Australian Academy of Technological Sciences and Engineering
Response to Discussion Paper on Collaborative Research Networks Program

The Australian Academy of Technological Sciences and Engineering[1] (ATSE) welcomes the initiative of the Commonwealth Government to provide funding for a Collaborative Research Networks (CRN) program at the level of $52 million over 20011-2014 and is pleased to provide its response to the Discussion Paper on the functioning of the program.

The Academy is supportive of the view of the Minister of the desirability of assisting the less research-intensive, smaller and regional universities to develop their research capabilities by working in partnership with more research-intensive universities. The program will have the desirable effect of enlisting potential researchers in the less research-intensive and newer universities in national research goals and ensuring that regional research questions are addressed with the rigor that is customary in world-scale research activities. Moreover it will provide newer and developing institutions with an opportunity to strengthen their research processes that will in turn inform their teaching and provide their undergraduates with exposure to research and development paradigms in what is increasingly an innovation-focused world.

ATSE is conscious that approximately one third of academic positions in Australian universities will need to be replaced in the next decade. By fostering a CRN program the Commonwealth can ensure that the majority of new appointments will be made in an environment which has the potential to allow appointees to be exposed to top level research and to give the appointees the opportunity for mobility based on their experiences. This is an approach that has been very successfully applied overseas, especially in the USA.

Given its remit to foster research in the applied areas which are of particular and immediate term benefit to the Australian community, ATSE stresses the need for

[1] ATSE was established in 1975 with the mission to promote the application of scientific and engineering knowledge to the future benefit of Australia. ATSE is one of four learned national Academies, which have complementary roles and work together both nationally and internationally. ATSE has about 750 elected Fellows who are the leaders of applied science and engineering across the country.

the program to be project based, with emergent institutions identifying areas in which it is appropriate that they be competent, either in terms of the quality of staff already appointed and their fit to the national research agenda, or in terms of their particular regional focus. It is not supportive of a formulaic distribution of funds for micro-administration at the university level, rather supporting the identification of projects for collaboration that have national significance. ATSE would not favour proposals that have the majority of the funding being directed to research-intensive partners, rather seeing it as desirable that funding be made available so that researchers of promise in the less research-intensive, smaller and regional universities can interact effectively with world-class groups and can access state-of-art facilities.

ATSE notes that the Commonwealth has not been specific in identifying what it sees to be the potential benefits of the initiative. Is it to heighten the ability of emerging universities to have academics who publish in top ranked journals or is it to ensure that academics in emerging universities are involved in nationally important research programs? Is it, alternatively, to address major regional issues, such as in the CRC for Irrigation Futures in which regional institutions are playing a significant role in fostering a regional commitment to regional infrastructural change? These are issues that need to be addressed in the instructions provided to applicants under the program.

ATSE notes that a potential benefit of the CRN Program could be the recognition of regional research issues that need to be addressed by the more research-intensive universities.

ATSE is very conscious that newly research-intensive universities such as the University of Wollongong, University of Newcastle, University of Technology, Sydney, Deakin University, Swinburne University of Technology, RMIT University, University of South Australia, James Cook University and Curtin University have all identified areas of research strength and have endeavored through participation in ARC Linkage Grants, Cooperative Research Centres and Centres of Excellence to participate in major national research programs. By and large this has been achieved through these universities making hard internal funding decisions. Allowing this development to be extended to the newer universities via the CRN program would seem highly desirable.

ATSE is not in favour of CRN funding being provided as entitlement funding to non research-intensive universities as it could have the potential to proliferate the appointment of yet more senior research administrators rather than supporting grass-roots opportunities for promising researchers.

ATSE is uncertain whether the establishment of the Collaborative Research Networks program is seen as a partial successor to the Australian Research Council Research Networks initiative. It notes the great success of the ARC Networks program in areas such as Materials Science and Engineering and

Nanotechnology in bringing all Australian researchers into an environment where collaboration has been encouraged and major national and international conferences held. The ARC program has now come to a close and ATSE is not certain whether CRN will allow such extensive networks to continue to be fostered. Similarly the National Collaborative Infrastructure Strategy (NCRIS) has allowed the development of national beachhead research infrastructure which provides in part for emergent institutions and is in its penultimate year of operation. Does the CRN program envisage encouraging emergent institutions with the support necessary to tap into such capabilities?

Consultation Question 1 – Eligibility

Question	Response
What criteria should be used to determine eligibility to apply for Collaborative Research Networks funding?	Eligibility should be determined on the basis of level of research activity of academic staff. In turn, level of research activity should be measured by such parameters as fraction of staff participating in scholarly publication, higher degree research supervision, or receipt of nationally competitive funding. While criteria such as the institutional total of national competitive grant funding could be used as a proxy for research activity, such a measure is discipline specific and may disadvantage certain institutions having a particular mission or a strong commitment to do research on an area of importance to their local community. ATSE does not believe that CRN funds should be used to bring an institution up from a wholly minimalist research position. Rather, it should be provided to strengthen research in institutions that have already initiated research support processes and identified particular areas of research that they wish to support.
How should a less-research-intensive institution be defined?	A less- research-intensive institution should be defined as one lying in the bottom 25% of Australian institutions in terms of the criteria given above. From an examination of available data, ATSE estimates that approximately 10-13 institutions would meet this criterion. Whether an institution has acceptable research support processes and has identified areas of potential research focus can be confirmed from the institutional research plan already submitted to DIISR.
Please give an example of how these criteria could be applied, and some rationale for their use	Measures of the level of research activity via the parameters established under the *Institutional Grants Scheme* and the *Research Training Scheme* are relatively well established. The proposed *Sustainable Excellence in Universities, Joint Research Engagement* and *Excellence in Research (Australia)* will provide similar measures of activity which should be adopted when this information becomes available. Prior to putting out a call for applications under the CRN Program (presumably to be administered by the Australian Research Council), eligible institutions should be identified by ARC/DIISR.

Consultation Question 2 – Allocation Mechanism

ATSE is in support of a project-based approach to funding rather than one based on proportional allocation or a hybrid model. It is fearful that a proportional allocation may lead to a proliferation of research management at the institutional level rather than ensuring that the funding gets down to the researchers themselves. Moreover it may not lead to the funding being applied to activities that promote the national research effort. For example, ATSE would see merit in

supporting funding allocations that gives individual researchers access to national capabilities (as in the National Collaborative Research Infrastructure Scheme) or allows researchers to spend non-teaching periods working with strong research groups in research-intensive universities.

ATSE is aware of the possible benefits to an individual institution in having available research funds for allocation at the discretion of the management. Whilst it concedes that this may offer advantages in the attraction of new staff and in the development of new research areas, it feels that these advantages are outweighed by the positive linking of research activities into existing national research strengths. It feels that quality applicants will be attracted by the knowledge that funding is available for them to participate in strong national research programs and to thus gain national and international credibility in a shorter time frame. Furthermore, the linking of funding with specific projects will allow a better measure of the success of the scheme by the identification of tangible research outcomes.

Question	ATSE Response
What funding model should be used for the allocation of Collaborative Research Networks program funding? Please provide a rationale for the approach described.	ATSE is in favor of a competitive project-based allocation in which individual researchers or research groups are the originator of research proposals with eligible universities authenticating the requests and acknowledging that the research proposed is part of their strategic research direction and will be given a high level of local support. To ensure that it has maximum impact across the less research-intensive group of universities, the allocation process should be tempered by the requirement that no one applicant university should be the recipient of more than 20% of the total funding.
What kind of evaluation criteria should be used to assess proposals under a competitive grant process?	Projects should be assessed under a competitive framework similar to that applying for ARC Discovery or Linkage Grants, with additional weighting for the benefits accruing to regional development, growth of the research potential of the institution and the researchers and the contribution to national development. Possible criteria are: • Quality of the research proposed • Importance of the collaborative research program to the development of proposer institution (eg national interest and regional benefits and/or development of a major research theme at the less research-intensive institution) • Quality of the collaboration and contribution from the research-intensive collaborating institution(s) • Clarity of the responsibilities of the participating institutions and the allocation of funding and research training • Opportunities for researchers from the less research-intensive university to spend paid research periods at the research-intensive institution and to access specialist facilities there Opportunities for the paid secondment of staff from research-intensive universities to less research-intensive institutions to collaborate in significant interdisciplinary or regionally-important research projects

Should an entitlement grant model involve equal funding to each eligible university, or a proportional allocation? If the latter, on what basis?	ATSE does not favor an entitlement model
If a hybrid model is used, what proportion of Collaborative Research Networks program funding should be allocated competitively?	Not applicable
Are there alternatives to the proposed models which should be considered?	Current block funding models for research rely on historic data. Adopting a project-based model bases funding on potential. As the CRN program matures, it would be anticipated that institutional and individual performance would be increasingly taken into account, thus leading to improved selection procedures.

Consultation Question 3 – Scope

Question	ATSE Response
What kind of research activities (including support and administrative activities) should be funded under the Collaborative Research Networks program? Please provide a rationale	ATSE is of the view that funding should be project based. Whilst it concedes that some fraction of the total funding should be allocated for administrative overheads it is antagonistic to fostering a culture of excessive research management at the institutional level. A limit of (say) 20% should be placed on administrative overheads.
What outcomes and performance indicators could be used to ensure the success of Collaborative Research Networks projects?	Outcomes and performance indicators should be those currently used for Discovery and Linkage Grants augmented by measures that focus on outcomes of collaborative activity such as: • joint publications • interaction and extent of joint supervision of research students • joint seminars and workshops • extent of access to research facilities at the research-intensive institution • funding flows between the participating institutions The project milestones used should be quite explicit and assessable and allow for the project to be terminated if an annual report indicates insufficient progress. Should the Australian Research Council be the body adjudicating on whether milestones have been met, its assessment panels should be augmented to include those with specific knowledge on the fostering of research collaboration sitting alongside those with disciplinary expertise.

Should program funding be used to facilitate the development of international linkages, or collaborative arrangements with research agencies or industry? If so – subject to what caveats, if any?	ATSE believes that the development of international linkages or collaborative programs with industry or research agencies should not be excluded from funding under the program. ATSE is particularly attracted to collaborative research programs with industry. However, it is noted there are other avenues available for funding such opportunities and given that the CRN program is focused on growth in research capability, it would seem essential that researchers from the less-research-intensive university play a leading role in the research project rather than the presence of the less-research-intensive institution being seen as a vehicle for funding under the CRN program. As a guide, the majority of the CRN funding should stay with the less-research-intensive (applicant) institution. If collaboration with industry or a research agency is being proposed, that entity should be required to make a significant contribution to the project.
Does the university have any collaborative arrangements (current, in development or notional) which it might seek to support via the Collaborative Research Networks program? Please provide a basic description	Not applicable

Consultation Question 4 – Lighthouse projects

Lighthouse projects should ideally focus on research that is aligned to national research priorities. ATSE takes the view that actually doing research of national importance is of greater national significance than improving the research culture of individual institutions by collaborative programs that focus on research training. In this it places prominence on the need at the institution to foster the careers of top researchers and to ensure that new staff are initiated into quality research groups. Staff at emerging institutions should be seen as potential contributors to the national research effort. In this regard their alignment to do research on nationally important areas should be seen as paramount.

Question	ATSE Response
What goals, fields or themes could form the basis of a Collaborative Research Networks lighthouse project? Please provide a rationale	National Lighthouse Projects should reflect national research priorities and should draw together staff with a range of research competencies who can make a significant contribution to the progress of the project. Though the goals of the project may include research training, this should not be the primary objective. Solving real-world problems should dominate.

What outcomes and performance indicators could be used to ensure the success of such projects?	Outcomes and performance indicators should mirror those applying to other areas of research, except that attention should particularly be paid to the uptake of the research and the extent to which it will be valued in the regional community if that is appropriate.
What approach to the selection of lighthouse projects would best meet the needs of less research-intensive universities and the overall objectives of the program?	The criteria for selection should be the same as for all nationally funded research: • Is the project worthwhile? • Do the collaborators have the capacity to do quality work? • Are the portents for good collaboration solid? • Will the region (if applicable) see this research as important?

Concluding Comments

ATSE thanks DIISR for the opportunity to make comments on the Discussion Paper and on the Cooperative Research Networks program. It sees the program as a worthwhile addition to Australia's research funding scenario and an opportunity to improve the performance in research of emerging universities.

As indicated, it favors a project-based approach rather than an entitlement approach and offers its assistance to DIISR in the adjudication of projects proposed for funding under the scheme.