

**House of Representatives
Agriculture, Fisheries and Forestry Committee**

**Inquiry
into
Rural Skills Training and Research**

Submission from Rangelands Australia

This submission contains insights gained by Rangelands Australia in a unique, client-driven and highly inclusive approach to the development of a series of short courses and new postgraduate programs¹ to meet stakeholder expressed, education and skill needs in Australia's vast rangelands. Importantly, this initiative has focused on building capacity for individual, enterprise and community success in 5-10 years time, and especially capacity for 'triple bottom line' outcomes.

The submission begins with some background information on Rangelands Australia and its activities relevant to this inquiry, followed by specific comments on aspects of the Terms of Reference and Key Issues paper where we have some experience or qualifications to contribute.

RA has been encouraged to contribute to this inquiry by external observations such as:

- *"The role RA is playing in identifying skill needs is a model that should be followed by other industry associations. Your success should become widely known and appreciated by other industries"* (Senior staff of DIST, 2003)
- *"The most valuable needs analysis in Australia"* (FarmBis Q, 2005)

¹ NOTE: Throughout this document the word 'course' refers to what was called a 'subject' or 'unit'. A 'program' is what was called a 'curriculum', and is a suite of courses.

Background

a) What is Rangelands Australia?

Rangelands Australia (RA) was established in 2001 as a strategic response to a national need identified in a study of *"Education and Training to Support Sustainable Management of Australia's Pastoral Industries"* (Agtrans Research, 1998). This report concluded that:

- there were no comprehensive education and training offerings on the specific topic of rangeland management, despite the importance of Australia's rangelands, and
- existing tertiary courses in related areas were not seen to be practical, did not address the integration of production and ecological aspects of rangeland management, and were seen to be 'out of touch' with the educational and training needs of stakeholders in the rangelands (Agtrans Research 1998).

'Rangelands' include the grasslands, shrublands, woodlands and savannas of the arid and semi-arid areas of Australia, occupy over 75% of our land mass, and are home to 2.1m people. At least 33% of the 16-64 year-olds are 'passionate learners' who see learning as a way of life that has internal value as well as work benefits (Quay Research 2003). The rangelands generate significant wealth through livestock and mining industries, and are increasingly valued for tourism, biodiversity and our cultural identity. Cropping is uncommon in the rangelands, and usually opportunistic.

The expectations of our rangeland managers are growing steadily, with urban consumers, markets, conservationists, tourists, governments, etc. now expecting a range of economic, environmental and social benefits from use and management of the rangelands. Dealing with these expectations, and change, requires fresh ways of thinking and operating consistent with 'triple bottom line' performance. This can be fostered through education and training and other capacity building initiatives. However, participation rates in vocational and higher education in rural and regional Australia are only half that in our cities and urban regions. This needs to be lifted significantly if there is to be the capacity to meet the expectations of markets, the community and governments.

RA has been addressing the above issues in a **highly strategic and innovative** way, with financial support from Meat and Livestock Australia, The University of Queensland and the Australian Government's Department of Agriculture, Forestry and Fisheries; and with a small staff of five full-time equivalents. Rangelands Australia is based at the University of Queensland's Gatton Campus. Further information on RA can be found at www.rangelands-australia.com.au.

RA is building capacity by developing **practical, rangeland-specific, learning opportunities** and **qualifications** for the people who will be using and managing our rangelands (e.g. land managers, rangeland officers), and those who will be supporting them (e.g. agency staff, Landcare or Bushcare facilitators, consultants, service providers, etc). The first educational products have been well received, winning high praise (for their relevance to business, workplace and a future in the rangelands) from external reviewers and mature-aged students who live and work in the rangelands.

b) What has Rangelands Australia been doing that is relevant to this inquiry?

In the past three-four years we have conducted a national needs analysis, researched the market for learning in the rangelands, and, consistent with our QA scheme, have developed four (4) industry-responsive short courses and four (4) rangeland-specific postgraduate courses aligned with stakeholder priorities. A further eight (8) courses are at various stages of development. Importantly, all of these courses focus on

current and emerging issues rather than disciplines (eg. soil science) or technologies (eg. GPS).

A highly **strategic, participatory approach to needs analysis and course development** has been undertaken, underpinned by a **Quality Assurance and Continuous Improvement (QA) scheme** for ‘best practice’ course development, delivery and improvement of courses.

The **needs analysis** is unique, and is differentiated from others in that it:

- Involved wide consultation through focus groups at 24 locations across Australia, sourcing views on the future of the rangelands and skill and knowledge needs from over 400 stakeholders including land managers in the rangelands to policy makers in Canberra.
- Engaged mixed-stakeholder groups in the 19 focus groups held in the rangelands. Groups comprised producers/pastoralists; state agency staff such as advisors, extension officers and facilitators in production, natural resource management and catchment/regional management; local government, mining and/or tourism where appropriate, banks and other service providers, and other community groups such as indigenous, catchment management, conservation, Landcare, etc.
- Included 42% women and 35% youth (average) in the rangeland-based focus groups, acknowledging that women make the majority of decisions relating to education and skill development, and that youth are the next generation of range managers.
- Based education and skills needs on an agreed, ‘most likely’ scenario for the rangelands in 5-10 years time, and identified the knowledge and skills that would be required for individual, enterprise and community success in that scenario. These have been reported in Taylor (2002).
- Refined and prioritized the list of education and skills needs by surveying producers/pastoralists and agency staff to identify perceptions of the areas “most producers’ and ‘most agency staff’ were reasonably strong in, and areas where they needed to develop skills and/or knowledge to be successful in 5-10 years time. These have been reported in Taylor (2003).
- Identified personal qualities as well as the usual knowledge and skills that will be critical to future success, recognizing that these are fundamental to people’s capacity to respond to change and their effectiveness in dealing with change.

RA’s **QA scheme** for course development, delivery and improvement was developed with input from potential customers, a subset of potential partners in the network of supply and professional educators, and exceeds AQTF and AUQA standards.

Market research, commissioned by RA and conducted by Quay Research, has involved a segmentation of the market for learning in rural and regional Australia, with profiles developed for each segment and strategies developed to reach and support those with a strong interest in learning. This research has confirmed the interest in further education and training, and highlighted the major impediments to uptake as:

- Relevance of courses

- Access (especially flexibility in time and place)
- Time (both time available for learning, time to travel to structured learning activities, and the timing of learning activities wrt seasonal demands), and
- Cost (both actual cost and perceptions of value for money).

RA has recently been promoting further education and training as an investment that appreciates, or at least does not depreciate at the rate of machinery and infrastructure.

Finally, a range of strategies have been adopted in the process of developing the new programs and courses in Rangeland Management. Some of the more innovative strategies in this unique process are listed below. RA suggests that some of these processes should be recognised as 'best practice' course development.

- Reconfirming the need for new courses (and minimizing duplication) by reviewing the alignment of educational programs (ie. 126 VET, 156 undergraduate and 88 postgraduate programs) in agriculture and environmental studies with expressed needs.
- Scoping of the structure, critical content and key resources for each course by teams of 12-18 people comprising experienced producers/pastoralists, agency staff, and R&D professionals from across Australia. The course development process was subsequently led by an RA Educational designer to ensure that the learning activities relate to current and emerging issues in the rangelands and nurture the personal qualities critical to future success in the rangelands.
- Involvement of experienced producers, experts and R&D professionals in the review &/or piloting of courses to ensure they are practical, relevant and up-to-date with respect to ongoing R&D.
- Introduction of a 'Preparation for Postgraduate study' short course for those without recent/any higher education experience to develop their confidence and improve the probability of success of study by distance education.

Response to Terms of Reference and Key Issues

As indicated at the outset, the following comments are made with respect to the rangelands, and in the light of the needs analysis, market research, etc. conducted over the past 3-4 years by Rangelands Australia. Some more general observations are made on the elements of an improved strategy for skills development.

Availability and adequacy of education

- Number and range of agricultural programs and courses

In the process of determining the alignment of available courses with expressed needs in 2003, RA identified the following education and training opportunities in agriculture and environmental studies in Australia:

- 1350 short courses
- 126 Vocational Education and Training (VET) programs
- 156 Undergraduate programs
- 88 Postgraduate coursework programs.

We do not claim that this is a complete or current count of all educational offerings in agriculture and environmental studies in Australia (eg. Tasmania was not included because it has little rangelands), but note that it is based on a very comprehensive trawl of the education and training opportunities across Australia in early 2003. This involved internet searches of large and small providers, collating course descriptions and profiles, and telephone contact where necessary to clarify availability, course content, delivery, etc.

On the surface, rural industries appear to be very well catered for, if not over-catered. However, the critical issue is the extent to which these offerings match current and emerging needs of industry sectors and rural and regional communities.

- Future knowledge and skills needs

Eighteen areas of skill and knowledge, identified by stakeholders as critical to future success in the rangelands, are listed in the attached paper "*Building capacity in Australia's rangelands*", delivered at the International Rangeland Congress in July 2003. This is based on the surveys of needs and the skill and knowledge gaps in two stakeholder groups (ie. producers and agency staff) conducted during late 2001 and 2002. Further insights, based on 2004 surveys of the skills sought and training intentions of producers/pastoralists and senior staff of primary industry and natural resource management agencies in the rangelands are in the attached paper "*Positioning yourself for success in the rangelands*" presented at the Australian Rangeland Society Conference in July 2004.

- Match of skills needs and supply

RA has explored supply and demand with respect to short courses and examined the alignment of VET, Undergraduate and Postgraduate programs with expressed needs. As it happened, the skill and knowledge needs identified by stakeholders were almost equally distributed across all three elements of the 'triple bottom line' (ie. production/ economic, environmental and social factors). Descriptions of the educational programs (ie. course list and brief course descriptions) available in early 2003 were over-laid on the list of topics and descriptors collated from the focus group outputs. A simple ranking of 'strongly aligned', 'moderately aligned' and 'little or no alignment' for each of the dimensions of the 'triple bottom line' provided the basis for calculating a % alignment with expressed needs.

With respect to short courses, we provided a list of topics from the focus groups and asked several groups of producers from across the rangelands to identify their top 5 priorities.

In the process of examining the alignment of programs with needs, we noted several instances where the content of some courses bore little resemblance to what appeared to be a very relevant title. We have also noted an increase in emphasis on molecular biology-based agriculture over the past few years, which

may be appropriate for intensively cropped areas, but not for the rangelands. Such mis-matches could account for the often expressed perception (from the rangelands) that many tertiary courses were not relevant or practical.

- Short courses

The attached table shows 2002 demand and supply for short courses in the northern rangelands. Demand is based on RA surveys of producers and supply on the available courses identified. RA used this data to confirm the areas it would invest effort to add value.

On the surface, it would appear that the production areas are over-catered.

- VET

Of the 126 Vocational Education and Training (VET) programs (ie. Cert IV, Diploma, etc) in agriculture and environmental studies offered in Australia in 2003, two had a strong (ie. >80%) match with expressed needs. Only fourteen (14) programs had a 66% match, and thirty-two (32) programs had a 50% match with needs, but the vast majority (ie. 78 of 126) did not meet even 33% of stakeholder expressed needs.

One of the more interesting findings in this sector was the range of scores for supposedly similar programs offered by various institutions across the States and the Northern Territory. For example, based on the descriptions provided for the Rural business management programs, the alignment of this course ranged from 33-66% with expressed needs.

Among the 'best in class' were a Diploma in Community natural resource management offered through TAFE(Q), and Cert IV and Diploma courses in Agriculture (Rural business management) and Conservation and land management offered through TAFE (Q), Charles Darwin University and the University of Melbourne.

- Undergraduate

Of the 156 undergraduate programs in agriculture and environmental studies offered in Australia in 2003, none had a strong match with expressed needs. Only four (4) programs had a 66% match, and of these only one was available by distance education. Twenty-seven (27) programs had a 50% match with needs, but the vast majority (ie. 125 of 156) did not meet even 33% of stakeholder expressed needs and were either totally production or environmentally focused.

Among the 'best in class' were UQ's Environmental management – Rural systems degree and UQ's Natural resource economics streams.

- Postgraduate

Of the 88 postgraduate coursework programs (ie. Grad Cert, Grad Dip, Masters) in agriculture and environmental studies offered in Australia in 2003,

none had a strong match with expressed needs. Only ten (10) programs had a 66% match, and of these only four were available by distance education. Nine (9) programs had a 50% match with needs, but the vast majority (ie. 69 of 88) did not meet even 33% of stakeholder expressed needs. Most of these were deficient in the areas of integration of production and environmental issues and in their treatment of social or people issues.

Among the 'best in class' included University of Melbourne's Grad Dip in Extension and the Australian National University's coursework programs in Environmental management and development.

Overall, these findings highlight that many undergraduate and postgraduate programs in Australia are not adequately preparing students for what will be expected of them now, and in 5 years time, nor are they building capacity for 'triple bottom line' outcomes in the rangelands (or other rural areas as well). However, some of these programs may well be strongly aligned with the needs of other industry sectors and other regions.

Taylor (2003) identified a number of knowledge and skill deficiencies in most producers and agency staff that could limit their capacity, in the medium term, to respond to expected changes in the nature of rangeland enterprises and their operating environment. Training proposed in the short-term by enterprises and agencies (see Taylor 2004) will address some of the skill gaps, but insufficient attention is being given in the following areas to skill development to meet medium-term needs:

a) Grazing enterprises

- environmental management systems and certification
- multiple-use management
- sustainable production systems and landscapes
- awareness of global and national trends influencing the rangelands
- legislation and regulations
- stakeholder values, perceptions and aspirations for the rangelands.

b) Agencies

- sustainable production systems
- stakeholder values, perceptions and aspirations for the rangelands
- environmental management systems and certification
- multiple-use management
- awareness of global and national trends influencing the rangelands
- business management and planning.

The limited activity in the above areas may be due to a different focus of training (i.e. retrospective vs prospective, or short vs medium term skill needs), a lack of awareness of the importance of the above skills, and/or a lack of suitable education and training products. The new industry-responsive short courses and postgraduate coursework programs that Rangelands Australia/ The University of

Queensland introduced in late 2004 will go some way towards meeting the latter need. These courses are specifically designed to meet prospective skill and knowledge needs, to extend the learning pathway in rangeland management, and broaden the options for a career in the rangelands.

- Cause of the gap(s) between needs and what is being taught

Given the frequency of the comment that “*this is the first time anyone from a University has asked us what we need*” encountered during the focus groups, and questions from some academics about our ‘expertise’ if we needed to listen/talk to stakeholders (!), RA suspects that stakeholders have had little input to the structure and content of many tertiary courses and programs. Reasons for this could include:

- Beliefs that lecturers know what students need, albeit from a narrow, personal perspective
- The cost (ie. direct and transaction costs, time, etc.) of a participatory process of course development
- Inadequate resourcing of the process of new course development, and the process of reviewing courses.

Further, the current push for greater research activity in Universities may be at the expense of time and resources devoted to quality and client-responsive teaching.

- Access to educational opportunities

This is a major issue that was identified in the Agtrans Research (1998) report, was raised several times in each of our focus groups in the rangelands, and was highlighted in research on the market for learning in rural and regional Australia conducted by Quay Research on behalf of RA.

As a result of this strong signal, RA has focused on developing short courses and postgraduate courses that are **only** delivered in the rangelands – face-to-face in the rangelands for short courses, and by distance education for postgraduate courses.

RA observes that this is not just about access but also the advice and support that is available for people in remote areas when they need it – at night and at the weekends. RA has proposed a network of Rangeland Champions to address these issues, but this has not attracted Government support.

- Pathways from VET to Tertiary education & work

RA notes that interest in qualifications is growing strongly, for recognition of skills and for getting a better job, and that many people in the rangelands have taken/are taking the opportunity to have their skill and knowledge recognized through the RPL process and the award of a qualification at Certificate and Diploma levels. However, from feedback, it seems that further education opportunities (ie. post RPL) are not communicated by many RTO’s. This could

be because they are not aware of the opportunities available in other regions &/or States, or that they do not see it as their role. RA suggests that a series of booklets be prepared that highlight further education and training opportunities, and the pathways and requirements for entry, for major sectors such as the grazing industries, grain industries, horticulture, etc.

To meet this need, RA has been recently promoting the pathways in invited presentations to industry, Landcare and catchment management groups, with good response.

RA has also specifically addressed the question of "Where to from here?" in the Learning guide for each of its courses. Even among our Postgrad courses this includes pointers to practical short courses as well as other postgrad courses that will expand knowledge in related areas.

Skills needs

- Demand for soil science, information technology, GPS and marketing

RA notes that these are highlighted for special attention, but observes that, based on our needs analysis, they are not the highest priorities for the rangelands. However, RA acknowledges that these areas may be important in more intensive and precision agriculture.

For example, soil science was rarely mentioned in our focus groups, and then only from the perspective of understanding landscapes and landscape functioning. Similarly, IT and GIS was seen to be one of a number of valuable tools in property, catchment and regional planning, and rangeland stakeholders emphasized that it should be treated in that context.

Marketing was identified in the RA focus groups as a key skill for development in both producers and agency staff (ie. 7th and 5th most important area for development, respectively; Taylor, 2003), and was again highlighted in the 2004 survey as an area in which producers would be seeking training 'in the next 12 months' (Taylor, 2004).

- Expertise and capacity of industries to specify the skill sets

RA has no doubt that industry can make a valid and extremely useful contribution to specifying needs and skill sets, but note that industry is but one of several stakeholders in the complex issues that concern this inquiry. In such areas, it is probably not wise to have industry-only panels as they may be blind to emerging issues outside their immediate interest. RA suggests that industry members should comprise the majority of any such panels, but that a significant proportion of other legitimate stakeholders should be included, along with inclusive leadership and processes that give external views due consideration in any analysis of issues and needs.

- Extent to which VET meets the needs of rural industries

We have not researched this issue in detail, but note that the VET programs are better aligned with expressed needs than the undergraduate and postgraduate programs available in agriculture and environmental studies (see above).

However, we have often encountered the criticism that VET programs deal with 'bits' and don't adequately link the 'bits' in a holistic way. This might be further explored in this inquiry.

Links and coordination between educational streams, and between education, research and extension

RA acknowledges that these are important links, and has recognized this in involving all of these stakeholders in our needs analysis and course development processes.

The idea that strong linkages between research and education improves the quality, currency and relevance of teaching, underpins the CRC model. However, from looking at the products of the educational programs of a number of rural and environmental CRCs, we suggest that in most cases there is still a strong focus on narrow technical and biological solutions to sustainability issues, and rarely what could be called holistic solutions.

Another model is required for the development of relevant educational products for sustainability issues.

Improved strategy for skills development

Participative course development processes involving stakeholders in needs analysis, course scoping and reviewing activities as outlined earlier can be particularly powerful in promoting appropriate skills development in particular areas. Stakeholder engagement in developing educational activities can be a powerful tool in ensuring relevance of educational programs. To date, evaluations of RA's postgraduate courses currently on offer have rated 5/5 for relevance. As relevance is often seen as lacking in Rangelands educational programs, this is a desired outcome. Notwithstanding, rigorous and ongoing evaluation of existing courses and programs to determine their efficacy in promoting appropriate skills development needs to be an integral part of all rural training activities. In particular, feedback obtained from these evaluations needs to be acted on to ensure the best possible outcome from a skills development perspective.

However, we note that this approach is not cheap, and acknowledge that rangeland industries and communities will have the benefit of MLA and UQs foresight and considerable investment.

Despite the acclaim, the limited interest in this from increasingly research focused tertiary institutions is disappointing.

Role of the Australian Government in supporting education ... to support viability and sustainability of Australian agriculture

RA believes that Government support, from both the Australian and State/Territory Governments, is critical. This is based on recent, and largely unsuccessful, attempts by RA for sponsorship from banks, corporations, pastoral companies, etc. that profess a commitment to the 'triple bottom line', sustainability and rural and regional Australia. Further, it is suggested that such support be in several forms including the promotion of formal learning as an investment in the sustainability of rural communities.

References and further reading:

AgTrans Research (1998). Education and training to support sustainable management of Australia's pastoral industries. Report to the Meat Research Corporation.

Taylor, JA (2002). Key personal attributes and areas of knowledge for future success in the rangelands. In: Proceedings 12th Biennial Conference of the Australian Rangeland Society. Kalgoorlie, WA. September 2002. Pp: 74-78.

Taylor, JA (2003). Building capacity in Australia's rangelands. In: Proceedings VIIth International Rangeland Congress. Durban, Sth Africa. Pp: 1801-1808.

Taylor, JA (2004). Positioning yourself for a future in the rangelands. In: Proceedings 13th Biennial Conference of the Australian Rangeland Society. Alice Springs, NT. Pp:134-140.

Dr John A Taylor & Ms Trish Andrews
Rangelands Australia
University of Queensland, Gatton Campus
May 2005