providing such variation is reasonably justified upon the facts of the case and any variation or change to the project accords with the *LASP* objectives.

4. Reporting Research Outputs

- 4.1.** If a Learned Academy or the National Academies Forum is not intending to deposit the data arising from a research project in a subject and/or institutional repository within a six-month period, the Learned Academy or the National Academies Forum should include the reasons in the project's final report. Any research outputs that have been or will be deposited in appropriate repositories should also be identified in the final report.

5. Other Aspects of Funding

- 5.1.** However, if, in the opinion of the ARC, any researcher nominated in the List of Researchers for a Proposal has caused or has significantly contributed to the failure of an organisation to meet its obligations under any current or previous Funding Agreement with the ARC, the ARC may in its absolute discretion decide to not recommend for approval any or all Proposals involving that researcher.
- 5.2.** Subject to section 6.2.2 above, research funding received or sought elsewhere (outside the *LASP* scheme) has no impact on eligibility for funding within the *LASP* scheme.

6. Conflict of Interest

6.1. Conflict of interest

- 6.1.1.** All parties involved in, or associated with Proposals and ARC-funded research projects are required to disclose to the ARC, and the other parties involved in the Proposal, any actual or potential conflict of interest. Conflicts of interest must be disclosed at the time of the submission of a Proposal, in reporting such research to the ARC and as soon as possible if a conflict arises during the course of an ARC funded project.
- 6.1.2.** If, in the opinion of the ARC, any party involved in or associated with a Proposal has failed to disclose any such conflict of interest, the ARC may in its absolute discretion decide to not recommend for approval any or all Proposals involving that party.
- 6.1.3.** 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. Acknowledging ARC support

- 7.1.** The ARC 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.
- 7.2.** Advice on acceptable forms of acknowledgement and use of the ARC logo is available on the ARC website.

8. Dissemination of research outputs

- 8.1.** 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 impacts arising from the *LASP* scheme, results should be disseminated widely.
- 8.2.** The ARC strongly encourages *LASP* researchers to consider the benefits of depositing their data and any publications arising from a research project in an appropriate subject and/or institutional repository.

9. Applicable law

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

10. Confidentiality

- 10.1.** The ARC will treat information contained in a Proposal as confidential. However, the ARC may disclose information contained in 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 a Proposal;
 - b) is disclosed to the ARC's personnel to enable effective management or auditing of *LASP* 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.
- 10.2.** Where information contained in 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.
- 10.3.** Notwithstanding the above, and in addition to the exemptions listed at subsection 10.1, the ARC may publicise and report offers or awards of funding, including information about the proposed research; the names in the List or Researchers 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 financial assistance 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).

11. Project description

- 11.1.** 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.

12. Intellectual property

- 12.1.** The ARC does not claim ownership of any intellectual property in a Proposal or which is created or developed from the conduct of a project funded under *LASP*.
- 12.2.** However, all Proposals become the property of the ARC on submission. Administering Organisations submit their Proposals on the basis that the ARC may copy, modify and otherwise deal with information contained in 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 Proposals;
 - b) verifying the accuracy, consistency and adequacy of information contained in 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.

- 12.3.** If a Proposal contains information belonging to a third party, the Administering Organisation must ensure, prior to the Administering Organisation's submitting its Proposal, that it has in place all necessary consents to allow the ARC to deal with that information in accordance with these Funding Rules,
- 12.4.** Except with written approval from the ARC, all Proposals and ARC-funded research projects 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.
- 13. Incomplete or misleading information**
- 13.1.** It is a serious offence to provide false or misleading information to the Commonwealth.
- 13.2.** If the ARC considers that a Proposal is incomplete, inaccurate or contains false or misleading information, the ARC may in its absolute discretion decide to not recommend the Proposal for approval. If an Administering Organisation and/or researcher nominated in the List of Researchers for a Proposal has provided the ARC with incomplete, unsatisfactory, inaccurate or misleading information in relation to any Proposal, or in the provision of advice relating to, or reporting of progress of, a project funded by the Commonwealth, the ARC may in its absolute discretion decide to not recommend the Proposal for approval and/or terminate projects involving that organisation/person if funded and require the Administering Organisation to repay some or all of the funding.
- 13.3.** 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.
- 13.4.** Examples of misleading information and misconduct include, but are not restricted to:
- a)** 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).
- 14. Insurance and liabilities**
- 14.1.** Administering Organisations are subject to the liability, indemnity and insurance provisions of the Funding Agreement.

Appendix 3: Descriptions of National Research Priorities and 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 foods.

This will help to revitalise our regional communities and generate substantial export earnings for 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 preventive healthcare through the adoption of healthier attitudes, habits and lifestyles.

Evidence-based preventive 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 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, preventive 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.

- **Preventive healthcare**

New ethical, evidence-based strategies to promote health and prevent disease through the adoption of healthier lifestyles and diet, and the development of health-promoting products.

Preventive 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 programmes 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 unforeseen application of new discoveries. Australia 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 sciences 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 advancements 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 innovations.

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 material 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.