



**Australian Government**

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**Department of Education, Science and Training**

**2005 REVIEW OF THE AUSTRALIAN LEARNED ACADEMIES AND  
THE NATIONAL ACADEMIES FORUM**

**A Report by**

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**September 2005**

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## **LIST OF ACRONYMS USED IN THE REPORT**

AAH	Australian Academy of the Humanities
AAS	Australian Academy of Science
AMTA	Australian Mobile Telecommunications Association
ANU	Australian National University
ARC	Australian Research Council
ASSA	Australian Academy of Social Sciences in Australia
ATS	Australian Academy of Technological Sciences
ATSE	Australian Academy of Technological Sciences and Engineering
AV-CC	Australian Vice-Chancellors' Committee
AWOTE	Average Weekly Ordinary Time Earnings
CAETS	International Council of Academies and Engineering and Technological Sciences
CHASS	Council for the Humanities, Arts and Social Sciences
CASR	Collaborative and Structural Reform Fund
DEST	Department of Education, Science and Training
DFAT	Department of Foreign Affairs and Trade
DoCITA	Department of Communications, Information Technology and the Arts
FASAS	Federation of Asian Scientific Academies and Societies
FASTS	Federation of Australian Scientific and Technological Societies
FEAST	Forum for European Australian Science and Technology Cooperation
HEIP	Higher Education Innovation Programme
IAP	Inter-Academy Panel on International Issues
NICTA	National Information and Communications Technology Australia
ICSU	International Council of Science
LAGP	Learned Academies Grant Programme
LASP	(ARC) Learned Academies' Special Projects scheme
NAF	National Academies Forum
NSCF	National Scholarly Communications Forum
NH&MRC	National Health and Medical Research Council
NRP	National Research Priorities
NSF	National Science Foundation (US)
PAC	Policy and Advocacy Committee (of ASSA)
PMSEIC	Prime Minister's Science, Engineering and Innovation Committee
UAI	Union Académique International

# SUMMARY WITH OUTLINE OF RECOMMENDATIONS

## Outline of Recommendations

**In this brief section, we have reordered the 26 recommendations in the Report to increase the clarity of the outline. Please recognise that, in order to fully comprehend many of the recommendations, it will be necessary to read the report in its entirety.**

### **A. Recommendations for the Future that apply to each of the four Academies**

It is recommended that:

#### *Recommendation 5*

In order to remain relevant, each Academy review its disciplinary groupings at regular intervals to ensure that relevant new fields are included and are represented appropriately in the Fellowship. It is very important that the membership of each Academy appropriately represent the work at the forefront of its disciplines, rather than mostly honouring what was exciting in the past.

#### *Recommendation 6*

All of the Academies focus on addressing gender imbalances in the Fellowships.

#### *Recommendation 7*

A special emphasis be placed by all Academies on developing, networking, and encouraging the next generation of leaders in their disciplines. Actively involving outstanding young scholars and future leaders in Academy affairs is critical for maintaining the vitality and responsiveness of the Academies.

#### *Recommendation 8*

The Academies raise the media profile of their work, policies, and outcomes; despite a high volume of work in the public interest, the existence of the Learned Academies is relatively little known in the general community.

#### *Recommendation 9*

To address broad policy issues of national significance that require diverse expertise and/or multiple academies, the interactions within and among Academies be enhanced, particularly in policy areas and in the identification of fields of national and international significance (the inter-academy interactions to be facilitated by an enhanced NAF).

#### *Recommendation 10*

Educational and outreach initiatives be developed further, with full exploitation of emerging advances in communications technologies.

#### *Recommendation 11*

While broad international initiatives should be enhanced, a special emphasis might be placed on developing leadership roles for one or more of the Australian Academies in the convening of selected Asian neighbours.

#### *Recommendation 12*

The Department of Education, Science and Training, in conjunction with the Department of Foreign Affairs and Trade, and other appropriate agencies, consider supporting the Academies to take a more active, and pro-active, role in the Asian region, perhaps with a special emphasis on China, Japan and Korea – so as to build relationships of trust and respect between the corresponding academic communities.

#### *Recommendation 13*

Each Academy be required, as a condition of grant-in-aid funding, to periodically review their corporate governance policies and practices, taking a hard look at the performance of its executive, committee and other structures.

#### *Recommendation 14*

Each Academy ensure that appropriate strategic planning and policy processes are in place.

### **B. Specific Recommendations for Each Institution, with Our Funding Proposals:**

For the **National Academies Forum**:

It is recommended that:

#### *Recommendation 1*

The NAF enhance its present role of facilitating interactions among the four Academies, but do so without creating a new organisation or bureaucracy or new reporting lines.

#### *Recommendation 2*

A full-time Professional Executive Officer position be created for the NAF. This person should report to the particular Academy President currently serving as President of the NAF and ideally be co-located in the office of the appropriate Academy. Thus, this person would change his or her reporting relationship and, probably, location as the NAF Presidency rotates among the four Academies.

#### *Recommendation 3*

While the person in this new position would be responsible for developing new joint policy proposals, and for obtaining funds to enact them, the staff work required to actually carry out the work be undertaken by program officers in one or more of the Academies, using the resources obtained to recruit additional staff.

#### *Recommendation 4*

New core funding for the NAF be provided to cover the salary of the above full-time Professional Executive Officer. In addition, new core funds will be needed

to convene volunteers to help this Officer plan the new NAF-generated activities. This would enable NAF to pay the expenses of Fellows mobilised to work on NAF initiatives; currently each Academy must provide this support. In general, enough resources should be provided for this position to remove most of the burden of supporting the NAF from its current host Academy.

*Recommendation 17*

The grant-in-aid to the National Academies Forum be increased to \$150,000 per annum:

- to cover the costs of appointing a full-time Executive Officer; and
- to fund administration and meeting expenses.

For the **Australian Academy of the Humanities:**

It is recommended that:

*Recommendation 15*

The AAH consider the method adopted by the AAS, the election of Special Fellows, as a way of initially expanding into the area of the creative and performing arts.

*Recommendation 18*

The CASR funding of \$115,000 for the Australian Academy of the Humanities, due to conclude at the end of 2005, be continued and built into the base grant-in-aid.

*Recommendation 19*

The grant-in-aid to the AAH, thus augmented, be increased to a total of \$660,000 per annum:

- to strengthen the Secretariat, including the costs of appointing a full-time policy officer; and
- to establish a Workshop Programme, and to enhance its other programmes and educational activities.

For the **Academy of Social Sciences in Australia:**

It is recommended that:

*Recommendation 20*

The CASR funding of \$115,000 to the Academy of Social Sciences in Australia, due to conclude at the end of 2005, be continued and built into the base grant-in-aid; and

*Recommendation 21*

The grant-in-aid to the ASSA, thus augmented, be increased to a total of \$660,000 per annum:

- to enhance the Secretariat;

- to initiate new, and enhance existing, programmes, especially those involving early-career scholars.

#### For the **Australian Academy of Science**

It is recommended that:

##### *Recommendation 16*

Since the Shine Dome is a major heritage-listed tourist attraction for Canberra, the Department of Education, Science and Training raise this matter with the National Capital Authority with a view to accessing funding for the maintenance of this building.

##### *Recommendation 22*

The grant-in-aid to the Australian Academy of Science be increased to a total of \$860,000 per annum. The main purpose of this increase is to allow the AAS to continue and expand its programmes for outstanding early-career scientists.

##### *Recommendation 23*

The Department of Education, Science and Training retain support for the international programmes managed by the AAS, at a minimum of the current level of approximately \$517,000 per annum.

#### For the **Australian Academy of Technological Sciences and Engineering**

It is recommended that:

##### *Recommendation 24*

The grant-in-aid to the Australian Academy of Technological Sciences and Engineering be increased to a total of \$860,000 per annum:

- to enhance the capacity of the Secretariat;
- to enhance its communication and outreach capacity; and
- to enhance policy and project development.

##### *Recommendation 25*

The Department of Education, Science and Training maintain funding for the international programmes managed by the ATSE at a minimum of the current level of circa \$510,000 per annum.

#### For all **four Academies and the NAF**:

It is recommended that:

##### *Recommendation 26*

Each of the grants-in-aid to the Learned Academies and the NAF be indexed annually by changes in AWOTE.



## **Summary**

The total funding from the Department of Education, Science and Training in 2005 for the five entities, including the additional CASR funding for the AAH and ASSA (\$115,000 each), but NOT including the grants to manage international linkages programmes allocated to the AAS and ATSE, amounts to \$1,609,768. We are recommending that this funding level be increased to \$3,190,000 per annum for 2006, and that this level be increased by AWOTE in each succeeding year. For 2006, therefore, a total increase of \$1,580,232 is requested. While the increase in funding recommended is a substantial percentage increase, we consider that this is still a modest outlay which will generate very significantly enhanced outcomes. The nation will gain and the Government will benefit proportionately from the additional infrastructure support provided to the Academies.

**REPORT OF THE COMMITTEE ESTABLISHED TO REVIEW THE LEARNED  
ACADEMIES IN AUSTRALIA  
September 2005**

**ABSTRACT**

The Australian Academy of Humanities, the Australian Academy of Science, the Academy of Social Sciences in Australia, and the Australian Academy of Technological Sciences and Engineering (collectively the “Learned Academies”), and the National Academies Forum, are a unique set of five, interacting, non-governmental institutions. The four Academies carry out a careful, merit-based selection of the most outstanding intellectual leaders in each field to elect their members; they thereby establish important standards for excellence. The National Academies Forum was recently established to help coordinate the advice-giving functions of these honorary organizations. Together the five institutions provide easy access to independent advice from some of the nation’s best minds. This advice is not only important for guiding the nation in building and maintaining excellence in each of the disciplines represented by the Academies. It is also invaluable for collecting, validating, and disseminating critical knowledge that the public and the nation need for wise decision-making.

Each of the five institutions receives a modest amount of funds each year from the Government to support their operations. In return, these institutions have increasingly focused on service to the nation. In this review, we have analysed their activities over the past five years and evaluated their achievements from the perspective of Australia’s future prosperity and success as a nation. We then present a series of 26 recommendations; these concern future activities and structures, as well as proposed resource needs.

**1. INTRODUCTION**

Although the four learned academies, and the National Academies Forum, derive revenue from a variety of sources, they rely on grants-in-aid from the Commonwealth Government for core operating expenses. The Scheme under which these grants are administered is the Learned Academies Grant Programme (LAGP), enabled by the *Higher Education Support Act (2003)*. The Guidelines of the LAGP call for a review of the Programme every five years. Since the last Review was conducted in 2000, the Minister for Education, Science and Training, the Hon. Brendan Nelson MP, agreed that the new Review should be completed by the end of October 2005, so that its findings could be taken into account in the context of the 2006/2007 Budget. In addition to the grant-in-aid, the Australian Academy of the Humanities and the Academy of Social Sciences in Australia have recently been receiving additional annual funds through the Collaborative and Structural Reform Fund (CASR); this funding is due to conclude at the end of 2005. Details of the LAGP, the CASR, and a list of other sources of funding to the academies, are given in **Appendix A**.

## **2. TERMS OF REFERENCE FOR THE REVIEW**

The following terms of reference were agreed by the Minister:

The Review of the four Learned Academies, and of their joint consultation and coordination mechanism, the NAF, will assess the performance of the Academies in promoting and advancing their respective fields of endeavour, supporting their international affiliations and providing independent expert advice to government, and consider how they can most effectively discharge these roles in the future.

In particular, the Review will:

- A. Evaluate the efficiency and effectiveness of the Academies in carrying out their distinctive mandates in the natural and social sciences, the humanities, and the technological sciences and engineering;
- B. Examine the value and performance of the Academies, and of the NAF, as sources of independent expert advice to Government on matters related to their respective fields of expertise;
- C. Consider and advise on the scope for new or expanded roles for the individual Academies, and for the NAF, in meeting the needs of Government in line with the objectives of the Learned Academies Grant Program; and
- D. Assess and recommend on the level of funds needed to meet Government and community expectations of the Academies under the Learned Academies Grant program.

Information about the process of the Review is given at **Appendix B**.

## **3. WHY ACADEMIES ARE IMPORTANT TO AUSTRALIA**

The Academies are important national assets. Their potential importance to the nation derives from the fact that:

- (a) The Academies represent a meticulous, merit-based selection of the most outstanding intellectual leaders in each of the fields of
  - (i) Humanities;
  - (ii) Social Sciences;
  - (iii) Sciences – life and physical; and
  - (iv) Engineering and technological sciences.

They establish appropriate standards for excellence;

- (b) The Academies can readily mobilise outstanding talent across all the relevant disciplines and are uniquely able to catalyse the multidisciplinary efforts needed both for innovation and for meeting national needs;

- (c) The Academies provide ready access to independent advice from some of the nation's best minds, allowing these experts to bring their expertise most effectively to bear on issues critical to Australia's future;
- (d) The advice from the Academies is valuable in two different spheres:
  - To guide the nation in building and maintaining excellence in each of the disciplines represented by the Academies; and
  - To collect, validate, and disseminate the underlying knowledge that the public and the nation need for wise decision-making, directing the attention of the nation's best scientists, engineers and scholars to the practical affairs of the nation, connecting the university and research sectors to other leaders in society, and generating new types of useful, long-term collaborations; and
- (e) The Academies are uniquely able to connect Australia's leading scholars, engineers and scientists to their counterparts in other nations critical for Australia's future.

The learned Academies in Australia, with some variations in emphasis, embody these characteristics.

#### **4. THE VALUE OF ACADEMIES TO GOVERNMENT**

The Academies are a valuable resource for Government:

- (a) The Academies maintain fiercely their mandated independence, and the advice and assistance they provide to Government is therefore perceived to be free of political constraints. Advice from the Academies also carries the special prestige and credibility of the Academy members. Government decision-making, therefore, gains an enhanced credibility where it has been informed by the Academies' inputs;
- (b) Leading scholars, scientists and other experts in Australia can form strong bridges of communication and trust with their colleagues in other nations, sharing as they do a common culture. These bridges can create new cooperative activities of value to all of the nations involved, with major benefits accruing to international relations, as well as to research and industry<sup>1</sup>;
- (c) The Fellows provide their expertise on a *pro bono* basis. Consequently, the cost of advice is very modest, compared with the alternative of employing external consultants. The dollars contributed by Government towards the necessary administrative cost of operating the Academies are greatly leveraged because the expertise of the Fellows is provided on a *pro bono* basis. Hence the Academies' advice represents excellent value for money to the Government and the community generally;

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<sup>1</sup> For example, over the years the Australian Academy of Science has developed a close relationship with the Chinese Academy of Sciences, which has recently enabled the Academy to introduce Academy Fellow Dr Bob Watts to appropriate contacts; this has now led to a formal agreement between BHP Billiton and the Chinese Academy of Sciences.

- (d) Optimising the value of this resource to the Government depends on having appropriate infrastructure to mobilise the volunteers. Harnessing the talents of the Fellows, whether fully employed, or retired, requires talented professional staff to identify, mobilise, coordinate, and support them in their *pro bono* work. This applies at the individual level – finding one or two Fellows to give advice on a specific issue – but it is especially critical when assistance is requested that requires a consolidation of information and judgments from a range of disciplines, such as preparing a submission on sustainability issues. The Secretariats of the Academies already provide leverage capacity, but the provision of modest additional resources could considerably increase the capacity of the Academies to assist Government and contribute to the national benefit.

## **5. ASSESSMENT OF THE PERFORMANCE OF THE FOUR ACADEMIES AND OF THE NATIONAL ACADEMIES FORUM**

### **5.1 National Academies Forum (NAF)**

The establishment of the NAF has been an important initiative, which has worked well. The NAF has helped enhance interactions between the four Academies without compromising their individual priorities or activities. During the period under review, it has organised or facilitated eleven major workshops and conferences addressing broad-ranging problems such as climate change, sustainability, population and environment, assessment of research and research training excellence, AIDS, access to global information in the modern age, research priorities for Australia, and an Australian response to the 2004 tsunami disaster. **Appendix C** contains details of the NAF's mission, and provides a summary of the activities described in its submission. The NAF's greatest strength is its ability to bring a whole-of-intellect approach to significant issues, drawing on the most outstanding scholars that Australia has to offer across all disciplines.

Each of the Presidents of the Academies strongly supported the way that the Forum has worked, and was enthusiastic about its potential. We were impressed by the ideas for future interactions which were suggested by those we interviewed. Of these, perhaps the most ambitious effort planned – a very important and timely one – is a major study on the future of nuclear energy in Australia.

However, all of those we interviewed were frustrated about the inadequate resourcing of the Secretariat, which has seriously constrained the ability of the NAF to take anything like full advantage of the potential synergies between the four Academies.

### **5.2 The Four Academies**

In general, we found that each of the Academies had expanded significantly its activities in the last five years, although some had done so more effectively and creatively than others. Several major successes are highlighted below. The comments we received from a range of organisations with which the Academies interact were generally favourable, some particularly so. However, it is clear that all of the Academies could, like the NAF, more fully mobilise their expertise and better leverage their capabilities if they received more adequate core funding.

In the section that follows, we provide a brief overview of the recent performance of each Academy through the lens of this Review.

### ***Australian Academy of the Humanities (AAH)***

We are very impressed by the transformation in the Australian Academy of the Humanities (AAH) that has occurred since the last review. Some of this can be attributed to the supplementary funding of \$115,000 per annum from the CASR mechanism, which commenced in 2003 and has been well used, for example to augment the Humanities Travelling Research Fellowships Programme. But most importantly, there has been strong, visionary and energetic leadership by the last three Presidents that has re-invigorated the organisation.

Firstly, there has been a significant increase in the provision of expert advice, for example to the Department of Defence on the status of the antiquities in Iraq at the time of the overthrow of the Hussein regime.

In addition, important membership issues have been addressed: the Academy is reviewing its procedures for electing new Fellows, to ensure that emerging fields are represented, and younger scholars are being recognised.

Through its programmes, the AAH is encouraging new fields of scholarship and research, and providing opportunities for early and mid-career researchers (i.e. non-Fellows) to apply for grants.

The AAH took a lead role in the establishment of the Council for the Humanities, Arts and Social Sciences (CHASS), established in 2003 to represent the broad interests of some 140 organisations working in these fields; and it continues to take a leading role in its operation.

Finally, among numerous other outreach initiatives, the Academy is exploiting new communications technologies in innovative ways, such as encouraging the development of an electronic facility for the global exchange of humanities policy resources.

The mandate of the AAH and a summary of the information provided in its submission are contained in **Appendix D**.

### ***Academy of Social Sciences in Australia (ASSA)***

We agreed that the supplementary funding of \$115,000 per annum from 2003 had been well used by the Academy of Social Sciences in Australia (ASSA); for example:

- To greatly enhance the Workshop Programme. This Programme brings together scholars from diverse disciplines to focus on current issues of national interest, and also encourages and strengthens linkages between research and policy, since the small, intensive, workshops bring together academics with government and non-government representatives. We were particularly pleased to note the inclusion of younger scholars in this Programme; and

- The ASSA took the lead in developing the Summer School and Mentoring Programme for indigenous graduate scholars and their supervisors. This initiative addresses an important national issue: Indigenous people are under-represented at the graduate level in our universities, are often of mature-age with important roles in their communities, and can lack the necessary support and intellectual rigour to enable them to fulfil their potential. The three Summer Schools held so far have involved a week of residential, intensive activity, and attracted support from DEST and private foundations, with ASSA Fellows generously volunteering their services.

On the other hand, the ASSA seems not to have taken as much advantage from CHASS as is available, despite the fact that CHASS has become an important advocate for the promotion of the social sciences and arts.

Although there is a stated willingness to become involved in advocacy, we detected some equivocation on the part of both members and leadership about the extent to which the Academy should become engaged in these types of activities, which require a change in academic attitudes concerning an engagement in practical affairs that inevitably bring one in contact with political issues.

In general, ASSA appears to have been less energised in reinvigorating its organisation compared with the AAH. We were unable to discern the extent to which this reflects a lack of bold leadership from members, in contrast to the possibility of inadequate support from the Secretariat. **Appendix E** provides a summary of the information on the ASSA's establishment and activities which was contained in its submission.

### ***Australian Academy of Science (AAS)***

We are very impressed with the leadership demonstrated in the Australian Academy of Science's work on primary and secondary school science education. The AAS responded energetically to the Minister's new initiative to bring all states and territories together in this major primary education project, *Primary Connections*, the aim of which is to inject scientific concepts and knowledge into the literacy program.

The range and impact of the AAS's mentoring practices for outstanding young scientists are also impressive. In addition to a number of prizes and awards, several prominent programmes have been developed; for example, the *High Flyers Think Tank* not only allows young scientists to engage with selected policies of national importance, but also to connect with colleagues across disciplines and form networks which the Academy subsequently maintains. An outstanding complementary programme is *Frontiers of Science*, an annual symposium that networks Australia's best rising research science talent across all scientific disciplines, with the aim of forming new collaborations and encouraging innovation in research.

The AAS also oversees and organises a series of twenty National Committees, each of which represents a particular broad field of science in Australia and links the scientists in this nation to the global community of scientists through the International Council for Science (ICSU). In structuring each of these National Committees, the Academy has taken care to include outstanding young scientists (non-fellows) in each discipline in order to promote the next generation of science in Australia in a very effective way. The AAS seeks to utilise and encourage Australia's early- to mid-career researchers, not only for their own career

development, but also because they have much to offer – energy, fresh ideas and approaches, and an awareness of emerging disciplines.

Finally, we commend the AAS for the success of its outreach activities, especially its educational website, *Nova: Science in the News*, which was developed to help bridge the curriculum gap between textbook theory and real-life applications of science and technology and to provide a mechanism for scientists to describe their achievements to the wider community.

**Appendix F** provides a summary of the information provided by the AAS on its establishment and activities.

### ***Australian Academy of Technological Sciences and Engineering (ATSE)***

We believe that the ATSE, with its unique emphasis on including leaders from the private sector as members, has very successfully brought together academic leaders with their counterparts in industry and the public sector. Significant synergies have thereby been achieved. Notable successes have included the Academy's work on creating a deeper understanding in both industry and the community of critical issues such as climate change, greenhouse gas mitigation, water recycling, urban air pollution, pesticide use, Australia's role in the Antarctica, and the role of water in the Australian economy.

The ATSE has been proactive in identifying a wide range of issues of national importance, developed through a very commendable annual evaluation and planning process. However, its potential to pursue these issues is currently diminished by inadequate core funding, and this has limited the ATSE to responding *reactively* in some cases – focusing on tasks that have attracted funding rather than working *proactively* on tasks that the Academy feels should have a higher priority.

For example, the ATSE has a desire to play a strong role on educational issues such as the poor level of understanding of technology as a key learning area, the teaching of science and technology in primary schools, and in-service training of teachers.

One of the distinguishing features of this Academy is its strong state-based Regional Divisions, which undertake their own strategic planning exercises to inform the Academy's Council, as well as working directly on regional issues.

The ATSE is making a determined attempt to recognise early career researchers, and to enhance their role in the Academy; for example, it awards up to twenty *Early Career Symposium Fellowships*, to enable postgraduate students to attend the Annual Symposium, and the "youth's view" is clearly identified in the Proceedings.

A summary of the information provided in the ATSE submission to the Review is given in **Appendix G**.



## 6. RECOMMENDATIONS FOR THE FUTURE

### 6.1 National Academies Forum

As previously discussed, there are many critical issues for Australia's future that can best be dissected by bringing together the nation's best talent across three or four of the Academies. It was in recognition of this fact that the National Academies Forum was founded.

We find the NAF to be a very good idea, but one that needs strengthening in its execution. Our recommendations for the future are that:

#### *Recommendation 1*

**The NAF enhance its present role of facilitating interactions among the four Academies, but do so without creating a new organisation or bureaucracy or new reporting lines.**

The four Academies are already interacting well, if less comprehensively than they would like. We do not see benefit in creating a structure that would sit above the Academies to coordinate their activities. Indeed, an attempt to strengthen the NAF in this way is likely to be counter-productive in the current environment.

#### *Recommendation 2*

**A full-time Professional Executive Officer position be created for the NAF. This person should report to the particular Academy President currently serving as President of the NAF and ideally be co-located in the office of the appropriate Academy. Thus, this person would change his or her reporting relationship and, probably, location as the NAF Presidency rotates among the four Academies.**

We envision a talented and energetic NAF Professional Executive Officer who would be fully focused on producing strong proposals for important multi-academy efforts (such as the future of nuclear energy). This person would also be responsible for generating the financial support needed to complete such activities effectively. This would enable the NAF to marshal much more effectively the considerable capacity of the four academies in areas where they need to work together, and valuable continuity would accrue. At the moment, the Secretariats of the four Academies collectively generate ideas, which are then drafted and sent around for further development – an inefficient system that is hampered by the already heavy demands on the time of these Secretariats.

#### *Recommendation 3*

**While the person in this new position would be responsible for developing new joint policy proposals, and for obtaining funds to enact them, the staff work required to actually carry out the work should be undertaken by program officers in one or more of the Academies, using the resources obtained to recruit additional staff.**

#### *Recommendation 4*

**New core funding for the NAF be provided to cover the salary of the above full-time Professional Executive Officer. In addition, new core funds will be**

needed to convene volunteers to help this Officer plan the new NAF-generated activities. This would enable NAF to pay the expenses of Fellows mobilised to work on NAF initiatives; currently each Academy must provide this support. In general, enough resources should be provided for this position to remove most of the burden of supporting the NAF from its current host Academy.

## **6.2 The Four Academies**

### *General Recommendations for All Academies*

We recommend that:

#### *Recommendation 5*

**In order to remain relevant, each Academy review its disciplinary groupings at regular intervals to ensure that relevant new fields are included and are represented appropriately in the Fellowship. It is very important that the membership of each Academy appropriately represent the work at the forefront of its disciplines, rather than mostly honouring what was exciting in the past.**

#### *Recommendation 6*

**All of the Academies focus on addressing gender imbalances in the Fellowships.**

#### *Recommendation 7*

**A special emphasis be placed by all Academies on developing, networking, and encouraging the next generation of leaders in their disciplines. Actively involving outstanding young scholars and future leaders in Academy affairs is critical for maintaining the vitality and responsiveness of the Academies.**

#### *Recommendation 8*

**The Academies should raise the media profile of their work, policies, and outcomes; despite a high volume of work in the public interest, the existence of the Learned Academies is relatively little known in the general community.**

#### *Recommendation 9*

**To address broad policy issues of national significance that require diverse expertise and/or multiple academies, the interactions within and among Academies be enhanced, particularly in policy areas and in the identification of fields of national and international significance (the inter-academy interactions to be facilitated by an enhanced NAF).**

#### *Recommendation 10*

**Educational and outreach initiatives be developed further, with full exploitation of emerging advances in communications technologies.**

*Recommendation 11*

**While broad international initiatives should be enhanced, a special emphasis might be placed on developing leadership roles for one or more of the Australian Academies in the convening of selected Asian neighbours.**

At the moment a “hub and spokes” model of interactions exists, with many linkages existing between Asian scholars and scientists and their colleagues in the USA. However, there are often much weaker personal bonds between the scholars and scientists in important neighbouring states. This situation can be disadvantageous to both Asian and Australian interests. As a non-threatening nation without a long past history of conflict, this may be the time for the Academies in Australia to take leadership roles in encouraging regional academies to develop meaningful activities with each other, as well as with Australia. If focused on the scientific and technical aspects of critical issues such as the future energy supply, these activities could have political and commercial benefits as well as scientific and scholarly ones. We therefore also recommend that:

*Recommendation 12*

**DEST, in conjunction with DFAT and other appropriate agencies, consider supporting the Academies to take a more active, and pro-active, role in the Asian region, perhaps with a special emphasis on China, Japan and Korea – so as to build relationships of trust and respect between the corresponding academic communities.**

*Recommendation 13*

**Each Academy be required, as a condition of grant-in-aid funding, to periodically review their corporate governance policies and practices, taking a hard look at the performance of its executive, committee and other structures.**

*Recommendation 14*

**Each Academy ensure that appropriate strategic planning and policy processes are in place.**

*Academy-Specific Recommendations*

The Australian Academy of the Humanities has proposed that its mandate be expanded to include recognition of the creative and performing arts, areas which currently lack representation in any Academy. We recommend that:

*Recommendation 15*

**The AAH consider the method adopted by the AAS, the election of Special Fellows, as a way of initially expanding into the area of the creative and performing arts.**

The Australian Academy of Science has brought to our attention the considerable costs it incurs to maintain the heritage buildings it owns, the Shine Dome, and Ian Potter House. Although the AAS derives income from rental of both buildings, there is a shortfall of some \$200,000 per annum in maintenance and repair costs. We have learned that the Shine Dome

has just been included on the National Heritage List, one of only four twentieth century buildings thus listed; it is likely that the costs of maintaining this building will increase as a result of the listing. We are concerned that funds for the Academy's core activities not be diverted to meet these costs. We recommend that:

*Recommendation 16*

**Since the Shine Dome is a major heritage-listed tourist attraction for Canberra, the Department of Education, Science and Training raise this matter with the National Capital Authority with a view to accessing funding for the maintenance of this building.**

## **7. RECOMMENDATIONS ON FUNDING LEVELS**

We reiterate that the present levels of core funding do NOT permit the Academies to approach their full potential, both in terms of promoting excellence in research, and in providing advice to Government on matters of national interest. The volunteer efforts of the Fellows cannot be harnessed without appropriate professional support. It is in the best interests of Government to see that the infrastructures of the Academies are adequately funded in order to fully exploit this capacity. Our recognition of this necessity is reflected in our recommendations concerning both the Academies and the NAF.

We recommend that:

For the **National Academies Forum**:

*Recommendation 17*

**The grant-in-aid to the National Academies Forum be increased to \$150,000 per annum:**

- **to cover the costs of appointing a full-time Executive Officer; and**
- **to fund administration and meeting expenses.**

For the **Australian Academy of the Humanities**:

*Recommendation 18*

**The CASR funding of \$115,000 for the Australian Academy of the Humanities, due to conclude at the end of 2005, be continued and built into the base grant-in-aid.**

*Recommendation 19*

**The grant-in-aid to the AAH, thus augmented, be increased to a total of \$660,000 per annum:**

- **to strengthen the Secretariat, including the costs of appointing a full-time policy officer; and**
- **to establish a Workshop Programme, and to enhance its other programmes and educational activities.**

For the **Academy of Social Sciences in Australia**:

*Recommendation 20*

**The CASR funding of \$115,000 to the Academy of Social Sciences in Australia, due to conclude at the end of 2005, be continued and built into the base grant-in-aid; and**

*Recommendation 21*

**The grant-in-aid to the ASSA, thus augmented, be increased to a total of \$660,000 per annum:**

- **to enhance the Secretariat; and**
- **to initiate new, and enhance existing, programmes, especially those involving early-career scholars.**

For the **Australian Academy of Science**

*Recommendation 22*

**The grant-in-aid to the Australian Academy of Science be increased to a total of \$860,000 per annum. The main purpose of this increase is to allow the AAS to continue and expand its programmes for outstanding early-career scientists.**

*Recommendation 23*

**DEST retain support for the international programmes managed by the AAS, at a minimum of the current level of approximately \$517,000 per annum.**

For the **Australian Academy of Technological Sciences and Engineering**

*Recommendation 24*

**The grant-in-aid to the Australian Academy of Technological Sciences and Engineering be increased to a total of \$860,000 per annum:**

- **to enhance the capacity of the Secretariat;**
- **to enhance its communication and outreach capacity; and**
- **to enhance policy and project development.**

*Recommendation 25*

**DEST maintain funding for the international programmes managed by the ATSE at a minimum of the current level of circa \$510,000 per annum.**

**For all four Academies and the NAF:**

*Recommendation 26*

**Each of the grants-in-aid to the Learned Academies, and the NAF be indexed annually by changes in AWOTE.**

## **Summary**

The total DEST funding in 2005 for the five entities, including the additional CASR funding for the AAH and ASSA (\$115,000 each), but NOT including the grants to manage international linkages programmes allocated to the AAS and the ATSE, amounts to \$1,609,768. We are recommending that this funding level be increased to \$3,190,000 per annum for 2006, and that this level be increased by AWOTE in each succeeding year. For 2006, therefore, a total increase of \$1,580,232 is requested. While the increase in funding recommended is a substantial percentage increase, we consider that this is still a modest outlay which will generate very significantly enhanced outcomes. . The nation will gain and the Government will benefit proportionately from the additional infrastructure support provided to the Academies.

## DEST GRANT-IN-AID FUNDING ARRANGEMENTS

### The Four Academies

The Learned Academies rely on a core operating grant from the Commonwealth of Australia. From 2000 – 2004 funding was obtained through the Learned Academy Scheme under an annual appropriation Act. The objectives of the Act were to:

- Assist the Recipient in maintaining itself as an independent organisation that promotes research and scholarship;
- Assist the Recipient in maintaining itself as an independent source of advice to the Government;
- Assist the Recipient in providing support for affiliations with appropriate international organisations;
- Maintain the Recipient as a focal point for contact between the Government and the communities represented by the Academies;
- Assist the Recipient in supporting those of its continuing activities which are considered to be of value to Government and which the Government might otherwise have had to undertake; and
- Assist the Recipient to undertake activities that are in the national interest and to contribute to broad Government and Departmental objectives.<sup>2</sup>

From 2005, the Scheme was replaced by the Learned Academies Grant Programme (LAGP), enabled by the *Higher Education Support Act* (2003). The purpose of the Programme, as stated in the Ministerial *Guidelines*, is to **“foster understanding of the importance of, and provide research and scholarship in, science, social science or humanities in Australia.”** The objectives are to:

- Assist in maintaining the Learned Academies as independent organisations that promote and undertake research and scholarship in the natural and applied sciences, technological development and applied technology, the social sciences and the humanities;
- Maintain the Learned Academies as focal points for contact with the communities represented by the Academies and as sources of advice to the Government relating to their fields of expertise; and
- Assist in providing support for affiliations with appropriate international organisations.<sup>3</sup>

For three calendar years from 2003-2005, DEST has also provided funds to the Australian Academy of the Humanities (AAH) and the Academy of the Social Sciences in Australia (ASSA) from the Higher Education Innovation Programme (HEIP). HEIP was replaced in 2005 by the Collaborative and Structural Reform (CASR) Fund, under which the final year of this funding is being administered. The additional funds were committed by the

<sup>2</sup> *Funding Contract between the Commonwealth of Australia, as represented by the Department of Education, Science and Training, and the Australian Academy of the Humanities, regarding funding for the Learned Academies Scheme.* Canberra: DEST, 2004. Schedule, Part A. p. 20.

<sup>3</sup> Commonwealth of Australia. *Higher Education Support Act 2003 Guidelines for Other Grants, Amendment Number 2.* 11.25 Learned Academies Grant Program. p. 10.

Commonwealth for the expansion of the Humanities and Social Sciences Academies' leadership role in providing policy advice, in establishing international linkages, and in assisting publications through subsidies.

In addition to this baseline funding from DEST, all of the academies have diverse sources of income, including:

- from DEST for specific programmes and competitive grants;
- from members' subscriptions;
- from contract work and sponsorships for or from government agencies and industry;
- from the sale of publications; and
- income derived from bequests and donations, including from Academy foundations.

### **National Academies Forum**

The terms of the contract between the NAF and the DEST provide funds to create a mechanism for essential communication, coordination, collaboration and joint action by the four Academies. It links them by bringing together multidisciplinary teams to share their expertise on topics of national concern. It is a consultative organisation, not a management body. The DEST funding is used for administrative support, including the costs of auditing the NAF accounts, and for workshop and meeting costs. However, in practice the Academy responsible has borne up to 50% of the administrative costs, and each of the Academies must use its own funds for NAF-related travel.



**PROCESS OF THE REVIEW**

The *Guidelines* for the LAGP require a review of the Programme every five years. As the last Review was conducted in 2000, DEST initiated a review to be conducted in the latter part of 2005. The Minister for Education, Science and Training, the Hon. Brendan Nelson MP, agreed that the Review should be completed by the end of October 2005, so that its findings could be taken into account in the context of the 2006/2007 Budget.

The Minister agreed that the review would be conducted by a three-person committee comprising Professor Bruce Alberts (outgoing President, US National Academy of Sciences, Mr John Ralph AC (retired business executive), and Professor John Hay AC (Vice-Chancellor and President, University of Queensland). Professor Alberts agreed to Chair the Committee.

In June 2005 the Academies and the NAF were invited to submit written responses addressing the Terms of Reference, with a closing date of 24 August 2005. In addition to their detailed submissions, the Academies and the NAF provided copies of recent annual reports, strategic plans, newsletters, selections of reports and submissions to Government inquiries, publications, brochures, educational material, and lists of persons serving on Government committees etc. The Committee also had access to the Academies' websites.

Comments were also sought from organisations and individuals with whom the Academies and the NAF had interacted. A list of persons from whom submissions were received is given at **Attachment I**.

The Committee convened on 16 September 2005, and on the following day held interviews with delegates - the President, Executive Director and up to two other representatives from the Academies, and representing the NAF. A list of the persons interviewed is given at **Attachment II**. On 18 September Committee members reconvened to consider their recommendations and prepare the framework of the report.

**ORGANISATIONS AND INDIVIDUALS FROM WHOM  
COMMENTS WERE OBTAINED**

**General Responses**

For all Academies:

*Department of Education, Science and Training*  
(feedback from several areas)

For AAH and ASSA:

*Council for the Humanities, Arts and Social Sciences (CHASS)*  
Toss Gascoigne, Executive Director

For AAS and ATSE:

*Federation of Australian Scientific and Technological Societies (FASTS)*  
Bradley Smith  
Executive Director

**Australian Academy of the Humanities**

*National Security Division, Prime Minister and Cabinet*  
Lynn Booth  
Head, Science, Engineering and Technology Unit

*Australian Homeland Security Research Centre*  
Athol Yates  
Director

*National Scholarly Communications Forum*  
Colin Steele  
Roundtable Convenor

*Australian Legal Community*  
Justice Michael Kirby  
High Court

*Medical Humanities*

Jill Gordon

President, Medical Humanities Association

*University Libraries*

John Shipp

Senior University Librarian

University of Sydney

*Deans of Arts, Social Sciences and Humanities*

Professor Linda Rosenman, President

Executive Dean, Faculty of Social and Behavioural Sciences, University of Queensland;  
and

Professor Michael Innes

Executive Dean, Faculty of Humanities and Social Sciences, University of Adelaide

*Australia Council for the Arts*

Emma Barron

Manager, Research Centre

*Humanities Society of New Zealand*

Brian Opie

Executive Officer

**Australian Academy of Science**

*Industry sector*

Dr Alan Finkel

Chief Technical Officer

Molecular Devices Corporation

*International*

Professor Lord Robert May,

President,

Royal Society of London,

*Australian Research Council*

Professor Erich Weigold

Executive Director

Physics, Chemistry and Geoscience

## **Academy of Social Sciences in Australia**

### *International*

Ms Van Thanh Binh  
International Cooperation Department  
Vietnamese Academy of Social Sciences (VASS)

### *Australian National Commission for UNESCO*

Professor Ken Wiltshire AO  
Chairman

### *Industry*

Brent Gerstle  
Manager, Environmental Affairs  
SingTel Optus Pty Ltd

## **Australian Academy of Technological Sciences and Engineering**

### *Engineers Australia*

Martin Dwyer  
Director, Engineering Practice

### *Scanlon (formerly Brencorp) Foundation*

Tony Fry  
Executive Director

### *Australian Greenhouse Office*

Josephine Mummery  
Executive Officer, Greenhouse Policy

### *Powerhouse Museum*

Mark Daly  
Acting Executive Officer

DELEGATES FROM ACADEMIES INTERVIEWED 17 SEPTEMBER 2005

**Australian Academy of Humanities**

**Professor Graeme Turner**, BA (Hons)(Syd), MA (Hons (Queen's), PhD(East Anglia)

President

Director, Centre for Critical and Cultural Studies, University of Queensland since 2000

**Professor Iain McCalman**, BA (Hons), MA(ANU), PhD(Monash), FRHistS, FASSA

Penultimate President

Federation Fellow

Director, Humanities Research Centre, ANU

**Professor Malcolm Gillies**, BA (ANU), MA (Cambridge), MMus, PhD (Lon), DipEd (Qld),  
LMusA, LTCL, FLCM, MACE

Antepenultimate President

Deputy Vice Chancellor (Education) ANU

**Dr John Byron**, BA (Hons (Adel), PhD (Syd)

Executive Director

**Australian Academy of Science**

**Dr Jim Peacock AC**, BSc, PhD, Hon DSc (Charles Sturt), Hon. DScAg (Syd), Hon DSc  
(Gent), FAIAS, FTSE, FAA, FRS

President

CSIRO Research Fellow

**Professor John Shine AO**, BSc, PhD (ANU), FAA

Vice-President

Chairman, NH & MRC since 2003

Executive Director, Garvan Inst. of Medical Research, St Vincent's Hospital since 1990

Professor of Molecular Biology, UNSW since 1987

**Dr Bob Frater AO**, BSc, BE, PhD, DScEng (Syd), DSc (honoris causa) (Macquarie), FAA,  
FTSE

Vice-President

Vice President for Innovation, ResMed Ltd since 1999

**Professor Sue Serjeantson AO**, BSc (UNSW), PhD (Hawaii)

Executive Secretary

## **Academy of Social Sciences in Australia**

***Professor Sue Richardson, BCom (Hons) (Melb), PhD (La Trobe)***

President

Professor of Labour Economics and Director, National Institute of Labour Studies, Flinders Uni., since 2000

***Professor Bruce Chapman AM, BEc (Hons) (ANU), PhD (Yale)***

Professor of Economics, Research School of Social Sciences, ANU since 2002

Director, Centre for Economic Policy Research since 1990

***Dr John Beaton, BA MA (UCLA), PhD (ANU), Prof Emeritus UC at Davis since 2001***

Executive Director

## **Australian Academy of Technological Sciences and Engineering**

***Professor John Zillman AO, BA, BSc (Hons), MSc, PhD, Hon. DSc (Monash), FAIP, FAIM, FEIA, FRMetS***

President

President, Int. Council of Academics of Engineering & Technological Sciences 2005

Professor, School of Earth Sciences, Uni. Melbourne, since 1999

Special Adviser, Bureau of Meteorology since 2003

Member, Aus. Nat. Commission for UNESCO since 2001

***Mr Peter Laver, BE (Melb), FIEAust***

Vice President

Chairman, Aust. Building Codes Board since 2000

Chair, Victorian Learning Employment Skills Commission since 2001

Member, Victorian Qualifications Authority since 2001

Commissioner, Victorian Schools Innovation Commission since 2001

***Dr John Dodgson, BAgrSc, MAgrSc (Hons)(Cant.NZ), PhD (Natal)***

Chief Executive Officer

## **National Academies Forum**

***Professor John Zillman AO***

President

President, ATSE

***Professor Graeme Turner***

President, AAH

***Dr Jim Peacock AC***

President, AAS

***Professor Sue Richardson***

President, ASSA

## SUMMARY OF THE SUBMISSION OF THE NATIONAL ACADEMIES FORUM

### 1. Establishment and Mandate

In November 1995, the four Learned Academies drew up Articles of Agreement to establish a National Academies Forum (NAF), and subsequently signed a Memorandum of Understanding which formalised the agreement and set out the Objectives of NAF. The Memorandum of Understanding was renewed and updated with effect from 1 January 2000. The DEST contract reiterated most of the objectives of the NAF specified in the earlier MOU; in summary these are:

- (a) To promote research and scholarship in the natural and applied sciences, technological development and applied technology, the social sciences and the humanities;
- (b) To provide an independent source of advice to the Government;
- (c) To be a focal point for contact between the Government and the communities represented by the Academies;
- (d) To support continuing NAF activities which are considered to be of value to the Government and which the Government might otherwise have had to undertake;
- (e) To undertake activities that are in the national interest and contribute to broad Government objectives; and
- (f) To provide support for affiliations with appropriate international organizations.

The Presidency and Secretariat responsibility for the NAF rotate around the four Academies, each supporting it for two years. However, the AAS hosted it for four years from 2001-2004. Responsibility currently resides with the ATSE. The Presidents, Executive Directors and a small number of Fellows of the four Academies meet formally twice per year and carry out the ongoing NAF functions between meetings through informal consultation. The four Presidents constitute the Executive of the Forum and may take decisions between meetings.

The ability to harness the highest level of intellectual capacity across the disciplines in Australia is the single greatest strength and value of NAF.

### 2. Current activities

#### 2.1 Workshops

The collective intellectual weight that distinguishes NAF's activities is contributed by leading scholars and practitioners in their capacity as Fellows of their respective Academies, and is marshalled by means of a substantial contribution of planning and administrative effort – and resources - by each Academy.

The NAF has undertaken a wide variety of activities over the period 2000-05, addressing subjects of national importance. Eleven workshops or other events have been held on topics of national interest such as measuring research excellence, surviving disaster, sustainable futures, the AIDS crisis, and information infrastructure. The reports and recommendations generated by the meetings have been made widely available, and in some cases have led to further activity informing government policy; for example, the five workshops organised towards establishing an Australian Research Quality Framework, which arose out of the

Conference on **Measuring excellence in research and research training**. The NAF has operated flexibly, collaborating with, and being supported by, Academies, government agencies, and academia, thus providing excellent value for the Government and the community. The value of promoting cross-disciplinary interactions is much greater than the financial inputs because of the existing expertise of the Academies, and the many voluntary contributions of individual Academy members.

## 2.2 International linkages

Since 2003, NAF has provided Australia's affiliation with the International Human Rights Network of Academies and Scholarly Societies, and has partially sponsored Australian attendance at the 2003 and 2005 Congresses.

## 2.3 Representation

NAF provides representatives on various committees, for example, the National Collaborative Research Infrastructure Strategy, and the e-Research Coordinating Committee, which advise the Government or contribute to the efficient functioning of sciences and the arts. Each Academy nominates one representative to liaise with the NAF representative, who then represents the interests of all of the Academies.

## 3. **New Initiatives**

With an ARC LASP grant, NAF has already established a project to develop a National Risk Assessment Framework, as a basis for deciding national security policy, strategy and actions; this would culminate in a multidisciplinary workshop, which in turn is likely to generate a number of new projects addressing specific issues. A similar project of national priority on nuclear energy is also undergoing preliminary study. All of the Academies are keen to participate in further cross-disciplinary activities, provided that there is adequate funding available to harness the expertise of their Fellows. Other topics requiring a national and multidisciplinary approach include water, energy, climate, nanotechnology, education, literacy, infrastructure and health.



## SUMMARY OF THE SUBMISSION OF THE AUSTRALIAN ACADEMY OF THE HUMANITIES

### 1. Establishment and Mandate

The Australian Academy of the Humanities was established by Royal Charter in 1969, with the following objectives:

The objects and purposes for which the Academy is hereby constituted are the advancement of scholarship and of interest in and understanding of the Humanities, that is to say, in Language, Literature, History, Philosophy and the Fine Arts, and for that purpose:

- (a) To advance knowledge of the Humanities.
- (b) To encourage and support scholarship in the Humanities, to promote studies therein and to assist the publication of any such studies.
- (c) To establish and maintain relations with international bodies concerned with the Humanities.
- (d) To correlate and assist in correlating the efforts of other bodies in the Humanities.
- (e) To arrange or assist in arranging meetings of humanists in Australia, to encourage and assist the visits of humanists from other countries to Australia, to assist Australian humanists in scholarly pursuits in Australia or elsewhere, and to assist in exchanges of scholars between Our Commonwealth of Australia and other countries.
- (f) To administer or assist in administering funds for the purposes of research in the Humanities.
- (g) To assist and promote the development of libraries in Australia in the field of the Humanities.
- (h) To act as a consultant and an advisory body in matters concerning the Humanities.<sup>4</sup>

At the moment there are 419 Fellows, of whom 335 are Fellows, 40 are Overseas Fellows, and 44 are Honorary Fellows.

### 2. Current Activities

#### 2.1. Humanities Travelling Research Fellowships

This Programme provides modest travel grants to enable early career researchers who lack access to systemic or institutional funding to conduct valuable primary humanities research overseas, including fieldwork. The Programme was expanded in 2003 with support from the HEIP/CASR mechanism, and the proposals have continued to increase in both number and quality, facilitating research opportunities for early career academics. The Programme has the important secondary objective of creating academic linkages between Australian scholars and their international counterparts. The AAH considers that there is still potential to expand the Programme further without compromising quality.

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<sup>4</sup> *The Australian Academy of the Humanities Royal Charter and By-Laws* (with amendments approved by the Governor-General-in-Council, 19 June 1991). Canberra: The Australian Academy of the Humanities, 1992. Charter §4, p. 7.

## 2.2 Research Projects

In terms of scale and potential impact, the AAH's most important undertakings are its partnerships with key humanities researchers in conducting practical research projects aimed at improving humanities research, education, scholarship and understanding. Funded with the assistance of the Australian Research Council (ARC), through the LASP Scheme, the AAH convenes these policy- and methodology-oriented research projects. During the Review period, the AAH partnered with 15 researchers located in 10 institutions to conduct 8 projects worth a total of \$613,000, addressing topics as diverse as electronic collaboration methodologies, the effectiveness of, and innovation in, the arts, media and design, and improving the capacity of humanities researchers to promote their work in a general marketplace.

## 2.3 Awards

The AAH's leadership role in the Australian humanities community includes recognising outstanding contributions to the humanities and this is another way of encouraging high quality research. The Max Crawford Medal is Australia's most prestigious award for early career humanities researchers and has a rigorous selection process. The appointment to deliver one of the AAH's three named lectures – the Hancock, Triebel and Trendall Lectures is a significant honour for a distinguished established scholar in particular fields. These lectures, delivered to audiences that include the general public, are also an excellent, high profile way both to disseminate humanities research and to improve community awareness of the humanities. It is the belief of the AAH that the incentive provided by AAH's ultimate award – election to Fellowship – is itself a significant driver of excellent, high impact research.

## 2.4 Annual Symposium

The Annual Symposium makes not only a significant contribution to particular fields of inquiry within the humanities, but also increasingly to aspects of humanities policy. These events have been held over the last five years and are popular with the public, and the papers resulting from the Symposium are published as an annual collection of essays.

## 2.5 Publications

The AAH Publications Subsidies Scheme provides modest assistance to scholars under pressure to publish but without other sources of funds. It is particularly important for works deemed to be insufficiently commercial, or containing illustrations etc. which make production and licensing costs very expensive. The quality of applications for support is very high, and the Academy would like to expand the Scheme if additional funds were available.

The AAH's patronage, in partnership with The University of Queensland Press, of the Academy *Editions of Australian Literature* series, is probably the only means for detailed, highest quality scholarly editions of major Australian literary works to be published. The AAH is also currently collaborating with Macquarie University, the Humanities Research Centre at the ANU and Allen & Unwin in a long-term project to bring to markets in Australia and overseas a definitive, high quality, *Anthology of Australian Literature*, modelled on the highly respected series by W.W. Norton of New York. The first phase of this project, a scoping study, has been completed, and the editorial and business phase has commenced.

## 2.6 The National Scholarly Communications Forum (NSCF)

The AAH takes a leading role in the NSCF, which is comprised of all four Academies as well as most of the major cultural institutions and academic organisations in Australia. The NSCF is operated and subsidised by the Academies. High-profile fora are organized at least once per year on issues of major significance to the research and education community and feature major research policy speakers. Recent fora have addressed the topics *Changing Research Practices in the Digital Information and Communication Environment*, and *Open Access, Open Archives and Open Source*. The NSCF is making a significant contribution to a broad field undergoing rapid technological change, and with wide impact, drawing on expert technical knowledge, such as advice regarding library, digital access and digital repository policy. These are important issues on which the AAH can offer policy advice.

## 2.7 Networking

The AAH also plays a leadership role across the education and research sector and the cultural sector: It nominates members of scholarship and fellowship assessment panels and of programme management committees for cultural and educational institutions; it assists small cultural bodies through a range of activities including administrative support; for example in its assistance to the fledgling Medical Humanities Association. It also publicises the work of allied organisations through its extensive and influential network, and makes use of its media contacts and networks to publicise the achievements of Fellows and other scholars working in the humanities, as well as to promote the role of the humanities in informing issues of comment.

The AAH collaborates extensively and strategically with other organisations to conduct research programmes, hold conferences on topics relating to the humanities, and pursue policy agendas of value to the humanities in Australia. In 2003 the AAH took the lead in the establishment of the Council for the Humanities, Arts and Social Sciences (CHASS), a new umbrella peak body established to represent the broad interests of the many organisations and institutions working across these fields, providing a counterpart and complement to the Federation of Australian Scientific and Technological Societies (FASTS). The AAH continues to take a leading role in the operation of CHASS.

The AAH supports allied or intersecting activities of other organisations, such as the Business-Higher Education Round Table, and also partners once or twice a year with the ASSA in its Workshops Programme when topics of cross-disciplinary interest are under consideration.

## 2.8 International activities

The AAH maintains an active membership of the global body for humanities scholarship, the Union Académique Internationale (UAI), and acts as the Australian correspondent for international award organisations such as the Nobel Committee of the Swedish Academy and the Royal Netherlands Academy for Arts and Sciences. The AAH also contributes actively to the work of relevant global initiatives, such as the International Internet Preservation Consortium.

The AAH also has scholarly exchange agreements with the Academies of several other nations or regions, including the Netherlands, Sweden, Russia, Indonesia and South-East Asia, and has a joint research programme with the British Academy. It is in discussions with other countries such as Switzerland, the Czech Republic, the United States, Scotland, Brazil and

Canada, and the European Union, to explore the most efficient and effective avenues of collaboration.

The AAH has recently diversified its links with its partner Academies and the UAI, and in discussions with potential new partners, to add a policy focus to the existing academic activities. It has also led to the establishment of informal links with international humanities research councils such as the UK's Arts and Humanities Research Council, the Irish Research Council for the Humanities and Social Sciences and the Federation of State Humanities Councils (USA).

The AAH is hoping to obtain a dedicated pool of funds to contribute to scholarly exchange or joint research programmes, targeted to priority countries and regions, and aimed at programmes such as joint research projects, and to recipients such as early- and mid-career researchers.

## 2.9 Provision of advice to Government

The AAH provides advice to Government as a consultant body for expert advice in two main ways: It provides directly, and brokers advice (for example, by supplementing the contributions of Fellows and AAH staff with early career researchers and with the policy output of allied international organizations) on matters relating to the humanities as expert fields of knowledge, including in a policy advisory role; and it has been utilised increasingly by Government as a well-located resource for providing advice on the adequacy, reform, formulation and implementation of higher education and research policy. In some instances, advice in the research and education context is effectively a blend of 'content'-based advice and policy advice. The Academy believes that it could increase its contribution if further resources are provided. It also hopes that the recent reorganisation of the Secretariat, which is allowing the Executive Director to devote more time to pursuing alternative funding sources, might over time reduce its reliance on public funding as a proportion of total revenue.

### *2.9.1. Advice on matters relating to the humanities as fields of knowledge*

The AAH is uniquely placed to provide advice on the many areas of Government concern that have components in the cultural and social realm on which the humanities can offer expert insights, and has performed this function both on request and on its own initiative in the Review period. For example, the AAS advised the Department of Defence on the nature, value, location and condition of antiquities in Iraq at the time of the overthrow of the Hussein regime. Similarly, expert archaeological advice was given to the Tasmanian and Commonwealth Governments on the heritage value of the French Garden and Observatory at Recherche Bay, remnants of the landing site of Bruny D'Entrecasteaux in 1792-3. The Productivity Commission inquiry into the Conservation of Historic Heritage Places has sought AAH input that allowed a wide range of expert views to be collated and supplied in a consistent and accessible manner.

The humanities' perspective is made available to Government processes through the appointment of the AAH's Immediate Past President, Professor Iain McCalman FAHA, to the Prime Minister's Science, Engineering and Innovation Council; this is a significant means of providing advice from a humanities perspective on issues concerning the innovation agenda across all areas of Government. As this is a personal (rather than an *ex officio*) appointment, the AAH provides informal Secretariat support to assist Professor McCalman's service to this important body, particularly important while he is leading the inquiry into *The Role of*

*Creativity in the Innovation Economy*; but also a continuing contribution to the operation of Government after this inquiry has been concluded.

The recent Security and Counter-Terrorism Humanities Research Forum, held jointly by the AAH and the Homeland Security Research Centre, was an AAH initiative to provide advice to Government on a topic of high national priority. The Attorney General, The Hon Philip Ruddock MP, who opened the Forum, acknowledged this contribution. It was clear at the Forum that lack of awareness of the *relevance* of the humanities is primarily responsible for its under-utilisation as a source of contributing to the national good.

The AAH argues that it has considerable potential to contribute advice, since in many seemingly ‘scientific’ problems, such as salinity and obesity, the main drivers of change can only be behavioural and cultural. The Forum is planned to be the first in a series to place humanities’ areas of expertise, and the very concrete applicability of much of their scholarship, into the public domain. The AAH is also planning a publicity campaign within the public service and in Parliament, to promote the availability of expertise in the humanities, and to foster an understanding of its own role, and that of the disciplines it brings together.

The AAH is taking the lead in developing a simple electronic facility for the distribution and exchange of humanities policy resources between Academies, societies and research councils in the humanities around the world. A small additional injection of funds would help to create a significant extra avenue for international linkages, and increase the policy resources available to Government.

#### *2.9.2 Advice on higher education and research policy*

Advice has been provided through the preparation of submissions, giving evidence at government hearings, and participating in conferences, workshops and fora, engaging the humanities community through the AAH. Thus the Government is able to draw on the AAH’s unique position and perspectives to give advice not only on the intrinsic content of the humanities, but also on how humanities scholarship, teaching and learning, research and dissemination take place, and how policies influence these considerations. Requests for advice have increased markedly in recent years; examples of assistance include: The formulation of the Research Quality Framework; NH&MRC, ARC and AV-CC Reviews of research ethics processes, and of research misconduct procedures; the National ICT Australia Review; National Research Infrastructure Taskforce; and the Senate Inquiry into higher education funding and regulatory legislation.

Service on Government committees, and participating in advisory groups for others serving on those committees, is another significant and growing avenue for the provision of advice; committees include the National Collaborative Research Infrastructure System, the Australian Research Information Infrastructure Committee, the e-Research Coordinating Committee, and the National Cultural Heritage Forum.

AAH nominees also serve on non-Government Committees that supplement the work of Government, including the International Academies Human Rights Network, and the Joint Academies Committee on Sustainability.

### **3. New initiatives**

In addition to expansion of a number of its current successful activities, the AAH wishes to establish a Workshops Programme, holding three workshops per annum.

The AAH is also very enthusiastic about expanding its mandate to include scholarship, teaching, research and practice in the creative and performing arts, an area not presently represented in any Academy.

## SUMMARY OF THE SUBMISSION OF THE ACADEMY OF SOCIAL SCIENCES IN AUSTRALIA

### 1. Establishment and objectives

The Academy of Social Sciences in Australia was established in 1971; prior to that Academy functions were fulfilled through the Social Science Research Council of Australia, founded in 1942. The ASSA has the following constitutional objectives:

- (a) To promote excellence in and encourage the advancement of the social sciences in Australia;
- (b) To act as a coordinating group for the promotion of research and teaching in the social sciences;
- (c) To foster excellence in research and to subsidise the publication of studies in the social science;
- (d) To encourage and assist in the formation of other national associations or institutions for the promotion of the social sciences or any branch of them;
- (e) To promote international scholarly cooperation and to act as an Australian national member of international organizations concerned with the social sciences;
- (f) To act as consultant and adviser in regard to the social sciences; and
- (g) To comment where appropriate on national needs and priorities in the area of the social sciences.

At the moment there are 408 Fellows, including 13 Honorary Fellows.

### 2. Current Activities and future directions

#### 2.1 Multidisciplinary workshops

The Workshop Programme provides an important arena for multidisciplinary dialogue and intellectual exchange across the disciplines of the social sciences, and also provides a mechanism for linkages between research and policy. Typically, 16-20 individuals including senior academics, junior scholars, Federal and State Government representatives and NGOs meet for two days of intensive discussion on topics in social science disciplines. The Workshop Committee reviews proposals and provides feedback to applicants. Since the last review, as a result of the additional funding through the HEIP/CASR mechanism, there has been a substantial increase in the number of applications to participate in the program, and the ASSA has increased the number of workshops from 24 in 1995 – 2000, to 40 supported in this review period. The *Workshop Guidelines* have been modified to encourage discussion, and publication, where appropriate, of relevant policy issues of national importance; and many of the recent workshops have been characterised by wide public dissemination of proceedings, practical policy relevance, and furthering the research impact of the social sciences in Australia. A further six workshops will be completed by the end of 2005.

Since 2000, as a direct result of the Workshop Programme, fourteen books have been, or will soon be, published. In addition, proceedings from two workshops have been published as e-books on commercial publisher's websites; and papers from four workshops have been

published in academic journals. This represents a significant increase in publication output compared with the last review period. Nine papers have also been published on the ASSA website. In addition to commercial publications, Workshop Convenors must also produce workshop reports for publication in the ASSA's journal *Dialogue*.

If additional funding were available, the ASSA would increase the number of workshops, fund them to enable, for example, the participation of overseas scholars and increase the level of representation from regional universities, and also contribute to the costs of publication or other dissemination modes.

## 2.2. Research programme

Research activities are strongly linked to all other ASSA programmes, and take advantage of the extensive scholarly network available through the Fellowship; participation by scholars outside the ASSA are also encouraged. The programme includes major research projects, commissioned research papers, the development and communication of research findings through the workshop programme, annual symposia and conferences, academic and Government roundtables and joint action research programmes with the international community. A significant part of the ASSA's research activities is funded through the ARC Linkage-LASP Scheme. In the current review period, the ASSA has maintained its track record in ensuring that at least one significant book is published from each of its funded research projects.

In addition, the increased HEIP/CASR funding has permitted the ASSA's Research Committee to strengthen research output through the commissioning of major refereed research papers on areas of national policy importance and community interest; for example in the areas of earnings policy, and migration and settlement. If further funding became available, the ASSA would like to strengthen this new commissioned research initiative, including increasing the production and dissemination of policy related outcomes.

The ASSA has also collaborated with other groups, for example with the Monash Institute for the Study of Global Movements on the project, *The Social Sciences and Australian Public Policy: Ideas and Impacts*, which examined how expert knowledge shapes better futures, how researchers relate to the policy community, and where the interface between ideas and actions, or between the 'expert' and political influences on policy, could occur.

## 2.3 International programmes

The ASSA has reformed the underlying principles of its bilateral agreements, moving away from study exchanges to collaborative research activities. Although modest (about \$6,000 per project) the revitalized programme has stimulated much interest and this has resulted in considerable unmet demand, despite additional support from the CASR funding. Partnerships with the British Academy and the French Government have significantly enhanced international research collaboration.

In addition, the ASSA is taking a lead role in the region: during 2001 – 2003 Professor Gale served as President of the Asian Association of Social Science Research Councils, the major



regional umbrella organization; at the end of 2005 the ASSA will assume the Secretariat of this organisation; and the ASSA will also host the Association's 15<sup>th</sup> Biennial Conference.

With enhanced funding, the ASSA would augment its joint-action collaborative research projects programme, continue to develop relationships with regional partners, and play a more equal role with its current partners, especially with the British Academy and the French Embassy.

#### 2.4 Policy and Advocacy Programme

In response to the additional funding received from 2003 under the HEIP/CASR Program, the ASSA established a Policy and Advocacy Committee (PAC), which collaborates with other ASSA committees and also convenes its own activities to provide expert independent advice to Government. PAC comprises Fellows with considerable experience in Government and policy development and its task is to provide direction to policy and advocacy engagements across ASSA's programs, to identify topics for the commissioning of policy papers, and to engage directly with Government to build trust and networks for the provision of social science-based knowledge to policy makers; social science is singularly suited to providing knowledge and evidence to support the practical demands of public policy makers. If funds permit, ASSA will strengthen its capacity to engage Government policy-makers through roundtables and other fora.

The PAC also acts as an Editorial Board for a new ASSA publication program, *Occasional Paper Series (Policy Papers)*, which is circulated to members of Federal Parliament, Government departments, educational institutions, NGOs nationally and internationally, libraries, media organisations, and interested individuals. Papers arise out of activities from, or are directly commissioned by, the ASSA Research Committee and the PAC; topics covered include taxation, climate change and communication issues between social science researchers and public policymakers. Policy-informing articles have also been commissioned for the ASSA newsletter *Dialogue*. This is another area which would be expanded if further funding were available.

The ASSA has also held meetings with senior public policy-makers, and is currently organizing a roundtable; the PAC's aim is to increase direct engagement with these officials to ascertain their needs for social science research input into policy formulation on a continuing basis.

#### 2.5 Advice to Government

ASSA Fellows continue to act in their professional capacities to provide advice to government through board and committee memberships.

In addition, the ASSA has provided submissions and contributed to consultations on more than twenty inquiries, on topics such as the NRP, and the NH&MRC review of ethical conduct in research involving humans. The ASSA believes that there are many opportunities to expand its collaboration with other publicly-funded research agencies such as the NH&MRC and CSIRO,

## 2.6 Annual Symposia

Annual Symposia focus on a single theme; for example, in 2003 the theme was *Youth in Transition*. In that year, the Symposium discussions were enriched by the involvement of overseas participants, since the Conference was held jointly with the Association of Asian Social Science Research Councils. The 2005 Symposium will continue to assess the capacity of the social sciences to address major social problems and explore how communications between researchers and policy makers might be improved.

## 2.7 Summer School and Mentoring Program for Indigenous Postgraduate Students

Since 2002, with DEST and private funding, the ASSA has held three very successful Summer Schools to assist Indigenous postgraduate students and their supervisors to ensure their progress to timely completion of Masters, PhD, and other professional qualifications. The Summer Schools involve a week of residential, intensive activity. This initiative attracted support from private foundations and individuals. Three very successful summer schools have been held so far, with ASSA Fellows generously volunteering their services. ASSA is committed to obtaining funding to continue this Program, which is one of DEST's policy priority areas.

## 2.8 Collaborations with Non-Government Agencies

The ASSA has collaborated with the mobile phone industry to identify broad areas of research on how mobiles have altered lifestyles, communications patterns, and productivity.

Drawing on the strengths developed from this collaboration with the Australian Mobile Telecommunications Association (AMTA), the ASSA intends to expand its activities to collaborate with non-government organisations and industry bodies in identifying potentially new areas of research and expanding research agendas.

## 2.9 Other initiatives

ASSA has also been involved in three collaborative projects: one on sustainability under the NAF umbrella, with the ASSA developing a virtual-discussion website; it also developed a website for the *Research Network on Ageing Well* initiative; and collaborated with Museum Victoria and the ANU to produce the ASSA publication of *Donald Thomson, the man and scholar*.

In addition ASSA has contributed to the development of CHASS.

# 3. **New Initiatives**

## 3.1 Involvement of early and mid career scholars in ASSA programmes

ASSA would like to create a structure to provide much greater opportunities for early career scholars to contribute to, and benefit from, its workshop, research, policy and advocacy activities, and its international programmes. Currently mentoring and networking with this sector is largely limited to individual Fellows' efforts.

### 3.2 Strengthen the ASSA presence in regional areas of Australia

There is considerable potential for the ASSA to expand its presence in regional areas, by increasing its collaborations with regional universities and promoting relationships with State governments, non-government organizations, and industry.

## SUMMARY OF THE SUBMISSION OF THE AUSTRALIAN ACADEMY OF SCIENCE

### 1. Establishment and Mandate

The Australian Academy of Science was founded in 1954 by Australian Fellows of the Royal Society of London. Her Majesty granted a Royal Charter establishing the Academy as an independent body, but with government endorsement. The current vision of the AAS, as stated in its Strategic Plan, is “to be the prime representative of Australian natural and applied sciences, a champion for scientific excellence in Australia and an independent adviser on Australian scientific research, teaching and technological innovation”. Its mission is:

- (a) To advance the development of a scientific culture and a long-term scientific vision within Australian society;
- (b) To sustain a national learned academy for the recognition of excellence in scientific research and achievement; and
- (c) By advising government and other bodies, to promote the understanding that high-quality science teaching, research and innovation are essential elements for the advancement of Australian society.

At the moment the AAS has 380 Fellows, and several Corresponding Members.

### 2. Current Activities and Future Directions

#### 2.1 Excellence in research

The AAS maintains itself as an independent organisation that promotes excellence in scientific research, in several ways: Firstly through elections to Fellowship of the Academy. Each year up to 16 new fellows are elected after rigorous appraisal, and the Fellows of the Academy elect the Council of seventeen Fellows, which manages the business of the Academy.

Secondly, the encouragement and reward of excellence in science, both to young, and senior, researchers, is at the heart of the ethos of the AAS, which awards several medals each year: The Pawsey Medal is awarded to a young physicist; the Gottschalk Medal to a young medical researcher; the Fenner Medal to a young biologist; and the Dorothy Hill award to a young woman geoscientist. Among other awards are the Ian William Wark Medal and Lecture, and the Rees Lecture, both established to encourage those whose research bridges science and industry, and the Thomas Ranken Lyle Medal, for research workers in mathematics and physics. Biennially, the AAS holds the Matthew Flinders and Macfarlane Burnet Lectures, given by senior physical and biological scientists. There are also medals or lectures in chemistry (the David Craig Medal), Earth sciences (the Mawson Lecture, the Jaeger Medal, and the Haddon King Medal) and in mathematics (the Moran Medal, and the Hannan Medal).

Support for scholarship is provided on a competitive basis for research conferences (the Boden, Fenner and White Research Conferences), for travel to conferences in the earth and plant sciences and in physiology, for visiting lecturers to Australia (the Lemberg and Selby Travelling Fellowships) and to support forestry research and study (the Jacobs and Gentle Funds).

Thirdly, the AAS celebrates scientific attainments. For example, in conjunction with the ATSE, it, organises the Sir Mark Oliphant International Frontiers of Science and Technology Conferences, supported by the Australian government.

## 2.2 Advisory Role

The AAS has a wealth of expertise that enables it to be an independent source of advice to Government. It augments the expertise of its Fellows through the appointment of non-Fellows to its twenty National Committees, which have extensive networks and affiliations with national professional scientific societies and international Scientific Unions. The roles of the twenty National Committees of the AAS include: Fostering a designated branch of natural or applied science in Australia; serving as an effective link between Australian scientists and overseas scientists in the same field; advising the AAS Council on relevant matters; and providing advice on science policy matters. During the period 2000 – 2005, the AAS has published more than 35 reports on public issues such as national research priority setting, human cloning, stem cell research, genetic engineering, climate change, measuring dryland salinity, alpine grazing and space science; it also makes submissions to government ministers and parliamentary inquiries.

The AAS has taken a leadership role in the development of government policy, for example during the process of setting the national research priorities (NRP) in 2002. Every two years it develops and publishes a policy statement on research and innovation that provides an agreed policy base from which to respond quickly to requests from Government. In addition, longer term, underpinning science policy studies are undertaken, funded by competitive research grants awarded under the ARC's LASP scheme.

The AAS considers that it is well-placed to generate a higher level of activity in science policy studies, possibly based on the model of the National Research Council of the United States; and that these are necessary to support informed public debate of the growing number of issues generated by the advance of knowledge. A higher and consistent flow of fully-costed work would develop competence in science-for-policy studies which require thorough processes of consultation and communication. The AAS is of the view that good support from competent salaried staff is essential to make the best use of the valuable honorary time of Australia's scientists, and therefore argues for an augmentation of funding for its National Committees structure, including provision to attend important meetings of relevant international unions.

The AAS recognizes that, as issues become increasingly complex, partnerships are the most effective approaches to analysing issues. It provided the secretariat for NAF for four years (2001–2004) and the Presidency for two years (2003–2004), and has strongly supported, including subsidizing, this organization.

## 2.3 Support for early-career researchers

The AAS seeks to utilise and encourage Australia's early- to mid-career researchers, not only for their own career development, but also because they have much to offer. Since 2002 it has hosted a *High Flyers Think Tank* for 50 - 70 young researchers, on topics of national importance. The Think Tanks have become prestigious events, and have generated publicly available reports, also presented to Government, which have been highly regarded. This event is innovative and unique and showcases Australia's rising research talent, and warrants guaranteed funding from the grant-in-aid, rather than being funded from investment income.

In addition, the AAS would like to secure funding for its very successful *Frontiers of Science* annual event, which copies the programme initiated by the US National Academy of Sciences. The symposium series is an exciting initiative designed to bring together some of Australia's best young scientists to present and discuss emerging science and technology, highlight and discover new opportunities, and share cutting-edge advances in their fields. It involves participants from universities, government and industry and has forged new associations.

The AAS is also very keen to obtain funding to resume international scientific exchanges for young researchers under the highly successful *Young Australian Researchers Program*, which was funded by DEST in 2003 to facilitate an increase in strategic alliances between Australians and researchers in the USA and Europe. There were 174 applicants for 33 places.

Similarly, the AAS would like to ensure the future of the *Summer Program with the National Science Foundation* (NSF), in which the NSF and the AAS fund US graduate students to visit Australia and work alongside their Australian peers in a laboratory context, thus creating networks which might lead to future collaboration. This Programme is being funded by DEST for three years from 2004, and the AAS very much hopes that the funding be continued.

#### 2.4 International activities

The AAS administers funds on behalf of the Australian Government to engage with international scientific organisations with a minimum of bureaucracy and administrative cost but for maximum effect. About two-thirds of the DEST International Science Linkages Programme funding (\$517,000 in 2004-2005) is expended in subscriptions to the International Council of Scientific Unions (ICSU), on which the AAS is Australia's representative, and more than thirty overseas Scientific Unions and programmes. The grant-in-aid also supports Australian voting delegates to attend business meetings of the international Unions and meetings of the National Committees within Australia. At any time about 300 Australians hold honorary offices in ICSU organizations.

The AAS has taken a leading role in Australia in international programs, for example the International Geosphere Biosphere Program (IGBP) that is funded outside the grant-in-aid.

In 2005, the AAS undertook an ARC-funded study on *Maximising the benefits of Australia's formal linkages to global scientific activities* to examine mechanisms to enhance Australian scientific involvement in global scientific programmes, including the mechanism of subscriptions to international Unions. An analysis of the subscription levels to the major global Scientific Unions suggested that Australia is paying at appropriate levels to most of these organisations. However, the Academy has been under increasing difficulty to maintain its international obligations, and has reduced or cut some membership subscriptions in recent years.

An important responsibility of the AAS National Committees is to bid for, and host, international congresses of ICSU Unions in Australia, and fifteen international congresses associated with ICSU Unions have been held in Australia so far, with five more scheduled. The AAS believes that, in addition to economic benefit, international congresses provide opportunities to showcase Australian science and to provide opportunities for younger Australian scientists to be exposed to cutting-edge science and scientists.

The AAS has been a member of the Inter-Academy Panel on International Issues (IAP) since its inception in 1993 and was a member of the IAP Executive from 2001 to 2003. The primary goal of the IAP is to help member academies work together to provide advice on scientific aspects of critical global issues, and is particularly interested in helping younger and smaller academies to achieve these goals. The AAS has provided input on Australian science education for the IAP portal, and to a statement calling on the United Nations to ban human reproductive cloning, but not the use of cloning techniques for approved research in cell biology.

The Federation of Asian Scientific Academies and Societies (FASAS), based in Kuala Lumpur, was established in 1984 to promote greater awareness of the roles of science and technology in nation building and regional development. The AAS is one of sixteen member academies, having been a member since 1995, and it hosted the 2005 meeting of the FASAS executive in Canberra in September 2005. This network of academies can be mobilised quickly to share information, in the case of extreme events, such as SARS and the Indian Ocean tsunami, and in the case of future threats such as pandemic influenza. The AAS is increasing its support, including financial support, for FASAS. It believes that Australia does not use science as effectively as some other countries as a foreign policy tool, and sees this is a challenge to consolidate its credentials in fostering international collaboration among researchers, industries and governments, with a particular focus on the Asia-Pacific region. The AAS is exploring opportunities for capacity building in the region; for example, it has been sharing its experiences in primary science education with the Executive of FASAS. The AAS was also represented at the Malaysian Science and Technology Convention in August 2005, where Academy Fellow Dr Bob Watts presented a plenary address on 'Keys for effective R&D management to encourage collaboration among researchers, industry and the government towards successful innovation and commercialisation'.

In addition to maintaining international and national scientific relations on behalf of the Australian Government, the AAS operates an international scientific collaborations programme to improve Australian access to global science and technology in North America, Europe and North East Asia. The programme gives Australian researchers the opportunity to collaborate with foreign colleagues, to widen research perspectives and experience, to exchange ideas, to be recognised in the international arena, to gain information and knowledge of techniques that will stimulate and advance Australian research, and to be involved in large international projects. This scheme is also funded by DEST's International Science Linkages Programme, announced in the government's Innovation Statement, *Backing Australia's Ability*. It is funded outside the LAGP grant-in-aid, until at least 2010-2011.

The AAS, partly because it is based in Canberra, has excellent relations with many of the foreign missions and a particular involvement with scientific attachés of those missions. In addition, AAS Fellows and staff regularly host visitors and officials from foreign academies, science institutions and government departments to promote and encourage cooperation and to discuss international relations matters. The AAS is increasingly using these international contacts to foster international science-industry partnerships with Australian businesses. For example, its close relationship with the Chinese Academy of Sciences enabled the Academy to introduce Academy Fellow Dr Bob Watts to appropriate contacts that enabled him to broker a formal agreement between BHP Billiton and the Chinese Academy of Sciences. The AAS has also organised bilateral workshops at the request of DEST, for example, in October 2004 when the AAS and the ATSE organised a workshop with the Chinese Academy of Sciences on the topic of sustainability, which promoted science and technology between

Australia and China and identified mutually agreeable priorities for long-term cooperation. A second workshop with the Chinese Academy will be held in Beijing in October 2005, on the topic of biotechnology and nanotechnology, and representatives from Australian small and medium enterprises have been invited. The AAS intends to continue expanding its role in facilitating international science–industry partnerships and has been working with FEAST (the Forum for European Australian Science and Technology Cooperation).

## 2.5 Focal point

The AAS is a focal point for contact between government and scientific communities in a number of ways: The President is, by virtue of that position, a member of a number of government-appointed committees, including the Prime Minister’s Science, Engineering and Innovation Committee (PMSEIC), where he chairs agenda working groups from time to time. He also serves on the Prime Minister’s Science Prize Committee and on high-level science policy committees. In addition, the AAS often partners with government agencies to bring together experts and policy makers to engage in think tanks, round tables, workshops and symposia, with significant reports being a valuable outcome. A recent initiative is the President’s *soirée*, an evening meeting that brings together experts, policy makers and representatives from foreign missions in round-table discussion of issues of national and international significance. Partnerships may be underpinned by contract work, sometimes after a competitive tender process, or are sponsorships underpinned by contractual arrangements; while other work is funded by competitive research grants from the ARC.

The AAS is also a focal point for contact between Government, scientific experts, community leaders, educators and industry, by hosting conferences and lectures on contemporary issues, through its ownership of the Shine Dome. Conference proceedings are made available on the AAS’s website and sometimes published as hard-copy. It also has a coordinating function for the science community when making submissions to government or parliamentary inquiries, or when developing position statements.

## 2.6 Education and Promotion of Science

The AAS undertakes many activities that are in the national interest and contribute to the broad objectives of DEST. The AAS has contributed to primary and secondary school science since 1965. *Primary Investigations* was launched in 1995 and recently received a favourable independent review that led to DEST funding the early stages of a revitalised primary science project called *Primary Connections*, a programme to inject scientific concepts and knowledge into the literacy program of primary schools. The first stage of the *Primary Connections* project was funded by the AAS through the Australian Foundation for Science. Stage 2 is being funded by the DEST as a quality teacher initiative under the Australian Government Quality Teacher Programme.

In 1997 the AAS launched its educational website, *Nova: Science in the news*, which was developed to help overcome the curriculum gap between textbook theory and real-life applications of science and technology, and to assist Australian scientists to communicate their achievements more readily. The site now displays more than 80 topics, a number that is growing steadily, and the Academy ensures that the topics are constantly revised and brought up-to-date in terms of content and electronic links. To date *Nova* has been funded by generous support from the private sector, but, given its importance, the AAS would like to secure its future by funding from the core operating grant-in-aid.



In 1993 the AAS established the *Interviews with Australian scientists* programme to record interviews with outstanding Australian scientists, who talk about their early life, the development of their interest in science, their mentors, research work, and other aspects of their careers. The programme includes videos, transcripts and teachers' notes and is well-regarded by teachers and students; it is becoming increasingly popular. The current focus is on interviewing Fellows of the AAS.

The AAS's *Historical Records of Australian Science* is the key resource for the history of science, pure and applied, in Australia and the southwest Pacific. It is published twice a year and includes high-quality articles and reviews, biographical memoirs of deceased Fellows of the AAS, and an annual bibliography of the history of Australian science. The Journal has a broad international readership and provides definitive and comprehensive biographical memoirs, historical perspectives from all fields of scientific endeavour, an annual bibliography on natural, applied and human sciences, and reviews of books. The AAS contributes about \$35,000 per annum to publication of this journal, plus *pro bono* writing and editing.

It is a community expectation that the AAS will, from time to time, host free public lectures and provide community education in science more generally. The Academy has participated in the *Australian Science Festival* since its beginning in 1993. In 2004, the Academy developed a travelling exhibition in collaboration with the National Museum of Australia in recognition of the Academy's 50th anniversary. In addition, the AAS arranges three days of events known as *Science at the Shine Dome*, held in conjunction with the Annual General Meeting. The events feature presentations by the newly elected Fellows, talks by those winners of the Academy's awards and a major symposium.

Research institutions are invited to sponsor early-career researchers to attend *Science at the Shine Dome* and this program is always oversubscribed. In addition, each year the AAS supports an outstanding science teacher from each state and territory to attend the AGM symposium and education workshop. The symposium enables science teachers to meet and talk with AAS Fellows and other renowned scientists, as well as the best and brightest of their peers. They also have a unique opportunity to be brought up-to-date on the latest research developments and to consider future directions for Australian science and science education. The teachers are selected in consultation with the Australian Science Teachers Association.

The AAS employs a qualified librarian, with training archival work, in the Adolph Basser Library, which was established in 1962 by a gift from Sir Adolph Basser. Its aim is to document the history of science in Australia and support related research. The collection contains printed and manuscript material, providing a unique source for historical research. A number of scientific societies have also chosen the Basser Library as the repository for their archives, with the Australian Institute of Physics and the Geological Society of Australia providing the largest collections. The manuscript collections are publicised throughout the archival community; in addition to being listed on the Academy's website, they are accessible through the National Library's Register of Australian Archives and Manuscripts, thus ensuring wide public access.

## SUMMARY OF THE SUBMISSION OF THE AUSTRALIAN ACADEMY OF TECHNOLOGICAL SCIENCES AND ENGINEERING

### 1. Establishment, mission and objectives

The Australian Academy of Technological Sciences and Engineering (ATSE) was originally incorporated as the Australian Academy of Technological Sciences (ATS) in November 1975 and inaugurated in Melbourne in February 1976. The Academy's name was changed to the Australian Academy of Technological Sciences and Engineering (ATSE) in January 1987.

The ATSE's mission is "to promote the application of scientific and engineering knowledge to practical purposes". The Academy has identified eight key objectives for the period 2005 – 2011 as follows:

- (a) Become the "Resource of Choice" for Governments for independent expert advice and analysis on engineering and technological issues;
- (b) Provide independent technological and engineering advice to industry;
- (c) Foster informed debate on technological science and engineering issues in support of national goals and aspirations;
- (d) Advance the scientific and technological literacy of the Australian Community;
- (e) Encourage and promote excellence in the technological sciences and engineering and their status and influence in the community;
- (f) Strengthen Australia's access to global science and technology;
- (g) Achieve active involvement of all Fellows in carrying out the mission of the Academy, and
- (h) Ensure the financial viability of the Academy and its intellectual independence from funding sources.

At the moment the ATSE has approximately 700 Fellows, including 11 Foreign Fellows.

### 2. Current activities and future directions

ATSE operates within the framework of a five- to seven-year Strategic Plan and a series of annual Operational Plans for each of its major national functions and geographic regions. It critically reviews its performance against plan twice annually – the most recent being in August 2005 - and reports in summary form in Annual Reports and Annual Handbooks.

#### 2.1 Advice on policy issues

The experience and expertise of the ATSE Fellowship in the technological sciences and engineering represent a unique, authoritative, but highly cost-effective source of advice; notable successes have included its work on industry and community understanding of issues such as climate change, greenhouse gas mitigation, water recycling, urban air pollution, Australia's role in Antarctica and the role of water in the Australian economy. The ATSE's expertise is made accessible to, and is accessed by, Government through a range of mechanisms, including the following:

- formulation and transmission to Government of policy statements on major issues developed through consultation amongst the relevant expert Fellows. To assure

quality, as far as is feasible, all ATSE submissions etc. are subject to peer review, with drafts circulated to as many appropriate Fellows as possible. The blend of expertise thus mobilized is independent, objective, balanced and free from vested interest, and is highly valued for these qualities;

- preparation of ATSE submissions to Parliamentary and Government reviews; the not-for-profit status of the Academy reinforces the credibility of the expertise offered;
- the personal expertise (and access to ATSE networks) of the many Academy Fellows invited to chair, or serve on, Government reviews, advisory committees and boards;
- the nomination of Fellows to attend Government consultative meetings with stakeholder communities, for example, on issues such as the Research Quality Framework and the National Research Infrastructure Strategy;
- provision of coordinated ATSE input to Government through peak bodies such as the PMSEIC; and
- the ATSE makes numerous recommendations that have evolved from its symposia and workshops and seminars.

The ATSE would welcome the opportunity to expand its role in meeting the needs of Government, for example, by identifying on a regular and formal basis, and undertaking studies in, a wide range of frontier technologies to assist Government to ensure that Australia is alert to new opportunities and threats and is technologically up with the best in the world; the ATSE cites the model of the “Global 2000” Report to the President of the USA published in the mid-1980’s. However, expansion of these activities would require significant strengthening of the Secretariat, to effectively engage with its stakeholders, to undertake detailed research, analysis and report preparation, and to provide administrative and professional support to Fellows carrying out their voluntary work.

## 2.2 Workshops and other fora

The ATSE has provided a forum for debate and policy formulation on important national and regional issues of topical interest. Many symposia, workshops and seminars have been held, both nationally and organized by the Regional Divisions, often leading to publications and other forms of community engagement and outreach, with positive impacts on the broader community and continuing discussions with Government. Topics have included water and energy policy, risk management, gene technology, the role of technological innovation and the role of science and technology in promoting longevity and quality of life.

## 2.3 Support for early career researchers

Up to 20 *Early Career Symposium Fellowships*, often funded from sponsorships, are awarded annually to enable young PhD researchers to attend the ATSE Annual Symposium, and the “youth’s view” is clearly identified in the Proceedings.

## 2.4 Research projects

The ATSE has undertaken eight major technical projects on matters of major national significance during the last five years; the results of several of these have achieved national recognition, have become a major reference both nationally and internationally, and have impacted on government policy. Important projects have been undertaken in areas such as population, environment, water, climate, information technology and technological education.

## 2.5 Rewarding excellence

The ATSE fosters and recognises excellence in the technological sciences and engineering, in particular through the peer assessment and election of some 30 outstanding Australian scientists and engineers to Fellowship of the Academy each year. Other major awards with which the ATSE is involved include the selection of the annual Prime Minister's Science Prizes (with the AAS), the prestigious ATSE Clunies Ross Award, the Sir David Zeidler ATSE Travelling Scholarship, and a range of student and other prizes and awards at national and state level. Since 2002, the ATSE has been endeavouring to raise the profile of science and technology in the community through promotion of awardees and their contribution to Australia on a "*Stories of Innovation*" website.

## 2.6 Education

The ATSE has been active in addressing concerns about the poor level of understanding of technology as a key learning area, and specifically in the teaching of science and technology in primary schools, and in-service training of teachers. The results of a major study undertaken in 2003 are impacting on government policy at State and Federal level, and a widely distributed brochure is helping to improve community understanding of the issue.

The ATSE would also like to address the forthcoming shortage of science and engineering skills, by developing programs to foster future scientists, engineers, innovators and technological entrepreneurs.

## 2.7 National Linkages

The ATSE maintains strong links with the other academies, with Engineers Australia, with FASTS and CHASS, and with the Business Council of Australia, for whom it undertook a project which highlighted areas where environmental issues may or may not be linked with population growth.

## 2.8 International linkages

The ATSE uses its international linkages to provide access to experience and expertise and to promote engagement in the global development of science, technology and engineering. It uses its involvement in the DEST-funded International Science Linkages Program of international missions and workshops across a wide range of areas of technology and engineering, to foster international liaison. The ATSE is a highly regarded member of the Council of Academies of Engineering and Technological Sciences (CAETS), an independent, non-political, non-governmental international organization of academies. The mission of CAETS is to foster effective engineering and technological progress for the benefit of societies of all countries. The ATSE organised and hosted the Sixteenth Convocation of CAETS. The ATSE also maintains bilateral arrangements with approximately a dozen sister academies of engineering and applied sciences.

ATSE proposes to expand and broaden its international scientific and engineering activities, and would like to participate more actively in multilateral CAETS-sponsored projects. It believes that there is scope to incorporate Australian industries into international linkage programmes in a more systematic way, with consequent benefits to the Government and community at large.

## 2.9 Development assistance

The ATSE continues to provide specialized training to agricultural researchers from developing countries under the **ATSE Crawford Fund**. From 2000 – 2005 the Fund has: held up to 25 training courses each year; hosted the annual *ATSE Crawford Fund's Parliamentary Seminar*; awarded the *Derek Tribe Award* biennially to recognize distinguished contributions by a citizen of the developing country to the application of research in agriculture or natural resource management in developing countries; and published a quarterly newsletter.

## 3. **New initiatives**

The ATSE has the potential to speed up the adoption and uptake of new appropriate new technology, by maintaining and strengthening the channels of communication between governments and the large and diverse stakeholder communities in the scientific, technological and engineering professions and especially their specialised communities and interest groups in industry, academia and the various government research agencies. One mechanism for achieving this would be for the ATSE to organise “cutting edge” workshops, to brief leading industry and government participants in areas of national priority.

The ATSE, with the other academies, could provide a cost-effective mechanism to provide balanced discussion or issues papers, which would provide a framework for more structured public debate; thus avoiding the need for official inquiries on every occasion. Another alternative would be to act as a “reference group” on science and technology topics.

There is also considerable scope for an enhanced ATSE role in engaging with the community at large on scientific and technological issues via Academy publications, exhibitions, workshops, media events, prizes, and mentoring. The ATSE therefore proposes to develop a comprehensive communications strategy.