4. UNIVERSITY RESEARCH AND RESEARCH TRAINING

The universities underpin Australia's mathematics, science and technology base since they train the qualified personnel for all sectors, including industry and commerce, government instrumentalities, health, and education. In addition, through their research and scholarship, universities are the source of expert, timely, independent advice to industry and government, and to Australian society at large. Universities also have the vital role of fostering technology transfer, through dialogue with CSIRO and through partnerships with Australian commerce and industry. Finally, our universities hold the major responsibility for maintaining Australia's standing as an intellectually and technologically advanced nation - "The Clever Country". Universities admit Australia to an elite international community, poised to share, manage and exploit cutting-edge technology as it emerges. The ability to sustain high quality in these four objectives (graduate and postgraduate training, national advice, technology transfer, internationally recognised research and scholarship) is under serious challenge in an era where the university sector has been forced to expand and diversify in a climate of financial constraint.

4A. UNIVERSITY RESEARCH INFRASTRUCTURE

There has been widespread concern in Britain and in Australia about the gross inadequacy of research infrastructure support in present funding models for scientific research in universities, compared to norms among our successful competitors. A strong case for revamping the system was recently presented by the NBEET Boston Consulting Group Review, and for example, the recent NBEET/RACI Strategic Review recommends 120% loading for infrastructure on direct grant funding in chemistry projects. FASTS welcomes the increased allocation of funds to university research infrastructure announced in the 1995 budget.

Policy 4.1 FASTS holds that for the nation to receive the full return for its investment in science and technology research, it is essential that infrastructure (equipment, libraries, well-funded laboratories) must be in place and must be properly sustained. In addition, there should be rational distribution of specialist equipment, and a national strategy for major facilities. Ventures selected for the Major National Facility programme should be those which meet national priorities and enjoy widespread support in the science and technology community.

Action 4.1.1 FASTS will press that guidelines for infrastructure overheads (by DEET, by other funding agencies, and by commercial partners) be designed to provide true-cost infrastructure
support. The guidelines should reflect the differing needs of different disciplines and be reviewed regularly, in the light of experience.

Action 4.1.2 FASTS will publicly endorse a Strategy for National Major Facilities, as framed by ASTEC (1992). FASTS will argue to Government that operation of some facilities can be partially self-funding through sales to industry and to S.E Asia.

4B. ARC/NH&MRC PROJECT FUNDING

Policy 4.2 FASTS holds that the ARC and NH&MRC should continue to be the principal source of Government funds for research devoted to the advancement of knowledge. Peer review of excellence should be maintained as the basis of research allocation. The ideal is to support excellent people with original ideas wherever they may be found, but it is also recognised that critical intellectual mass is sometimes important in allocating finite resources. There are opportunities for commercial funding to complement, but not replace, unfettered ARC- and NH&MRC- funded research.

Action 4.2.1 FASTS will press Government to safeguard the direct funding of research projects by ARC/NH&MRC, by providing the necessary resources to fund all top ranked applications.

Action 4.2.2 FASTS will encourage DEET to address the current mismatch between the expanded tertiary sector and the available ARC funding. (That is, government long-term policy on the balance between teaching and research in the higher education sector should be defined more clearly)

Action 4.2.3 FASTS will assist DEET/ARC to foster academic collaboration and pooling of complementary expertise/resources so as to aggregate scientific activity where appropriate in a particular field, thereby linking isolated researchers and making best use of facilities.

FASTS endorses the 1991 decision of the A.N.U. Institute of Advanced Studies (and its various Schools/Centres) to commit 12% of its budget to research links with the other Australian universities.

4C. COLLABORATIVE SCIENTIFIC R&D AND TECHNOLOGY TRANSFER TO INDUSTRY

While Australia ranks highly in government R&D expenditure at 4th in the OECD and related countries, it ranks poorly in industrial R&D at 18th as noted above (Section 2). Our private sector has a weak R&D outlook, and is poorly positioned to take advantage of `Technology Transfer' and collaborative research ventures.

FASTS endorses Government initiatives designed to foster new partnerships and induce substantial funding of university laboratories by the industrial sector, such as the Syndicated Research Schemes and Cooperative Research Centres. However, the balance of this new activity should be sponsored research of intrinsic mutual interest, rather than mere industrially commissioned technical services. Otherwise, there is a risk of aggravating the university sector's problems by diverting scarce resources (both human and physical), thereby skewing broader national research and training priorities.

Policy 4.3 FASTS holds that the total Australian commitment to scientific R&D should be
raised progressively to equal or exceed that of our major competitors among OECD and APEC countries (See Policy 2.2). Until the industrial culture shifts and the industrial R&D base expands, Government strategies must compensate for Australia's isolation and small home market.

Action 4.3.1 FASTS will promote the specific strategies for commerce/university collaboration listed in the accompanying section on Industry Policy (Section 2).

4D. ARC/NH&MRC FUNDING OF RESEARCH FELLOWSHIPS

Policy 4.4 FASTS holds that ARC (and NH&MRC) are partners with the universities in providing employment and career paths for the best young researchers in the nation; Australia must not waste their talent or their expensive training. In particular, the transition to long-term employment is one where women are still under-represented in certain sectors.

Action 4.4.1 FASTS will strongly endorse the ARC fellowship scheme, as a mechanism for nurturing and repatriating able young Australian scientists while they position themselves for appropriate long-term employment, and argues that it should be increased in scope.

Action 4.4.2 FASTS will recommend that the ARC post-doctoral fellowship scheme should be coupled to Government initiatives (such as talent-spotting for the public service, industry or a revitalised secondary education sector) to ensure that these scientifically skilled Australians have productive opportunities for long-term employment.