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BUSINESS CASE INTO THE MERITS OF ESTABLISHING A PRIMARY INDUSTRY CENTRE FOR SCIENCE EDUCATION (PICSE)

EXECUTIVE SUMMARY

The Russell Model is an industry / university / school partnership originating at the University of Tasmania and designed to stimulate student interest in studying science at university with a pathway into primary industries. The approach meets a growing industry need for science graduates.

It involves regional Activity Centres hosted by participating universities who are partnered by local industry, and proposes a national coordination centre, called the Primary Industry Centre for Science Education (PICSE), involving Government and industry investors.

This Business case has been developed in response to the Australian Government Department of Education, Science and Training (DEST), and considers

- the need for a nationally coordinated approach to rolling out the Russell Model across the nation
- alternative arrangements for national coordination of the rollout, including the PICSE model,
- funding issues including proposed investment and budget.

Primary Industries Need for Science Graduates

Australia is currently experiencing a shortage of skilled science professionals to meet industry demand, particularly in those sectors in rural and regional Australia. Furthermore, in its Audit of Science, Engineering and Technology skills (June 2006), DEST predicts a 35% gap over the next five years between industry demand for science professionals and supply from education institutions. It takes six years to move a student from Year 11 through to graduation, so it is imperative to act immediately to address this gap.

Industry has expressed concern at this trend at a time when the scientific and technical demands of primary industries are growing.

Governments, industry, universities and research organisations have all established initiatives to attract students to undergraduate science studies. Many of these have been short term or narrowly focused, and to date these initiatives have not arrested the trend of declining undergraduate science student numbers.

The Russell Model – Addressing the Need

The University of Tasmania (UTAS) first implemented the Russell Model in 1998 in north-west Tasmania, then extending it across the rest of Tasmania. Over a three year period, enrolments in agricultural science at UTAS significantly increased – against the national trend.

In 2004, an independent evaluation of the project recommended that all possible steps be undertaken *to promote the outcomes of this cutting edge, problem solving model further across Australia and to investigate its broader application in industries other than agriculture*.

Since then, UTAS has established Activity Centres in Western Australia and South Australia. These centres involve the University of Western Australia and Flinders University with industry support form the Grains Industry Research and Development Corporation, Horticulture Australia Limited and the Riverland Horticultural Council.

In early 2007, Activity Centres were established in Queensland at University of Southern Queensland and University of the Sunshine Coast and in NSW at the University of New England, jointly funded by the universities and DEST.

PICSE – A National Centre

The national rollout of the Russell Model is based on partnerships of industry, governments, universities and schools. The national approach embodied in PICSE underscores this partnership and the inferred joint responsibility of partners for attracting skills into primary industries.

This Business case analyses four options for a national approach.

Option 1. A company or statutory authority

Option 2. An unincorporated joint venture managed by a university (PICSE model)

Option 3. A structure co-located with the National Centre of Science Information and Communication Technology and Mathematics Education for Rural and Regional Australia (SiMERR)

Option 4. An Australian Government funding program with autonomous Activity Centres

Potential investors and partners were canvassed to seek their views and identify their preferred option. The preferred approach, and the most cost-effective option analysed, is the establishment of a joint venture Primary Industry Centre for Science Education (PICSE):

- stakeholders have indicated that PICSE:
  - is based on proven methodologies developed through the extensive pilot program
  - allows for pooling of private industry and government investment from a wide range of organisations to achieve national outcomes
  - provides for accountability to investors, and
  - provides an efficient feedback mechanism between all parties
- the analysis shows that PICSE:
  - meets stakeholder needs for involvement and partnering,
  - maintains the integrity of the Model while providing for regional variation,
  - promotes adaptive learning and innovation, and
  - provides a vehicle for attracting investment from governments, research institutions and primary industry organisations.

Should Government and industry agree to invest in PICSE, an outline business plan is included in this document to support negotiations. It considers a five year budget for PICSE,

an investment profile, likely returns on investment, performance measures, governance arrangements and organisational structure.

Proposed Budget

The proposed budget for PICSE assumes that 8 Activity Centres are operational in year 1, 10 Activity Centres are fully operational in year 2 and 14 Activity Centres are fully operational in year 3.

Proposed Budget and Indicative Investment in National and Activity Centres

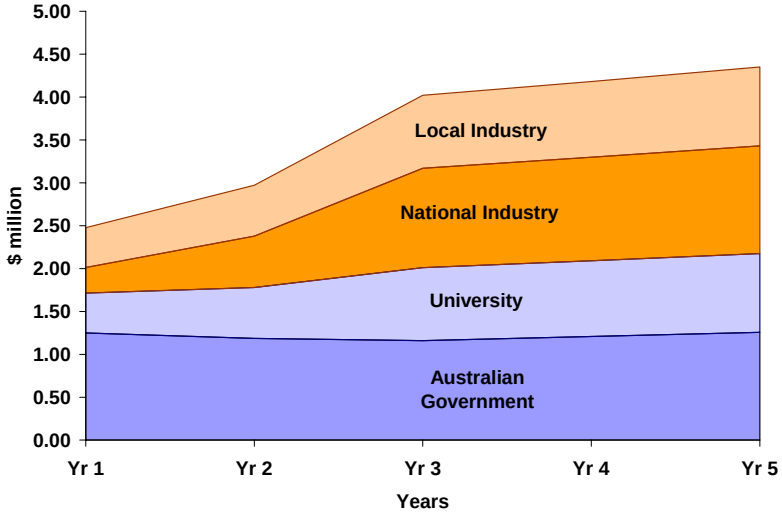
	Year 1 $ m	Year 2 $ m	Year 3 $ m	Year 4 $ m	Year 5 $ m	Total $ m
National Centre	0.624	0.597	0.622	0.647	0.674	3.163
Activity Centres	1.854	2.375	3.399	3.535	3.676	14.838
	2.478	**2.972**	**4.020**	**4.182**	**4.350**	**18.002**

Note: This split indicates that 85% of PICSE investment funds will be expended in on ground delivery when the proposed 14 Activity Centres are operational.

The location of the National Centre will not materially affect the budget. However, the significant expertise developed by UTAS, and its proven role as a champion for PICSE, would indicate that the Centre is best located in Tasmania.

Investment Profile

The investment profile of PICSE will be determined through negotiation by the investors in the joint venture. However, a likely investment profile indicating contributions by the major investors is shown by the following diagram. The early years will require relatively greater Government investment until national industry investment grows, and PICSE can demonstrate its true value to stakeholders. From year 3, it is anticipated that the future investment profile in terms of contribution shares will be reasonably constant.



Notes:

- Year 1 assumes that the only national industry funds come from GRDC and HAL contracts - assume $0.3 m from this source.
- Year 2 assumes national industry funds increase from$0.3 m to $0.6 m
- Year 3 assumes national industry funds match Australian Government funds

Funds have already been committed to the existing PICSE program to the value of about $2 million for the period 2006-2009, including:

– GRDC	$450,000
– Horticulture Australia Ltd (GrowSmart Program)	$534,000
– Universities	$685,000
– Local Industries / Others	$180,000

Other potential industry investors view investment by the Australian Government as a cornerstone catalyst for PICSE, but have indicated significant interest in the concept. Given the interest shown by potential industry investors, it is likely that the assumed levels of industry contribution can be achieved, provided the proposed investment from the Australian Government is also secured.

Future innovation

The Russell Model promotes innovation, and some of the potential innovations are discussed in this Business case:

- The PICSE program can be expanded beyond the proposed 14 Activity Centres, dependent on demand.
- The PICSE program could be extended to include junior secondary years to complement the current program, as trialled during the last 4 years in North West Tasmania (a project funded by the Department of Transport and Regional Services.)
- If investment from the Vocational Education and Training (VET) sector could be accessed, the Model could be used in a VET stream, complementary to the PICSE stream.
- The Model has the potential to be used to attract students to other industries such as engineering and mining.

Conclusions

1. Industry, education and government organisations are well aware of and concerned about the decline in the number of undergraduate students enrolling in university science courses. Many of these organisations have expressed interest in collaborating to address this decline.
2. The Russell Model has been developed and tested through an extensive pilot program and has been effective in attracting school students to university science courses that can lead to careers in primary industries. The Model provides a method for enabling a range of investors to collaborate to achieve results.
3. All the organisations canvassed support the national rollout of the Russell Model, and nearly all support a National Centre to guide and assist Activity Centres located at universities across Australia.

4. The preferred option to achieve national roll out is the establishment of a Primary Industry Centre for Science Education (PICSE), governed by a suitable joint venture agreement, with the National Centre and Activity Centres established at participating universities across Australia.

5. UTAS is the most appropriate location for the National Centre, building on its:

    - expertise in developing the PICSE pilot program to date,
    - efficient delivery of the PICSE pilot program, and
    - proven capacity as champion for PICSE.

6. There is more than sufficient industry and university interest and likely collective investment, assuming adequate co-investment from the Australian Government, for PICSE to proceed with a start-up phase comprising:

    - national investment in a National Centre with a greater share of Government investment in the early years, and national industry investment rising to match Government funding by Year 3, and
    - regional investment (university and industry investment in equal shares) in 8 Activity Centres in Year 1 rising to 14 Activity Centres in Year 3.

Recommendation

It is recommended that:

a. The Australian Government approves an initial five year investment in the establishment of PICSE at the level of investment proposed for the Australian Government in the business case with a major review point at the end of year 3.

b. Other initial national investors are identified and an agreement negotiated to establish PICSE, with the agreement including initial investment levels, business plan and key performance obligations.

c. PICSE commences operations including the establishment of additional Activity Centres and seeking investment from new investors according to its business plan.

d. Provided that the outcomes of the three-year review are positive, PICSE continues in operation and, if appropriate, discussions commence concerning future investment of PICSE beyond the initial five-year period.