

CABINET - SUBJECTS FOR CONSIDERATION, 06 MAY 2002 11:00 AM

Not Relevant

105 **MSIE01/02CS**

**South Australian Bid for the Australian Plant
Functional Genomic Centre
APPROVED AS AMENDED (NEW
RECOMMENDATIONS)**

All Ministers

Not Relevant

CABINET COVER SHEET

MSIE 01/02 CS

- 1. **TITLE:** South Australian Bid for the Australian Plant Functional Genomic Centre
- 2. **MINISTER** Minister for Science and Information Economy
- 3. **PURPOSE** To confirm State funding to secure Commonwealth funding from the Australian Research Council (ARC) and the Grain Research and Development Corporation (GRDC) for the national headquarters of the Australian Plant Functional Genomic Centre.
- 4. **RESOURCES REQUIRED FOR IMPLEMENTATION**
COSTS \$12.0m over 5 years, with a cash outflow of \$3.0m in Year 2002/03, \$3.0m in Year 2003/04, \$3.0m in Year 2004/05, \$1.5m in Year 2005/06 and \$1.5m in Year 2006/07.

 Funding for 2002/03 and 2003/04 will be sourced from existing allocations in the Science and Information Economy portfolio areas. New allocations of \$2.0m in Year 2004/05 and \$0.5m in Year 2005/06 and Year 2006/07 is required.
- 5. **RELATIONSHIP TO GOVERNMENT POLICY** The bioscience industry is a key industry sector. Agricultural biotechnology is a strategic sector for South Australia with the potential to achieve an internationally competitive critical mass of research activity and commercial spin-off activity.
- 6. **CONSULTATION:** Due to the urgency of the timing of this submission, organisations involved in the consultation process include:
 Bio Innovation SA
 DIT
 SARDI
 CSIRO
 PIRSA
 University of Adelaide

 There has been strong stakeholder support for the development.

**6. SMALL BUSINESS,
ENVIRONMENTAL,
REGIONAL AND
REGULATORY,
IMPACT
STATEMENTS**

There will be no adverse impact on Small Business, Environment, Regional and Regulatory areas.

8. URGENCY

The proposal is part of the Science and Information Economy bilateral bid for 2002-3, but confirmation of State support is required before the completion of the budget process.

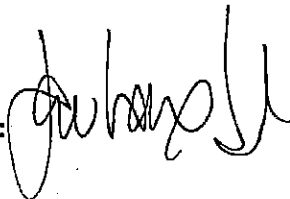
Federal Funding through ARC/GCRDC will be awarded only on the basis of a financial commitment from the State Government. Confirmation of State funds is now required urgently. SA is currently short listed against one other proposal from WA.

9. RECOMMENDATION

It is recommended that Cabinet:

1. Note that the South Australian bid for the Australian Plant Functional Genomic Centre is now one of two short-listed proposals (SA and WA). The determining factor in establishing the Centre in South Australia is the State confirming its financial support for the SA bid.
2. Approve State funding for the Australian Plant Functional Genomic Centre of \$12.0m over 5 years to secure funding of \$20.0m in funds from the Australian Research Council (ARC) and the Grains Research and Development Corporation (GRDC) over five years.
3. Approve additional allocations of \$2m in 2004/05, \$0.5m in 2005/06 and \$0.5m in 2006/07 to the Science and Information Economy portfolio as part of the State funding of \$12m for the project.

SIGNATURE OF MINISTER:



PORTFOLIO:

**MINISTER FOR SCIENCE & INFORMATION
ECONOMY**

Date:

2/5/02

TO: PREMIER FOR CABINET

RE: SOUTH AUSTRALIAN BID FOR THE AUSTRALIAN PLANT
FUNCTIONAL GENOMIC CENTRE

1. PROPOSAL

For Cabinet to:

- 1.1 Note that the South Australian bid for the Australian Plant Functional Genomic Centre is now one of two short-listed proposals (SA and WA). The determining factor in establishing the Centre in South Australia is the State confirming its financial support for the SA bid.
- 1.2 Approve State funding for the Australian Plant Functional Genomic Centre of \$12.0m over 5 years to secure Commonwealth funding of \$20.0m in funds from the Australian Research Council (ARC) and the Grains Research and Development Corporation (GRDC) over five years.

2. BACKGROUND

South Australian Bioscience Strategy

- 2.1 Bioscience is a key priority industry for South Australia and can make a significant contribution to the State economy. The State Government's policy commitment on science and research has been articulated in the Government's vision for the Science and Research Council, namely:

"A Labor government will build on existing research strengths in our universities, Cooperative Research Centres, our hospitals, other education and research bodies and within the State Government. A Rann Labor Government will support to the utmost the development of SA as a national leader in science and research"¹.

The focus of this policy is to build on existing research excellence, rather than create new areas of scientific expertise. In South Australia, bioscience is one such area of strength. The Co-Chair of the Premier's Science and Research Council has affirmed bioscience as a key priority focus of the new Council and endorses the State's policy stance of focusing efforts into areas of existing research excellence.

¹ Rann, M. 2001. *Labor's Plan for a Science and Research Council*. Australian Labor Party, www.sa.alp.org.au/policy/industry/science_research_council.html

- 2.2 Worldwide, about 40 biotechnology clusters have emerged in which employment growth and investments have been substantial. For example, Europe is now the home for more than 1500 biotechnology companies and R&D investment of \$10 billion per year while there are 2,500 companies in the US and public sector R&D spending of \$20 billion per year. Biotechnology has, as such, outgrown many traditional industries. In Australia, the industry raised about \$900m in 2001 in R&D funding of which only a minute percentage reached South Australia.
- 2.3 Innovation, science and technology now accounts for 50% of economic growth in developed countries. The rapid advances in the fields of biotechnology are having a dramatic impact on the nature of economic activity and have been instrumental in the creation of next generation and international growth industries and revitalising existing industries in this State.
- 2.4 Growth in the biotechnology sector in South Australia would have additional benefits in terms of providing greater opportunities in professional and para-professional areas of the labour market. The benefits would be not so much in terms of reduced unemployment for professionals and para-professionals (unemployment rates are already low) but in terms of improved pathways into those higher skilled and higher paying occupations. Increased flows into para-professional and skilled jobs would be met from reduced rates of entry into low skilled jobs and migration of skilled labour out of the State. South Australia tends to lose graduates to other States where employment opportunities are greater, and a biotechnology cluster would diminish this tendency particularly for biotechnology graduates but also for other skilled occupations.
- 2.5 South Australia has in place many of the ingredients for a successful biotechnology cluster. Most importantly, it has a foundation; the State is not starting from scratch. The State has established research capabilities and culture spread across universities, research institutes, hospitals, government agencies and private firms. South Australia's competitive advantage in the area of agricultural biotechnology, particularly in plant biotechnology, is based on internationally competitive research groups at the Waite. Scientific capability has broadened in the past decade to include viticulture, wine science, and plant, soil and water research and education. This is due to a range of synergistic collaborations between the co-located partners:
- Adelaide University
 - Primary Industries & Resources South Australia (PIRSA) including the South Australian R&D Institute (SARDI); the Water, Land and Biodiversity Conservation Department's Sustainable Resources Group
 - CSIRO Divisions of Land and Water, Plant Industries (Horticulture) and Mathematical and Information Sciences
 - Australian Wine Research Institute (AWRI)

- 2.6 In addition to the capabilities and resources of the partners, the Waite is now headquarters to a number of joint initiatives between these groups. These include headquarters or regional nodes of five Co-operative Research Centre's (CRC's), two Major National Research Facilities (MNRF's) and several joint ventures in spatial, statistical and land technology research.
- 2.7 The vision for the Waite is to establish it internationally as the pre-eminent plant sciences research and commercial precinct in Australia. It has the potential to grow its R&D activities from the current level of \$50.0m to over \$100.0m over the next five years, and increase employment from 1,500 to 3,000 science and technical personnel and 1,000 students on the site. At least 10 new commercial spinout bioscience companies could potentially be created over the next five years. A critical mass of this size will establish Adelaide as one of the three top plant research Centres in the world after the John Innes Centre in Norwich and the Max Planck Institute in Cologne.
- 2.8 Adelaide is already well positioned, through the activities of Bio Innovation SA, to capture the potential from bioscience industry. For example in the last 9 months, Bio Innovation SA has fostered six (6) new bioscience companies, attracted some \$1.7m Commonwealth Grant funds and has advanced the development of a new Intellectual Property policy, is conducting a bioscience company and infrastructure stocktake and is providing a commercialisation framework for research organisations in the State.
- 2.9 In terms of cluster development, Adelaide is comparable to Munich in Germany. Both cities are about the same size, have a strong university research and defence industry component and a strong industrial/agricultural R&D heritage. In 1997, Munich had about 15 companies in biotechnology and related areas with 350 employees. In 2001, 130 companies with more than 2,500 employees have been established in the industry. It is considered that Adelaide has the potential to achieve comparable development over the next 5-10 years.
- 2.10 It is well established that a correlation exists between the economic wealth of people and knowledge intensity. Economies with high levels of knowledge-based industries also have high economic wealth. South Australia should aim to increase the knowledge intensity of its industry base. This submission supports that strategic direction.
- 2.11 South Australia has a number of scientists and areas of scientific excellence that are truly competitive, both nationally and internationally. However, South Australia does not have the depth, ie: large groups of researchers delivering scientific excellence in areas of competitive advantage, like those emerging in Victoria and already present in advanced biotechnology clusters internationally. The area of plant science, functional genomics with applications to human health and nutrition, is the key area in which, through strategic investment, the necessary depth to be competitive can be achieved.

3 DISCUSSION

- 3.1 There exists an opportunity to strengthen existing State research capabilities in plant biotechnologies and become the national leader in this area through securing the Australian Centre for Plant Functional Genomics. The Commonwealth Government, through the ARC and GRDC, have short-listed two States (SA and WA) for the establishment of the new Centre with the following criteria:
- Initial Commonwealth funding of \$20 million over 5 years
 - Expectation for continued Commonwealth funding for a further 5 years
 - Centre to attract commercial partners
 - A requirement for bidding States to commit funding to achieve the critical mass necessary for an internationally competitive Centre
- 3.2 The proposed South Australian Centre therefore has a strong chance of being successful with a decision expected to be made on or before 1 May 2002. This will, however, require a State Government funding contribution as outlined in this submission.
- 3.3 The proposed South Australian Centre will focus on multiple approaches to the genomic-based analyses of stress tolerance in cereal crops. This information will be applied to develop new strategies for enhancing stress tolerance and to develop plants tolerant to multiple stresses such as low water availability, high salt and mineral deficiencies which currently severely diminish productivity of cereal crops particularly in South Australia. In addition, there is a significant national and global demand for improved plant tolerance in harsh agricultural environments and substantial commercial opportunities exist. The Centre will be based at the Waite in collocation with other research groups and will be led by the Adelaide University.
- 3.4 The ARC/GRDC initiative will provide the largest single funding mechanism for plant genomics. Strategically, it is vital for SA to win this bid, as the winning location will become the new Australian centre. The Centre will build around the existing GRDC Functional Genomics Program and related genomics programs, Coordination of National Molecular Marker Programs, the CRC for Molecular Plant Breeding and strong international linkages. In addition to housing research scientists, the Centre will develop an extensive IP portfolio and feed into spin-off companies and joint commercial enterprises.

- 3.5 The Centre will also provide laboratory space for public sector research groups or private sector companies that might wish to tap into the intellectual research expertise and to use the concentration of state-of-the-art equipment to be focused at the Centre, to develop products or research capabilities. The Centre would also be able to house some spin-off companies and other commercial activities to help build a plant biotechnology commercial centre in South Australia. It is worth noting that Australia does not yet have an agricultural based biotechnology company listed on the Australian Stock Exchange.
- 3.6 Up to \$5.0m of a total of \$12.0m of State funds will be allocated to capital works over two years to the building and laboratory infrastructure to establish world-class research and commercial activities for partner groups located at the Waite and foster further collaboration, ie providing reinforcing elements in research and economic development.

Economic, Financial And Budget Implications

- 3.7 With Federal and State funding, the Centre will employ an additional 98 science, technology and administrative personnel. These will be new jobs. Up to 30 of these positions will provide opportunities for graduate and post-doctoral students to be employed in South Australia.
- 3.8 The impact of research on the economy has been frequently analysed. The Australian National University undertook a detailed national study which concluded that the social rate of return can be up to 270% per annum. (Source: ANU paper 610/1999 'The case for additional investment in basic research in Australia.')
- 3.9 The loss of the Centre to South Australia would have the following impacts:
- Loss of more than \$20m of new research funding and \$5m for much needed development of facilities on the Waite campus.
 - Loss of the key scientists who have been responsible for winning the Centre for the State which would result in:
 - The immediate loss of research grants held by these individuals – at least \$5m of research revenue per annum
 - The loss of more than 50 staff funded from these research grants
 - Probable withdrawal of Commonwealth funding secured last year to develop the agricultural node of the Australian Genome Research Facility – a loss of an additional \$8.5m
 - Loss of competitiveness of the Waite as the Country's leading Ag-biotechnology precinct with a consequential further decline in research revenue of approximately \$5m per annum and associated employment.

3.10 State funding requirements for the Plant Functional Genomic Centre are as follows:

STATE FUNDING REQUIREMENT

	2002-03 \$000s	2003-04 \$000s	2004-05 \$000s	2005-06 \$000s	2006-07 \$000's
Capital works	2,000	2,000	1,000		
Research staff	400	600	1,000	1,000	1,000
Equipment/infrastructure	300	300	800	300	300
Other	300	100	200	200	200
TOTAL	3,000	3,000	3,000	1,500	1,500

3.11 Identifying alternative sources of existing funds involved discussions with IEPO, PIRSA (including SARDI), Bioinnovation SA and the Office of Innovation. Work on these approaches is continuing.

3.12 This proposal is considered to be the highest priority of the Government's science agenda. Recognising the current budget difficulties, it is proposed that funding be sourced from existing budgets in the science and information economy portfolio areas to the maximum extent possible.

PROPOSED SOURCES OF STATE FUNDING

Source of Funding	2002-03 \$000s	2003-04 \$000s	2004-05 \$000s	2005-06 \$000s	2006-07 \$000's
IEPO Carry Over from 2001/02	1,687				
IEPO Ongoing Recurrent transfer	1,313	1,000	1,000	1,000	1,000
Bionnovate SA carryover from 2001/02 (transfer to 2003/04)		2,000			
New appropriation to Science and Information Economy			2,000	500	500
TOTAL	3,000	3,000	3,000	1,500	1,500

3.13 The Department of Administrative and Information Services has indicated that if priorities within the Information Economy Policy Office were to be changed an amount of \$1m of recurrent expenditure would be available to be re-allocated within the portfolio to the Plant Functional Genomics Centre initiative and this amount would be available as an ongoing reallocation of the budget. In addition the IE2002 initiative "SA Connect" will be underspent by \$1.687m in 2001-02 and also has available \$0.313m in the 2002-03 year. Although this funding is potentially committed, contractual arrangements enable DAIS to not continue most of the aspects of 'SA Connect'.

- 3.14 Bio Innovation SA has \$2m of funds to be carried over from 2001/02. It is proposed that these funds be transferred to 2003/04 to assist with cash requirements in the second year of establishment of the new Centre.

State development, social, environmental and other impacts

- 3.15 The development of the Waite as an internally recognized Centre for plant research and commercialisation is a significant component of the State Government's biotechnology strategy. Location of the Centre in SA with the State Government as funding partner will open avenues for maximising the benefits for South Australia and may have potential to influence the national plant research agenda. There are a number of additional spin-off benefits including:

- Maintaining the State's position in training scientists of the future, and attracting international research funds and visiting scientists at all levels;
- Establishing the State as one of the three top plant research centres in the world;
- Increasing opportunities for South Australia's pool of graduates and post-doctoral scientists to remain in, or return to, the State and halt the current 'brain drain'; and
- Establishing the Waite as a pre-eminent Plant Commercialisation Centre.

- 3.16 There will be no adverse impacts on small business, families, regions or the environment nor any regulatory impacts from this submission.

- 3.17 This type of research is not concerned with genetic modification (GM). It relates primarily to the discovery end of this science (the start) not in the application of the gene research (end product). The Plant Functional Genomic Centre will look at how – through a better understanding of cereal genes and natural breeding processes – particular gene characteristics could be used towards improving grains. In the future, the knowledge gained by this type of study may be used by other researchers to support work into the science of GM.

Consultation

- 3.18 Consultation has occurred between Bio Innovation SA and representatives from the following organisations:

DIT
SARDI
CSIRO
PIRSA
Adelaide University
IEPO
Office of Innovation

Executive Council

3.19 This submission does not require the approval of Executive Council.

4. RECOMMENDATIONS

It is recommended that Cabinet:

- 4.1 Note that the South Australian bid for the Australian Plant Functional Genomic Centre is now one of two short-listed proposals (SA and WA). The determining factor in establishing the Centre in South Australia is the State confirming its financial support for the SA bid.
- 4.2 Approve State funding for the Australian Plant Functional Genomic Centre of \$12.0m over 5 years to secure funding of \$20.0m in funds from the Australian Research Council (ARC) and the Grains Research and Development Corporation (GRDC) over five years.
- 4.3 Approve additional allocations of \$2m in 2004/05, \$0.5m in 2005/06 and \$0.5m in 2006/07 to the Science and Information Economy portfolio as part of the State funding of \$12m for the project.
- 4.4 Note, if the South Australian bid for the Australian Plant Functional Genomic is successful the Minister will negotiate the details of the agreement contract and bring it back to Cabinet for approval.

Jane Lomax-Smith
MINISTER FOR TOURISM
MINISTER FOR SMALL BUSINESS
MINISTER FOR SCIENCE AND THE INFORMATION ECONOMY
MINISTER FOR EMPLOYMENT, TRAINING AND FURTHER EDUCATION

Date: 6/5/02

PREMIER
 APPROVED

6 MAY 2002

In Cabinet

In Cabinet

6 MAY 2002

APPROVED

 PREMIER