

# THE AUSTRALIAN NATIONAL UNIVERSITY



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Mr Roderick West  
Chair  
Higher Education Review Committee  
Location 728  
GPO Box 9880  
CANBERRA ACT 2601

Dear Mr West,

I have pleasure in attaching the ANU's response to your Committee's Discussion Paper "Learning for Life".

As you will appreciate, it has not been possible in the time available to make a comprehensive response to the Discussion Paper. We have, accordingly, concentrated on particular areas including IT and research as well as the broader funding questions.

If there is any further advice or assistance we can provide to you or the Secretariat, please do not hesitate to contact us.

On behalf of the University I wish you well in the important work ahead of you in the preparation of the final report.

Yours sincerely,

RD Terrell  
**Vice-Chancellor**

The Australian National University

RESPONSE TO  
THE REVIEW OF HIGHER EDUCATION  
FINANCING AND POLICY DISCUSSION PAPER  
*"LEARNING FOR LIFE"*

DECEMBER 1997

## MAIN POINTS IN THE RESPONSE

### Diversity (paragraphs 1~9)

- The Discussion Paper does not address in a systematic way the steps required to ensure that the range and variety of university activities matches student and societal needs.
- The resolution of these issues cannot be left simply to an unstructured and uncontrolled 'market' to determine.
- Greater differentiation in institutional roles will require interventions in the 'market' which should be the responsibility of an independent statutory body.
- It will also be important to foster collaboration in a competitive environment and to facilitate student and staff mobility.

### Information Technology (Paragraphs 1~18)

- The potential impact of Information Technology (IT) on universities should not be overestimated. IT can enhance university level teaching and learning but it cannot replace it.
- Many post-secondary students will demand time and location independent learning. A robust and extensive national IT infrastructure will be required to underpin and meet this demand.
- The Discussion Paper does not give sufficient weight to the current use by Australian universities of IT for research and the integration of that research into industry and teaching.
- The costs of IT equipment will increasingly be transferred from universities to students. This needs to be taken into account in the development of new funding models.
- Back-end administrative systems will be improved, with resulting cost savings, but administrative services will increasingly be directed to deans, academics and students rather than to administrators.
- Some Government policies inhibit the creation of virtual learning communities. The Telecommunications Act and competition policy need to take account of broad public and educational needs as well as the needs of industry.
- There has been a substantial decline in the resourcing of higher education over the last two decades with the result that its cost structure is now low by world standards.
- If there are further reductions or salary increases which have to be funded by further staffing cuts it will not be possible to avoid a decline in standards.
- The level of private contributions to higher education (through HECS) has increased rapidly in recent years, to the point where it is high by world standards and cannot increase further without affecting opportunities for access.
- While additional revenue raising flexibility is desirable, the scope to meet the funding shortfall through increased private contributions is limited.

- The level of Government contributions has fallen substantially and there is clearly scope for a return to previous levels of Government support.

#### Research (Paragraphs 3~64)

- The principles which the Discussion Paper believes should underpin future financing and policy for research and research training require some elaboration.
- The Research Quantum should continue as a component of the operating grant but as a significantly larger proportion to provide a clear link between research training responsibilities and the research capabilities of institutions. It should be allocated on a performance basis but without the publications component of the index.
- To provide adequate support for project-based research infrastructure, the RIBG should be increased to a level equivalent to 40% of NCG funding.
- The suggested approach to research funding is broadly consistent with Model 3 of the Discussion Paper.
- Consideration should be given to the Australian Research Council becoming an independent body with a broader national research policy and research funding role.
- A number of aspects of current ARC programs warrant consideration in the context of future funding arrangements.

## INTRODUCTION

1. The Discussion Paper is an important step towards the development of a policy framework and funding environment for Australian higher education in the twenty-first century. It identifies the major weaknesses of current arrangements and, in proposing a less centrally controlled, more student-oriented approach to funding and accountability, sets the appropriate direction for policy development.
2. There are, however, some significant limitations in the Discussion Paper's analysis, particularly in its consideration of diversity, its assumptions about the future role of information technology and in its approach to funding and research issues. This response is accordingly directed to these questions.

## **DIVERSITY IN AUSTRALIA'S HIGHER EDUCATION SYSTEM**

3. One of the key questions the Committee faces is the future nature and shape of the Australian higher education system. In addressing this question the Discussion Paper outlines a vision for Australian universities as part of a 'seamless' post-secondary education system and identifies a number of forces, including globalization and the information and communication technology revolution, which make change "inevitable and urgent". The Discussion Paper also considers factors such as the regulatory and funding mechanisms which inhibit institutional responsiveness to student needs and levels of demand, relationships with industry and greater efficiency.
4. The question which the Discussion Paper does not address in any systematic fashion is the nature of the funding mechanisms required to ensure that the range and variety of educational experiences and academic activities available in universities will match student and societal needs.
5. The Discussion Paper does note (page 19), that there is considerable diversity in mission, clientele, mode of delivery, educational philosophy and style within the Australian higher education system, but considers that far greater differentiation is "possible and desirable". However, the Discussion Paper does not set out the nature of the greater differentiation it would like to see, other than the emergence of low-cost delivery options and a reduction in the emphasis on research at the expense of teaching. Nor does it discuss the most appropriate means of achieving the desired level of diversity. Instead, there appears to be a simple assumption of faith in the capacity of market forces to resolve these issues.
6. The changes in Australian higher education following the 1988 White Paper have been widespread and substantial. Most higher education institutions now focus their missions and objectives on the traditional model of a research university. As a result, many of the distinctive teaching and vocationally oriented features of the colleges of advanced education have been eroded or lost. These trends are not simply a matter of incentives, they are deeply rooted in the aspirations of staff and their institutions. It is for this reason that the resolution of these issues cannot be left simply to an unstructured and uncontrolled 'market' to determine. In short, if the desired level of diversity is to be achieved, structural as well as market mechanisms are likely to be required.
7. This is well illustrated by the Californian higher education system which is recognized highly successful, with world ranked research universities in a system with high participation rates, but with a cost structure that is among the lowest in the country. This is the result of a deliberate policy under the 1960 Master Plan for Higher Education which maintains a three-tier structure of doctoral, sub-doctoral and community institutions.
8. A return to a 'tiered' system of higher education in Australia is neither feasible nor desirable. But there is a clear need for greater differentiation in institutional roles which will not be achieved without a degree of intervention in funding allocation mechanisms. This will necessarily involve choices which may be seen by some to advantage some institutions and to disadvantage others. Such decisions need to be made in an educational rather than a political context. This will require an independent statutory body of the type discussed in paragraphs 31 and 32.

9. The greatest challenge for such a body will be to foster collaboration in a competitive environment without resorting to a multiplicity of funding and granting programs which are conditional on inter-institutional collaboration. It will also be important to develop mechanisms through AUSTUDY and Australian Postgraduate Awards (APAs) to facilitate student mobility. As universities become more differentiated it will no longer be the normal assumption that the local institution will meet a particular student's needs. Movement to another city or region for first degree, honours or postgraduate work will be much more common. Similarly, greater mobility amongst staff will provide opportunities for staffing primarily teaching oriented institutions to develop their intellectual interests by giving them access to centres of research excellence - a role which the Institute of Advanced Studies at the AND already plays.

## **INFORMATION TECHNOLOGY**

10. Information Technology (IT) will change the way universities operate but it will not change them fundamentally since high quality tertiary education requires interaction between teacher and student, student and student, researcher and researcher. IT can enhance this interaction but it cannot replace it. The Discussion Paper, particularly the paper at Appendix 11 by Global Alliance Limited (GAL), does not sufficiently differentiate between training and university education. Post-secondary IT-based courses and/or computer-aided learning have their place, particularly for professional updating, learning of facts and figures, or to reinforce other forms of education. These are not the primary focus of university teaching and Australian higher education would be seriously diminished if it was reduced to this level.
11. Much is made in the Discussion Paper about the economies of scale that can be achieved by using IT to reach large numbers of students. Time and location independent learning delivered through mediums such as the World Wide Web will be attractive to some, generally mature age, students. However, if quality is to be maintained, learning will need to be facilitated by the establishment of local tutoring arrangements and be underpinned by a high quality infrastructure. There is no reason to believe that this will result in significant cost savings.
12. Time and location independent learning requires:
  - a robust national IT infrastructure to enable Australian lecturers to communicate with students wherever they are;
  - Government telecommunications policies to make affordable interact access available to all homes;
  - an interim strategy to equip local libraries, public buildings and/or selected schools, to provide Internet access to tertiary students. While ownership of computers will increase, there will always be a need for a safety net for those students who cannot afford their own equipment;
  - quality control measures to enable students and employers to evaluate the different types of tertiary courses being offered nationally and internationally;
  - coordination and funding of an Australia-wide electronic or digital library initiative such as has been undertaken in the United States and Britain to provide quality scholarly materials through the Web;

- in respect of policy development there is also a need, at the federal level, for establishment of electronic copyright and intellectual property policies which facilitate information access rather than inhibit it.
13. The Discussion Paper makes several mentions of the potential to employ 'star' lecturers to deliver courses to hundreds of thousands of students. A 'star' teacher whose course is delivered remotely can undoubtedly inspire large numbers of students but there can be no interaction between that teacher and the individual student. Therefore the potential for using 'stars' for the delivery of university education is limited and unlikely to present a serious challenge to mainstream university teaching.
  14. There is very little in the Discussion Paper about the use of information technology in university research. The GAL report is dismissive of the current use of IT within universities. In fact, a number of Australian universities are at the forefront in the use of IT for research. The Australian National University, for instance, has one of the most powerful university-based supercomputers in the world. At a number of institutions, cutting edge research is being undertaken into virtual environments and their potential for visualization of complex research problems. The recognition of the increasingly important role of computer modelling as an academic method has added impetus to experimental research in this area.
  15. The costs to students of various modes of delivery are discussed in the GAL report (Figure 18, page 46). It should be recognized that the shift in IT costs from universities to students will be significant over the next 5-10 years. Students will increasingly provide their own computer, modem and internet link to enrol, access information, communicate with other students and lecturers and receive results. This will free up funds to enable universities to explore new technologies and to provide higher level services. This transfer should be factored into the discussion.
  16. The GAL report (3.9, page 29) discusses the potential for improving 'back-end' administrative IT systems. There is undoubtedly potential to streamline administration by smarter use of IT, especially through web-based services. In fact, some Australian universities (including the ANU) are already well advanced in developing such services. While there will be savings as a result of these developments, it should also be noted that increasingly the role of administrative IT divisions will be to provide services to deans, academics and students rather than to other administrators.
  17. Higher education is an important 'industry', especially in terms of income from overseas students. To remain internationally competitive, Australian universities need to provide better, or at least comparable, higher education to that available overseas. Effective use of IT will be important. Australian tertiary teachers need to fully understand computer-aided learning to evaluate its potential to enhance teaching and learning. Academics also need to be able to enunciate to policy-makers, employers and students the deficiencies in IT-based mass marketed courses which are commercially-oriented rather than learning-centered.

18. The Discussion Paper does not address in any detail the relationship of universities with the wider community. In the United States, many universities establish and support a neighbourhood network using the Web. Through this strategy universities establish strong links with potential students and their parents, adult learners, alumni and local business. Australian universities, which have the knowledge and infrastructure, also see benefit in establishing networks of like-minded groups ea. the local education community (primary, secondary, TAPE, tertiary). The Telecommunications Act and competition policy currently work against the development of such networks.

## **FUNDING OF HIGHER EDUCATION**

### Resource Levels

19. There has been a substantial decline in the resourcing of higher education over the last two decades. The decline in resource levels represents a serious threat to the quality of Australian higher education. The Discussion Paper draws attention (page 116) to the reduced financial role of the Commonwealth Government in funding higher education. However, it does not highlight the extent of this decline, nor does it seriously address the longer term consequences.
20. It is important that the final report establishes clearly the funding and resource context in which universities are operating:
- Operating grants per EFTSU have fallen by 8.2% in real terms since 1983. After account is taken of unfunded salary increases, the real value of operating grants will have declined by 20% or more by 2000.
  - Between 1988 and 1995 student load increased by 42%, whereas the university workforce increased by only 25%.
  - Over this period, although staff increased by only 25%, course completions rose by over 60%.
  - Over the last five years, student: academic staff ratios have deteriorated by about 40% from 11.2 to 15.5.
21. The extent to which these changes will lead to a significant deterioration in the quality of the Australian higher education system or should be viewed simply as improvements in productivity, is not considered by the Discussion Paper. Indeed, the lack of any assessment of the adequacy of the resource base of the Australian higher education system is a serious omission. Such an assessment is an important consideration in determining the capacity of the system to continue to deliver world class higher education into the next century.
22. If these trends are not reversed the consequences for universities and for Australian society are likely to be significant. Expenditure on teaching in Australian universities is now relatively low by world standards (discussion Paper, Appendix 11, page 19). For this reason alone, the ability of Australian universities to continue to offer high quality education by international standards must be put in question.

Similarly, our relatively low cost structure - based largely on lower academic salaries - will make us increasingly less competitive in the international academic market, with our best brains increasingly moving off-shore.

For its size, Australia has made a disproportionately large contribution to international research. However, there are disturbing signs that this is changing.

#### Public/Private Balance

23. The Discussion Paper shows (page 116) that once allowance is made for HECS receipts the Commonwealth Government's contribution to operating grants will have declined by almost \$800 million between 1995 and 2000. By that date, the Commonwealth will be providing only slightly over \$7,000 per EFTSU, some 40% less than the 1988 level. The substantial reduction in Government funding has been largely compensated for by a shift in the Government/private funding balance, to the extent that the financial burden on students may already be too high. The transfer of funding responsibility from Government to students through increased levels of HECS charges has resulted in a private contribution level which is high by world standards (at 30-35% of average course costs).
24. As the Discussion Paper notes, 1997 enrolment patterns did not appear to be influenced by the 1996 increases in HECS charges and more onerous repayment conditions. However, there are signs from 1997/98 application patterns that the longer term effects might be significant. As students become more conscious of the rising level of their HECS debt they are more likely to undertake shorter, more narrowly focused training to achieve a quick meal ticket at a lower cost. The trend to more broadly based courses (including double degrees) is likely to be reversed. This is not the way to build the flexible, innovative and creative work force Australia will require in the 21st century.
25. The Discussion Paper avoids any serious analysis of the current and future trends in the resource base of Australian universities and of the longer term consequences of this substantial change in the responsibility for funding universities. It merely observes (page 28) that public funding "should not be reduced" in the short term and, in the long-term, the Committee believes that factors such as the impact of technology are likely to lead to declining costs. (For the reasons given at paragraph 11 this is a dangerously naive expectation.)
26. It is essential for the long-term health of the Australian higher education system that the Committee addresses these issues in the final report. At a time when many of Australia's neighbours and economic competitors are rapidly increasing their investment in higher education, Australia's apparent determination to move in the opposite direction makes little sense. No Government likes to be told that additional public expenditure is required. However, if Australia's future economic and social well-being depend on such candour, the Committee's responsibility to identify the consequences of our current policy course is clear.

## Student-Oriented Funding Systems

27. The Discussion Paper correctly identifies the limitations of current funding mechanisms and in particular, the focus of the current arrangements on institutional accountability to the bureaucracy and to Government rather than to students. The Discussion Paper puts forward three models which illustrate the range of options available to establish a more student-oriented funding system, which would place greater emphasis on the relationship between universities and their students and reduce the need for centralised regulation and accountability.
28. These options have been interpreted by many as a move to a largely uncontrolled 'market' environment in Australian higher education, an impression which is reinforced by much of the language used in the Discussion Paper. In particular, the rejection of funding mechanisms which are seen as involving some form of 'vouchers' reflects fears amongst students, institutions and the community generally that:
  - tuition fees, particularly at high demand institutions, will rise excessively, reducing access,
  - the viability of some institutions could be put at risk,
  - low demand disciplines may disappear, and
  - academic values may become subject to commercial imperatives.
29. These concerns are recognised by the Committee (Chapter 5) and a phasing-in process through a 'decade of managed reform' is advocated. But there is no attempt by the Discussion Paper to set out how this would take place, other than to acknowledge the importance of widespread consultation. For the reasons set out below, this is a role which would be best performed by an independent statutory authority.
30. The establishment of such an authority, with a clear task to move as circumstances warrant to a more student-oriented system, is an essential first step in the process of reform. While the development of a program of change would be the responsibility of the authority, the Committee could help to pave the way for change by further discussion in its final report of the benefits to institutions and their students from an educational perspective, and of the way in which changes could be developed over time.

## Managing the Higher Education System

31. As noted above, an important question which the Discussion Paper does not address, is where the responsibility should lie for developing and managing future changes. For the last decade Australia has experimented with arrangements for policy development and management of universities which place direct responsibility in the hands of Government bureaucrats, the Minister and Cabinet. Whatever judgment might be made about the success or otherwise of these arrangements, the question of whether they are suitable for a more deregulated educational environment is clearly important and needs to be addressed in the final report. For the reasons noted above, a totally deregulated and uncontrolled funding system in Australian universities would be, not only unacceptable to the community, but is likely to have -unwanted educational consequences. Certainly, it is a moot point whether a totally deregulated 'market' system would not in fact lead to greater conformity rather than diversity.

32. These considerations strongly suggest the need for a statutory body to oversee reforms leading to a more student-oriented system. The experience of the last decade is that, in the absence of such a body, educational considerations will take second place to what the Government sees as political and budgetary imperatives. For these reasons, it is important that the final report should address the question of how a more student-oriented funding system for Australian universities should be developed and managed.

#### Increased Revenue Raising Capacity

33. The Government's view that all costs arising from enterprise bargaining (apart from the safety net adjustment) must be met by universities themselves is unrealistic and inconsistent with the limited revenue raising flexibility which universities are currently allowed. Given the substantial reduction in resourcing levels relative to student load and course completions further improvements in 'productivity' can only be achieved at the expense of quality. In response to this contradiction the Discussion Paper provides for universities to set their own tuition fees in each of the three illustrative funding models it puts forward.
34. In considering such a proposal it is important to recognize that the scope for raising additional revenue from this source, beyond that already raised through HECS, is limited. Account should also be taken of the following points:

Universities currently charge fees for postgraduate coursework students and international students. While these areas are a significant source of income (and hence budget flexibility) for some universities, the scope to develop these markets is more limited for some than for others.

Under current policy tuition fees may be charged from 1998 for undergraduate students who enrol above funded load targets. Apart from establishing two classes of citizens in the student body these arrangements do not meet standards of equity and access, particularly since there is no access to an income-contingent loan scheme.

If universities are to be given the power to charge fees it is essential that all students have access to income-contingent loans. If the Government is unwilling to fund an extension of liabilities to achieve this under the current HECS arrangements, consideration should be given to allowing universities to fund their own liabilities, giving them access to the ATO's HECS debt collection facility.

#### **RESEARCH AND RESEARCH TRAINING**

35. The research and research training role of universities is critical, not only to the health of the Australian university system, but to the nation's future prosperity and success in an increasingly well-educated and competitive world. However, the Discussion Paper suggests that the Committee has a much narrower view of the role of research, seeing it principally as contributing to the national innovation system with little or no acknowledgment of the importance of research to the social and cultural, as well as economic, well-being of society.

## Principles

36. The Discussion Paper sets out a number of principles which it believes should underpin future financing and policy arrangements for research and research training. These are summarised and discussed below.

*As a small country, we cannot afford not to set national priorities in research funding. Australia's higher education research effort should explicitly support its economic, social and cultural goals.*

The case for this proposition is not set out in the Discussion Paper as it seems to be considered self-evident. It is assumed that such national goals exist, or that they are readily discernible. At the broad national level some priority setting is appropriate, but it needs to be accepted that Governments can change regularly and that political consensus on such issues may not be readily achieved. Foresight studies and other attempts to 'guess' the future have not been notably successful. What is needed is a process which both recognises the need to prioritize the allocation of limited resources as well as the importance of allowing the researchers to follow their curiosity and creative instincts. A plurality of funding sources is perhaps the best way to balance these, at times, conflicting requirements.

*Public support for research undertaken in universities should be directed to curiosity driven and strategic research, with a concomitant focus on knowledge, technology and skills transfer to industry and the broader community.*

This principle is appropriate, as far as it goes. It is important to recognise, however, that society is critically dependent on applied research in universities, particularly in fields such as medicine, agriculture, engineering and applied science. It is also essential to acknowledge the value of the pursuit of knowledge for its own sake, if only because it may ultimately provide practical benefits in totally unforeseen ways.

*There should be a range of sources and forms of funding for academic research, involving a mix of block funding for universities (including support for the Institute of Advanced Studies), and project based funding delivered through programmes administered by bodies such as the ARC and NH&MRC*

The maintenance of a plurality of sources of research funding is vital for the ongoing health and research in universities. It is also essential to achieve and maintain an appropriate balance between project based and block funding.

*Project based research funds should be allocated competitively and all researchers and institutions should be able to compete for these funds.*

This is an important principle, provided it is not used as a justification for spreading limited research infrastructure funding thinly across all institutions. Infrastructure funding must also be performance based and, to the extent that the general operating grants (excluding the Research Quantum) incorporate support for research infrastructure and training, these funds need to be made contestable (see paragraphs 38 to 41).

*Public support for research training should be directed towards maximising student choice, achieving quality, and producing research skills consistent with the needs of industry and the community.*

*The funding of research projects should be sufficient to cover both the direct costs and project related infrastructure costs of the projects.*

The emphasis should be on ensuring that the brightest students get access to the research training environment which best suits their needs. Thus, as noted above, the allocation of research training funding also needs to take account of the research capability of the institution. Attempts to link research training too closely to industry requirements may be counterproductive. Students need to be trained in an environment which equips them to respond to future challenges as well as current needs. This said, CRCs are clearly a useful means of achieving research training links with industry.

*Higher education research funding policy should be sufficiently flexible to ensure that high priority emerging and inter disciplinary fields of research are supported.*

As noted above, a plurality of research funding sources is perhaps the best way to support this important principle.

This too is an important principle. However, it is essential that, to the extent that Government agencies do not provide project grants on this basis, the Research Infrastructure Block Grant must be at a sufficient level to meet this requirement (see paragraphs 44 to 46).

*Academic appointments should not necessarily include the automatic right to undertake research beyond that necessary to maintain subject knowledge and develop pedagogical practice.*

This principle is consistent with the essential nature of a university as a body of academics pursuing and transmitting knowledge in an unrestricted and unbiased way. All staff must have the desire and the opportunity to keep pace with, and help extend, the knowledge of their discipline and to pass on to their students the stimulation and excitement this generates. This does not mean that all academics should be in the forefront of research in their discipline or that all universities should be major research centres.

## Operating Grant Funding of Research

37. University operating grants have two components which are directly related to research:

The Research Quantum (RQ), and Funding for the training of research students (identified in the Relative Funding Model as the Research Training component).

In addition, the operating grant supports the salaries of research active staff.

38. The RQ is of prime importance in supporting the general research infrastructure requirements of research in higher education institutions. As such, it should continue as part of operating grant funding, recognizing the integral relationship between the research, research training and teaching activities of universities.

39. The proportion of total operating grants allocated through the RQ has declined substantially since the application of the Relative Funding Model in 1990. This has come about for a number of reasons. Firstly, the RQ component of the growth in the system from 1990 to 1995 has not been reallocated. Secondly, growth places after 1995 have not included a RQ

component. In addition, the real value of the RQ has declined because of the Government's cuts to operating grants over 1997 to 2000 with further erosion in value due to the Government's failure to supplement operating grants for enterprise bargaining increases. These factors have led to a significant erosion of the ability of universities to support their research effort.

40. The present system of funding research training does not provide an appropriate link between research training and the research capability of an institution. It has, for example, allowed a number of universities to develop substantial research training programs without commensurate research infrastructure or academic research strengths.
41. For this reason, there is a strong case for expanding the RQ component of operating grants to cover research training, to enable these funds to be allocated on the basis of research performance. The extent of the increase required will need careful analysis. An increase to 15 to 20% of total operating grants may well be justified. If this were phased in at the rate of, say, 2% per year, institutions would have the opportunity of adjusting their commitment to research training in line with their competitive research performance.
42. An additional advantage of this approach is that it would obviate the need to provide scholarships to research students to cover tuition costs, as envisaged in the Discussion Paper. While such an exercise is theoretically possible using the broadly based variables of the Relative Funding Model, the wide range of research training costs incurred by research students within disciplines, let alone between them, and the impossibility of separating research and research training costs in many cases, would make equitable allocations impractical. Instead universities could be left to determine the number of research students they wished to enrol, consistent with the level of their RQ, thus limiting the difficult task of allocating research scholarships to the allocation of Australian Postgraduate Awards. At the same time HECS liability could be removed for all research students, avoiding the need for HECS Exemption Scholarships.
43. The RQ should continue to be allocated on a formula basis. While a measure of output is needed in the index, the publication component of the index is clearly unworkable and too time-consuming, unreliable and costly for institutions to undertake. To reflect the enhanced role of the RQ and to ensure that institutions maintain their research training effort, the weighting attributed to research degree completions would need to be increased.

#### Research Infrastructure Block Grant (RIBG)

44. While additional funding has been provided for research infrastructure in recent years, it has been available only for a limited period, and falls far short of addressing the infrastructure deficiencies identified in recent NBEET reports. This problem is recognized in the Discussion Paper (page 133) but is not addressed. To meet the problems with general research infrastructure, it will be necessary to at least restore this portion of the RQ to its original level.
45. RIBG should be regarded as infrastructure support for NCG funding. While it might be possible to attach research infrastructure funding to individual grants (as suggested in one of the Discussion Paper's options), this does not enable the efficiencies of scale possible if a block grant for infrastructure is provided to institutions.
46. The Government should, as a minimum, move to substantially increase the level of the RIBG. An appropriate level would be, say, 40% of the total funding to the sector provided by

NCGs. This would meet the benchmark of 40 cents per dollar of grant recognised as a minimum requirement (Discussion Paper, page 167).

#### Possible Research Funding Models

47. The general approach to research funding outlined above is broadly consistent with Model 3 of the research funding models canvassed by the Discussion Paper (page 169). The principal differences are a larger RQ to fully cover the costs of research training making research training activity directly related to research capability, and thereby removing the need for a national research scholarships scheme.
48. The role which the Australian Research Council (ARC) should play in research funding is discussed in the following sections.

#### The Australian Research Council

49. The ARC was conceived as a national research funding body covering all aspects of research funding and able to provide leadership and direction across the whole of the Government's research funding agenda. However, the ARC has not operated in accordance with its original objectives. Subsuming the Council within the NBEET structure resulted in its horizons being limited to higher education and to its being isolated from other areas of science and technology policy within Government.
50. This should be corrected by returning to the original idea of an ARC as an independent body with a national research policy and research funding role. This could be achieved by making the ARC an independent statutory authority responsible for the research programs currently administered by the Research Branch of DEETYA, the science and technology policy and funding programs of Department of Industry, Science and Technology (DIST) including the Cooperative Research Centres Program, the Major National Research Facility (MNRF) program and the DIST International Science and Technology programs and other basic research programs such as the Australian Biological Resources Study. Targeted research funding programs such as NHMRC and the Primary Industry R&D Corporations should not become part of the ARC, but rather remain the responsibility of their respective portfolios which are best placed to direct their research.
51. The administrative support for higher education research is currently provided by the Research Branch of DEETYA's Higher Education Division. The support provided has been seriously inadequate since the ARC's inception in 1988. Clearly the research programs need to receive an adequate level of administrative support. It appears that often decisions have been made on the basis of reducing the administrative costs to DEETYA rather than on the basis of what is needed to achieve the objectives of ARC programs. If a peer review process is needed for the allocation of research funds, it should be adequately resourced and the Government should ensure that the ARC's support is provided by staff experienced and skilled in research administration.

#### ARC Programs

52. There are some aspects of current ARC programs which warrant consideration in the context of future research funding arrangements. These are discussed below.

#### APAs

53. APAs (with stipend) should be allocated on the basis of a national order of merit list and have incentives to encourage mobility. An extra six months stipend would compensate for the initial disadvantages of moving to a new academic environment. Students moving from the city in which they completed their undergraduate degree should also receive removal allowances.
54. The ARC should be given a strong reference to improve the quality and relevance of research training, including the quality of supervision, to ensure that Australian research degrees remain internationally competitive.

*Research Infrastructure Equipment and Facilities (RIEF)*

55. The RIEF Program serves a useful purpose in encouraging institutions to share equipment. It should be complemented by the provision of additional funding for the MNRF program to provide the capability of funding large scale facilities.

*ARC Large and Small Grants*

56. The current demand for ARC grant funding vastly exceeds demand for support for quality projects, with the success rate for the Large Grant Scheme being around 20%. Australia needs to maintain a solid base of basic and applied research in higher education institutions and other research institutions. This can only be done through a strong peer-reviewed grants scheme such as the Large Grants Scheme. It should be properly funded so that grants of sufficient size are provided to enable Australian academics to compete on the world stage at the same time as maintaining a reasonable success rate (around 30%). The success rate should not be artificially lowered by mechanisms designed to reduce the number of applications.
57. While the peer review process used by the ARC has some problems, which have been highlighted in a number of NBEET publications, the task of improving the process should be given to the ARC.

### *A Career Research Fellowship Scheme*

58. The current ARC fellowship scheme was originally intended to be a 'career' research fellowship scheme much like the NH&MC's scheme. The characteristics of such a scheme would be that it funds the best researchers to undertake research at the best location (regardless of whether it is in a higher education institution or not). Successful researchers would be able to enter the scheme as a postdoctoral fellow and stand a reasonable chance (assuming that their performance is satisfactory) of being promoted to a research fellow and then to a senior research fellow.
59. The current ARC fellowship scheme does not meet these objectives and, there is a strong case for it to be redeveloped along these lines.

### *International Programs*

60. The maintenance of international research links is of vital importance to Australia. The ARC has made some useful moves in this direction. Australia's total international research collaboration effort is, however, uncoordinated and the DIST International S&T program should be moved under the ARC umbrella. The ARC should be encouraged to further develop its research programs in this area.

### *Industry Links*

61. The ARC's Strategic Partnerships with Industry: Research and Training (SPIRT) scheme, makes a significant contribution to enhancing university research links with industry. The objectives of the SPIRT scheme include the development of long-term alliances between higher education institutions and industry, giving higher education institutions a greater understanding of industry needs and producing world class researchers who are capable of addressing the nation's economic objectives.
62. The SPIRT scheme cannot fully meet these objectives if a major component of the higher education sector is excluded from participating fully in the Scheme. At the present time researchers from the Institute of Advanced Studies are unable to apply as Chief Investigators for project funding from the SPIRT program although the Institute is able to host students and postdoctoral fellows on Australian Postgraduate Awards (Industry) and Australian Postdoctoral Fellowships (Industry) and Institute researchers can participate in projects as 'Partner Chief Investigators'.
63. There is no logic to exclude researchers at the IAS from being able to apply for project funds as Chief Investigators under the SPIRT scheme. While the Institute is funded as a block grant through the ANU's operating grant, undertaking collaborative work with industry is not part of the Institute's core functions which are to undertake fundamental research and research training. Nevertheless, given the nature and quality of the research undertaken at the Institute, it is well placed to undertake collaborative work with industry of the type supported by the SPIRT scheme, provided that additional funding is available.

## *Technology Transfer*

64. One useful suggestion of the West Committee was the introduction of technology transfer scheme for Australian Universities, an acknowledged area of deficiency. While the ARC does not currently have the expertise to run such a scheme, a Council enhanced as described above with appropriate links to DIST should be able to introduce an effective program.

## NOTES

- 1 A Crisis for Australian Science, Paul Bourke and Linda Butler, ANU (1993).
- 2 The principles discussed here are a combination of those identified in the Locution Paper (page 37) and Appendix 10 (page 1C5).

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