



final report

Project Code: NAP3.326 & NBP.217
Prepared by: John A Taylor
University of Queensland
Date published: March 2006
ISBN: 978174191505

PUBLISHED BY
Meat and Livestock Australia Limited
Locked Bag 991
NORTH SYDNEY NSW 2059

Building Capacity in the Rangelands

Meat & Livestock Australia acknowledges the matching funds provided by the Australian Government to support the research and development detailed in this publication.

This publication is published by Meat & Livestock Australia Limited ABN 39 081 678 364 (MLA). Care is taken to ensure the accuracy of the information contained in this publication. However MLA cannot accept responsibility for the accuracy or completeness of the information or opinions contained in the publication. You should make your own enquiries before making decisions concerning your interests. Reproduction in whole or in part of this publication is prohibited without prior written consent of MLA.

finalreport

PEOPLE

Project code: **Prepared by:**

Date

published: **March 2006**

ISBN:

PUBLISHED BY
Meat & Livestock Australia
Locked Bag 991
NORTH SYDNEY NSW 2059

Meat & Livestock Australia acknowledges the matching funds provided by the Australian Government to support the research and development detailed in this publication.

Abstract

This project was initiated as a strategic response to a national need for more rangeland-relevant education and training to support sustainable use and management of Australia's vast rangelands.

Six short courses and eight postgraduate courses have been developed in response to stakeholder-expressed needs, with short courses providing a new pathway for a Diploma-level qualification and the postgraduate courses providing the framework for three articulated postgraduate coursework programs (i.e. Grad Cert, Grad Dip & Masters in Rangeland Management). Benefits have accrued from the participative process of needs analysis and course development, as well as from the courses themselves. Early benefits identified by the students include – more high level, strategic and 'triple bottom line' thinking; wider, deeper and new perspectives on current and emerging issues; better understanding of other stakeholders; greater self confidence and credibility; reduced risks and better decisions; a more viable future; and new/more job and career opportunities.

At this early stage of business development, and to capitalize on the investment to date, further funding is required to support the office of Director Rangelands Australia/ Professor of Rangeland Management while further courses are developed and promoted with Australian Government funding, and the business is consolidated.

Executive Summary

This Project was a strategic response, by Meat and Livestock Australia and The University of Queensland (UQ), to a national need identified in a Meat Research Corporation-funded study of *“Education and training to support sustainable management of Australia’s pastoral industries”* (AgTrans Research 1998). This report identified that, despite the importance of the rangelands, there were no offerings specifically in rangeland management, and that the offerings available at the time were perceived by a wide range of stakeholders to have the following deficiencies:

- not practical,
- did not integrate production and ecological aspects, and
- ‘out of touch’ with the education and training needs of rangeland stakeholders.

This report also recommended the establishment of a Rangeland Management Centre and Network *“attuned to the real needs of the stakeholders in the rangelands”* (AgTrans Research 1998).

Accordingly, the Project Objectives were:

- a) **NAP3.326:** To establish a Rangeland Management Institute at UQ and provide the resources for a Professor, an Assistant, a Clerical assistant, an Educator, an Administrator and travel and operating; and to source an additional \$1m from other funding bodies.
- b) **NBP.217:** To develop innovative yet practical education and training opportunities, by 30 June 2005, to ensure profitable and sustainable use of rangeland resources and vibrant communities, including:
 - by 31 December 2003, deliver 3 new short courses for rangeland users, managers and service providers to keep up to date with developments and skills relevant for successful 21st century businesses and communities
 - by 31 July, 2004, initiate 2 new postgraduate programs for the professional development of senior managers, advisers, trainers and researchers in the rangelands,
 - by 30 June 2005, develop nationally accredited, articulated programs (with flexible options and multiple pathways) for qualifications in range management.

Rangelands Australia has been established as a Centre in the Faculty of Natural Resources, Agriculture and Veterinary Science at UQ’s Gatton campus, and was functional from late 2002.

An audit of existing formal education and training in agriculture and environmental studies confirmed that the greatest opportunities to add value were in the area of short courses and postgraduate courses.

Six short courses have been developed, in response to stakeholder-expressed needs, and accredited, and these can lead towards nationally recognized qualifications as high as an Advanced Diploma in Conservation and Land Management. Interest in the short courses has been strong, but uptake slow. This has been hampered by the lack of FarmBis or other subsidies for course costs, the lack of resources to promote these against the offerings from State agencies and regional groups, and the lack of office staff to service enquiries and requests.

Three articulated postgraduate coursework programs have been introduced, based largely on a series of RA-developed core and elective courses, and with entry points and new pathways for entry mapped for the primary market - mature-aged owner/managers, advisors and facilitators.

These programs (i.e. Graduate Certificate/Graduate Diploma/Masters in Rangeland Management) are the only postgraduate programs specifically in rangeland management in Australia.

Interest in the Postgraduate (PG) programs and courses has grown steadily since courses were first offered in late 2004, with 9 students now enrolled in the Graduate Certificate in Rangeland Management and 7 in the coursework Masters of Rangeland Management. Individual rangeland-specific PG courses have also attracted a further 10 students from other postgraduate programs at The University of Queensland and elsewhere, and we are seeing repeat business from several of these students. A further 11 prospects have taken a 3-day 'preparation for postgraduate study' short course, and are expected to enrol in a PG program within the next 2 years.

Postgraduate enrolment numbers are below original expectations, but growing steadily. Based on current enrolments, the following pattern of graduates is expected – 1 in 2005, 5 in 2006 and 10 in 2007. This trend is in contrast to significant declines in enrolments in agricultural courses nationally, and is very encouraging - especially in light of several years of drought throughout the rangelands (affecting discretionary funds and time), the relatively high cost of UQ postgraduate courses, and the limited promotion of the programs/courses since May 2005 due to funding and staff restrictions. Overall, postgraduate enrolments cover all segments of the target market, such as private landowner/managers, managers of corporate properties, Landcare and NRM facilitators, staff of regional bodies, etc. The age of participants ranges from 25 to 57 years, with the majority in their 30's and 40's. Slightly more women than men have enrolled to date. Of the 26 PG students who have enrolled in one or more RA-developed courses to date, 21 are from Australia's rangelands, 2 are from outside the rangelands of Australia, and three have been international students.

Student evaluations confirm that the courses are practical and highly relevant to people's workplace /business and their future in the rangelands, and that the course materials are of high quality. Industry and community groups are increasingly supportive of the initiative and its products, and have indicated that it is vital to their future.

On the basis of the quality and relevance of the products delivered over the past 18 months, and with strong industry support from across Australia, RA has recently secured Australian Government funding (\$1.13m over the next 3 years) to support further postgraduate course development and refinement; marketing and promotion of the new pathways, courses and educational programs within the rangelands; and establishment of a small network of 'Rangeland Champions' to provide encouragement, support and mentoring for mature-aged learners, studying remotely or by distance, who have little or no recent tertiary study experience. This is a strong endorsement, and a sound basis to consolidate and grow this initiative.

However, RA urgently needs further funds to realize the vision. Specifically, funds to retain and resource the office of the Director – the driving force behind this important initiative - while the coursework program is completed and promoted, and the Centre is consolidated. At this stage of business development, without external funding the inaugural Director will be lost. While a change may be appropriate without a passionate and visionary champion, in the current climate there is a strong possibility that this exciting, innovative and potentially far-reaching initiative will not achieve its potential and could easily be lost.

Contents

	Page
1	Background..... 8
1.1	Need..... 8
1.2	Planning and Establishment..... 8
2	Project Objectives..... 10
2.1	Project Objectives – NAP3.326 10
2.2	Project Objectives – NBP.217 10
3	Approach 10
3.1	Clarifying knowledge and skills needs..... 11
3.2	Clarifying knowledge and skills gaps..... 12
3.3	Clarifying how RA could best ‘add value’ 13
3.3.1	Short courses 13
3.3.2	Formal educational programs 14
3.4	The Market for Learning in Rural and Regional Australia 15
3.5	Establishment of a Rangeland Management Centre & Network 15
3.5.1	Rangeland Management Centre 15
3.5.2	Network of Supply 16
3.6	Introduction of a new Postgraduate Program 16
3.6.1	Learning pathways 16
3.7	Course development 17
3.7.1	Key design considerations 17
3.7.2	Quality assurance 18
3.7.3	Scoping 19
3.7.4	Writing, review and publishing 20
3.7.5	Benefits of the process..... 20
3.8	Course delivery 21
3.8.1	Accessibility and flexibility 21
3.8.2	Promoting practicality and excellence in teaching 22
3.8.3	Ensuring student support 22
3.9	Course evaluation and improvement..... 23
3.9.1	Review processes..... 23
3.9.2	Course evaluation 23

3.10	Market analysis and marketing strategy	24
3.10.1	Branding and promotion.....	24
4	Results and Discussion	25
4.1	Establishment of a National Centre and Network of Supply	25
4.1.1	Rangelands Australia – a Centre at UQ Gatton Campus.....	25
4.1.2	The future of the Centre	27
4.1.3	Network of Supply	29
4.1.4	Conclusions.....	30
4.2	Education and skills needs and gaps	30
4.2.1	A stakeholder-derived scenario in 5 years time	31
4.2.2	Key personal qualities for future success.....	31
4.2.3	Key knowledge gaps	31
4.2.4	Conclusions.....	32
4.3	Clarification of the opportunity.....	32
4.3.1	VET programs	33
4.3.2	Undergraduate programs	33
4.3.3	Postgraduate programs.....	33
4.3.4	Conclusions.....	34
4.4	Development and delivery of short courses	34
4.4.1	Short courses developed	34
4.4.2	Accreditation and articulation of short courses	35
4.4.3	Deliverers	36
4.4.4	Delivery and uptake of short courses	36
4.4.5	Pilot and fee-paying course evaluations	37
4.4.6	Conclusions.....	37
4.5	Development and delivery of Postgrad programs & courses.....	37
4.5.1	Program structure and nomenclature.....	38
4.5.2	Core and elective courses.....	38
4.5.3	Delivery and uptake of Postgraduate courses	41
4.5.3.1	Delivery	41
4.5.3.2	Uptake	42
4.5.4	Course reviews & evaluations.....	43
4.5.5	Conclusions.....	45
4.6	Program/Course information and marketing.....	45

4.6.1	Course information.....	45
4.6.2	Promotion.....	46
4.6.3	Branding the products.....	47
4.6.4	Conclusions.....	47
4.7	Impediments.....	48
4.7.1	Participatory process.....	48
4.7.2	Barriers to participation	48
4.7.3	Institutional factors	49
4.7.4	Conclusions.....	49
5	Success in Achieving Objectives	49
5.1	Success in Achieving Objectives.....	50
5.1.1	Overall Success	50
6	Impact on Meat and Livestock Industry – now & in five years time	51
6.1	Impact on Meat and Livestock Industry – now	52
6.1.1	Student feedback on industry impact – now	52
6.2	Impact on Meat and Livestock Industry – in five years time	53
6.2.1	Student feedback on likely industry impact in 5 years time.....	54
6.2.2	Industry and community benefits – a personal perspective	55
7	Conclusions and Recommendations	56
7.1	Conclusions.....	56
7.2	Recommendations	57
8	Bibliography	58
9	Appendices	58
9.1	Appendix 1: Key Publications.....	58
9.2	Appendix 2: Course outlines - short courses.....	73
9.3	Appendix 3: Core and elective courses for the PG programs	92
9.4	Appendix 4: Course outlines - postgraduate courses.....	102

1 Background

This section covers the need for the initiative, and the planning that has underpinned the establishment of a Centre known as Rangelands Australia (RA) and the implementation of the vision for this Centre.

1.1 Need

The need for an initiative such as Rangelands Australia was identified in a national study of *'Education and training to support sustainable management of Australia's pastoral industries'* commissioned by the then Meat Research Corporation and conducted by Agtrans Research in 1997-8. This report concluded that:

- There were no education and training offerings on the specific topic of rangeland management, despite the importance of Australia's rangelands, and
- Existing courses in related areas were not 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).

This report recommended the establishment of a Rangeland Management Centre and Network *"attuned to the real needs of the stakeholders in the rangelands"* (AgTrans Research 1998).

The need was confirmed in a national workshop attended by 50 key stakeholders and held in Armidale in 2001, and in widespread stakeholder consultations during 2001 and 2002. For example;

- *"Long overdue. Has so much to offer for training our future rangeland managers"* (Cobar NSW Focus group)
- *"Right on track – desperately needed"* (Katherine NT Focus group)
- *"What RA is trying to do is very good and forward thinking, and that is exactly what the rangelands needs"* (Bourke NSW Focus group)
- *"There is a big need and a big job ahead"* (Industry-based Focus group, Canberra ACT)
- *"Excellent concept – Critically important to better use and management of the rangelands. Mission sound. Capacity building is the right way. Want a 'learning community' able to adapt to change"* (Policy maker-based Focus group, Canberra ACT)
- *"Its about time! Done properly it could be a huge benefit to all of us in the rangelands"* (Katherine NT Focus group)
- *"A great concept that must be developed and realised"* (Port Augusta SA Focus group).

1.2 Planning and Establishment

In late 1998, a Working Group was established under the Chairmanship of Mr John Landy to examine the possibility of setting up a National Centre for Rangeland Management. This group met on several occasions and recommended to the Meat Research Corporation that a Steering Group be established. In the uncertainty surrounding the transition from MRC to MLA, the opportunity was seized by industry and a number of Queensland-based agencies to establish a Steering Group to progress the idea. This group was subsequently chaired by Mr John Stewart (AgForce) and included representatives of The University of Queensland (UQ), Queensland

Department of Primary Industries (QDPI, now QDPI&F), Queensland Department of Natural Resources (QDNR now QDNRM&W), CSIRO Tropical Agriculture (CTA now CSIRO Sustainable Ecosystems), Queensland Department of the Environment (QDE, now Environmental Protection Agency), Cooperative Research Centre for Sustainable Development of Tropical Savannas (CRCSDTS now CRCTS), Longreach Pastoral College, United Graziers Association (now AgForce), Queensland Rural Industries Rural Training Council (QRITC), and later Meat and Livestock Australia (MLA). During the course of 1999 and 2000, this Group registered the business name, developed a Business Plan, sought funding commitments from MLA and UQ, and developed position descriptions for the Board and Professor of Rangeland Management, which were subsequently advertised in late 2000. The current Director was an active member of this Steering Group.

A national workshop, involving around 50 stakeholders from experienced producers to policy makers and including representatives of all rangeland states and territories, was held in Armidale in February 2001. This group reviewed the Business Plan, and through the workshop process provided valuable improvements to the vision, communication strategy, course delivery options, and the proposed implementation plan. The workshop participants reinforced the need for a strong customer focus, and the need to 'do things differently' in terms of course development and delivery to overcome the barriers to learning and to ensure relevance and accessibility.

Rangelands Australia (RA) was formally established in early 2001 with the commitment of \$2.1m over 5 years from UQ and MLA (MLA's NAP3.326), and the appointment of a largely external Board which included a representative of each of the funding partners (called Managing Parties). RA became partly functional with the appointment of the inaugural Director and Professor of Rangeland Management, John A Taylor, in mid-2001.

The Board reviewed the Business Plan (which assumed a funding base of \$9.5m over 5 years), outputs of the Armidale workshop, and set priorities and guidelines for:

- Clarifying education and skills needs
- Raising awareness of RA
- Developing a marketing strategy
- Strengthening the funding base
- Engaging partners in a network of supply, and
- Course development.

After 12 months, and in the light of the failure to attract a further \$1m and other concerns of the Managing Parties, the NAP3.326 contract was terminated, and a new contract, NBP.217, initiated in mid-2002.

A number of key positions, essential for realising the vision, were finally filled and the Centre became functional in late 2002. These positions included a Centre manager/ Executive assistant, two F/T Educational designers, a P/T Marketing and communication officer and a P/T Program coordinator. The considerable achievements outlined in this report are the result of the extraordinary efforts of this small team of passionate and committed people over a 3-year period.

2 Project Objectives

This report covers two projects, NAP3.326 and NBP.217.

2.1 Project Objectives – NAP3.326

By 2005, establish a Rangeland Management Institute at The University of Queensland, responsible for the operation of Rangelands Australia, and provide the resources for a Professor, an Assistant, a Clerical assistant, an Educator, an Administrator and travel and operating; and to source an additional \$1m from other funding bodies.

2.2 Project Objectives – NBP.217

By 30 June 2005, develop innovative yet practical education and training opportunities to ensure profitable and sustainable use of rangeland resources and vibrant communities, including:

- by 31 December 2003, deliver 3 new short courses for rangeland users, managers and service providers to keep up to date with developments and skills relevant for successful 21st century businesses and communities
- by 31 July, 2004, initiate 2 new postgraduate programs for the professional development of senior managers, advisers, trainers and researchers in the rangelands
- by 30 June 2005, develop nationally accredited, articulated programs (with flexible options and multiple pathways) for qualifications in range management

3 Approach

An approach for establishing the 'Range Management Institute' was well mapped in the Business Plan (1999), and revised in the light of feedback received from the Armidale workshop (February 2001) on both the Business Plan and the Implementation Plan.

The Centre's values were confirmed early by the Board, and several of these have guided direction-setting and decision-making. For example, demand/stakeholder-driven, not supply-driven; a focus on life-long-learning and not just on courses; a systems approach, etc.

The approach to development of more rangeland-relevant and innovative education and training was initially guided by:

- a) the AgTrans Research report (AgTrans Research 1998),
- b) the Business Plan developed in 1999 by the Rangelands Australia Steering Cttee, and
- c) the outputs of a national workshop held in Armidale in February 2001.

These key documents were reviewed and strategies developed by the Director and/or staff for the following key steps:

- Clarifying knowledge and skill needs
- Clarifying knowledge and skill gaps in key market segments
- Clarifying how RA could best 'add value' in the training and higher education areas
- Quality assurance for course development, delivery and improvement
- Understanding the market for learning
- Establishment of a Rangeland Management Centre and network

- Course development
- Course delivery
- Course evaluation, and
- Promotion and marketing.

Traditionally, what clients want and value has not been the central consideration in development of education and training products and services in Universities. RA has recognized the importance of matching product offerings to learner expectations, and aspired to develop short courses and tertiary education programs that would generate client benefit and satisfaction, and increase participation in rangeland training and education. To those ends, a participatory and market or demand-driven approach, called social marketing, was adopted to guide the overall development of courses and programs. Social marketing places the client (ie. learner or employer) at the centre of every strategic decision, and is based on understanding their needs, attitudes, values and behaviours as regards education and training and life-long-learning (Andreason 1995).

3.1 Clarifying knowledge and skills needs

A focus group approach was developed to clarify knowledge and skills needs, with input from the Rural Extension Centre and other experts with experience of needs analysis. Each of the workshops involved 10-21 stakeholders and was facilitated by the Director, with an appropriate Board member participating when and where possible.

Potential participants for each focus group were identified through industry, agency and regional networks, with effort made to attract a mix of stakeholders, a mix of 'wise heads' and youth, and to achieve some gender balance. Very few stakeholders declined the invitation to participate.

Key steps in the one-day workshop process included:

- Introductions and purpose of the workshop
- Overview of Rangelands Australia
- Identification of current issues and challenges
- Presentation on forces driving change
- Identification of missing issues, challenges or opportunities
- Identification of a 'likely scenario' in 5-10 years time
- Identification of key personal attributes for success in this scenario in 5-10 years time
- Identification of key knowledge for individual, enterprise and community success in this scenario in 5-10 years time
- Identification of areas for short courses that would fill immediate needs
- Ideas for collaboratively achieving the vision, and
- Workshop evaluation.

This process was piloted in Longreach and subsequently utilized in 23 other locations between June 2001 and November 2002. The outputs of each focus group were carefully recorded to capture the words and sentiment used by participants. A copy of the outputs was sent back to focus group participants, with an invitation to reflect on the outputs and amend or add to the record of the meeting as necessary. A few additional inputs were usually received.

Feedback on the focus group process was very positive (see below), with only minor suggestions for improvement. These were adopted if it was judged that the suggestions would not change the structure of the workshop or the nature of the outputs.

The outputs of this process have provided a forward-looking, multiple stakeholder perspective of skill and knowledge needs, and lists of:

- Current issues in the rangelands
- Drivers of change, and emerging issues, challenges and opportunities
- Words describing the desired and likely future scenario in particular regions
- Key personal qualities for individual success in 5-10 years time
- Key areas of knowledge for enterprise and community success in 5-10 years time
- Possible short course topics to fill current gaps and immediate needs, and
- Collaborative opportunities.

The list of current issues has been placed on the RA website (www.rangelands-australia.com.au) and has been appreciated by industry and governments. The information on drivers of change, emerging issues and opportunities, and critical areas of knowledge have been important inputs to course scoping workshops.

Participatory approaches to the development of educational programs and courses are not common in tertiary education and, from the feedback, have been a positive and beneficial experience for many participants. For example,

- *"I applaud the process of regional focus groups as a tool for wide consultation. A cost-effective method of getting a feel for the issues and needs"* (Moree NSW Focus group)
- *"The process was inclusive, non-threatening and effective, drawing out ideas on education and training"* (Policy maker Focus group, Canberra ACT)
- *"Thought provoking workshop made me see the 'big picture'. Gave everyone a chance to voice their views"* (Karratha WA Focus group), and
- *"I liked ... the opportunity to exchange ideas with other stakeholders around the table and the requirement to think more deeply about what is needed for the future"* (Perth WA Focus group).

And stakeholders felt valued and empowered by the process. For example,

- *"Very inclusive and very interactive. I liked the sense that this region can influence program development"* (Alice Springs NT Focus group)
- *"It was an honour to be invited to contribute. It challenges us to get out of our comfort zone of the present and look to a better world"* (Hay NSW Focus group), and
- *"It was good that you (RA) were willing to listen to everyone's point of view, and that we, the people, had a huge input"* (Bourke NSW Focus group).

3.2 Clarifying knowledge and skills gaps

A survey approach was used to clarify and prioritize the personal qualities that require further development for individual success in the rangelands, and to identify the key gaps in knowledge among 'most' members of two important segments of our target market –

- a) cattle/beef and sheep/wool producers, and
- b) advisers, facilitators and researchers who are expected to support producers.

The lists of the 14 personal qualities and 18 key areas of knowledge derived from the focus groups (Taylor 2002) were incorporated in a survey form supplied to members of five groups of people with a strong interest in the rangelands:

- 1) Original focus group participants (74 respondents),
- 2) Attendees at the North Australia Beef Research Council (NABRC) meeting in Broome in September 2001 (21),
- 3) Attendees at the session on 'Capacity to Manage Change' at the Australian Rangeland Society's (ARS) conference in Kalgoorlie in September 2002 (96),
- 4) Interested beef producers and advisors at Beef 2003 in Rockhampton in April 2003 (35 + 70 respectively), and
- 5) Interested Landcare facilitators at the National Landcare Conference in Darwin in May 2003 (35).

Respondents were asked to identify themselves with a particular stakeholder group (ie. producer, government advisor/extension officer, Landcare/NRM facilitator or training/education provider), and to tick the 8 areas/courses that would help 'most' of them in working in the rangelands. They were then asked to identify the 5 most important areas for other stakeholder groups to improve their effectiveness in the rangelands, and to note any areas they thought were particularly important and not in the list of key knowledge areas. This approach allowed us to determine a group's priorities for skill and knowledge development (based on the frequency of response), and the perception of other stakeholders of their needs.

The respondents represented cattle/beef and sheep/wool producers (95), advisors, facilitators and researchers (201), and other stakeholders (35).

As there was only a slight difference in the rank order of the top five personal attributes and areas of knowledge identified as requiring development by the first three groups of respondents (viz, focus group participants, NABRC members and ARS conference participants), the data sets were combined. This finding highlights the general applicability of the results and the robustness of the messages from this process.

The development and roll-out of courses has followed the ensuing stakeholder-derived priorities for knowledge and skill development.

3.3 Clarifying how RA could best 'add value'

Clarifying the opportunity for RA involved determining supply and demand, assessing the alignment of these, and determining areas where demand was high and supply poor.

The focus groups provided valuable information on needs and potential demand, and especially on critical content for both short courses and the structured educational programs. Two different processes were utilised to determine supply, the alignment of supply with demand/expressed need, and thus the opportunity for RA to 'add value' to the suite of courses available. It was also envisaged that this process would minimise duplication.

3.3.1 Short courses

A list of 28 potential short-course topics was identified by the 24 focus groups, with some priority indicated by the frequency of listing.

An analysis of demand (i.e. frequency in focus group outputs) and supply (i.e. based on an audit of over 1350 short courses in agriculture and environmental studies available in 2003) identified eight potential topics where demand was high and supply either low or not aligned with expressed needs. Tentative course outlines were developed from the focus group outputs for the top five topics, and these were tested with rangeland stakeholders, including:

- key stakeholders, such as AgForce-Q, Pastoralists & Graziers Association-WA, Northern Territory Cattlemens' Association, SA Pastoral Board, Stanbroke, AACo, Kidman & Co, Meat & Livestock Australia's BeefPlan Coordinator, Cooper Creek Catchment Management Committee, Wesfarmers Landmark, Australian Rangeland Society, Agriculture Forestry Fisheries - Australia, and Environment Australia. They provided comment on the importance and priority of the topics and on the proposed content and learning outcomes
- beef producers at Beef 2003 who ranked and validated the importance of the short course topics and commented on the proposed content (150 surveys)
- advisors/extension officers at Beef 2003 and the 2003 National Landcare Conference (29 surveys) who ranked the importance of the short course topics from their perspective, and commented on the proposed content.

Some additional potential topics were identified in these processes but none of the additional topics were rated as highly as the top 5 topics identified in the focus groups.

3.3.2 Formal educational programs

The alignment of existing Vocational Education and Training (VET), Undergraduate and Postgraduate programs with expressed needs was explored to identify the level(s) of tertiary education at which RA could best 'add value' to existing programs/courses.

As it happened, the skill and knowledge needs identified by stakeholders (Taylor 2002) 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 available in agriculture and environmental studies in early 2003 (ie. the course list supplemented by brief course descriptions) were sourced and over-laid on the list of topics and descriptors collated from the focus group outputs. A summation of the rankings for alignment of topic and content across each of the three dimensions of the 'triple bottom line' provided the basis for calculating a % alignment with expressed needs. The ranking used was 'strongly aligned = 3', 'moderately aligned = 2', 'little alignment = 1' and 'no alignment = 0', with a maximum score of 9 (ie. 100% alignment) across all three dimensions of the 'triple bottom line'.

This is a fairly coarse assessment of alignment with expressed needs, but with the generality and poor quality of many course outlines on web sites and in handbooks, was all that could be accomplished without a huge investment of time and money. It is argued that this process should at least identify any major discrepancies.

Through this review of existing programs and courses, some individual courses were identified that seemed strongly or moderately aligned with expressed needs. These were flagged for further investigation, including discussions with the author/lecturer about using them as an elective, or perhaps modifying them to improve either their relevance to the rangelands or their suitability for distance education.

3.4 The Market for Learning in Rural and Regional Australia

Consistent with RA's intent to develop courses and programs that would generate client benefit and satisfaction, RA sought to develop a stronger understanding of the demand side of the market for education and training that is specifically relevant to the rangelands. In particular, we were interested in what potential clients want or expect from education and training products, what they will value, what will encourage or deter their participation, which segments of the market are most likely to respond to the offerings proposed, and how we could reach them.

Furthermore, with participation rates in rural and regional Australia only half that in urban areas, RA has recognised that to increase participation we needed to understand:

- the levers that trigger interest in learning and skill development,
- incentives for individuals to invest in learning, and
- appropriate strategies to overcome the barriers to learning among those with a high internal (ie. passionate learners) or external (ie. job-driven) interest in learning.

RA staff were particularly impressed with an Australian National Training Authority (ANTA) report on client needs (ANTA 2001) which was based on a telephone survey of 3,866 16-64 year olds and provided a segmentation of the national market for learning based on attitudes to learning. RA sought permission from ANTA to strip the urban respondents from the data set, and, with ANTA's permission, commissioned the original researchers (Quay Connection) to conduct a secondary analysis of the 1400 responses from rural and regional Australia, and provide a report for RA.

Quay's report for RA (unpublished) is a unique and valuable resource. It has provided valuable insights into market potential, key factors that impact on individuals' predisposition to further education and training, barriers to participation in learning, incentives for investment of time and money in further learning, levers that motivate participation in further education, strategies for generating demand, profiles of segments in the market with a strong internal or external value for learning, and strategic directions for marketing. This information has been used to:

- Design the kind of learning products that individuals and employers will want and value,
- Deliver training and education programs in a way that maximises numbers and retention, and minimises barriers to participation,
- Promote RA's products in ways that attract participants from priority segments of the market (ie. 'passionate learner' and 'job-driven' segments) and generates support from key influencers, and
- Increase participant satisfaction with RA-developed learning experiences and with the benefits it generates to individuals and their employers.

3.5 Establishment of a Rangeland Management Centre & Network

3.5.1 Rangeland Management Centre

The process for establishing a Centre was governed by a University policy and guidelines that were updated part-way through the process. Information sought included purpose, alignment with University and Faculty priorities, objectives, nature of the work, administrative arrangements and resources.

3.5.2 Network of Supply

The original concept was for RA to be a hub which supplied and accessed courses to/from nodes at partner institutions. This assumed that the needs were known and that existing offerings would meet the needs. While there were initially many offers of tertiary courses for inclusion in the RM program, the focus groups were providing strong signals that existing programs/courses were not aligned with expressed needs (see Section 5.4). This in turn suggested that this approach would not address the problems identified in the AgTrans Research report which had led to the establishment of RA.

Nevertheless, and as background to possible negotiations with education and training providers for the provision of courses, it was proposed that criteria be developed to identify 'preferred providers' and that a detailed analysis be conducted of the offerings of various providers and their cost of national delivery. This proposal was not supported by the Board and effort was re-directed to course development.

When the network idea was re-visited in mid-2004, the first round of the Nelson reforms of the tertiary education sector were driving reviews of program and course offerings in all institutions, with the goal of significant reduction in the number of courses offered (eg. c.25% at UQ). Not surprisingly, most institutions were reluctant to engage in any discussion of course sharing, multi-institutional accreditation of courses or cross-institutional enrolment, at least until the outcomes of their internal reviews were known.

However, at about this time the Sheep CRC and the University of New England were exploring interest in a similar concept - national delivery of specialised undergraduate sheep and wool subjects. As the Sheep CRC was also considering issues such as multiple delivery formats, QA and equity in student loads across participating Universities, and to avoid 'muddying the waters' RA decided to stand back and monitor the outcome of these investigations and negotiations, and the lessons.

3.6 Introduction of a new Postgraduate Program

The multi-stage process for approval to introduce a new Postgraduate coursework program was governed by University policies and guidelines. The case required a rationale for introduction, information on relevance to UQ and Faculty strategic plans, a market demand and competition analysis, a proposed course list, and business case analysis, and evidence of consultation with relevant academic and administration units at UQ.

Besides the approval of the new programs, two related and important issues identified in the focus groups and the Armidale workshop were articulation and learning pathways. Articulation of short courses is addressed in Section 3.7.4 below.

3.6.1 Learning pathways

At the outset it was recognised that there were significant business opportunities in linking the VET and Higher education sectors. The growth in awards based on demonstration of competency (Recognition of Current Competency – RCC) and/or Recognition of Prior Learning (RPL) have provided an important entry portal for owner/managers into the Higher education system. Government and industry training initiatives have encouraged participation and led to many overcoming their fear of further education. These people are now seeking learning opportunities that are practical, relevant and accessible from home or work.

Learning pathways have been mapped to highlight the multiple pathways to a higher education qualification, and that both formal and informal learning can be credited towards a qualification (see Section 4.6.1). These pathways have been included in the Rangeland Management postgraduate (PG) brochure and on our website.

3.7 Course development

Strategies for course development were guided by the need to address the perceived shortcomings of existing offerings (loosely identified in the AgTrans Research report and feedback from the Armidale workshop). The priorities for course development were determined by analysis of the knowledge and skills gaps and stakeholder derived priorities based on expressed need.

The need for accredited and non-accredited training and education was highlighted in the AgTrans report, the Armidale workshop and the focus groups, and as these are usually very different products, this had important implications for content and delivery. RA chose to develop courses in a way that will help people achieve the outcomes identified in the focus groups (ie. desired and likely future). Accordingly, in course development RA has placed emphasis on content, relevance and application of knowledge, and provided participants with the option of gaining credit towards a qualification or simply taking the course for personal or professional development.

A highly strategic, student-centred, participatory approach to course development was developed, underpinned by a Quality Assurance and Continuous Improvement (QA) scheme for 'best practice' course development, delivery and improvement of all courses.

More recently this has been acknowledged as best practice (see Section 4.2.3) and nominated for industry (e.g., Finalist, 2005 AgForce Education Award) and teaching excellence awards.

3.7.1 Key design considerations

Some of the key elements of the design of any RA-developed course include:

- Content is practical and relates to core principles and their application to current and emerging issues in the rangelands,
- Content addresses client needs, barriers to learning and different learning styles (student-centred),
- Content is designed within a conceptual framework that enhances independent learning skills for life-long learning,
- Developing new ways of thinking, and especially systems and 'triple-bottom-line' thinking,
- Both content and generic skills and attributes are assessed,
- Application of knowledge and skill is related to the workplace (AQTF Standard 8.1) and practical problems,
- Assessment is utilised as part of the learning process and not as a means to an end,
- Genuine flexible delivery – pace, time and place – is supported, and
- Student interaction is part of the learning process, eg. on-line discussions, teleconferences.

Articulation of short courses was seen to be a highly desirable feature and an important function for RA, at least by focus group and Armidale workshop participants. Guiding principles for articulation of short courses within the VET sector and into the Higher education sector included:

- Courses, offered as accredited or non-accredited training, can be accessed individually as a stand-alone unit,
- Where possible, short courses will be accredited to contribute towards a nationally recognised award, or a combination of courses will lead towards a nationally recognised qualification,
- Courses will be mapped to appropriate competencies in registered training packages,
- Courses are to be credited towards units in a higher education award, OR entry to a higher education program, but not both, and
- Courses will contain optional assessment components that focus on the application of principles, theory or skills in a work or business context. The assessment may be undertaken up to one year after completion of the course and be credited towards a qualification.

Consistent with insights from the Armidale workshop and the profiles of key market segments, PG students are to be supplied with the following introductory information for each course to assist with course/subject orientation:

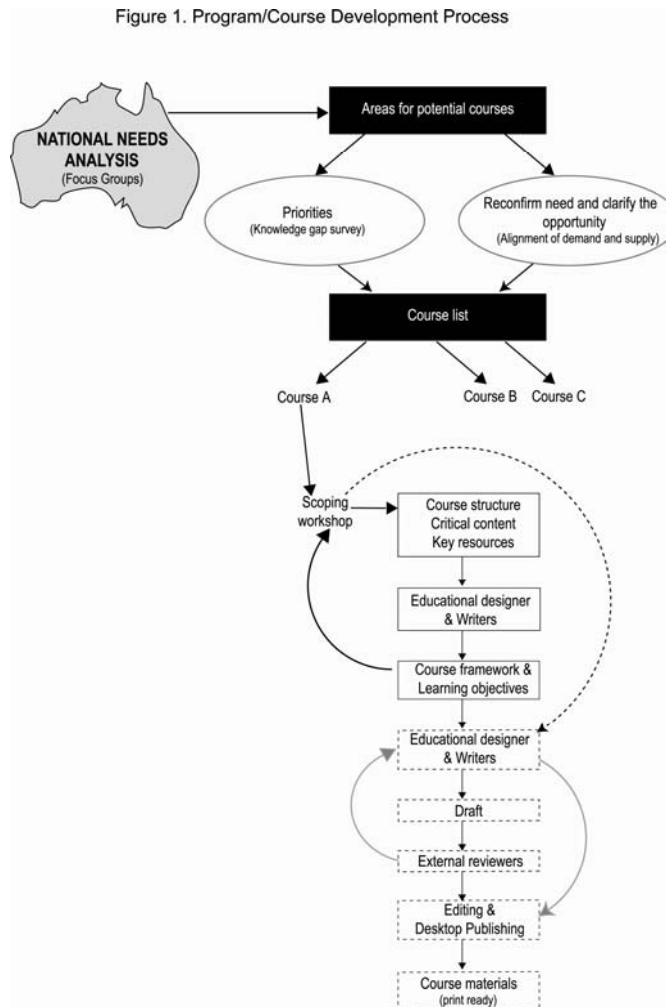
- Unit specification
- Rangeland Management learning pathway
- Enquiries and Facilitator contacts
- On-line support eg newsgroups
- Learning resources
- Resource requirements
- Library resources, services and fees
- Study package details
- Additional references for further reading
- Course evaluation
- Course organization
- Timetable and work program/ Study schedule
- Assessment schedule
- Grading levels
- Submission details for assignments
- Assignment details and marking guide
- Mentoring and support services
- Rules for withdrawal, and
- Grievance and appeal procedures.

3.7.2 Quality assurance

The QA scheme was developed with input from potential customers, a subset of potential partners in the network of supply, and professional educators. It exceeds AQTF and AUQA standards, specifically addresses the need for relevance and customer preferences, and enshrines continuous improvement based on the Australian standard (Education and Training ISO 9001:2000). Processes followed to ensure high-quality courses include: feedback from participants at all stages of the course development process; involvement of an Educational designer to ensure high level alignment of learning objectives, learning activities and assessment; use of external reviewers (PG courses) and pilots (short courses) to refine the

structure and content of courses; and incorporation of participant/student feedback in a process of continuous improvement.

The process of course development is outlined in Figure 1.



3.7.3 Scoping

The course scoping workshops were organised, mostly in the rangelands, for a single content area identified from the outputs of the focus groups. A group of 12 - 20 experienced practitioners, advisors, scientists and other appropriate stakeholders was assembled for a day and led through a structured process by the Director of RA and an Educational designer. This process was designed to identify current and emerging issues, major management problems in this area, critical content, critical skills and knowledge, and an appropriate structure for the course. Where it was relevant, participants were also asked to identify what should be in a short course vs. a PG-level course. Participants were asked to bring any resources (ie. books, reports, scientific publications, etc.) that they had found useful in this area. At the end of the workshop participants were invited to commit to writing sections or reviewing drafts; and/or to identify other people who would have the knowledge and skills to contribute in these areas.

After the workshop the Educational designer collated the information, and sought feedback from the participants on its accuracy and any additional information or insights. This collated information (c. 14-25 pages) was subsequently used extensively to guide the course writers.

A plan for course development was then prepared by the Educational designer, and feedback on this, learning objectives, potential learning activities, etc., was sought from workshop participants and other stakeholders. Where appropriate, potential writers were assigned to particular modules.

3.7.4 Writing, review and publishing

For each course, from one to five writers were contracted for delivery of drafts/modules consistent with the plan, and subsequently (as necessary) for amendments in response to external reviewers' feedback.

The first draft of both short courses and postgraduate courses was sent out for review to 8-10 experienced practitioners, experts and other stakeholders, who invariably included one or two of the participants in the scoping workshop.

At around this stage new postgraduate courses were submitted to the Faculty (NRAVS) for approval/ accreditation, and new short courses mapped against competencies and submitted to QRITC for accreditation.

The Educational designer facilitated desk-topping, editing and production of the printed course materials, either a Workbook (ie. short courses) or an Introductory book, Learning Guide, Reader, etc (ie. PG courses). These are supplied in hard copy to course participants in accordance with the preferences expressed in the focus groups and in the profiles of the target market (ie. 'passionate learners' and 'job-driven' segments).

3.7.5 Benefits of the process

Members of the rangelands community have expressed a high level of satisfaction with the opportunity to participate in developing rangeland-focused courses and educational materials. For example:

- *The RA process allowed me to delve into many of the tools necessary for effective and sustainable management outside of the normal bio-physical world I had been used to. In so doing, I have developed a much keener sense of issues which landholders need to consider...* (Dr Tony Pressland, GM Sustainable Landscapes, Qld Department of Natural Resources and Mines, Brisbane Q; and participant in the workshop scoping the "Property, Catchment and Regional Planning" PG course)
- *"Your scoping workshop provided a global perspective with regional experiences, and it is this level of experiential learning fostered that makes RA a stand out provider of quality education. For those of us that work in the rangelands, my understanding of relevant issues has increased as a direct result of your innovative approach"* (Mr Tony Rayner, Regional Director – West, Qld Department of Primary Industries and Fisheries, Longreach Q; and participant in the workshop scoping the "Managing Self and Developing Others in the Rangelands" PG course)

- *“The opportunity to participate in activities with RA (ie. scoping workshops, and writing teams) has been a highly rewarding, creative and reflective experience. The people encountered have been positive, experienced, from diverse backgrounds, motivators, creative and willing to have their work reviewed, challenged and updated, with the end result being of even higher quality”* (Mr Terry Elliot, Beef producer and Organic consultant and trainer, and scoping workshop participant and writer of the ‘Diversification and New Industries’ PG course, and reviewer of the ‘Animal Nutrition and Behaviour’ PG Course)
- *“... being engaged in such an extensive and robust process of scoping, development and writing of the course has been a profound privilege. It was illuminating and I am in awe at the passion and expertise engaged to write this course”* (Ms Pennie Scott, Principal, White Knuckle Marketing, Canowindra NSW, scoping workshop participant, a writer of the ‘Success in Diversification’ short course, and a reviewer of the ‘Diversification and New Industries in the Rangelands’ PG course)

And the process has had unexpected benefits. One of the unforeseen, but highly significant outcomes of the course development process has been the learning and insights the ‘experts’ have gained through our process. For example,

- *“The development of ... the first postgraduate course in Australia on integrating planning across property, catchment and regional levels has helped me to articulate a crying gap in Australia’s natural resources research effort, and probably more importantly, institutional arrangements for improving the management of our natural resources”* (Mr Noel Beynon, National Water Commission, Canberra ACT, and a writer of the ‘Property, Catchment and Regional Planning’ PG course).
- *“... my understanding of relevant issues has increased as a direct result of your innovative approach”* (Mr Tony Rayner, Regional Director – West, Qld Department of Primary Industries and Fisheries, Longreach Q, and participant in the workshop scoping the ‘Managing self and Developing others’ PG course)

3.8 Course delivery

Strategies for course delivery were guided by the need to address issues of accessibility and practicality identified in the AgTrans Research report (1998) and in the Armidale workshop, and the needs for flexibility, excellence in teaching and student support identified in the focus groups. The barriers to learning and delivery preferences of the ‘passionate learner’ and ‘job-driven’ segments were also considered.

3.8.1 Accessibility and flexibility

To our potential customers, accessibility means that a course is accessible where they live and work in the rangelands. Similarly, flexibility means flexibility in time and place, and not simply delivery by distance or e-technology.

Face-to-face delivery to small groups in the rangelands was identified as the most appropriate and cost-effective means of delivering short courses. Minimum numbers were set to maximise both formal and interactive learning. To achieve flexibility, short courses are offered subject to demand and at mutually convenient times and locations in the rangelands.

Distance education and flexible cross-institutional enrolment were identified as providing the best access to learning and the most diverse and flexible options for students in rural and remote Australia. Among the distance options, delivery formats such as printed notes, CD ROM's, video, telephone, e-learning and face-to-face were considered, as appropriate to the content and to cater for different learning styles.

While on-line study is popular with some of the younger generation (eg. undergraduates), we resisted the institutional enthusiasm for widespread application and took a more cautious approach. This was because of the negative reaction from mature-aged learners about on-line delivery and computer-based learning, identified at the Armidale workshop and in our focus groups, and issues such as the poor telecommunication service levels and fear of technology that is widespread in rural communities. Accordingly, we chose to deliver postgraduate-level learning through printed notes and readings, supplemented with on-line discussions and teleconferences. Importantly, these delivery formats address the learning preferences identified in research on the market for learning, allow learners to better balance work, study and other commitments, and should be readily sustained once the RM programs are mainstreamed in the UQ system.

3.8.2 Promoting practicality and excellence in teaching

Rangelands Australia has aspired to deliver quality courses through credible deliverers/delivery teams with practical knowledge, rangeland experience and educational expertise. FarmBis and University requirements also dictate that presenters/learning facilitators have at least a Certificate IV in Workplace Training & Assessment and at least an appropriate Masters qualification, respectively.

Potential deliverers were often identified in the scoping and review phases. In addition, expressions of interest in delivery of short courses and PG courses were sought internally within UQ by email, and externally by advertisement in June-July 2004. The following qualities, experience and qualifications were sought in potential deliverers:

- Commitment and passion for the rangelands,
- Sound knowledge and relevant practical experience, and, in the case of facilitators and experts in the postgraduate courses, relevant tertiary qualifications (minimum Masters level),
- Credibility in the rangelands,
- High level communication, interpersonal and facilitation skills, including the ability to relate to, empathise with, engage and manage a diversity of rangeland stakeholders,
- Strong organisational skills and independence,
- Capacity for adaptability and flexibility, and
- Willingness to add value through continuous improvement of RA-developed courses.

Rangelands Australia has developed excellence in teaching through the outstanding individuals selected as Learning facilitators, through monitoring and review of the delivery process and Learning facilitators, and support of the Facilitators by the Program Coordinator.

3.8.3 Ensuring student support

Research into the market for learning identified the importance of support systems to assist learners overcome the barriers to learning and develop positive attitudes towards change. The research has also highlighted the importance of family and peer support and encouragement to address time and cost barriers, and employer support and encouragement especially for the 'job-driven' segment. These messages have been delivered to industry and key agencies through

presentations at events such as an AgForce Council meeting, Longreach Meat Profit Day and a meeting of FarmBis coordinators and presenters.

The recognition of the importance of support and encouragement, especially for mature-aged students who haven't studied for some time, has led to other initiatives such as:

- a) A short course to prepare people for PG study by distance (see Section 4.4.1). This has been delivered to 11 current and potential students.
- b) A case for a network of Rangeland Champions to provide 'out of hours' encouragement, support and mentoring for remote students. This has recently been funded by the Australian Government.

3.9 Course evaluation and improvement

Continuous improvement through student and stakeholder feedback is a core principle of student-centred or market-driven approaches to education and training. In order to meet market/student expectations, courses were reviewed prior to piloting/delivery and course evaluations were conducted every time a course was delivered.

3.9.1 Review processes

Review of a draft course workbook/ learning guide was undertaken by up to 12 experienced practitioners, advisors, scientists and policy officers, as appropriate, to ensure:

- Course meets the objectives and needs,
- Content is factual, accurate, practical and up-to-date,
- Relevance and effectiveness of learning activities, and
- Course meets client needs and contributes towards changing attitudes.

Reviewers were supplied with an advanced draft and a copy of the outputs of the scoping workshop. Corrections and suggestions were considered by the writing team and educational designer, and incorporated where these added value.

It was intended that longitudinal studies would be undertaken to gauge behavioural changes in rangeland management practices and to measure the outcomes of the education program and courses.

3.9.2 Course evaluation

As identified in our QA scheme, the process of student and course evaluations was designed to achieve continuous improvement in the following aspects:

- Course design and its contribution to improving understanding of the rangelands, especially relevance of content, practicality and relevance of the learning activities and assessment items, currency of resources,
- Delivery and quality of course materials,
- Facilitator – availability, knowledge and practical orientation,
- Level and responsiveness of i) support for learning and ii) administration,
- Change processes, as measured by greater awareness of context, improvement in skills (physical and cognitive), changing attitudes and vocational application,
- Measures of client satisfaction such as:
 - Student satisfaction with course design, delivery and learning support services,
 - Employee and employer satisfaction with vocational application, and
 - Student destination surveys to ascertain the value of programs.

It was envisaged that evaluations would also be utilised in reviewing course development, in identifying gaps in offerings and opportunities for development of new products, as well as in developing the deliverers/facilitators.

3.10 Market analysis and marketing strategy

As the participation rate in post-secondary education in rural and regional Australia is half that in urban areas, RA focused on identifying and overcoming the barriers to participation (ie. time, cost, distance/ accessibility and negative attitudes towards training) within our control, and on marketing 'learning for a future in the rangelands' to those with a positive attitude to learning.

To ensure the biggest return on investment in marketing and communication, a Marketing and Communication Plan was developed in mid-2001, and extensively revised in early 2003 using research on the barriers to learning, commissioned research on the market for learning, and our own research on the key sources of information on training and professional development utilised by different stakeholder groups.

The Plan included analyses of the target markets and competitors, critical success factors, SWOT, branding, and marketing objectives, strategies and tactics, and was updated 6-monthly until January 2005. Unfortunately, the implementation of this plan effectively ceased in May 2005 when the Marketing and Communication officer left and there were insufficient funds for the Director to continue the planned series of promotional presentations at industry and regional meetings throughout the rangelands.

3.10.1 Branding and promotion

The RA Board identified branding as a key strategy to differentiate the RA-developed programs and courses, and especially to address considerable negative feedback about the perceived relevance and practicality of many University-developed courses (Agtrans Research 1998, the Armidale workshop, and subsequently direct to RA). The strategy adopted was to build recognition and credibility in the marketplace, initially through a high-profile, consultative, client-focused approach to course development. The intent was to increasingly highlight that RA was part of a University that is more responsive to student needs and committed to greater relevance in learning, and that RA/UQ were 'doing things differently'.

The major challenge was to differentiate the Rangeland Management (RM) programs from the 156 undergraduate programs and 88 postgraduate coursework programs in agriculture and environmental studies available in Australia, and to develop innovative ways to present and promote the RM programs to prospective students.

Another significant challenge was that the target market for the RM postgraduate and short courses was very different to the primary target of UQ/UQG marketing (ie. mature-aged people from rural and remote areas vs school leavers, respectively). The market for the RM PG programs required different media, strategies, tactics and messages to those typically used in University and Faculty marketing.

UQ Corporate Identity and Branding Guides were introduced in late 2003, and RA determined that as a joint-venture between UQ and MLA, it was not subject to UQ Corporate Identity guidelines.

However, along with being formally accepted as a Faculty Centre, the status of the RA entity changed with respect to branding from a 'partnership/joint-venture' to 'an internal UQ unit'. This meant that from mid-2004 RA was subject to UQ Identity and Branding Guidelines.

4 Results and Discussion

Consistent with our market-driven and student-centred approach, there has been a very high level of stakeholder involvement in identifying and developing the educational products provided through the RA initiative. To summarize, to date the practice of stakeholder participation has engaged:

- Over 400 people nationally, from policy makers to beef producers, who participated in the needs analysis/focus groups
- Over 330 people nationally, who responded to surveys to identify skills gaps and course development priorities
- Over 180 people from Q, NSW, NT, SA, ACT and WA who have been involved in the course scoping workshops
- Over 70 people from Q, NSW, NT, SA, ACT and WA who have been involved in the course review process
- Over 85 people in Q and NSW who have participated in the short course pilots, and
- Over 20 people from Q, NSW, WA and the ACT who have been engaged as writers.
- Over 10 UQ academics, from three NRAVS schools and two other UQ schools, in scoping, review and delivery of short courses and postgraduate courses.

This section covers progress and achievements in the following areas:

- Establishment of a national Centre and network of supply
- Education and skills needs and gaps
- Clarification of the opportunity
- Development and delivery of short courses
- Development and delivery of postgraduate programs and courses
- Program/course information and marketing,

and concludes with a brief description of a number of impediments to progress.

4.1 Establishment of a National Centre and Network of Supply

4.1.1 Rangelands Australia – a Centre at UQ Gatton Campus

The documentation to establish Rangelands Australia (RA) as a Faculty Centre was submitted in mid-2002, revised in the light of changes to the UQ policy on Faculty Centres, and progressed through the NRAVS Faculty. The case was finally approved by UQ's Academic Board and Vice Chancellor in May-June 2004, although RA had been functional, operating as a separate cost centre, and providing Centre reports since late 2002.

Several requests for approval to appoint staff in late 2001 and early 2002 were not supported. However, by late 2002 RA's complement of staff had grown to include the Director/ Professor of Rangeland Management, a F/T Centre manager/ Executive assistant, two F/T Educational designers, a P/T Program and course advisor and a P/T Marketing and communication officer.

Early in 2002, the Board and the Director were advised by the Executive Dean of the Faculty of Natural Resources, Agriculture and Veterinary Science that the Centre was expected to be self-funding within 3 years!

An investor prospectus was developed in mid-2002, and proposals for further funding were developed for government (ie. State and Commonwealth), R&D corporations (eg. AWI, L&WA), banks, mining companies and philanthropic organisations. Although several proposals were short-listed, none were successful. As there was no on-going financial commitment from the partner organisations, RA was ineligible under the guidelines for many funding sources.

The uncertainty of external funding beyond June 2005, and the lack of any indication of longer-term financial commitment from the University, took its toll on staff and morale and significantly hampered progress at a critical time of business development. Our Centre Manager left in late April 2005, our Marketing and Communication officer left in May, and our Program and Course Advisor left in June. Unfortunately, these losses occurred at a critical time for promoting and marketing the courses and for timely responses to course bookings or enrolment enquiries, and momentum has been lost.

Although UQ's Faculty of Natural Resources, Agriculture and Veterinary Science (NRAVS) has declared "*UQ has a long term commitment to RA*" and that it is "*important that RA continues to function well into the future*" (Prof R. Swift, pers. comm., March 2005), the declining trend in undergraduate enrolments in agriculture has placed enormous pressure on Faculty and School funds, and especially on discretionary funds that might be available for continued support. Further reductions in course offerings that are poorly supported are proposed, and business units that are not covering their costs will clearly not survive.

However, NRAVS Faculty has managed to provide salary and on-costs for the Director and an Educational Designer, and some operating, until October 2005. These two staff continued to deliver courses (eg. AGRC7001) and progress the completion of courses, but have struggled to cope with the additional requirements of administration, customer service and the need to source external funds, without support. The Educational designer left in October 2005.

Recognising the potential of the Rangeland Management program, and with the intent of '*allowing the RA initiative and John Taylor's involvement to continue*', the Faculty (NRAVS) and School of Natural and Rural Systems Management (SNRSM) have proposed new arrangements for RA, effective from November 2005, viz.

- RA would change from being a Faculty Centre to being a component of the Centre for Rural and Regional Innovation, Qld (CRRIQ),
- Promotion of the PG courses would be through the normal Faculty and School mechanisms, and the promotion of the short courses the responsibility of CRRIQ,
- RA-developed short courses would be offered, managed and delivered through CRRIQ, and
- Income from the PG courses would go to SNRSM, with income from the short courses to CRRIQ.

While the spirit of these proposals is appreciated, they are unlikely to underpin business growth. Clearly if additional funding was forthcoming to consolidate RA, these arrangements should probably be re-negotiated.

The secondment of the inaugural Director from CSIRO to UQ was terminated at the end of October 2005, and the cost centre was closed in December 2005. Since October 2005, UQ's SNRSM has offered to pick up 25% of the Director's salary and on-costs for coordination of the

Rangeland Management program (ie. coordination of deliverers, quality audits and course improvement, etc.), delivery of one of the core courses for the RM program (AGRC7001), and supervision of postgraduate students.

CSIRO Sustainable Ecosystems has provided the remaining 75% of the Director's salary and on-costs, and agreed to do so until December 2006 in the interests of retaining and reforming RA.

4.1.2 The future of the Centre

At this stage of business development, there is neither sufficient income to retain the Director nor enable him to function, promote the products and build the relationships and credibility that are fundamental to business development and success in the rural sector. Nor are there any staff in the Centre to support business development and growth. Without external funding, the inaugural Director will be lost to the venture, and, without a champion (current or new Director), there seems a strong possibility that this exciting, innovative and potentially far-reaching initiative will flounder and fall over.

This would be a huge loss, as there is good external recognition of RA's achievements over the past 3 years, its' benefits to date and its' potential benefits, and strong external support for the continuation of this venture. For example:

- *"AgForce considers the courses developed by Rangelands Australia to be critical for ongoing education of owners and managers ... The Rangelands Australia-developed program is highly relevant to industry and has proved extremely successful in addressing the identified need of improving the management of the rangelands. AgForce supports strongly the Rangelands program continuance as vital to the furtherance of Australia's rural communities"*

Peter Kenny – President, AgForce Queensland
Brisbane Q, November 2005

- *"The development of Rangelands Australia has been painstakingly researched. The broadacre industries of rural Australia need Rangelands Australia and its skills to impart knowledge to future generations"*

David Inall - Executive Director, Cattle Council of Australia
Canberra ACT, November 2005

- *"Rangelands Australia has developed a quality array of courses and educational programs ... The RA initiative seeks to address many of the key challenges identified in NFF's recent Labour Shortage Action Plan, in particular the need to promote greater entry level training opportunities for farm managers and the need to develop more flexible and accessible learning options to attract and retain quality people in agriculture"*

Peter Corish - President, National Farmers Federation
Canberra ACT, November 2005

- *"I commend you on your proposal to continue development of educational opportunities for producers and professionals in the rangeland areas. Longer term sustainability is dependent on excellent managerial skills and your courses appear to target this need very effectively... Our Association looks forward to working cooperatively with you in NSW to ensure all our rangeland producers are encouraged to take the opportunity offered by Rangelands Australia"*

Dr Ray Johnson - Chief Executive, NSW Farmers Association
Sydney NSW, November 2005

- *“NTCA strongly supports the quality and range of courses and educational programs developed by Rangelands Australia (RA). RA has identified the flexibility needed in today’s farming operations to attract quality people to the remote areas of Northern Territory. NTCA commends the Rangelands Australia initiative”*
John Armstrong - President, NT Cattlemen’s Association Inc
Darwin NT, November 2005
- *“Modern rangeland management is complex and PGA welcomes the range of postgraduate coursework programs put forward by Rangelands Australia. By offering a range of quality modules through a flexible delivery system the courses are relevant and accessible for self-employed pastoralists, station managers, NRM professional, industry advisors and government employees. The PGA congratulates Rangelands Australia for developing these education tools for industry ...”*
D.A. (Sandy) McTaggart – President, Pastoralists and Graziers Association of WA
Perth WA, November 2005
- *“Rangelands Australia has been successful in bringing quality outcomes to many within regional Australia who otherwise may not have had access to further education”*
Greg Weller - Executive Director, WoolProducers
Canberra ACT, November 2005
- *“We have found it very difficult to identify follow-on coursework that would be highly relevant, appropriately pitched and appropriately accessible to our (VET) clients given your impressive efforts in developing a program to meet these criteria, we strongly endorse your courses... . Through discussions with our graduates and key industry stakeholders, we have identified a significant need from industry practitioners for your program”*
Roger Nourse - Director, Hortus Australia
Port Lincoln SA, November 2005
- *“The knowledge building program developed by Rangelands Australia is highly relevant to land managers in our rangelands. ... it will provide a foundation for sound and sustainable land management. The strategy of engaging land users ... to create a network of managers ... has the capacity to influence land use and attitudes to land use significantly for the better”*
David Wilcox – President, Australian Rangeland Society
Perth WA, November 2005

Given the strength of this support, it is not surprising that external stakeholders have expressed dismay at RA’s current situation. Despite some views to the contrary, it is agreed that UQG and SNRSM remain the logical home for RA on the grounds that:

- All tertiary institutions are facing serious funding issues and major change over the next several years, and particularly those in agriculture,
- Postgraduate coursework is a priority for growth at UQG, and there is increasing recognition of the value of more practitioners in teaching,
- In SNRSM and other Schools at UQG there is a group of around 12 academics, with practical, national (and international) experience in the rangelands, and who are also active in research,
- The integrated and systems-based approaches in SNRSM are strongly aligned with the fundamental characteristics of the RM courses,
- RA is based at a place that has a proud history and strong reputation, and an extraordinary national network of advocates (ie. past students). RA is now identified with this location although its products are not delivered there.

In the light of the achievements at The University of Queensland, Gatton Campus (UQG), and the potential that has been recognised at this early stage of business development, a case is made for continuation and consolidation at UQG over the next 4-5 years. Beyond that, the initiative can reasonably be expected to generate sufficient return on the investment to be largely self-funding. Looking ahead, and to build capacity for RA to continue to function well into the future, it might be worth considering that some UQG staff be mentored as part of a succession plan, and there is a recommendation to this effect.

Accordingly, there is also a recommendation that MLA (and others such as Qld Govt, UQ (SNRSM), CSIRO & members of the Northern Pastoral Companies Group - NPCG) jointly contribute to the costs of maintaining a functional Office of the Director/Professor of Rangeland Management at UQG over the next 4 years.

4.1.3 Network of Supply

While the vision of a 'network of supply' was espoused in the Business Plan and endorsed at the Armidale workshop, as time has progressed it has become obvious that this would encourage 'more of the same', and could not address the deficiencies identified in the AgTrans Research report (1998).

Furthermore, demand (as identified in the needs analysis) was very different to the existing supply, which reinforces the need to initially focus on developing new and more rangeland-specific courses rather than accepting the 'next best thing off an educator's shelf'.

Also, the notion of a 'network of supply' assumed a spirit of collaboration and altruism that is not common among Universities. Compounding this, the idea was suggested at a time of extraordinary uncertainty, 'belt-tightening' and change in tertiary institutions. For example, enrolments in agriculture have been declining significantly across Australia since 1998, with closures (eg. Melbourne University), mergers (eg. University of Sydney-Orange and Charles Sturt Universities) and course rationalisation among the outcomes. Concurrently, the Nelson Review of Higher Education has led to tertiary institutions reviewing all course enrolments and, as a result, culling and amalgamating offerings where numbers are low. In some cases this has also led to 'patch protection' and reluctance to engage in any collaboration that might reduce student load at School, Faculty and institution levels.

As noted earlier, the Sheep CRC had been exploring options and mechanisms for national delivery of undergraduate sheep/wool courses in a model similar to that proposed for RA. In light of the scale of this effort and the change driven by the Nelson Review, in 2003 RA decided to 'go slow' in developing the network, and to monitor the outcomes and learn from this exercise. As RA currently understands, at this stage none of the courses developed by the CRC have been taken up/delivered by other Universities. This suggests that there is not much point in pursuing this model, and that it would be more productive to explore opportunities for cross-institutional enrolment and assisting in upgrading these where necessary.

In reviewing the alignment of existing Postgraduate programs and courses with the needs expressed by rangeland stakeholders (see Section 4.2), RA identified several institutions/programs with particular courses that could be useful electives in the rangeland management programs, and where, in a reciprocal arrangement, those institutions might benefit from using some of the RA-developed courses in particular programs. This is a variant on the network idea.

Despite the uncertainty in tertiary institutions, we have negotiated access for RM students to additional electives, offered by other institutions and made available by 'cross-institutional enrolment'. This is the simplest way of making courses more widely available, and means that the parent institution (say UNE) is responsible for delivery of the course and that UQ grants credit for that course towards the appropriate RM program. This way the best people (ie. most experienced and knowledgeable) deliver the course, rather than a junior staffer. The institutions and Postgraduate level courses involved in this arrangement as at June 2005 include:

- University of New England (UNE)'s School of Rural Science and Agriculture (NSW)
 - Meat technology 518
 - Sheep production (Wool and meat) 512
- Charles Darwin University (CDU)'s School of Science and Primary Industries (NT)
 - Managing northern rangelands SBI509

There may be some further options for elective at UNE (eg. through the School of Environmental Sciences and Natural Resources Management), and possibly through Charles Sturt University and the University of Western Australia, and these warrant further investigation.

To our knowledge, the University of New England is the only Australian institution to offer RA-developed courses as electives in their 2006 PG programs. This is in the Faculty of Science, with several of the RA developed courses now available to UNE students by cross-institutional enrolment, viz.

- Global and national trends influencing rangelands MKTG7965
- Building effective stakeholder engagements, and MGTS7976
- Grazing land management AGRC7023.

While there is some interest in including RA-developed courses in other UQG PG coursework programs, to date only the School of Agriculture and Horticulture has specifically included any rangeland courses as electives in their postgraduate coursework programs. RA-developed courses listed in the GradCert/Diploma/Masters programs in Agricultural Studies include 'Global and national trends influencing rangelands', and 'Grazing land management'.

4.1.4 Conclusions

In a remarkably short time the Centre (RA) has developed a national reputation as a valued and respected provider of education and training that is seen as vital to the future of the rangelands and rangeland enterprises. RA is well positioned to make a significant difference in the rangelands, but unfortunately, at this early stage of business development, it is vulnerable without external support.

In light of the results of the needs analysis and the requirement for knowledgeable and experienced Learning facilitators, the original concept of a network of supply has been found wanting. A simpler model, whereby students can access relevant courses via cross-institutional enrolment, is proposed as an alternative.

4.2 Education and skills needs and gaps

Needs were determined by stakeholder consultation through focus groups, and gaps by surveys of key stakeholder groups.

It was originally planned to conduct 36 focus groups, but as the outputs were remarkably similar across states and regions, this activity was terminated in November 2002 after only 24 focus groups. At that stage over 400 people had participated in the focus groups, including representatives of the pastoral (n=169), mining (15), tourism (15) and 'new' industries, eg. bush tucker, feral animal harvesting, etc. (8), Commonwealth (15), State (82) and local (18) government organisations/ agencies, education and training providers (26), Aboriginal (24) and other community groups (39). Two focus groups were held in the national capital to elicit policy maker, peak body and R&D Corporation perspectives; three in State/Territory capitals to elicit industry body and senior agency staff perspectives; and the remaining 19 were held in various regional centres within Australia's rangelands. Further details are provided in Taylor, 2003 (see Appendix 1).

4.2.1 A stakeholder-derived scenario in 5 years time

The needs analysis identified that the future in the rangelands would involve significant changes in the nature of enterprises, including the need for more QA and demonstration of sustainability, more diversification, increasing complexity and larger enterprises. It also identified that there would be significant change in an enterprises' operating environment, and the need to prepare for greater environmental awareness and regulation, the probability of greater scrutiny and accountability, the reality that policy affecting the rangelands would increasingly be driven by urban perceptions, and that decision making would be more complex requiring a sound understanding of economic, environmental and social considerations and implications.

4.2.2 Key personal qualities for future success

Stakeholders identified 14 personal qualities/ attributes that would be required for success in the future. A number of these stood out as critical to people's effectiveness and their capacity to learn, either formally or informally. Where appropriate, these key qualities are to be considered and addressed in the content, learning activities and assessments of RA-developed courses. For example,

- Commitment and passion for the rangelands
- Sensitivity to other values and aspirations for the rangelands
- Practicality
- Adaptability
- Effective communication
- Open mindedness and positive attitude to change, and
- Willingness to learn.

The full list of key personal qualities is incorporated in the list of graduate attributes provided in the Introductory book for each PG course and in the Student Guide.

Strategies to nurture and promote these qualities are specifically included in all RA-developed short and postgraduate courses, and, where this is feasible, included as criteria in assessment items, particularly in the on-line learning activities.

4.2.3 Key knowledge gaps

Knowledge gaps were identified for producers and agency staff (ie, advisers, facilitators, researchers).

The knowledge gaps identified in 'most' producers relate primarily to enterprise success, but also emphasize the need for a greater external focus (i.e. catchment and regional issues, understanding other stakeholders, forces driving change) and areas for personal development

(i.e. self-awareness, communication and interpersonal skills). These findings acknowledge the ability of most producers to manage a livestock-focused enterprise, but highlight important deficiencies in systems, social and business skills and in bio-physical understanding. Similarly for agency staff, the findings acknowledge their strengths in the bio-physical and technical areas, but highlight serious deficiencies in their current training and professional development in systems thinking, social and business skills.

This clarification of knowledge and skills gaps has provided priorities for both PG and short course development. The detailed results of the needs analysis was reported in an invited paper presented at the 12th Biennial Conference of the Australian Rangeland Society in 2002. (see Appendix 1, Taylor 2002). The results of the analysis of knowledge gaps was reported in an invited paper to the International Rangeland Congress in 2003 (see Appendix 1, Taylor 2003). Both papers have been made available on our website (www.rangelands-australia.com.au).

The results were initially rather controversial, but their value has increasingly been recognised and appreciated with time. The approach is unique in the following respects:

- Wide, national consultation,
- Each group was a mix of stakeholders,
- Rangeland-based groups included 42% women and 36% youth,
- Focused on what outcomes stakeholders want, and a multi-stakeholder perspective on what is needed to achieve this, and
- Identifies personal qualities, as well as knowledge and skills, which will be critical for future success.

Some of these processes are 'best practice' course development. This assertion is supported by agency and industry feedback, including:

- *"The role RA is playing in identifying skill needs is a model that should be followed by other industry bodies"* (Mr Bruce O'Meagher; Head, Industry Policy Branch; Department of Industry, Tourism and Resources, Canberra ACT, 2002),
- *"Having participated in a number of RA processes ...I have adopted some of my learning's into models of best practice for myself and regional staff in Western Qld"*. (Mr Tony Rayner, Regional Director – West, Qld Department of Primary Industries and Fisheries, Longreach Q, 2004), and
- *"The most valuable needs analysis in Australia"* (FarmBis Q, 2005).

4.2.4 Conclusions

The focus groups created goodwill and, together with the stakeholder surveys, have provided new and firm directions for course development.

4.3 Clarification of the opportunity

In the process of determining the alignment of available courses with expressed needs, in 2003 RA identified the following supply of formal offerings in agriculture and environmental studies in Australia:

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

RA does not claim that this is a complete count of educational offerings in agriculture and environmental studies, but note that it is based on a very comprehensive trawl of the education and training opportunities across Australia in early 2003. It involved internet searches of large and small education and training providers, and telephone contact to clarify availability, course content, delivery, etc.

4.3.1 VET programs

Of the 126 Vocational Education and Training (VET) programs (ie. Certificate and Diploma levels) in agriculture and environmental studies offered 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 the Rural Business Management programs ranged from 33-66% alignment with expressed needs.

Among the 'best in class' were a Diploma in Community Natural Resource Management offered through TAFE(Q), and Certificate 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.

4.3.2 Undergraduate programs

Of the 156 undergraduate programs in agriculture and environmental studies offered 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. Few made any attempt to holistically address the economic, environmental and social dimensions of the 'triple bottom line'.

Among the 'best in class' were UQ's Environmental management – Rural Systems Management degree and UQ's Natural Resource Economics streams.

The School of Agriculture and Horticulture at UQG introduced a Bachelor of Applied Science in Crops and Rangelands in 1998, upgraded this to a Pastures and Rangelands specialisation in 2002, and restructured this to a major/double major in Rangeland Management in 2004.

4.3.3 Postgraduate programs

Of the 88 postgraduate coursework programs (ie. Graduate Certificate, Graduate Diploma, Masters) in agriculture and environmental studies offered 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 even meet 33% of stakeholder expressed needs. Most of these failed in the areas of integration of production and environmental issues and in their treatment of social or people issues.

Among the 'best in class' were University of Melbourne's Graduate Diploma in Extension and the Australian National University's coursework programs in Environmental management and development.

4.3.4 Conclusions

A number of knowledge and skill deficiencies were identified 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. These are not being met through existing educational programs, and there is a significant opportunity in addressing this need through more rangeland-relevant programs and courses.

The VET sector is relatively well served with reasonably relevant programs and courses. One criticism, often repeated in the focus groups, was that these courses tended to focus on 'the bits' and not on current or emerging issues or more holistic or systems views of issues, enterprises or regions. There are clearly gaps in the offerings in these areas which could be filled with specific courses at Diploma level. Also, the Conservation and Land Management package is a growth area, and is poorly served by appropriate courses.

The Learning Pathway, whereby people can (theoretically) progress from a Certificate to a Masters, is poorly promoted, and for those moving along that pathway the Bachelor degree (3-8 years study, f/t or p/t) is a huge psychological barrier to thoughts of further education. Alternate pathways, or ways of extending the pathway without having to do a bachelor degree, are essential for those from the VET sector in employment and seeking personal development and higher qualifications. New pathways would open up this potential market.

These findings highlight that many undergraduate and postgraduate programs in Australia are not adequately preparing students for what will be expected of them in the rangelands now, or in 5 years time, nor are they building capacity for 'triple bottom line' outcomes in the rangelands. This should be a major concern of industry and government bodies purporting to support sustainable industries and industry development. However, some of these programs may well be strongly aligned with the needs of other industry sectors and other regions.

The audit of programs and assessment of alignment with expressed needs has clearly identified that the best opportunities to 'add value' were in the areas of short courses and postgraduate coursework. In the latter case, students could enter with a relevant 3 or 4-year degree, or through RPL and demonstration of knowledge equivalent to a graduate. The biggest challenge in attracting students from the VET sector could be the perception that postgraduate study is all about research, and in reaching them through appropriate marketing strategies and tactics.

4.4 Development and delivery of short courses

4.4.1 Short courses developed

Twenty-eight potential areas for short courses were identified in the 24 focus groups conducted across Australia. An analysis of demand (i.e. based on frequency of ranking across focus groups) and supply (i.e. based on an audit of over 1350 short courses in agriculture and environmental studies in 2003) identified eight potential topics where demand was high and supply either low or not aligned with expressed needs. Course outlines were then developed from the focus group outputs for the top five of 8 tentative topics, viz.

- Engaging rangeland stakeholders effectively
- Rangeland monitoring
- No surprises in the rangelands
- Success in diversification
- Being in the rangelands for the long run

These 'potential courses' were then tested with:

- key stakeholders, such as: AgForce-Q, Pastoralists & Graziers Association-WA, Northern Territory Cattlemens' Association, SA Pastoral Board, Stanbroke, AACo, Kidman & Co, Meat & Livestock Australia's BeefPlan Coordinator, Cooper Creek Catchment Management Committee, Wesfarmers Landmark, Australian Rangeland Society, Agriculture Forestry Fisheries - Australia, and Environment Australia. They provided comment on the importance and priority of the topics and on the proposed content and learning outcomes,
- beef producers at Beef 2003 who ranked the importance of the topics and the three that they would be most interested in attending (136 surveys),
- advisors at Beef 2003 and the 2003 National Landcare Conference (54 surveys) who ranked the importance of the topics and the three that they would be most interested in attending, and commented on the proposed content.

These five short courses were subsequently scoped and developed by the process described in Section 3.7, renamed as necessary, and successfully piloted:

- *"Introduction to monitoring for management in the rangelands"* – Mitchell Q, December 2003
- *"Being heard as a stakeholder in the rangelands"* – Emerald Q, December 2003
- *"Being in the rangelands for the long run"* – Bourke, NSW, May 2004
- *"No surprises in the rangelands"* – Emerald Q, September 2004
- *"Success in rangeland diversification"* – Charleville Q, September 2004.

Our market research indicated that a significant proportion of the market would have some fears about undertaking tertiary/University study, and especially if they were mature-aged and had no recent experience of tertiary study. This was quickly confirmed by our first PG students. The need was partly addressed in our first student guide, but a 3-day short course was deemed necessary to assist people who had entered through RPL, or had not undertaken any study for a long while. In response to this need the following course was developed by RA's Program Coordinator and successfully piloted with a group of owner/managers:

- *"Preparation for Postgraduate Study"/ "Getting into further study"* – October 2004

Course outlines for all six of the short courses are provided in Appendix 2.

The University has undertaken to offer these short courses until the end of the 2007 academic year.

4.4.2 Accreditation and articulation of short courses

RA chose to develop courses to meet needs, emphasizing content, relevance and practical application, and then to map the courses on to the competency standards in appropriate training packages. This was intended to address the need for accredited and non-accredited training,

and thus to give participants the option of undertaking a course for personal or professional development, and/or for gaining credit towards a qualification. RA has achieved both, and in a way that retains the benefits usually associated with non-accredited training. RA was proactive in mapping competencies in mid-2004, and by late 2005 this had become a requirement for approval of courses under FarmBis III.

RA was among the first to be accepted as an Approved FarmBis Training Provider in Queensland (Registration No 4). Three of the short courses are certified as 'Approved Training Activities' and the others are undergoing assessment for eligibility.

The outcomes of the first five RA-developed short courses have been mapped across the competencies of the Conservation and Land Management (C&LM), Rural Production, and Business Service Training packages. Each course provides a number of units of competency at Level 5 and 6, including core competencies, and together they provide a new mechanism for people to demonstrate competencies that could lead towards a nationally recognised qualification as high as an Advanced Diploma in Conservation and Land Management. This will invariably involve some additional work after the course, but for those producers who value a 'piece of paper' there is now a new way to demonstrate knowledge and competency, and to fast-track a qualification in Conservation and Land Management.

The mapping of competencies has been a huge task for our Educational designers (ie. identifying and documenting how each course meets appropriate core and elective competencies). However, this task has been made easier by the strong support and assistance of the Qld Rural Industry Training Council (QRITC). Indeed, our courses have been acknowledged by QRITC, and several Regional Landcare Facilitators and Regional Coordinators as meeting a pressing need for training in Conservation and Land Management hitherto not met by training programs and courses in Queensland (and probably the other rangeland States as well). Further, QRITC and a number of Regional Landcare Facilitators believe that the availability of either a certificate of attendance OR an award of competencies towards a Diploma or Advanced Diploma in Conservation & Land Management will be a strong and additional incentive for some people to undertake RA-developed short courses.

4.4.3 Deliverers

There were strong messages from the focus groups, Armidale workshop and research on the market for learning that RA needed to attract practical and credible trainers, with depth of knowledge, for delivery of the short courses. Four of the deliverers are external (one is a former RA staffer), and two are University employees.

A brief profile of each of the deliverers is provided with the course outlines in Appendix 2.

4.4.4 Delivery and uptake of short courses

By early 2004 most FarmBis funding had dried up and in June 2004, FarmBis II, which had subsidies of up to 75% of course costs, ceased. Without subsidies, there was little interest from industry in short courses. There were strong rumours in Government that the level of subsidy would fall to 50% in the next FarmBis round, and, in an attempt to entice participation, RA negotiated with QRITC for a 50% subsidy of course costs for up to 80 producers. This was widely promoted, but to our and QRITC's disappointment, industry and community groups indicated that they were holding out for a higher subsidy - anticipated through FarmBis III. For these reasons, marketing effort was then diverted from the short courses to the PG programs. FarmBis III became active in most states in late 2005, and ironically with subsidies of a maximum of 50% of course costs.

Since June 2005, there have been no resources for RA to promote the short courses to industry and regional groups in the rangelands, and no administrative staff to handle enquiries or coordinate delivery. By contrast, the regional bodies and agencies with which we are competing for business have a larger network in the rangelands and are backed by bigger support and administrative structures.

There is strong competition for the limited time and money available for training, and with regional bodies and key agencies increasingly focusing on 'capacity building' or training, the market is over-whelmed.

Nevertheless, the *Introduction to Monitoring for Management* course has been delivered to a group of producers in Charleville, in conjunction with South West NRM, and the *Preparation for Postgraduate Study/Getting into Further Study* course has been delivered to two groups of producers, in Bedourie (Q) and Adelaide (SA).

4.4.5 Pilot and fee-paying course evaluations

Evaluations completed at the conclusion of a pilot of each of the short courses reveal that RA has developed a number of high quality learning activities that are relevant and practical. For example, evaluations reveal that the vast majority of participants were 'in agreement' or 'in strong agreement' with the following statements, and that 'disagreements' were uncommon:

- The course met the objectives
- I am satisfied with the course content
- I am satisfied with the course materials
- I am satisfied with the way the course was delivered
- I gained new skills and knowledge
- The activity met my needs
- The activity was relevant to my business, and
- Overall, this course has been of benefit to me.

In most cases the evaluation of the pilots indicated a need for only minor changes to structure or broad content, with revisions mainly in the areas of making learning activities more regionally relevant, in clarification of instructions, and in addressing some suggestions for a slower pace. It is interesting to note that the evaluations have become more positive over time as our course development and delivery processes were refined and continuously improved.

Participant feedback is included in the course outlines (Appendix 2).

4.4.6 Conclusions

A number of practical short courses have been developed to fill important gaps in the current offerings. These have been well received, and should now be actively promoted in the rangelands. MLA endorsement and support in this area would assist, but this also requires resources for travel and marketing.

4.5 Development and delivery of Postgrad programs & courses

This section covers the structure of the new postgraduate coursework programs, lists the RA-developed core and elective courses that are the framework of the program, and concludes with reviewer and student feedback on the courses.

It is important to note that all of the RA-developed courses have been designed for delivery in the rangelands, by distance education. None are delivered at UQG, although there have been recent suggestions that they be adapted for internal delivery, and particularly to meet growing interest among international students.

4.5.1 Program structure and nomenclature

A multi-stage UQ process was successfully negotiated and approval granted by the Faculty of Natural Resources, Agriculture and Veterinary Science (NRAVS) Board of Studies, Academic Programs Review Committee and Academic Board to offer three new postgraduate coursework programs from 2004.

The clear preference of 146 survey respondents was for the name 'Graduate Certificate/ Diploma/ Masters in Rangeland Management', with 1 in 2 potential customers advocating this name. The next most popular name was '... Applied Science (Rangeland Management)' with 1 in 6 in favour. Less than 1 in 10 respondents 'didn't care', and even less were supportive of other potential names.

With this information on customer preferences, UQ accepted the following non-standard nomenclature for the postgraduate coursework programs:

- Graduate Certificate of Rangeland Management (GradCertRangelandMan)
- Graduate Diploma of Rangeland Management (GradDipRangelandMan)
- Masters of Rangeland Management (MRangelandMan).

An indicative list of courses, consistent with stakeholder-expressed needs, was approved as part of the process of approval of the programs. This list included core courses and elective courses and was based on:

- a suite of completely new rangeland-relevant courses, developed by RA, and designed to meet stakeholder needs for content and delivery
- existing UQ courses that are reasonably well aligned with expressed needs and available in distance mode (eg. AGRC7035 Advanced rangeland ecology),
- existing UQ courses that have some alignment with needs, and in due course, would benefit from expansion of content to address rangeland-specific issues, and
- courses in related areas available through other institutions (eg. UNE, CDU) by cross-institutional enrolment.

4.5.2 Core and elective courses

All students are required to do a number of core and elective courses to fulfil the requirements of a program and be eligible for a postgraduate award. The core courses vary with the level of the program as follows:

Graduate Certificate in Rangeland Management

To graduate with a Graduate Certificate in Rangeland Management, a student must satisfactorily*complete #8 units. The program is comprised of:

The following #4 from Part A:

- AGRC7001 Sustainable Rangeland Production Systems and Regions (Sem1, 2)
- MGTS7976 Building Effective Stakeholder Engagements (Sem2)

And the remaining units from Part B listed below or other courses approved by the Executive Dean.

Graduate Diploma in Rangeland Management

To graduate with a Graduate Diploma in Rangeland Management, a student must satisfactorily* complete at least #16 units. A student who holds a 4 year degree must satisfactorily complete at least #8 (units). The program is comprised of:

The following #6 units from Part A:

- AGRC7001 Sustainable Rangeland Production Systems and Regions (Sem1, 2)
- MGTS7976 Building Effective Stakeholder Engagements (Sem2)
- MKTG7965 Global and National Trends influencing Rangelands (Sem1)

And the remaining units from Part B listed below or other courses approved by the Executive Dean.

Masters of Rangeland Management

To graduate with a Masters of Rangeland Management, a student must satisfactorily complete a least #24 units. Where the Masters program is a continuance from a relevant 4 year bachelor qualification, a student must satisfactorily* complete at least #16 units. The program is comprised of:

The following #12 units from Part A:

- AGRC7001 Sustainable Rangeland Production Systems and Regions (Sem1, 2)
- MGTS7976 Building Effective Stakeholder Engagements (Sem2)
- MKTG7965 Global and National Trends influencing Rangelands (Sem1)
- MGTS6960 Research Methodologies in Management and Extension (Sem1, 2) **or** STAT7501 Advanced Biometrics 1 (Sem1)
- LPWM7611/7612/7613(#4) Graduate Research Project I (Sem1) **or** LPWM7617/7618/7619 (#8) Graduate Research Project III (Sem2)

And the remaining units from Part B listed below or other courses approved by the Executive Dean.

**NOTE: Credit will be granted towards the completion of a program only for courses in which a student obtained a grade of 4 or better.*

All courses are #2 unit courses, except Graduate Research Projects.

Students are strongly advised to complete all other Part A courses before beginning the Graduate Research Project. These courses will help to define and develop the research proposal and project.

The current options for elective courses are listed in Table 1 below. Brief descriptions of all of these courses provided in Appendix 3, with detailed course outlines for the RA-developed courses are provided in Appendix 4. Importantly, these course outlines include reviewer's comments and where appropriate, the average ratings and comments recorded in student evaluations of the courses.

Table 1: Master of Rangeland Management Part B courses (electives)

Semester 1	Semester 2
<p style="text-align: center;">Rangeland - specific electives</p> <ul style="list-style-type: none"> • AGRC7023 Grazing Land Management • AGRC7030 *Understanding Rangeland Country and Natural Resources • AGRC7031 Property, Catchment and Regional Planning • ANIM7018 *Livestock Welfare and Behaviour • MGTS7978 *Managing Self and Developing Others • AGRC7035 Advanced Rangeland Ecology <p style="text-align: center;">Other electives</p> <ul style="list-style-type: none"> • AGRC7100 Introduction to Rural Industries • AGRC6640 Postgraduate Advanced Topic • LAND7000 Water and Land Management • LPWM6640 Postgraduate Advanced Topic • MGTS7968 Rural Community Development • MGTS7690 Agribusiness Supply Chain Management • MGTS7962 E-Agribusiness • MKTG7961 Agribusiness Marketing • MGTS7690 Agribusiness Supply Chain Management • Meat Technology¹ • Sheep Production (Wool and Meat)¹ 	<p style="text-align: center;">Rangeland - specific electives</p> <ul style="list-style-type: none"> • AGRC7023 Grazing Land Management • AGRC7027 *Rangeland Pests and Weeds • AGRC7028 *Rangeland Monitoring and Adaptive Management • AGRC7029 Diversification and New Industries in the Rangelands • ANIM7017 Animal Nutrition and Behaviour • LAWS7960 *Legal, Policy and Political Frameworks in the Rangelands • Managing Northern Rangelands² <p style="text-align: center;">Other electives</p> <ul style="list-style-type: none"> • AGRC6640 Postgraduate Advanced Topic • ENVM7101 Regulatory and Legal Aspects of Sustainable Development • ENVM7512 Environmental Problem Solving • FINM7960 Agribusiness Project Appraisal • LAND7000 Water and Land Management • LPWM6640 Postgraduate Advanced Topic • MGTS7962 E-Agribusiness • MKTG7960 Commodities, Futures and Options • MKTG7961 Agribusiness Marketing • MGTS7690 Agribusiness Supply Chain Management

* Available from 2007

¹ Course offered by the University of New England's School of Rural Science and Agriculture

² Course offered by Charles Darwin University's School of Science and Primary Industries

These are the only postgraduate programs in Australia specifically in rangeland management. They are fully articulated programs, with students able to progress step-wise and attain credit towards the next level. These programs are differentiated from other tertiary programs in agriculture and environmental studies in Australia in that:

- Programs/courses are aligned to the needs expressed by over 400 rangeland stakeholders. The needs are based on a stakeholder-defined scenario for the rangelands in 5-10 years time, and the education, skills and personal qualities that stakeholders identified would be critical for future success
- Needs analysis was based on 24 mixed-stakeholder focus groups across Australia, which, in the rangelands, comprised 42% women and 36% youth (on average)
- Course development priorities were based on the gaps identified in *'most producers/land managers'* and *'most agency staff'* by a national survey of grazing industry and agency people from the rangelands
- The structure, content and key resources for a course were scoped by teams comprising experienced producers, agency staff and scientists from across Australia (over 180 people to date), with the course development process led by an RA Educational designer to ensure that the learning activities relate to the current and emerging issues in the rangelands, and nurture the personal qualities identified as critical to future success in the rangelands
- Courses were extensively reviewed prior to delivery, and
- Programs/courses are unique in their 'triple bottom line' and strong rangeland focus.

4.5.3 Delivery and uptake of Postgraduate courses

The RM programs have been offered as full-time or part-time, with courses available in one, two or three semesters each year, and in semester-long, intensive (ie. 5-day block) or on-site teaching modes (ie. intensive offered to a group from an organisation or corporation).

RA-developed PG courses have been rolled out as follows:

- AGRC7001 Sustainable rangeland production systems and regions – late 2004
- MGTS7976 Building effective stakeholder engagements – late 2004
- MKTG7965 Global and national trends influencing rangelands – early 2005
- AGRC7023 Grazing land management – early 2005
- ANIM7017 Animal nutrition and behaviour – mid 2005
- AGRC7031 Property, catchment and regional planning – mid 2005
- AGRC7029 Diversification and new industries in the rangelands – under review
- MGTS7978 Managing self and developing others – under review.

All courses are available as award courses, but if a person is only interested in personal and professional development they can enrol as a 'non-award enrolment'. Award course fees and times apply, but the person can complete the course at their leisure.

The University has undertaken to offer these courses until the end of the 2007 academic year.

4.5.3.1 Delivery

All PG course materials are supplied in hard copy, with students provided with an Introductory book, a Learning Guide and a Reader containing the essential resources (ie. papers, reports, book chapters, etc) to complete assessment items. Also included are materials supplied free of charge by Meat & Livestock Australia (MLA), Commonwealth Scientific and Industrial Research Organisation (CSIRO), New South Wales Department of Primary Industries (NSWDPI), Northern

Territory Department of Primary Industries and Fisheries (NTDPIF), Land and Water Australia, Murray-Darling Basin Commission and the Australian Rangeland Society. Student learning is guided by experienced and qualified Learning Facilitators. Only two of the current Learning facilitators for the RA-developed PG courses are internal (ie. UQ staff). This is disappointing, and reflects the high teaching workloads and pressure on university staff to be more active in research for career and research income purposes. A brief profile of the current Learning Facilitators is provided in each course outline in Appendix 4.

Each course involves a significant amount of time (and marks) in on-line discussions and assessments, supplemented with teleconferences. The on-line discussions and teleconferences have been important learning activities, and have been highly valued by the students (see Section 4.5.4).

4.5.3.2 Uptake

Interest in the Postgraduate (PG) programs and courses has grown steadily since courses were first offered in late 2004, with 9 students now enrolled in the Graduate Certificate in Rangeland Management and 7 in the coursework Masters of Rangeland Management. A further three students enrolled but subsequently withdrew due to the pressure of work. Individual rangeland-specific PG courses have also attracted a further 10 students from other postgraduate programs at The University of Queensland or other institutions, and we are seeing repeat business from several of these students. Of the 26 PG students who have enrolled in one or more RA-developed courses to date, 22 are from Australia's rangelands, 2 are from outside the rangelands, and three have been international students. A further 11 prospects have taken a 3-day '*Preparation for postgraduate study*' short course, and most are expected to enrol in one of the PG programs within the next 2 years. This is consistent with an emerging pattern of a lag of up to two years between enquiries and actual enrolment. Time and cost are the key factors behind this delay.

Postgraduate enrolment numbers are below original expectations, but growing steadily. This trend is in contrast to significant declines in enrolments in most agricultural courses nationally and at UQ (down by up to 30% per annum for the last two years in agricultural science for example), and is very encouraging - especially in light of several years of drought throughout the rangelands (affecting discretionary funds and time for further education), the steadily increasing cost of UQ postgraduate courses, and the limited promotion of the programs/ courses over the past 12 months due to funding and staff restrictions in RA.

The drought (with implications for time and money available) and the cost of the programs (ie. UQ is perceived to be expensive) have caused a number of prospects to defer plans for enrolment. By contrast, others have said that the conditions have made them realise that "they need to do other things" and that they need a qualification to do that. Although higher qualifications are strongly encouraged in most State agencies, recent changes and continuing uncertainty in some State agencies has made some agency staff wary of long-term commitments.

These issues highlight the need to take a medium-term view with respect to student numbers and business development. Postgraduate study is a long-term and costly decision, and one that is usually not made without careful and prolonged deliberation, and strong family support.

Overall, postgraduate enrolments now cover all segments of the target market, such as private landowner/managers, managers of properties owned by private and public corporations, Landcare and NRM facilitators, staff of regional bodies, training providers, etc. The age of PG

students ranges from 25 to 57 years, with the majority in their 30's and 40's. Slightly more women than men have enrolled to date.

On the basis of current enrolments, the following pattern of graduates is expected – 1 in 2005, 5 in 2006 and 10 in 2007. Three of 5 students who will complete the GradCertRangelandMan in 2006 have indicated that they intend undertaking further courses to complete a GradDipRangelandMan.

4.5.4 Course reviews & evaluations

Student evaluations of the RA-developed PG courses have been sought every time one is delivered, and only after the students have received their grades. These reveal that RA has developed a number of high quality, practical, current and highly relevant courses that are providing personal growth and professional development and are leading to high levels of participant satisfaction.

We have enjoyed excellent response rates (60-90%) to these surveys, and benefited from the feedback on how a course could be improved. General comments provided by the students have been useful as 'testimonials' and have been used in promotion of the courses through the PG brochure and course outlines (see Appendix 4).

Students who have undertaken RA-developed postgraduate courses to date have expressed high levels of satisfaction with the courses. For example, students completing the first courses - delivered in Semester 2, 2004 and Semester 1 & 2, 2005 - were asked to evaluate the perceived relevance, practicality and quality of the course and its delivery (ie. on a 1-5 scale, with 1=strongly disagree and 5=strongly agree). Across the five PG courses evaluated by students to date, the range (and mean) of ratings recorded against the following key evaluation criteria were:

- Learning objectives were clear and relevant: 4.3 – 4.9 (4.6)
- The Learning Guide and Reader were useful resources: 4.8 – 5.0 (4.9)
- Learning facilitator provided useful guidance and support: 4.5 – 4.7 (4.6)
- I am satisfied with the amount of contact with the Learning facilitator: 4.3 – 4.7 (4.5)
- I am satisfied with the content of the course: 4.3 – 4.8 (4.5)
- Learning and assessment activities challenged me to think: 4.3 – 5.0 (4.7)
- Course is well structured and learning activities well integrated: 4.3 – 4.7 (4.5)
- I gained new skills and knowledge: 4.3 – 5.0 (4.8)
- Course has met my needs: 4.3 – 4.7 (4.6)
- Course is relevant to my workplace/business: 4.6 – 5.0 (4.9)
- Course is relevant to my future in the rangelands: 4.6 – 5.0 (4.8)
- Overall, I'm satisfied with this course: 4.5 – 4.8 (4.7)

These are relatively high scores when benchmarked against other postgraduate level courses (eg regional development, NRM and the environment – surveyed in 2005 – which averaged an overall rating of 3.8 with a range of 3.0-4.5). The scores for the RA developed courses are all the more impressive when one considers that they are from mature-aged people, the majority of whom live and work in the rangelands.

In 2007, for the first time the RA-developed courses will be subject to Teaching Evaluations (TEVALS) and Course Evaluations (CEVALS) conducted independently and anonymously by UQ's Teaching and Educational Development Institute (TEDI). These are usually only conducted once every three years, and unfortunately, response rates are often very low (<2%). However, RA proposes continuing with its practice of evaluating all of its courses every time they are delivered, as our evaluations specifically seek suggestions for improvement of course materials and delivery.

The QA scheme, with its very comprehensive and participative process for course development has resulted in a number of high quality educational products. For example,

- *"I am in my third unit in Rangeland Management. Course content is extraordinarily relevant to the issues in the bush and exceedingly thought provoking".* Mr David Taylor, owner/manager 'Myola', near Condobolin NSW, Masters in Rangeland Management student.
- *"The courses I have completed so far have been informative, relevant and stimulating. They provide great depth in the issues facing rangeland managers. The courses are filling gaps in my knowledge about relevant issues beyond my expectations".* Mr Jon Cobb, manager 'Glengyle Station', near Bedourie Q, and Graduate Certificate in Rangeland Management student.
- *"The Grad Cert in Rangeland management is challenging but very relevant to my employment in regional natural resource management in the mulga lands of Qld. RA's participatory approach to remote study provides for valuable dialog and networking among managers throughout Australia".* Mr Dan Ferguson, NRM Program manager, South West NRM, Charleville Q, and Graduate Certificate in Rangeland Management student.
- *"Courses I have undertaken have been thought-provoking through their practical assignments. My confidence in working in the rangelands has increased, and I find myself asking more questions and thinking more laterally on problem solving scenarios. My interest in the rangelands has increased 10-fold".* Ms Hayley Turner, Graduate Certificate in Rangeland Management, Rangeland Advisor, WA Department of Agriculture, Karratha WA.

And further, with respect to course materials:

- *"The materials were very professionally prepared. Having studied many external subjects the materials were the best I have had to work with".* (Mr Michael Saxby, cross-institutional enrolment in AGRC7023 - Grazing Land Management, and Rural valuer)
- *"The subject material and reading matter provided is comprehensive, well presented and very readable"* (Mr Jon Cobb, GradCertRangelandMan student, and Manager, Glengyle Station, Birdsville Q)

According to our mature-aged students, the things that distinguish the RA-developed courses from their other education and training experiences include: practicality, relevance, flexibility and quality of teaching. For example, in their own words students have identified the following distinguishing features:

- *"Emphasis on applied learning to real rangeland/regional issues"*
- *"Emphasis on interaction with lecturers and other students via discussion board and teleconferences"*

- *“Giving a perspective on rangeland issues all over Australia”*
- *“Are particularly developed to Australian context”*
- *“Course development based on identified needs”*
- *“Flexible style of teaching with excellent tuition and support”*
- *“Ability to apply directly to current employment”*
- *“Opportunity to study remotely and the flexibility in handling assessments”*
- *“Great communication between staff and students”*
- *“Structured around everyday issues”, and*
- *“More practical”.*

In a survey of Rangeland Management students who had completed at least two RA-developed courses, all of the respondents (8/10) indicated that they would recommend the RA-developed courses/programs to friends and colleagues.

4.5.5 Conclusions

People who live and work in the rangelands can now benefit from new rangeland-specific postgraduate coursework programs. These have been well received, as evidenced by very positive reviews and student evaluations. This affirms the value of the participative and demand-driven approach and the involvement of Educational Designers, and has provided valuable testimonials and a sound basis for differentiating and positively marketing the programs.

4.6 Program/Course information and marketing

4.6.1 Course information

A Program and Course Information handbook and a Student Guide were developed in late 2004 and updated in mid-2005. Much of the content of the Program and Course Information handbook has now been uploaded onto our website (www.rangelands-australia.com.au) or embedded in the Rangeland Management Student Guide, and the hard copy of the handbook has now been discontinued.

The website and Student Guide have been and will be updated 6-monthly from May 2005.

A glossy Postgraduate Coursework brochure was first produced in mid-2005, and updated in January 2006. This highlights reasons for investing in further education, outlines the rangeland management program and what differentiates this from other tertiary programs in Australia, and illustrates a number of pathways for entry to the PG programs. The content of this brochure was heavily influenced by our commissioned research on the target market for these programs.

The Student Guide, the website and the PG brochure all highlight the multiple pathways towards higher qualifications and for entry into the PG coursework programs in particular (Figure 2).

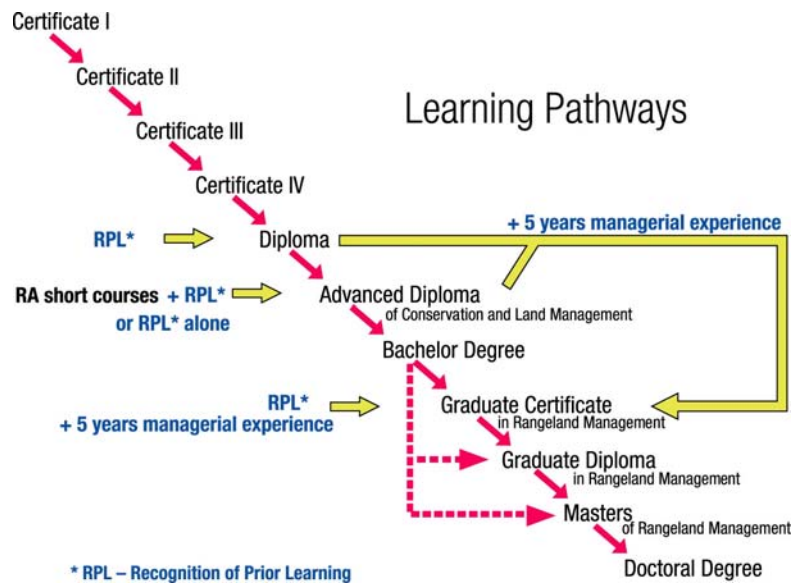


Figure 2 Learning Pathways

A glossy short course brochure will be developed when the remaining courses are accredited as 'FarmBis approved training activities' in both Queensland and South Australia (invited).

4.6.2 Promotion

Awareness of RA has been achieved through participation in various RA processes such as the national needs analysis and course development processes, and through targeted promotions and presentations.

Based on insights developed from the RA-commissioned research on the market for learning, RA has taken a strategic and coordinated approach to raising awareness of education and skill needs for future success (eg. presentations to Beef 2003, AgForce Council, Northern Territory Cattlemen's Association Executive, several Regional Beef Research Committees, Australian Rangeland Society (ARS) conferences - 2002, 2004; Longreach Meat Profit Day 2004, etc.).

More recently, we have been promoting how our products and services can position people for success, as well as the multiple pathways to qualifications in rangeland management (eg. presentations at the Australian Rangeland Society conference, 2004; SWQNRM Information Days, West Darling Pastoralists Association NSW meeting, etc.). Groups with strong links to the VET sector such as QRITC and Hortus Australia have also begun promoting these pathways and the RA-developed options on our behalf.

Most recently we were invited to present on the PG programs and courses to meetings of NSW DPI's Rangeland staff; Landcare, catchment and regional facilitators at Roma; QDPI&F's General Managers (Delivery) and their Workforce Development GM, and NSW DPI's Beef Field Day at Trangie.

Further awareness of RA and its products has been achieved through:

- The RA website which provides information to the broad community on current and emerging issues, RA activities and RA-developed short courses and postgraduate courses
- 'Mates of RA' – a network of around 1400 people nationally who have expressed an interest in learning, and nominated to be a 'Mate of RA'. 'Mates' receive newsletters updating them on RA activities and the availability of new courses

- Rural press and radio when opportunities present
- Articles in Aust. Farm Journal, Blues magazine, MLA's Feedback magazine, Qld Rural Women's newsletter, 'Pedals' (ICPA newsletter), The Land, Alice Springs Rural Review, etc., and
- Sponsorships (eg. 2004 ARS conference, 2004 Longreach Meat Profit Day).

4.6.3 Branding the products

A case for separate branding, that addressed RA & MLA concerns about possible market perceptions of university-branded short courses in particular, was submitted to UQ's Office of Marketing and Communication (OMC) in December 2004, and finally approved in March 2005. This acknowledged the research RA had commissioned on the market for learning, and RA's own research on barriers to further education, learning preferences, key sources used by potential clients for information on training and professional development, and the support needs of our target market (ie. 25-50 year olds in rural and remote areas).

The branding agreement allows RA to continue to use RA branding, with a phased transition to UQ branding for course materials, program brochures, website, etc. expected by the end of 2007. The need to retain the RA logo and use investor logos (eg. MLA, DAFF, CSIRO) in course and promotional materials has been recognized by UQ's OMC and the Faculty (NRAVS). Indeed, the Faculty (NRAVS) has declared that *"we will retain the identity of RA as a well branded and valuable and respected entity for delivery of ... courses and programs"* (Prof R. Swift, pers. comm., March 2005).

The branding strategy has been in place for several years now, and anecdotal evidence has emerged that RA is changing the attitude of mature-aged prospects to Universities and their educational products, and in turn raising the profile of UQG in all rangeland states.

However, the proposal to absorb RA into CRRIQ and promote RA-developed short courses through CRRIQ could take us backwards. It has the potential to confuse the market, and a lot of work will be required to build CRRIQ's profile in the rangelands and outside Queensland.

4.6.4 Conclusions

Information on the short courses, postgraduate programs/courses and pathways to qualifications are available in hard copy and in electronic form on the RA website. Some awareness of RA and its products have been achieved through ad-hoc articles in newsletters, etc. and in presentations to industry groups, regional bodies and other stakeholder groups. Now that we have very positive feedback from our first students, including testimonials about the value and relevance of courses, RA is positioned to promote the courses more actively in field days, forums, trade displays, etc in ways that are appropriate to the 'passionate learner' and 'job-driven' segments of the market.

MLA endorsement and support in promotion and marketing (eg. through the Feedback magazine, Meat Profit Days) would assist greatly, but won't replace the need for face-to-face interactions *in* the rangelands to build relationships and credibility. This requires resources for extensive travel in the rangelands.

4.7 Impediments

While there have been significant achievements, some activities took much longer than anticipated, and in other areas there were significant road blocks that stalled progress, diverted energy and sapped enthusiasm. The impediments encountered were the participatory process itself, barriers to student participation outside our control, and institutional factors.

Interestingly, a number of these impediments were clearly identified in the Business Plan (Anon. 1999) as major risks to establishment and credibility in the marketplace. For example, issues such as RA funding streams, administration processes and support, expected market demand, and institutional failure.

4.7.1 Participatory process

The participatory approach to course design and development added considerable complexity and time to the process. However, the approach was central to RA's values and our intent to develop more relevant and practical courses. Some of the issues that have slowed our progress and delivery against milestones include:

- Difficulties in assembling a diverse group of experienced producers, agency staff and scientists from across Australia to scope a course, and in scheduling these scoping workshops. For example, we found it necessary to have lead times of 2-3 months to engage the majority of the experts targeted for a course development workshop.
- The complexity of the initial courses tackled (eg. Building effective stakeholder engagements; Property, catchment and regional planning), compounded by the limited number of people comfortable with being guided by stakeholder expressed needs, and capable of providing 'big picture' input to such courses.
- Identifying technical 'experts' with the time to contribute to course writing, and the emotional intelligence to be guided and challenged by experienced practitioners and an Educational designer.
- Despite contracts, writers and reviewers were busy people and they rarely delivered on time.
- The need to link the content of a short course and a corresponding postgraduate course to ensure complementarity without duplication, and to facilitate access to the postgraduate programs through recognition of prior learning and the granting of credit.
- Respecting that people in the bush are time-poor, and deferring and re-scheduling pilots to better coincide with planned meetings of industry groups and/or to accommodate the impact of heatwaves, drought or floods on producers' accessibility and availability.

4.7.2 Barriers to participation

In the course development process, RA has addressed a number of recognised barriers to participation such as relevance, perceived value for money, accessibility, etc.

Time and cost remain as major barriers. Three of our postgraduate enrolments have subsequently withdrawn because they do not have the time to run their business, study and meet their family and other commitments. Many producers and agency staff have expressed frustration about being over-worked and time-poor, and that they are challenged and stressed by the need to balance their various time commitments. We can't do much about this, other than cover time management and other tips for keeping up with study in the Rangeland Management Student Guide and in the '*Getting into further study*' short course, and in being sympathetic to requests for extensions of time for assignments.

Although some industries are buoyant (eg. beef), the cost of a postgraduate course is significant even if it is spread out over 2-3 years (e.g. \$8,240 and 16,480 for a Graduate Certificate and Graduate Diploma respectively). Around 60% of PG enquiries have observed that the Rangeland management programs are relatively expensive. We have argued that the quality and relevance of our courses justifies the cost, but the reality is that course fees are set by UQ and these have risen by over 100% over the past four years.

We are promoting FEE-HELP strongly (ie. the postgraduate equivalent of HECS). The NRAVS Faculty and SNRSM at UQG have made a successful case for up to 10 Commonwealth-supported places for the RM program. This will be a significant and timely incentive, especially for those who have experienced hardship for many years. However, there is also a case for a number of part-scholarships (eg. \$5,000 towards the course fees for a Grad Cert), and there is a recommendation to this effect (see Section 7.2).

4.7.3 Institutional factors

Our approach to course development and delivery is not traditional University practice, and our commitment to meeting customer's needs is apparently uncommon. It is not surprising then, that we seem to be regularly challenging processes and policies that assume 'internal' course development, course delivery at major campuses, and that our activities are conducted in capital cities. In one sense these have been merely 'speed bumps', but they have diverted a lot of energy (eg. in follow-up, or in developing and arguing cases for an alternative approach), and either suspended or significantly slowed a number of critical tasks and activities. These have occurred in the areas of marketing and branding; use of electronic/web-based systems for recording expressions of interest and registrations for courses; engagement and remuneration of writers, reviewers and deliverers; and payments for services purchased in the bush, which if slow, impacts on RA and UQ's reputations and credibility.

These have not been major impediments, but they illustrate the difficulties of the challenges RA was set to 'do things differently' and to be responsive to market signals, especially in a large institutional setting.

4.7.4 Conclusions

The participative process and engaging external contributors for scoping, writing or review has invariably taken more time than was estimated, and up to three times as long! Despite good intentions, deadlines and contracts, the 'good' people are busy people, and we've struggled to deliver some courses as planned.

Time and cost remain as major impediments to the uptake of postgraduate programs.

5 Success in Achieving Objectives

Apart from the development of a number of strategic and operational plans, little was achieved in Year 1 without staff. The following achievements are the result of the efforts of a small, highly committed team over a 3-year period.

5.1 Success in Achieving Objectives

5.1.1 Overall Success

Under NAP3.326 **the major objective was achieved** ahead of schedule; that is establishment and staffing of a Rangeland Management Centre at The University of Queensland's Gatton Campus. This centre, known as Rangelands Australia, has quickly developed a national reputation as a valuable, respected, supportive and innovative provider of practical and relevant courses for owner managers and other professionals in the rangelands. It has also built credibility and brand recognition in 3 years. However, the centre has recently shrunk without further external funds.

Under NBP217, we have

- **over-achieved on the first major objective**, albeit behind schedule. That is, to deliver 3 new short courses.
- **over-achieved on the second objective on schedule**. That is to initiate two new postgraduate programs for professional development of managers, advisors and trainers, and
- **over-achieved on the remaining major objective on schedule**. That is, to develop nationally accredited articulated programs for qualifications in rangeland management.

For example, under NBP217 we have developed 5 new short courses for rangeland users, managers and service providers to keep up to date with developments and the skills relevant to successful 21st Century businesses and communities, and a further short course to build confidence and develop the necessary skills for successful completion of a postgraduate coursework program by distance education.

Secondly, students can now enrol in three (not just two) new postgraduate coursework programs in rangeland management offered by The University of Queensland (i.e. Graduate Certificate in Rangeland Management, Graduate Diploma in Rangeland Management, and Masters of Rangeland Management). These are fully articulated, nationally (and internationally) accredited programs, with students able to progress step-wise and attain credit towards the next level. These have attracted 9 Graduate Certificate and 7 Masters' students, and a further 10 students from other postgraduate coursework programs at UQ and elsewhere with little publicity. Three of 5 students who will complete the GradCertRangelandMan in 2006 have indicated that they intend undertaking further courses to complete the requirements of a GradDipRangelandMan.

Finally, the development of multiple pathways for qualifications in aspects of range management has also been achieved, and a new pathway has been developed for a Diploma/Advanced Diploma in Conservation and Land Management, based on successful completion of the assessment items in RA short courses and some additional work. This constitutes a totally new option for earning a Diploma-level qualification (ie. a Dip/AdvDip Cons&LandMan), and provides another pathway for admission to the postgraduate coursework programs in rangeland management.

However, there have been shortcomings in relation to expectations for: i) the national network of supply, and ii) enrolments, both in short courses and the postgraduate programs.

With respect to the national network of deliverers, through distance education we have achieved the goal of national delivery of rangeland-relevant courses, at least in a practical sense. While this does not equate to the early vision (ie. of RA as a hub which supplied and accessed courses to/from nodes at partner institutions), there are a number of reasons why this concept is no longer practical:

- the limited number of relevant courses subsequently identified with appropriate rangeland emphasis and expertise,
- the lack of experienced lecturers with the time to take on yet another course when University reward systems encourage research and publications, and
- the decline/demise of agricultural education and institutions (potential nodes), which means that they are reluctant to make commitments.

The poor response to the Sheep CRC's initiative to make undergraduate courses more widely available attests to this point. However, there are further opportunities for sharing courses through cross-institutional enrolment, and these warrant further investigation.

Enrolment projections were based on preliminary market analyses, but were clearly optimistic and were not met because of two key barriers to learning – time and money. Sustained drought in many rangeland areas has affected both the time and money that might be available for further education. Increasing demands of work and family are reducing the amount of time for learning. Time to travel to/from learning activities will continue to be an issue for short courses, and our flexibility in the location (and timing) of courses should be strongly promoted. With the PG courses, delivery by distance means that the travel issue is eliminated. The cost issue is about actual costs and value for money. It is clear that FarmBis or equivalent subsidies will be important for uptake of short courses. The steady rise of the cost of postgraduate courses is a concern, and a recommendation is made for partial scholarships to partly address this issue. From the student evaluations we now have evidence (albeit soft) of the value for money, and promotion of further education and training will include business case arguments to convince producers and employers about the value of their investment in learning.

6 Impact on Meat and Livestock Industry – now & in five years time

Both the outputs of the participatory processes (eg. courses) and the processes themselves have had and will have an impact on industry and other key stakeholders. For example, the participatory process that underpinned the needs analysis and the scoping, development and review of courses has probably influenced many more than have been directly impacted by participation in any course to date (see Section 4 above).

As the short courses have not been actively promoted, the evidence of impact provided below is limited to the PG programs in Rangeland Management. However, evaluations of the pilots of the short courses suggest that they too could have a substantial impact on rangeland-based industries.

When the NBP217 project was initiated (and Performance Indicators chosen) it was anticipated that there would be some full-time enrolments which might complete the program within 12 months. As it has happened, *all* enrolments have been part-time and only two of the PG students have enrolled in two or more courses at any one time. This means that the majority of the Graduate Certificate students are taking at least 2 years to complete their program, and the Masters will probably take at least 3 or 4 years to complete their program. Drought or some other crisis that affects their time and finances could easily extend these periods.

At this stage, only one student has completed a Rangeland Management program, so it is rather premature and difficult to attempt to assess the impact of the PG programs on industry, either now or in the future. A longitudinal study would be required to do this, and a recommendation is made to this effect.

Nevertheless, students who have completed at least two RA-developed postgraduate courses were surveyed and asked to “describe the impact that RA-developed courses have had on you, your work or business” - to date, and that anticipated in 5 years time. Their responses are quoted in Sections 6.1 and 6.2 below, and are preceded with a summary of perceived impact.

It is worth noting that all of the survey respondents (8 of 10 PG students surveyed) indicated that the **overall impact** of the RA-developed courses on them was ‘**positive**’, with 50% of them rating the impact as ‘**very positive**’.

6.1 Impact on Meat and Livestock Industry – now

The responses to a survey that asked PG students to ‘describe the impact that the RA-developed courses have had on you, your workplace or business to date’ are listed below. These responses highlight the fact that the courses have been timely, relevant, current and practical, and, after a remarkably short time, have delivered the following benefits to students who mostly live and work in the rangelands –

- More high level, critical, lateral, strategic, systems and ‘triple bottom line’ (TBL) thinking
- Wider, deeper and new perspectives on current and emerging issues
- Better understanding of the complexity of the rangelands
- Greater consideration of social and TBL implications
- Better understanding of other stakeholders and their perspectives,
- Better planning and community engagement
- Better decisions and risk management, and
- Greater self confidence and personal credibility.

6.1.1 Student feedback on industry impact – now

- *“The courses have challenged my mind; allowed me to think at a much higher level than I have in the past, along with helping me to think in different areas (more social/people thinking rather than scientific)”* Melissa Driscoll, MRangelandMan student, small business operator, Hughendon Q
- *“The RA courses I have undertaken have been thought provoking through their practical assignments. My confidence in working in the rangelands has increased and I find myself asking more questions and thinking more laterally on problem solving scenarios. My interest in the rangelands has increased 10-fold and I no longer take things at face value. I stop and look at the finer points and readily assess how the different systems work”* Hayley Turner, GCertRangelandMan, Rangeland Advisor, WA Department of Agriculture, Karratha WA
- *“Improved critical thinking and knowledge of relevant subjects in fields other than my specialty. Broader understanding of critical issues in Rangeland management”* Roxane Blackley, MRangelandMan student, Landcare facilitator, Wandoan Q

- *“Thinking in terms of economic, social and environmental impacts definitely alters decision outcomes. This is a different framework than the more traditional agricultural science /business thinking directed towards productivity and production solutions to rangeland landuse. The rangelands approach sits comfortably with my 35 years farming experience in the non-seasonal rainfall, eastern rangelands of NSW. A rangeland approach that essentially emphasises risk and risk management rather than the traditional agricultural approach of production and productivity better fits the business reality of these environments. One of the biggest issues confronting rangelands all over Australia is the decline in rangeland communities. The full impacts both environmentally and economically of this emptying out of the rangelands is yet to be felt. RA courses that serve the needs of rangeland practitioners are addressing this issue. It is doubtful that institutions using more traditional ‘top down’ university learning approaches would be aware of the urgency of this issue”* David Taylor, MRangelandMan student, owner/manager ‘Myola’ via Condobolin NSW
- *“Provided a new perspective on old issues, and new insights into influences and impacts which I was not previously aware of. Increased my sense of urgency in promoting a change of language in my industry peers, and of developing and nurturing non-traditional associations. Improved my breadth and depth of knowledge on basic issues such as nutrition of grazing animals. Allowed me access to the views and insights of a wide range of people with the courses being the common thread”* Richard Golden, GCRangelandMan student, owner/manager of ‘Potters Flat’ via Yuleba Q; 2005 Rabobank Environmentalist of the Year
- *“I entered the RA course partly to help decide on a particular career direction in NRM and was particularly interested in rangeland ecology. I am currently undertaking the rangeland ecology unit and have benefited from the core subjects I completed in 2005 (Rangeland Systems and Regions and Building Effective Stakeholder Engagement). The course has been timely for me and directly applicable to my occupation as a manager for a regional natural resource management body. It has provided opportunity to analyse my organisation’s regional NRM planning process and how community engagement for future iterations of the plan may be improved.”* Dan Ferguson, GCRangelandMan student, Program manager South West NRM, Charleville Q
- *“The RA-developed courses have broadened my knowledge of the rangelands in my region especially. The local issues and understanding the complexity of the different stakeholders within the region has enabled me to expand my understanding and views”* Amy Tait, GCRangelandMan student, Toowoomba Q

In addition, external reviewer’s feedback and students’ evaluations of the relevance of the courses to their workplace/business in the rangelands (see Section 4.5.4 and Appendix 4), suggests that these courses will, in time, have a significant impact on industry.

6.2 Impact on Meat and Livestock Industry – in five years time

The responses to a survey that asked PG students to ‘describe the anticipated impact that RA-developed courses may have on you, your workplace or business in 5 years time’ are listed below. These responses highlight the fact that the courses are positioning people for future success and are expected to deliver the following benefits to people who live and work in the rangelands in 5 years time:

- Greater understanding of rangeland systems from a 'triple bottom line' perspective
- Greater access to relevant information on the rangelands
- Greater understanding of the benefits of sustainable practices
- Development of a learning community in the rangelands
- Improved land condition and biodiversity in the rangelands
- More profitable rangeland use and management, and possibly reduced variability in profits
- Better industry-agency joint-projects and other collaborations among stakeholders
- Better communication and advocacy of rangeland interests and requirements
- Better personal and knowledge networks
- Greater capacity to learn
- Greater self confidence, credibility and personal satisfaction, and
- More/new job and career opportunities.

6.2.1 Student feedback on likely industry impact in 5 years time

- *"I am hopeful that the courses will open up some alternative career opportunities for me, particularly in the field of extension and development in the rangelands"* Melissa Driscoll, MRangelandMan student, small business operator, Hughendon Q
- *"In 5 years time, I expect to see the state of the rangelands changed as a result of my advice"* Joanne Nyamasyo, MAnimStudies student, Machakos Kenya
- *"The anticipated impact that the RA courses would have on me in 5 years time would be;*
 - *Well rounded knowledge of the Northern rangelands region which complements my understanding and experience in the Agricultural region of WA.*
 - *It is hoped that it would make me more desirable as an employee within the Rangelands and associated industries and would further my career in this field*
 - *My better understanding of the rangelands will further develop the partnerships and rapport that I have with pastoralists in the Pilbara which will lead into new projects that involve producers in more than just the planning stages."* Hayley Turner, GCertRangelandMan, Rangeland Advisor, WA Department of Agriculture, Karratha WA
- *"Improved knowledge of agricultural issues not covered in undergraduate courses at UQ. Provides an opportunity for external study that would otherwise be very difficult. It also provides an opportunity to formalize a range of courses and lectures taken in other fields (by using that information towards formal qualifications"* Roxane Blackley, MRangelandMan student, Landcare Facilitator, Wandoan Q
- *"Greater awareness of grazing land management practice and thinking in terms of social and environmental impacts suggests a probable shift towards low cost, low risk landuse production systems more in sympathy with environmental realities, central west ecosystems health and better integration with community development. cursory analysis suggests that these systems may compare favorably on profit metrics with alternative agricultural landuse systems"* David Taylor, MRangelandMan student, owner/manager 'Myola' via Condobolin NSW

- *“Increased confidence levels in consultation, higher levels of credibility in all areas, higher level strategic skills in business and landscape planning and management. Personal satisfaction, valuable interpersonal networks and non-traditional linkages outside mainstream pastoralism”* Richard Golden, GCRangelandMan student, owner/manager of Potters Flat, via Yuleba Q; 2005 Rabobank Environmentalist of the Year.
- *“The course should continue to provide benefit to my organization and therefore the community as I apply the learning’s from the course. I believe the graduate certificate will be a respected qualification when I seek alternative job opportunities in NRM. The attainment of my graduate certificate will contribute to achieving my ambition of a masters or higher qualification”* Dan Ferguson, GCRangelandMan student, Program manager, South West NRM, Charleville Q

In addition, and based on external reviewer’s feedback and students’ evaluations of the relevance of the courses to their future in the rangelands (see Section 4.5.4 and Appendix 4), there are very good prospects for significant medium (5-10 years) and longer term impact.

6.2.2 Industry and community benefits – a personal perspective

Distilling: a) the student’s feedback (above); b) personal observations of the changes in Rangeland management students over the past 18 months; and c) the widely recognised benefits of further education suggests that there will be significant benefits to individuals, enterprises and communities in the rangelands as a result of these courses and programs. The potential benefits will include:

Individual benefits

- Increased opportunities for winning and keeping a job
- Increased opportunities for career advancement or career changes
- Better prospects for employment, perhaps in other fields or regions
- Qualifications and skills that are valued by others
- Higher wages and earnings
- Broader understanding of the critical issues facing rangeland enterprises or regions
- Greater capacity to represent rangeland interests, and to advocate for enterprise and regional outcomes
- Increased options for self-employment and diversification

Enterprise benefits

- Enhanced land condition, biodiversity and water quality through improved management
- Improved productivity, lower costs and improved profitability
- Diversified and more stable income
- Better decision making and reduced risk
- Enhanced customer and stakeholder satisfaction
- Market security
- Easier access to finance
- Greater capacity for innovation and managing change
- Retention of the next generation

Community benefits

- Stronger engagement in the community
- Stronger industry leadership
- Greater capacity for articulation and advocacy of regional issues and requirements

- Improved services
- Retention of the next generation
- Development of a learning community and capacity for change
- Revitalised rural and remote communities.

7 Conclusions and Recommendations

7.1 Conclusions

The project has achieved and indeed over-achieved on all its objectives, albeit behind schedule on some interim milestones. It should also be acknowledged that this has been accomplished with only a small fraction of the resources identified in the business plan.

While Rangelands Australia has been established, it is vulnerable in the current climate. The vision is only partly achieved, and the potential for significant long term impact has been well demonstrated. RA is well positioned to make a significant difference in the 75% of Australia that is rangelands, and it is in the national interest that this initiative be further supported and consolidated.

With strong industry and community recognition of RA's achievements and potential, there is now wide support for continuation of this initiative. For example, from:

- Industry (eg. AgForce(Q), Cattle Council, National Farmers Federation, NSW Farmers Federation, Northern Territory Cattlemen's Association, Pastoralists and Graziers Association WA, WoolProducers)
- Large pastoral companies (eg. Australian Agricultural Co, Kidman & Co, North Australian Pastoral Company, MDH Ltd)
- RTO's (eg. Queensland Rural Industries Training Council, Hortus Australia)
- Regional bodies (eg. Western Catchment Management Association, NSW; South West NRM, Q)
- Professional association/Interest group (eg. Australian Rangeland Society), and
- R,D&E (eg. CSIRO Sustainable Ecosystems, Qld Department of Primary Industries & Fisheries).

There are good prospects for significant long-term impact, and especially for nurturing a learning community in the rangelands and for building capacity for change to ensure profitable and sustainable use of Australia's vast rangelands. This has been recognised by industry and regional bodies (see Section 4.1.2).

The quality, accessibility, practicality and relevance of the products of the establishment phase has now attracted significant additional funding from the Australian Government. This will support further course development and growth of the business through promotion and marketing of the programs and courses. Importantly, this grant will also provide practical support and encouragement for learners, with little or no recent tertiary education experience, who live and work in the rangelands. This will overcome a major barrier to further education in rural and remote areas, and should lift both participation and completion rates.

Unfortunately, we are trying to develop an innovative rural-based business at a time when the tertiary education sector, in agriculture in particular, is in a funding crisis. Although the NRAVS Faculty has declared a 'long term commitment to RA' and 'continued support from UQ' (Prof. R. Swift, pers. comm., March 2005), the financial situation at UQG has deteriorated to the point where UQ's continuing contribution is unlikely to be significant, over the next several years, beyond SNRSM's partial contribution to the Director's salary. The inaugural Director is currently on secondment from CSIRO, with significant salary support from CSE, but this will not continue beyond December 2006.

Without further external support for the Office of Director Rangelands Australia/Professor of Rangeland Management at this critical stage of business development, the Director will be lost to this initiative. Without a champion and a driving force with vision and empathy for the bush, and irrespective of whether this is the current Director or another, in the current climate there is a strong possibility that this exciting and potentially far-reaching initiative will fall over. This would put at risk the \$2.4m investment to date by MLA, UQ and AFFA.

7.2 Recommendations

Although it is well positioned, this initiative is at a precarious stage of business development - it could fly or it could fail on the response to this report.

There are three recommendations to ensure that the initiative succeeds and continues to function well into the future:

- That MLA commits \$50,000 pa for each of 4 years as a co-contribution to the costs of the Office of the Director/Professor of Rangeland Management, ie. salary & on-costs for the Director, salary & on-costs for a p/t receptionist/executive assistant, and a fully maintained vehicle. It is expected that the co-contributors would include Queensland Government, The University of Queensland (through the School of Natural and Rural Systems Management - SNRSM), CSIRO Sustainable Ecosystems, and members of the Northern Pastoral Companies Group, and that this investment will consolidate the initiative and realize the vision.
- That MLA assists in promotion of both the short courses and postgraduate programs through its Feedback magazine, Meat Profit Days and other appropriate vehicles.
- That, if further support for the Office of the Director/Professor of Rangeland Management is forthcoming, RA/SNRSM develop a succession plan for the joint positions of Professor of Rangeland Management and Coordinator, Rangeland Management program at The University of Queensland's Gatton Campus.

If there is further institutional commitment to capitalize on MLA and UQ's investments and consolidate the initiative, then two further recommendations are appropriate;

- That a longitudinal study of program/course participants be initiated, in partnership with AgTrans Research, to quantify the outcomes of these programs and the economic, environmental and social benefits of such education. This will be important to demonstrate the return on investment in the longer term.

- That further Commonwealth-supported places be allocated in this period of drought – induced hardship, and that sources for partial scholarships (eg. Commonwealth Education Costs Scholarships) be explored to overcome one of the last major barriers to access and participation in further education in the rangelands – cost. Over 60% of prospects have raised this issue, and such scholarships may also serve as a valuable incentive for attracting and retaining people in the rangelands.

8 Bibliography

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

Andreason Alan A (1995). Marketing social change. Jossey-Bass, San Francisco.

Anon (1999). Rangelands Australia Business Plan, June 1999.

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

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

9 Appendices

9.1 Appendix 1: Key Publications

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

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

A number of other publications by RA staff are on the website – www.rangelands-australia.com.au

KEY PERSONAL ATTRIBUTES AND AREAS OF KNOWLEDGE FOR FUTURE SUCCESS IN THE RANGELANDS¹

John A Taylor

Rangelands Australia, c/o University of Queensland - Gatton Campus, Gatton Q 4343

ABSTRACT

The overwhelming majority of rangeland stakeholders, consulted in a series of focus groups around Australia, foresee significant changes in the way the rangelands will be used and managed. This paper reports on the personal attributes and attitudes that will be critical for success in the 'likely' future scenario, as defined by these stakeholders, and the key areas of knowledge that will be critical for enterprise and community success in these circumstances. It appears that capacity to manage change could be limited by personal attributes such as open-mindedness and attitude to change, and the availability of education and training opportunities that meet expressed needs for business, social and integration/systems skills. This information is being used by Rangelands Australia to develop the framework for new education and training offerings in rangeland management, to build capacity for a bright future for our rangelands.

INTRODUCTION

Rangelands Australia is a unique joint-venture committed to building a strong future for Australia's vast rangelands. It aims to improve rangeland management by providing teaching and learning programs that are relevant, accessible, innovative and world class. In the course of consulting widely to define the education and skills that will be needed for individual, business and community success in 5-10 years time, Rangelands Australia has developed a unique and broad-based perspective of: i) the 'likely' scenario for the rangelands, ii) personal attributes and attitudes for success in that situation, and iii) areas of knowledge that will be required for people to be successful in rangeland enterprises and communities. These perspectives have been derived from the views of over 350 'forward-looking' individuals representing the pastoral (147), mining (15), tourism (15) and 'new' (8) industries; Commonwealth (15), State (73) and Local (15) government agencies; education and training providers (26); indigenous (18) and other community groups (36). These individuals were engaged in the needs analysis through more than twenty focus group meetings across Australia in 2001-02. For each meeting, a mix of 'wise heads' and 'youth', and gender balance, was sought.

The consultation process is not complete, therefore this paper only provides a preliminary report on the anticipated scale of change, stakeholder perceptions of the 'likely' future scenario for the rangelands, the personal attributes and areas of knowledge that will be needed for success in the rangelands in 5-10 years time.

LIKELY SCENARIO FOR THE RANGELANDS IN 5-10 YEARS TIME

The overwhelming majority of the participants in focus group meetings to date believe that there will be significant change over the next 5-10 years. Less than 1% stakeholders consulted expect little or no change.

¹ Invited paper. In: Proceedings 12th Biennial Conference of the Australian Rangeland Society, September 2002, Kalgoorlie WA. Pp 74-78.

Key Personal Attributes and Areas of Knowledge for Future Success in the Rangelands
by John A. Taylor, Rangelands Australia

From a collation of stakeholder responses (and using their words where possible), the most likely scenario for enterprises and their operating environment in 5-10 years time will be as follows:

i) Nature of Enterprises

- Enterprises will focus on excellence/'best practice' in quality assured products (eg. food, fibre or rangeland experiences) and in demonstrating sustainability.
- Enterprises will be more complex (because of diversity in business type and in geography), and more business like and professional in their operations.
- New products or services, value adding and off-farm investments will provide opportunities for diversification and risk management.
- Larger enterprises will develop through increasing corporate ownership and new partnerships (geographically and along the supply chain).
- Younger, more educated and informed managers will take control as an outcome of succession planning, but there may be less of them.

ii) Operating Environment

- Greater environmental awareness and responsiveness will be expected of land users and managers, probably driven by market specifications (global and national) and environmental regulations and restrictions (eg. biodiversity, pest control) at the catchment or regional level.
- Greater scrutiny and accountability will be expected of land users and managers by banks, investors, insurers, government and other stakeholders.
- Decision-making will be more complex, especially in monitoring, evaluating and managing for multiple uses and values at enterprise and catchment scales.
- Traditional knowledge, 'best practice' and new knowledge will be accessed and integrated in decision-making.
- Urban attitudes and perceptions will drive rangeland policy, but urbanites will have a greater empathy with the rangelands through tourist experiences.
- Land degradation will increase as the longer-term consequences of salinity, pests and weeds become evident.
- Social decline will continue through out-migration and cessation of major social events, but people in rural and remote Australia will be better connected nationally and internationally.

While most of the stakeholders consulted seemed comfortable with and accepting of the degree of change anticipated, it is expected that these circumstances will provide significant challenges for many rangeland users and managers, government advisers/facilitators, etc. For some, the likely scenario will be threatening and confronting. From Strachan's (2001) work on the personality types in the northern pastoral industry, we can anticipate that many pastoral managers will probably be resistant to new ideas and uncomfortable with the pace of change. This presents challenges in motivating people for change and in equipping them with appropriate knowledge and skills to be more proactive about change.

KEY ATTRIBUTES OF INDIVIDUALS FOR SUCCESS IN THE FUTURE

Key attributes of individuals were defined as the personal attributes or attitudes that would be critical for success in 5-10 years time. Stakeholders were then asked to reflect on a) the current issues and challenges in the rangelands, and b) the likely scenario in 5-10 years time, and then to deduce the personal attributes that would be critical for success in the future.

Key Personal Attributes and Areas of Knowledge for Future Success in the Rangelands
by John A. Taylor, Rangelands Australia

Stakeholders were prompted by a list of personal attributes deemed important to improve the employability of graduates, viz. communication, computer literacy, critical thinking, cultural and historical appreciation, ethics, in-depth knowledge, information management, inter-disciplinary perspective, life-long learning, problem solving and team work (AC Neilsen Research Services 2000).

These are to be progressively incorporated in all vocational education and training (VET) and higher education courses and programs (West 1998).

The above list was strongly endorsed by stakeholders, but they also highlighted a number of attributes as being particularly important for future success in the rangelands. In decreasing frequency of occurrence, these were expressed as:

- Commitment and passion for the rangelands
- Acceptance of /sensitivity to other cultures and values
- Strong inter-personal skills
- Strong communication skills (incl willingness to listen, articulate, presentation skills)
- Practical
- Self-confident
- Adaptable
- Positive attitude to change
- Thinking ability (incl, in order, holistic/systems, critical, strategic and lateral thinking)
- Willingness to learn/life-long learning
- Determination/persistence
- Open-minded
- Networked and connected
- Innovative.

There is some consistency, but differences in perceived order of importance, with the top five skills for work in agriculture and related fields nominated by rural-based tertiary students; viz. communication, practical, social skills, listening and commitment to agriculture (Hemmings *et al.* 2000).

A number of the attributes listed by rangeland stakeholders are closely linked (eg. open-minded and acceptance of other values), and these linkages draw attention to two fundamental personal characteristics that could limit capacity to change in the rangelands – open-mindedness and attitude to change. Given the very high proportion (62%) of pastoral managers with a traditional or conservative (SJ) personality type (Strachan 2001), this highlights a major gap in capacity to respond to the challenge of change.

KEY AREAS OF KNOWLEDGE FOR SUCCESS IN THE FUTURE

Key areas of knowledge were defined as the ‘things people would need to know about and be able to do’ to be successful in the likely scenario in 5-10 years time. Overall, the 10 most frequently listed areas of knowledge required (in decreasing frequency) were:

- Business management and planning,
- Marketing (incl. market requirements, supply chains, benchmarking),
- Basic understanding of natural resources (eg soils, water, vegetation, biodiversity),
- Cultural and historical appreciation,
- Stakeholder values and perceptions,
- Recruiting, managing and coaching people, facilitation,
- Communication, negotiation and conflict management,

Key Personal Attributes and Areas of Knowledge for Future Success in the Rangelands
by John A. Taylor, Rangelands Australia

- Multi-criteria assessment (ie. monitoring, integrating and managing for multiple uses and values),
- Landscape processes and function,
- Diversification.

There are some consistencies with the main skills deficiencies identified in University and VET graduates overall (AC Nielsen Research Services 2000), and the skills deemed important for work in

agriculture and related areas (Hemmings *et al.* 2000). However, the above list indicates a strong need for more ‘people’ and ‘business’, rather than technology or discipline, focused education and training programs for greater relevance in the future.

As ‘sustainability’ is the state desired by all rangeland stakeholders, the areas of knowledge required for success are listed (using the stakeholders words where possible) under the three elements of the ‘triple bottom line’ (viz. economic, environmental and social), with a separate section to cover integrating or over-arching issues. Only the five most frequently raised areas of knowledge are listed (in decreasing frequency) under each heading.

- Economic
 - Business management and planning
 - Marketing
 - Diversification
 - Livestock husbandry (eg. behaviour, nutrition, genetics, health & welfare)
 - Sustainable production systems
- Environmental
 - Basic understanding of natural resources (eg. soils, water, vegetation, biodiversity)
 - Landscape processes and function
 - Management of pests and weeds
 - Legislation and regulations
 - Environmental management systems/certification
- Social
 - Cultural and historical appreciation
 - Stakeholder values and perceptions
 - Recruiting, managing and coaching people, facilitation
 - Communication, negotiation and conflict management
 - Self-awareness and management
- Over-arching
 - Multi-criteria assessment (ie. monitoring, integrating, decision making and managing for multiple uses and values)
 - Property, catchment and regional planning
 - Basic bush skills (ie. four-wheel driving, plant and machinery maintenance, first aid, fencing, etc)
 - Awareness of forces driving change and emerging issues
 - Systems/holistic management

Again, there are some consistencies with the needs identified for the northern beef industry (NABRC 1999), savanna management (Wearne *et al.* 1996) and Australian agriculture in general (Hemmings *et al.* 2000), especially in the economic and environmental dimensions of the ‘triple bottom line’. However, the above list, derived from a broad group of rangeland stakeholders, gives much greater

emphasis to large-scale issues (ie. global, national, regional, catchment and landscape), multiple-use, integration, systems/holistic management and social issues, rather than the disciplines and/or technology focus of traditional agricultural science courses.

A quick scan of the outlines of Australian courses/programs potentially relevant to the rangelands (ie. agriculture, environmental management) reveals a major gap between the education and skills offerings and the needs expressed by rangeland stakeholders, particularly in the areas of business, people and integration/systems skills.

CONCLUSIONS

Stakeholder consultations have highlighted the personal attributes, skills and knowledge that will be important for future success in the rangelands. A preliminary analysis suggests personal attributes that may limit the rate of change, and areas of knowledge that would improve the relevance of education and training offerings to future needs. At present, these represent gaps in capacity that must be closed if rangeland communities are to be more proactive about change.

Rangelands Australia is using these findings to develop the framework and content of new and more relevant courses, postgraduate and undergraduate programs. These offerings will progressively be available from 2003, and will be delivered by the national network of excellence in rangeland management education, training and research, that is Rangelands Australia.

However, two issues must also be addressed if we are to build capacity in rural and remote Australia: a) retaining and attracting youth and professionals, and b) lifting the relatively low participation rate in education and training. I suspect that if there was a more positive attitude to change, more emphasis on the opportunities rather than the threats, and greater encouragement of education, careers in rangeland management might be more attractive and capacity to manage change would be greatly improved.

ACKNOWLEDGEMENTS

I would like to thank the stakeholders who engaged in the needs analysis with great enthusiasm, and especially those who assisted with local arrangements or drove/flew large distances to participate.

Meat and Livestock Australia and the University of Queensland have strongly supported this initiative.

Wal Whalley and Mark Stafford Smith provided valuable comments on a draft of the manuscript.

REFERENCES

A C Neilsen Research Services. (2000). Employer satisfaction with graduate skills. DETYA Research Report No 99/7, pp. 59.

Hemmings, B., Quinn, P. & Hill, D. (2000). Agriculture courses: Student entry and exit attributes and industry needs. RIRDC Publication No 00/104. pp. 202.

NABRC. (1999). What sort of university graduates does the northern beef industry need? Report of a North Australia Beef Research Council workshop in Darwin NT, September 1999. pp. 7.

Strachan, R. (2001). Leadership styles in the pastoral industry. Proc. North Australia Beef Industry Conference, Kununurra WA. pp. 149-153.

Wearne, G., Young, R. & Benson, R. (1996). A needs analysis of education and training relating to the use and management of tropical savannas. CRC for the Sustainable Development of Tropical Savannas Report. pp. 102.

West, R. (1998). Learning for life: Review of higher education financing and policy. DETYA report. pp. 229.

BUILDING CAPACITY IN AUSTRALIA'S RANGELANDS

John A. Taylor

Rangelands Australia, Faculty of Natural Resources, Agriculture and Veterinary Science, The University of Queensland, Gatton Campus, Gatton, Queensland, 4343 Australia. E-mail: john.taylor@uqg.uq.edu.au

1. INTRODUCTION

Rangeland users and those who support them (i.e. advisers/extension officers, land care facilitators, trainers, researchers, etc.) face a time of discontinuous change. The key business challenges are not simply doing better at what they currently do, but learning to do new things and address new issues to meet changing market and community expectations. The wider community is driving change through new specifications on food and fibre products, changing landscape values and generational change, and is increasingly involved, directly and indirectly, in decisions that influence what can be done in the rangelands and how it should be done. No enterprise is an island, ecologically or socially (Bellamy *et al.* 2002), and no sector or community can isolate itself from the surrounding society (Falk 2001) or from change.

Change is not new to the rangelands, be it in Australia (Holmes 1994, 1997) or, for example, the United States of America (Heady 1999, McLaren, Brunson & Huntsinger 2001), but the momentum in Australia has been modest compared to the American situation (Holmes 1995). Change is often a trigger for learning (Arnott *et al.* 1999, Bellamy *et al.* 2002), and change can be seen as a learning process during which individuals and communities develop new knowledge, skills and values (Bellamy *et al.* 2002; Kilpatrick, Falk and Harrison 1999). Formal and informal education and training are widely recognized strategies for building capacity for change (Falk 2001, Kilpatrick 1997), and the Americans have been reviewing and revising their educational offerings in rangeland management to meet the changing circumstances (Malachek and Call 1999, McLaren 2000, McLaren *et al.* 2001). The need for education and training in rangeland management to address key business challenges has long been recognised in Australia (Agtrans Research 1998), but until recently there have not been any vocational, undergraduate or postgraduate programmes/curricula specifically in rangeland management.

The establishment of Rangelands Australia is a strategic response to a national report (Agtrans Research 1998) on 'Education and training to support sustainable management of Australia's pastoral industries' that highlighted the lack of programmes/curricula in range management in Australia and deficiencies in related offerings.

Rangelands Australia has adopted a participatory, social marketing approach to the development of Australian programmes in rangeland management. Social marketing places the client at the centre of every strategic decision, and focuses on changing behaviour (Andreasen 1995). Programmes developed by Rangelands Australia are intended to address future challenges, to better position people for individual, enterprise and community success, and to facilitate change. People who use the rangelands to produce cattle and beef or sheep and wool, and those who support them, are the obvious (but not the only) clients for this initiative. These two groups of stakeholders have common views on many issues, but differ in their perspectives on rangeland sustainability (MacLeod & Taylor 1994) and the importance of factors in rangeland management (Burnside & Chamala 1994). Within these two groups, women and youth are seen to be under-utilised resources in direction setting and planning (Bellamy *et al.* 2002, Kelly 2001).

This paper reports on the outputs of a strategic initiative to engage stakeholders in defining the education and skills that will be required to ensure the sustainability of Australia's rangelands, the success of its industries and the development of its people. It highlights the context and imperatives for change in the rangelands, and the personal qualities and knowledge that, stakeholders believe, will be required for individual, enterprise and community success in 5-10 years time. This paper focuses on the gaps in human capacity - especially among the land managers who are the custodians of most of Australia's rangelands (i.e. corporate, family and indigenous grazing enterprises) and those who are expected to support them (i.e. advisers/extension officers, land care facilitators, trainers, researchers, etc.). The paper also explores perceptions of the adequacy of the information base for building capacity for a bright future for Australia's rangelands.

2. SKILLS NEEDS AND GAP ANALYSES

In defining the education and skills that will be required for individual, enterprise and community success in 5-10 years time, Rangelands Australia has engaged representatives from a wide range of stakeholder groups in a two-stage process involving: 1) focus groups and 2) surveys. The key steps in the process included:

- 1a. Groups of stakeholders identifying the current issues and challenges,
- 1b. Groups of stakeholders defining a likely scenario for the rangelands in 5-10 years time, prompted by a consideration of global, national and regional forces driving change, as well as the current issues and challenges,
- 1c. Within the context of the likely scenario, stakeholder groups identifying:
 - personal qualities critical for individual success, and
 - key areas of knowledge for enterprise and community success.
2. Surveying stakeholder perceptions of the qualities that require further development and the gaps in knowledge among 'most' members of two rangeland stakeholder groups:
 - beef and wool producers, and
 - those who are expected to support them.

The focus group stage has engaged over 400 'forward looking' individuals with a strong interest in the future of the rangelands. These people were identified through national and regional networks, and represent the pastoral (n = 169), mining (15), tourism (15) and 'new' industries (e.g. bush tucker) (8), Commonwealth (15), State (82) and Local (18) Government organisations/agencies, education and training providers (26), indigenous (24) and other community groups (39). Their views were captured in the outputs of 24 focus group meetings, each with a mix of stakeholders, held across Australia in 2001-2. Two focus groups were held in the national capital to elicit policy maker, peak body and R&D corporation perspectives; three in state capitals to elicit industry body and senior agency perspectives; and the remaining 19 were held in various regional centres within Australia's rangelands. The mix of generations (34% < 30 years old) and gender balance (42% women) achieved has probably enriched the outputs of the regional meetings (Bellamy *et al.* 2002), but the process has not allowed analysis of their specific contributions.

Perceptions of deficiencies in personal qualities, gaps in knowledge and the adequacy of the information base were determined by surveying three groups with a continuing interest in the rangelands:

- focus group participants (respondents = 74),
- attendees at the North Australia Beef Research Council (NABRC) meeting in Broome in September 2002 (21), and
- attendees at the session on 'Capacity to Manage Change' at the Australian Rangeland Society's (ARS) conference in Kalgoorlie in September 2002 (96).

Of the 191 survey responses reported in this paper, 60 were from beef or wool producers, 96 from support staff, and the remainder (35) from other stakeholder groups.

Participatory and social marketing approaches to the development of educational programmes are not common in tertiary education institutions, and, from the feedback, have been a beneficial experience for many participants. For example, comments from the evaluation forms for each focus group include:

- "Better understanding and appreciation of the broader issues"*
- "Interaction with people from different backgrounds in rangeland management"*
- "Hearing a diverse range of ideas and opinions"*
- "Realising that other people had similar ideas"*
- "Realising that people you wouldn't normally meet/talk to are thinking in a similar way"*
- "Opportunity to hear a diverse range of views, all (surprisingly) directed at the same general end"*
- "Many great ideas ... from a male and female perspective"*
- "Made me see the bigger picture"*

3. A LIKELY SCENARIO FOR AUSTRALIA'S GRAZED RANGELANDS

The overwhelming majority of participants in the focus groups believe that there will be significant change in Australia's rangelands over the next 5-10 years, and especially in the nature of enterprises and in their operating environment. While some stakeholders believe that livestock will be excluded from environmentally sensitive and marginally productive lands, it was widely agreed that grazing would persist on the majority of Australia's rangelands for the foreseeable future.

A collation of focus group outputs provides a future scenario for grazing (and other) enterprises and their operating environment in 5-10 years time (after Taylor 2002):

3.1 Nature of Enterprises

- Enterprises will focus on excellence/'best practice' in the production of quality assured products (e.g. food, fibre and/or rangeland experiences) and be able to demonstrate that the production system is environmentally sustainable.
- Enterprises will be more complex (because of diversity in business type and in geography), and more business like and professional in their operations.
- New products (e.g. bush food) or services (e.g. farm stays), value adding and off-farm investments will provide opportunities for diversification and risk management, but will complicate day to day management.
- Larger enterprises will develop through increasing corporate ownership and new partnerships (geographically and along the supply chain).
- Younger, more educated and informed managers will take control as an outcome of inter-generational change and succession planning, but there will be less of them.

3.2 Operating Environment

- Greater environmental awareness and responsiveness will be expected of land users and managers, driven by market specifications (global and national) and environmental regulations and restrictions (e.g. biodiversity, pest control) at the catchment and regional level.
- Greater scrutiny and accountability will be expected of land users and managers by banks, investors, insurers, government and other stakeholders.
- Decision-making will be more complex, especially in monitoring, managing and adapting for multiple uses and values at enterprise and catchment scales.
- Traditional knowledge, 'best practice' and new scientific knowledge will be integrated and applied in decision-making.
- Urban attitudes and perceptions will drive rangeland policy, but urbanites will have a greater empathy with (but limited understanding of) the rangelands through tourist experiences.
- Land degradation will increase as the longer-term consequences of salinity, pests and weeds become evident over time.
- Social decline will continue through out-migration and cessation of social events, but people in rural and remote Australia will be better connected nationally and internationally.

Although this integrated scenario was developed at a time when a major drought was developing across Australia's rangelands, drought has not dominated thinking, even among those sectors hardest hit. The majority of the 'forward thinkers' involved in the development of this scenario were accepting of the scale of change anticipated, and optimistic. However, many noted that the likely future will provide significant challenges for many rangeland users, managers, advisers etc., and for some the likely changes will probably be very threatening and confronting (Taylor 2002).

4. GAPS IN CAPACITY FOR FUTURE SUCCESS

Gaps in capacity are examined in relation to stakeholder-derived lists of the personal qualities and areas of knowledge that focus group participants believe will be required in the future (see Taylor 2002). Gaps in capacity are reported for only two groups of rangeland stakeholders - producers and support staff.

4.1 Personal Qualities for Success

As there was only a slight difference in the rank order of the top five personal attributes identified as requiring development by all three groups of respondents, viz. focus group participants, NABRC participants and ARS Conference participants, the data sets were combined.

4.1.1 Producers

Seventy-five percent of all respondents believe that most producers' 'commitment and passion for the rangelands', and their 'determination and persistence', does not warrant further development. Notwithstanding, these are critical factors for success (Taylor 2002).

However, 50% of all respondents believe that the following personal qualities need further development among most of our beef and wool producers (listed in descending rank order):

- Positive attitude to change,
- Open-mindedness,
- Communication skills,
- Sensitivity to other values and cultures,
- Willingness to learn,

- Networked and connected,
- Adaptability, and
- Interpersonal skills.

Both support staff and the producers themselves identified the same top five deficiencies, albeit with a slightly different order among the lower rankings. For example, the need for greater 'communication skills' and a 'willingness to learn' was ranked higher by the producers themselves, and the need for greater 'sensitivity to other values and cultures' was ranked higher by support staff.

Importantly, the deficiencies identified are also the critical qualities that emerge in stories of successful individuals and communities in Australia's Outback (Rees and Fischer 2002), and appear in literature on transformational (Parry 1996) and enabling leadership (Falk and Mulford 2001).

4.1.2 Support staff

Fifty percent of respondents believe that the following personal qualities are in need of further development among most of our support staff (listed in decreasing rank order):

- More practical,
- Communication skills,
- Sensitivity to other values and cultures,
- Open-mindedness,
- Interpersonal skills, and
- Being innovative.

Both producers and the support staff themselves have identified the same six deficiencies, again in slightly different order among the lower rankings. For example, the need for greater 'innovation' and 'interpersonal skills' was ranked higher by the support staff themselves, and the need for greater 'sensitivity to other values and cultures' was ranked higher by producers.

Seventy-five percent of respondents believe that the self-confidence of most of our support staff does not warrant further development, but given the deficiencies identified above (and below), this self-confidence could be misplaced and is potentially dangerous if people are not aware of their limitations.

Overall, these findings suggest that the capacity of many producers and support staff to engage effectively in cross-sectoral debates, to negotiate an agreed future for the rangelands, and to work in partnership with stakeholders, will be limited by deficiencies in personal qualities - especially 'open-mindedness', 'sensitivity to other values and cultures', and 'communication skills'. The capacity of both stakeholder groups to learn, either formally or informally, would also be limited by these deficiencies.

4.2 Areas of Knowledge for Enterprise and Community Success

4.2.1 Producers

A significant proportion of all respondents believe that most producers know enough about 'basic bush skills' (80% respondents), 'livestock management' (50%), 'pest and weed management' (40%), and 'cultural and historical appreciation' (25%). However, fifteen areas of knowledge, expected of producers in the future (Taylor 2002), were identified by 75% of respondents as needing development among most producers. These include (in descending rank order):

- Environmental management systems and certification,
- Multiple-use management,
- Sustainable production systems,
- Recruiting, managing and coaching people,
- Communication, negotiation and conflict management,
- Systems/holistic management,
- Marketing,
- Landscape processes and function,
- Awareness of forces driving change,
- Property, catchment and regional planning,
- Business management and planning,
- Self-awareness and self-management,
- Legislation and regulations,
- Stakeholder values and perceptions, and

- Basic understanding of natural resources.

These findings acknowledge the ability of most producers to manage a livestock-focused enterprise, but highlight important deficiencies in systems, social and business skills and in bio-physical understanding. These deficiencies will limit many producers' ability to be proactive about emerging market opportunities and potential threats, and to make the most of their natural and human resources and collaborative or partnership opportunities.

4.2.2 Support staff

The top five areas of knowledge that 50% of all respondents believe most support staff know enough about now, are (in descending rank order):

- Basic understanding of natural resources,
- Management of pests and weeds,
- Livestock management,
- Legislation and regulations, and
- Landscape processes and functioning.

However, 75% of respondents believe that most support staff do not know enough about (in descending rank order):

- Systems/holistic management,
- Self-awareness and self-management,
- Sustainable production systems,
- Stakeholder values and perceptions,
- Marketing,
- Environmental management systems and certification,
- Multiple-use management,
- Awareness of forces driving change,
- Basic bush skills,
- Business management and planning,
- Communication, negotiation and conflict management,
- Diversification,
- Cultural and historical appreciation, and
- Recruiting, managing and coaching people.

These findings acknowledge the strengths of most support staff in the bio-physical and technical areas, but highlight serious deficiencies in their training and professional development in systems, social and business skills. These deficiencies will make it all the more difficult to build the trust and relationships that are fundamental to effective participatory approaches (Kelly 2001), and to capture the knowledge and experience that exists in agencies. These deficiencies will also limit the effectiveness of support staff in assisting and supporting producers to position themselves for emerging market requirements and to seize new resource use and market opportunities, and in engaging with stakeholders and fostering new alliances and partnerships.

Overall, the knowledge gaps identified relate primarily to enterprise success, but also emphasise the need for a greater external focus (i.e. catchment and regional issues, understanding other stakeholders, forces driving change) and areas for personal development (i.e. self-awareness, communication and interpersonal skills).

These findings also highlight the need to significantly expand the knowledge and skills base of many rangeland managers and support staff, and mirror recent calls in America for:

- Improving communication skills and applications of sociology and psychology in working with diverse groups (Sowell 1997),
- Development of management expertise, systems perspectives and integration skills (Gerrish 1999),
- Inclusion of communication skills, conflict resolution, critical thinking, problem solving, environmental impact assessment, restoration ecology and environmental economics (Knight 1999),
- More of the social sciences in a systems context (Malachek and Call 1999), and
- Greater social skills (i.e. communication, working with diverse groups, conflict management) and interdisciplinary skills (McLaren 2000).

However, there is an obvious tension here between student needs and the realities and financial constraints of those in the business of education. Indeed, the current trend in Australia is to reduce options and favour shorter (i.e. 3 vs 4 year) degrees.

5. ADEQUACY OF THE INFORMATION BASE

Information and understanding are the key to a sustainable future for Australia's rangelands (NLWRA 2001). Human capacity can be built, through learning, from a range of information sources, including traditional and indigenous knowledge, and new information generated by research and development. However, while an adequate information base is essential, it is the ability to access, organise and use information that enables stakeholders to identify threats and opportunities.

Fifty percent of respondents believe that adequate information is readily available on aspects of business management and planning (i.e. business analysis, budgeting, tax and asset management, cost of production, etc.), livestock management (i.e. behaviour, nutrition, reproduction, health and welfare), basic bush skills (i.e. four-wheel driving, plant and machinery maintenance, first aid, fencing, survival skills, etc.), basic understanding of natural resources (i.e. soils, water, vegetation, biodiversity, etc.), marketing, and management of pests and weeds. However, 75% of all respondents believe that there is inadequate information on the following (in decreasing order of importance): multiple-use management (i.e. monitoring and managing for multiple uses and values), stakeholder values and perceptions, environmental management systems and certification, forces driving change, systems management, sustainable production systems, diversification, and landscape processes and functioning.

Furthermore, the stakeholder response suggests that if the information is available, in print or other media, they are not aware of it or where to find it, and it is not getting to those who need it. This highlights the importance of learning how to learn, as well as the importance of being networked and connected, and having strong communication skills to find and gather information (Arnott *et al.* 2001).

6. IMPLICATIONS FOR CAPACITY BUILDING

Significant change is anticipated in Australia's rangelands over the next 5-10 years. Change and learning are inter-linked (Bellamy *et al.* 2002), and just as change is ongoing so is the need for continuous or life-long learning.

Stakeholders have highlighted a diverse array of personal attributes, skills and knowledge that will need to be developed for future success in Australia's rangelands. It will be difficult for most individuals to possess or develop all, and this highlights the importance of a team with complementary skills - be it a family partnership, an action group or a corporation - in achieving success in the rangelands. Fortunately, there are models for success among even the simplest teams in Outback Australia (Rees & Fischer 2002), and these should be promoted more widely through industry and regional initiatives such as Bestprac/Beefplan and landcare/catchment management groups.

Extension processes, incidental learning, informal and formal education and training all have a place in building capacity in different segments of the market for learning in the rangelands. However, the challenges of the rangelands for the education sector must not be under-estimated. From this study and Strachan's (2001) work on the personality types in the northern rangelands, many range managers will be resistant to new ideas and uncomfortable with the anticipated pace of change. This presents challenges in motivating people for change. Further, from market research commissioned by Rangelands Australia, a significant proportion (24%) of the people in rural and regional Australia fear learning and have high internal barriers to learning, and a further 30% are only interested in job-related learning (and then only if directed by the employer) (Quay Connection 2003).

Segmenting the market for learning in Australia's rangelands has identified barriers to participation in education and training, and incentives to encourage life-long learning and participation in formal and informal learning (Quay Connection 2003). These will be embodied in Rangeland Australia's marketing strategies and messages.

Rangelands Australia is currently using the skills needs and gap analyses to develop the framework and content of innovative short-courses, postgraduate coursework and undergraduate programmes, progressively available from 2003. Participatory approaches will continue to guide course development and upgrades. For example, new courses will be developed to meet expressed needs by small teams comprising experienced rangeland managers, knowledge experts, users and other relevant stakeholders, led by Rangeland Australia's educational designers. The need for tailoring content to the local context will be explored with regional partners in the national network of education and training providers. Accreditation of relevant offerings from partners in the network of providers will provide flexibility for an increasingly mobile clientele. Courses will be modularised to accommodate time constraints, seasonal work demands, home study, etc., and accessed through modes of delivery appropriate to the needs of the learner and the subject matter. Development of key personal qualities will not be approached by stand alone units/courses, but embedded in all courses in realistic learning activities that expose people to the range of views on an issue, involve integration of biophysical, economic and social dimensions, and encourage debate, understanding and negotiated outcomes.

7. CONCLUSIONS

This paper has drawn attention to a number of personal attributes, skills and areas of knowledge that stakeholders believe will be important for future success in Australia's rangelands and increasingly expected of managers and support staff. By using a participatory approach to identify these expectations, Rangelands Australia is modeling the processes that will be increasingly important in the future, and demonstrating the benefits of the contributions of others (see earlier - focus group feedback) in addressing future challenges.

A number of knowledge and skill deficiencies have been identified in most producers and support staff that could limit their capacity to be more responsive to market opportunities and community expectations, and more proactive about change. They include: environmental management systems and certification, multiple-use management, sustainable production systems; recruiting, managing and coaching people; communication, negotiation and conflict management; systems/holistic management, marketing, awareness of forces driving change, business management and planning, self-awareness and self-management, and stakeholder values and perceptions. Learning activities might be developed to meet some of these needs, but stakeholders perceive that information is inadequate in the case of environmental management systems and certification, multiple-use management, sustainable production systems, systems/holistic management, forces driving change, and stakeholder values and perceptions. It may be that the information products in these areas need to be improved (S. Lloyd, personal communication), that information seeking (and management) skills need to be developed, or that there are real deficiencies in data or in the accessing and integration of information from non-traditional sources.

Of greater concern are the deficiencies in key personal qualities that will limit learning and the effectiveness of participatory activities (i.e. communication skills, open-mindedness, sensitivity to other values and cultures, and interpersonal skills). Exposure to ideas and information may improve capacity in some of these areas (Bellamy & Dale 2000, Taylor & Braithwaite 1996), but where people are negative about change and narrow-minded, the task will be all that more difficult. This is the fundamental challenge in building capacity in the rangelands.

At this stage, enterprise development, regional development initiatives and cooperative action on biophysical issues in Australia's rangelands appears to be limited more by the personal traits and qualities of many producers and support staff, than by technical knowledge. This is not to say that technical knowledge is not important, rather that it does not appear to be the most limiting factor in enterprise and community development, at least in the Australian rangelands today or in the near future. It's an issue of balance, which must be addressed in education and training offerings if we are to build capacity for a bright future for our rangelands. The greatest resource a nation has is its people. Strategic investment in them will ensure that the rangelands deliver economic, social and environmental outcomes into the future.

8. ACKNOWLEDGEMENTS

I would like to thank the stakeholders who engaged in the needs analysis and survey with great enthusiasm, and especially those who assisted with local arrangements for the focus groups or drove/flew large distances to participate.

Meat and Livestock Australia, The University of Queensland and Agriculture Fisheries and Forestry - Australia have strongly supported this initiative.

Jenny Bellamy, Ockie Bosch, Jeff Coutts, Denise Hart and Wal Whalley provided valuable comments on a draft of the manuscript.

9. REFERENCES

- Agtrans Research 1998. Education and training to support sustainable management of Australia's pastoral industries. Report to the Meat Research Corporation. pp 48.
- Andreasen A 1995. Marketing social change. Jossey-Bass, San Francisco.
- Arnott A, Benson R, Crawford K, Herbert S, Leybourne M, Shaw K & Speirs R 1999. Learning processes and the impact of change on pastoralists in the tropical savannas of northern Australia. In: Eldridge D and Freudenberger D (eds.). People and Rangelands - Building the Future. Proceedings VI International Rangeland Congress 1:377-378.
- Arnott A, Benson R, Crawford K, Herbert S, Leybourne M & Speirs M 2001. More than can be said: A study of pastoralists learning. Tropical Savannas Cooperative Research Centre, Darwin, pp 82.
- Bellamy J and Dale A 2000. Evaluation of the Central Highlands Regional Resource Use Planning Project: A synthesis of findings. Report to the Land & Water Resources Research and Development Corporation. CSIRO Sustainable Ecosystems, Brisbane. pp 193.

- Bellamy J, Webb V, Mayocchi C and Leitch A 2002. Improving resource management through rural women's use of new technology: A pilot study on impediments and opportunities for learning activities. Report to AFFA 'Skilling Farmers for the Future' program. CSIRO Sustainable Ecosystems, Brisbane. pp 74.
- Burnside DG and Chamala S 1994. Ground-based monitoring: A process of learning by doing. *Rangeland Journal* 16:221-237.
- Falk I 2001. Challenges facing rural regional Australia in new times. In: Falk I (ed.). *Learning to Manage Change: Developing regional communities for a local-global millennium*. NCVER, Adelaide. pp 3-11.
- Falk I and Mulford B 2001. Enabling leadership: A new community leadership model. In: Falk I (ed.). *Learning to Manage Change: Developing regional communities for a local-global millennium*. NCVER, Adelaide. pp 219-228.
- Gerrish J 1999. Teaching new ideas needs new ideas in teaching. In: Eldridge D and Freudenberger D (eds.). *People and Rangelands - Building the Future*. Proceedings VI International Rangeland Congress 1:339-343.
- Heady HF 1999. Perspectives on rangeland ecology and management. *Rangelands* 21 (5):23-33.
- Holmes JH 1994. Changing values, goals, needs and expectations of rangeland users. *Rangeland Journal* 16: 147-54.
- Holmes JH 1995. Land tenures, property rights and multiple land use issues for American and Antipodean rangelands. In: Cliff AD, Gould P, Hoare AG and Thrift N (eds.). *Diffusing Geography*. Blackwell, London. pp 262-88.
- Holmes JH 1997. Diversity and change in Australia's rangeland regions: Translating resource values into regional benefits. *Rangeland Journal* 19:3-25.
- Kelly D 2001. Community participation in rangeland management. Report to the Rural Industries Research and Development Corporation. RIRDC, Canberra. RIRDC Publication 00/130.
- Kilpatrick S 1997. Promoting learning networks for small business. How can group learning facilitate change? In *Lifelong learning: Reality, rhetoric and public policy*. University of Surrey. pp 188-194.
- Kilpatrick S, Falk I and Harrison L 1999. Learning in rural communities: A response to rapid economic change. Centre for Research and Learning in Regional Australia, Tasmania. CRLRA Discussion Paper D13/1998.
- Knight RW 1999. Future changes in range management education. In: Eldridge D and Freudenberger D (eds.). *People and Rangelands - Building the Future*. Proceedings VI International Rangeland Congress 1:369-372.
- MacLeod ND and Taylor JA 1994. Perceptions of beef cattle producers and scientists relating to sustainable land use issues and their implications for technology transfer. *Rangeland Journal* 16 (2):238-253.
- Malachek JC and Call CA 1999. A flexible curriculum for university study in rangeland resources. In: Eldridge D and Freudenberger D (eds.). *People and Rangelands - Building the Future*. Proceedings VI International Rangeland Congress 1:364-365.
- McLaren MP 2000. History of the rangeland curriculum: Are there new trails? *Rangelands* 22(6):23-27.
- McLaren MP, Brunson MW and Huntsinger L 2001. Future social changes and the rangeland manager. *Rangelands* 23(6): 33-35.
- NLWRA 2001. *Rangelands - Tracking changes*. National Land and Water Resources Audit, Canberra. pp 174.
- Parry K 1996. *Transformational Leadership: Developing an enterprising management culture*. Pitman Publishing, Melbourne.
- Quay Connection 2003. *The Market for Rangeland Education and Training*. Report to Rangelands Australia. pp. 32.
- Rees P and Fischer T 2002. *Tim Fischer's Outback Heroes and communities that count*. Allen & Unwin, Sydney.
- Sowell B 1997. What professional and technical skills will tomorrow's range managers need? *Rangelands* 19:21-22.
- Strachan R 2001. Leadership styles in the pastoral industry. In *Proceedings North Australia Beef Industry Conference, Kununurra WA*. pp. 149-153.
- Taylor JA 2002. Key personal attributes and areas of knowledge for future success in the rangelands. In: *Proceedings of the 12th Biennial Conference of the Australian Rangeland Society, Kalgoorlie WA*. pp. 74-78.
- Taylor JA and Braithwaite RW 1996. Interactions between land uses in Australia's savannas: It's largely in the mind. In: Ash A (ed.). *The Future of Tropical Savannas: An Australian Perspective*. CSIRO, Melbourne. pp 107-118.

9.2 Appendix 2: Course outlines - short courses



Being in the rangelands for the long run: Balancing for economic, environmental and social outcomes

- Short Course -

INTRODUCTION

To be in the rangelands for the long run, pastoralists/graziers will need to be profitable (the bottom line!), be positioned to meet market and community expectations, and to strengthen their capacity to be more sustainable. The future of enterprises in the rangelands depends on balancing the 'triple bottom line' – that is balancing i) the financial side, ii) meeting environmental obligations, and iii) ensuring family/staff capacity (i.e. skills and knowledge) to do the things that are critical to future success.

This course will bring a lot of information and knowledge together, and will help you distil it to identify what needs to be done to achieve future success in terms of 'triple-bottom-line' sustainability. As the course utilises key elements of the National Action Plan (NAP) for salinity and water quality and the Natural Heritage Trust (NHT2), the outputs will assist in developing property and regional plans, and, where applicable, may be fed directly into a property planning or regional funding initiative.

LEARNING OUTCOMES

This course will help you:

- Appreciate the economic and environmental importance of the rangelands, and why sustainability is an issue for you
- Clarify what is sustainability – in the rangelands, in this region and in your particular case
- Understand why there's increasing community and government interest in the rangelands, and their sustainability in particular, and the changing community attitudes to development and the environment
- Identify your own personal sustainability objectives, and appreciate the perceptions and aspirations of others who have different objectives and an interest in your region
- Through a self-assessment, identify areas for strengthening your own capacity to progress towards sustainability
- Identify other areas for improvement, and the consequences of doing nothing or delaying action
- Clarify the intended and unintended consequences of proposed options for improving sustainability, the resources required, and the likely benefits/costs of investing in these strategies or actions
- Develop a sustainability action plan, together with a contingency plan to cope with the unexpected
- Learn how to source information to keep up-to-speed with the evolving concept of sustainability, changing expectations, etc.

At the end of this short course you will be given a 'piece of paper'. Based on full attendance at the course, and whether or not the work you do in the course is formally assessed, you have two options:

1. a **Statement of Participation**, issued by Rangelands Australia, which does not require any assessment of the work you have done throughout the course, and simply acknowledges that you have undertaken this course, and outlines its content and the date and location of the course.

OR

2. a **Statement of Participation** and a **Statement of Attainment**, issued by the University of Queensland Gatton Campus Vocational Training Unit, which lists the competencies demonstrated in successfully completing the learning activities in this course. This is based on an assessment, by the course facilitator, of activities you have completed throughout the course and additional activities completed after the course, as necessary, to demonstrate particular competencies.

You will need to decide, at the outset, what sort of 'piece of paper' you will be seeking at the end of a Rangelands Australian course. Both provide recognition of your skills, but **the Statement of Attainment could lead to a qualification**. You will learn more about these requirements at the course.

COURSE STRUCTURE

Course modules will cover:

- Where did the concept of sustainability come from?
- What is this thing called sustainability?
- Why is sustainability important?
- Assessment of your capacity to be sustainable
- Defining the sustainability issues
- Exploring the consequences of action and inaction
- Exploring the intended and unintended consequences of proposed actions
- Developing an action plan
- Coping with the unexpected – the need for a contingency plan

FACILITATOR

John A Taylor has worked in the rangelands of New South Wales, Northern Territory and Queensland for over 30 years, on both managed and protected lands. He has explored community perceptions of sustainability, studied fauna-habitat relations and grazing distribution, and has led large-scale on-farm research on the role of oversown pastures in sustainable grazing systems.

He has qualifications in Rangeland Management and Workplace Training and Assessment, and is based at The University of Queensland's Gatton Campus.

TIME

7 + 7 hours (i.e., total of 2 days), scheduled to suit the group. The two days would be approximately 4-6 weeks apart, as agreed by the participants.

Note: *Significant property/home work is required before the second day to identify your current and potential sustainability issues. You will be using this information in the activities on Day 2.*

SUGGESTED PARTICIPANTS

Pastoralists/graziers, Landcare, catchment and regional groups, government advisors and facilitators, agribusiness, consultants, training and service providers.

DELIVERY

This course will be activity-based and delivered at various locations in a face-to-face workshop in the rangelands. Minimum numbers for this course are 8 people.

COST

\$850 plus GST, less any State/Territory applicable FarmBis or other subsidies available to eligible persons.

BACKGROUND TO THIS COURSE

The need for this course was identified by a national survey of education and skills needs for success in the rangelands. The structure, critical content and key resources were influenced by a panel of experienced producers, agency staff and scientists from New South Wales, Queensland and South Australia. This course was successfully piloted in Bourke, New South Wales.

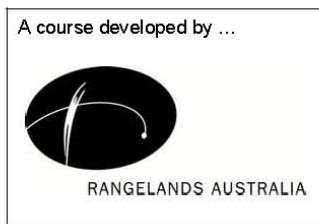
This short course was developed with funding from MLA and the Australian Government's Department of Agriculture, Fisheries and Forestry through the national FarmBis program.

PARTICIPANT FEEDBACK

- *"Very interesting, very worthwhile"*
- *"Listening to others with similar views encourages me to keep looking for the right action/balance to overcome our problems"*
- *"Assessment of sustainability clearly identified (issues) that I hadn't thought of before"*
- *"Extremely interesting – important topics to address"*
- *"Sustainability assessment was good for self-evaluation – worked well for both producers and agency staff"*
- *"Will be a valuable tool in living and working in the rangelands"*
- *"As we assessed our sustainability, I discovered just how far this drought has dragged myself, my husband and our enterprise into just dealing with day to day needs and problems and just trying to survive"*
- *"Useful .. the process of doing a reality check"*

FURTHER INFORMATION

Contact Rangelands Australia by telephone on (07) 5460 1660 or by email at rangelands@uqg.uq.edu.au .



Being heard as a stakeholder in the rangelands

Short Course

INTRODUCTION

Members of rangeland communities are increasingly engaged in meetings to discuss and resolve natural resource management issues and/or participate in planning at a local or regional level. The outcomes of these processes, which can have important and far-reaching economic and environmental implications for rangeland enterprises, and wider implications for a rangeland community, depend on the effectiveness and resilience of the relationships among those involved.

This course is designed to assist you to become a better contributor in multi-stakeholder processes, and aims to develop the knowledge and skills necessary for an individual to achieve a satisfactory outcome from a multi-stakeholder engagement. The success of which depends on developing an appreciation of the diverse values and aspirations of groups with an interest in, or potential to impact on, the future of Australia's rangelands. Building inclusive processes with pastoralists, indigenous people, scientists, environmentalists, miners, bankers, government agencies, tourist operators and the urban public requires:

- knowledge of yourself and others,
- attitudes that are open to difference,
- the ability to value all perspectives and
- the skills of listening, building coalitions, and effective verbal interactions.

LEARNING OUTCOMES

This course will help you to:

- Act with integrity in a stakeholder process
- Understand why various stakeholders are interested in the rangelands, what they value, and their viewpoints on rangeland issues
- Develop mutual understanding of a region's cultures, by understanding and de-mystifying the stereotypes
- Appreciate and value your own culture; respect other cultures, values and perspectives that exist in the rangelands
- Develop empathetic listening and other communication skills, including ways to communication with diverse personalities
- Develop a cohesive point of view to engage more confidently in cross-sectoral debates and decision making
- Progress negotiations and partnerships by identifying the common ground
- Develop a more inclusive and unified vision for a sustainable future for the rangelands.

At the end of this course you will be given a 'piece of paper'. Based on full attendance at the course, and whether or not the work you do in the course is formally assessed, you have two options:

1. a **Statement of Participation**, issued by Rangelands Australia, which does not require any assessment of the work you have done throughout the course, and simply acknowledges that you have undertaken this course, and outlines its content and the date and location of the course,

OR

2. a Statement of Participation AND a **Statement of Attainment**, issued by the University of Queensland's Gatton Campus Vocational Training Unit, which lists the competencies demonstrated in successfully completing the learning activities in this course. This is based on an assessment, by the course facilitator, of activities you have completed throughout the course and additional activities completed after the course, as necessary, to demonstrate particular competencies.

You will need to decide, at the outset, what sort of 'piece of paper' you will be seeking at the end of the course. Both provide recognition of your skills, but the Statement of Attainment could lead to a qualification. You will learn more about the requirements of this at the course.

COURSE STRUCTURE

Course modules will cover:

- Understanding self
- Understanding others
- Working with others
- Building consensus
- Why am I involved?
- What do I want to say?
- How will I say it?
- Active listening
- Where will I say it?
- Building my capacity as an effective stakeholder

TIME

8 + 7 hours (i.e., 2 consecutive days)

SUGGESTED PARTICIPANTS

All rangeland stakeholders (i.e. pastoralists and graziers, agency staff, agribusiness, policy makers, bankers, service providers, educators, local government, community groups, etc.).

DELIVERY

This course will be activity-based and delivered at various locations in a face-to-face workshop in the rangelands. Minimum numbers for a course are 12 people, ideally including a range of stakeholder groups.

COST

\$950 plus GST, less any State/Territory applicable FarmBis or other subsidies available to eligible persons.

BACKGROUND TO THIS COURSE

The need for this course was identified by a national survey of education and skills needs for success in the rangelands. Development of skills in this area was seen, by all stakeholders, to be most important for future success in the rangelands. The structure, content and key resources were influenced by producers from New South Wales, Queensland and South Australia and agency staff and social scientists from the Australian Capital Territory, New South Wales and Queensland. This course was successfully piloted in Emerald, Queensland.

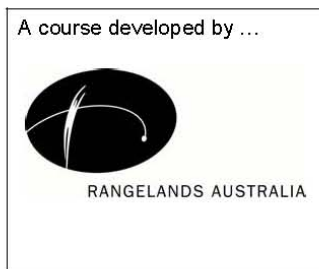
This short course was developed with funding from MLA and the Australian Government's Department of Agriculture, Fisheries and Forestry through the national Farmbis program.

PARTICIPANTS FEEDBACK

- *"Useful course for people new to community groups and rural extension"*
- *"Very informative"*
- *"Excellent"*

FURTHER INFORMATION

Contact Rangelands Australia by telephone on (07) 5460 1660 or by email at rangelands@uqg.uq.edu.au.



No surprises in the Rangelands: Understanding global and national trends influencing your business and community

- Short Course -

INTRODUCTION

There are many forces driving economic, environmental and social change in the world that impact directly and indirectly on enterprises and communities in the rangelands. The consequences can come as a complete surprise to many people, and can have far reaching effects on livelihood and lifestyle. This one to one-and-a-half-day course is designed to assist you to be prepared – to raise your awareness of what's happening beyond the front gate or town; to develop the skills for exploring and tracking global and national trends, events and emerging issues that may influence your activities, planning, and even your future in the rangelands.

The focus will be on raising awareness, and on practical, basic tools for exploring key driving forces and their implications at the enterprise and community level.

If you are part of a group with a common interest (ie. same organisation, industry or community group) and are interested in developing specific scenarios for a group or region, a longer version of this course can be negotiated that will give you to more time for developing specific scenarios and exploring their implications.

LEARNING OUTCOMES

This course will help you:

- Analyse and understand major production and consumption trends, economic, environmental, and social trends; changing consumer, market and government expectations; and how these might impact on your future business environment and lifestyle in the rangelands
- Locate, select and analyse information to track current and emerging trends
- Develop and explore a range of future scenarios
- Incorporate futures thinking into everyday decision-making.

At the end of this short course you will be given a 'piece of paper'. Based on full attendance at the course, and whether or not the work you do in the course is formally assessed, you have two options:

1. a **Statement of Participation**, issued by Rangelands Australia, which does not require any assessment of the work you have done throughout the course, and simply acknowledges that you have undertaken this course, and outlines its content and the date and location of the course.

OR

2. a **Statement of Participation and a Statement of Attainment**, issued by the University of Queensland Gatton Campus Vocational Training Unit, which lists the competencies demonstrated in successfully completing the learning activities in this course. This is based on an assessment, by the course facilitator, of activities you have completed throughout the course and additional activities completed after the course, as necessary, to demonstrate particular competencies.

You will need to decide, at the outset, what sort of 'piece of paper' you will be seeking at the end of a Rangelands Australian course. Both provide recognition of your skills, but **the Statement of Attainment could lead to a qualification**. You will learn more about these requirements at the course.

COURSE STRUCTURE

Course modules will cover:

- Thinking about the future
- Making sense of the future
- Exploring the future
- Incorporating futures thinking into everyday activities.

FACILITATOR

Emma Robinson and her husband run a beef property south of Charters Towers Q, and also works as a freelance consultant specialising in the areas of environmental scanning, long-term thinking, facilitation and strategy. Previously, Emma held extension and policy positions in the Queensland Department of Primary Industries. She holds a Bachelor of Applied Science (Rural Management), a Masters of Science (Strategic Foresight) and Graduate Certificates in Rural Extension and Technology Management.

TIME

There are two options for any group:

1. Where there is general interest in the topic – 1 day (ie. 0830-1630)
2. Where there is a group with common interests who wish to develop specific scenarios and explore their implications for a particular region in some detail – 1.5 days

Training is scheduled to suit the group.

SUGGESTED PARTICIPANTS

Pastoralists/graziers, Landcare, catchment management and regional groups, government advisors and facilitators, agribusiness, consultants, community support officers, training and service providers.

DELIVERY

This course will be activity-based and delivered at various locations in a face-to-face workshop in the rangelands. Minimum numbers for this course are 8 people.

COST

\$500 plus GST for the 1-day course, or \$750 plus GST for the 1.5 day course, less any State/Territory applicable FarmBis or other subsidies available to eligible persons.

Participants would be responsible for their own accommodation arrangements/expenses for the 1.5 day course.

BACKGROUND TO THIS COURSE

The need for this course was identified by a national survey of education and skills needs for success in the rangelands. This was informed by the views of over 450 producers, agency staff and other stakeholders.

The structure, critical content and key resources were influenced by a panel of people (eg. Futurists, industry and bank analysts, etc) with experience and insight re: 1) the global and national trends influencing the rangelands, and 2) the tools and techniques that can help identify the key forces of change and their potential impact. The course was externally reviewed and successfully piloted in Emerald, Q.

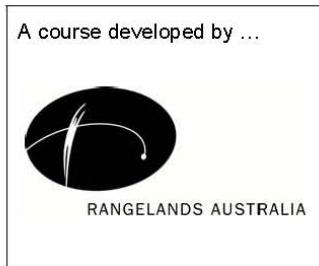
The development of this course was funded by Meat and Livestock Australia and The University of Queensland.

PARTICIPANT FEEDBACK

- *“Very informative and enjoyable”*
- *“Very good course”*

FURTHER INFORMATION

Contact Rangelands Australia by telephone on (07) 5460 1660 or by email at rangelands@uqg.uq.edu.au.



Success in Diversification: Thinking through Opportunities, Options and Implications

- Short Course -

INTRODUCTION

So, you are not comfortable with having 'all your eggs in one basket', or can see some other opportunities for making money. You are seeking ideas, or have an idea and you're not sure what to do with it or where to take it. Or, you think there may be a better way of doing things and you're not sure where to find the information you need.

This two-day short course is designed to help you explore the practicalities of diversification and, most importantly, discuss processes and tools that will enable you to evaluate the pros and cons of a new business idea.

This workshop will provide a framework and checklist to assist people, who desire to diversify from their present income-generating activities, to establish another enterprise or to add value to their existing assets. The course will encourage you to think creatively and provide tools to help you evaluate ideas for diversifying your enterprise. You will learn lessons from case studies of successful initiatives, and will be provided with examples of business plan templates and business planning tools that might be used to establish your new endeavour. Finally, it will also provide a means to conduct a comprehensive review of your business or enterprise, and explore several of the factors that need to be considered in marketing your product(s).

Note: You will be asked to bring to the course an idea for review and/or development. This should be something that you would really like to explore and work on over the two-days, and which may or may not develop into a diversification proposal. The activities we have designed will help you evaluate your idea and further develop it to the stage where you may decide to develop a business plan to assess its commercial viability and its implementation.

LEARNING OUTCOMES

- Explore the reasons why people might seek to diversify or develop a new industry in the rangelands
- Participate in a range of activities that encourage the development of creativity and creative and lateral thinking i.e. looking at and doing things differently
- Develop an understanding of what an entrepreneur is and identify your own entrepreneurial strengths and weaknesses with a view to developing your entrepreneurial skills
- Share and discuss a range of ideas relating to diversification and new industries
- Examine a number of case studies relating to diversification and new industries in the rangelands
- Develop an awareness of the purpose and importance of research in investigating ideas and the type of research required for investigating your particular idea
- Identify the most appropriate form/s of research for your particular idea
- Identify existing programs to assess diversification of enterprises and evaluation of new industries.
- Identify potential sources of funding and information.
- Develop an awareness of the different elements of business plans and become familiar with a range of business plans
- Develop an understanding of a Holistic Review and how that might apply to your idea
- Discuss the importance of performance indicators – both personal and business -and identify the ones that have relevance to your idea
- Develop an awareness of the eight P's of marketing and how they might apply to individual situations
- Explore the concept of 'social conscience marketing' and the relevance of this to your plans for diversification or a new industry.

NOTE: *This course is NOT designed to complete a feasibility study and business plan for your idea. The course aims to get you started on these elements and to provide you with the resources, understandings and activities to be able to achieve this. However, finishing these activities will take some considerable time and work outside the workshop.*

At the end of this short course you will be given a 'piece of paper'. Based on full attendance at the course, and whether or not the work you do in the course is formally assessed, you have two options:

1. a **Statement of Participation**, issued by Rangelands Australia, which does not require any assessment of the work you have done throughout the course, and simply acknowledges that you have undertaken this course, and outlines its content and the date and location of the course.

OR

2. a **Statement of Participation** and a **Statement of Attainment**, issued by the University of Queensland Gatton Campus Vocational Training Unit, which lists the competencies demonstrated in successfully completing the learning activities in this course. This is based on an assessment, by the course facilitator, of activities you have completed throughout the course and additional activities completed after the course, as necessary, to demonstrate particular competencies.

You will need to decide, at the outset, what sort of 'piece of paper' you will be seeking at the end of a Rangelands Australian course. Both provide recognition of your skills, but **the Statement of Attainment could lead to a qualification**. You will learn more about these requirements at the course.

COURSE STRUCTURE

Course modules will cover:

- Thinking about diversification?
- Where do new ideas come from?
- Managing change
- Entrepreneurial characteristics: Daring to be different
- The eight P's of product development and marketing
- Social conscience marketing
- Where to from here

FACILITATOR

Terry Elliot is a beef producer, organic farmer and Director of Quality Agricultural Services Pty, Ltd. Terry's consultancy business provides auditing services for producers who are wishing to become organically certified and also provides advice in relation to farm management systems, to Ausmeat and the horticultural industry. Terry has been based at Jackson for some time but has recently purchased a new property at Chinchilla where he will undertake organic livestock farming, honey production and possibly dryland organic grain production. Terry has considerable practical experience in diversification and new industries in the rangelands and is also an experienced presenter and facilitator of education and training activities.

TIME

8 + 8 hours (ie. two consecutive days), scheduled to suit the group.

SUGGESTED PARTICIPANTS

Pastoralists/graziers, Local government, industry advisors and facilitators, agribusiness, consultants.

DELIVERY

This course will be activity-based and delivered at various locations in a face-to-face workshop in the rangelands. Minimum numbers for this course are 8 people.

COST

\$950 plus GST, less any State/Territory applicable FarmBis or other subsidies available to eligible persons.

Participants would be responsible for their own accommodation arrangements/expenses for the 2-day course.

BACKGROUND TO THIS COURSE

The need for this course was identified by a national survey of education and skills needs for success in the rangelands. This was informed by the views of over 450 producers, agency staff and other stakeholders.

The structure, critical content and key resources were influenced by a panel of people with experience of successful diversification initiatives in the rangelands and/or business development skills.

The development of this course was funded by Meat and Livestock Australia and The University of Queensland.

PARTICIPANT FEEDBACK

- *“Very well presented. I gained a lot from the course”*
- *“A very good starting point, particularly when just starting out or contemplating a new business or diversification”*
- *“A good overview of the principles and processes needed if you are to diversify”*
- *“Excellent, well worth attending. This will be an important step in the journey towards diversifying”*
- *“Extremely valuable. I would certainly recommend this course to anybody wishing to raise their awareness on starting or diversifying into another business”*

FURTHER INFORMATION

Contact Rangelands Australia by telephone on (07) 5460 1660 or by email at rangelands@uqg.uq.edu.au.



Introduction to monitoring for management

- Short Course -

INTRODUCTION

Monitoring is a valuable tool for providing quality information for management decision-making, to improve profitability, to demonstrate best practice and duty of care, and provide evidence of compliance with quality assurance standards and legislation.

However, there is a confusing array of monitoring systems and techniques available, and this course will help you to clarify your objectives for monitoring, to get started with monitoring, or to make more effective management use of the monitoring you are doing now.

This introductory course is designed for someone venturing into monitoring, and explores reasons for monitoring and approaches that will best meet your information needs. The course provides an opportunity to learn the basics of monitoring as well as develop an individual action plan to track progress towards enterprise goals.

LEARNING OUTCOMES

This course will help you:

- Clearly think through why you need monitoring for your own circumstances. What are the objectives and what do you hope to get from the monitoring?
- Appreciate how monitoring can help meet the production, financial, social and environmental goals of your grazing-based business
- Understand the drivers behind the increasing importance of monitoring (for example. Australian Government Envirofund grants will not be provided without an element of monitoring in the project)
- Make the link between monitoring seasonal conditions and longer-term trends, and better management of the production, financial, social and environmental aspects of your enterprise
- Identify best available indicators of trends in land condition (e.g. plants and other organisms, soils, biodiversity, catchment and enterprise health), and the drivers of those trends
- Understand the fundamentals of monitoring design and sampling
- Using sound principles, be able to evaluate and select monitoring systems and/or monitoring tools (based on their strengths and weaknesses) with respect to your particular monitoring needs
- Learn how to keep up to date with the skills, tools, techniques and developments in monitoring
- Learn simple and practical monitoring skills through use of South West NRM's monitoring system - "Monitoring Made Easy".

At the end of this course you will be given a 'piece of paper'. Based on full attendance at the course, and whether or not the work you do in the course is formally assessed, you have two options:

1. a **Statement of Participation**, issued by Rangelands Australia, which does not require any assessment of the work you have done throughout the course, and simply acknowledges that you have undertaken this course, and outlines its content and the date and location of the course,
- OR**
2. a Statement of Participation AND a **Statement of Attainment**, issued by the University of Queensland's Gatton Campus Vocational Training Unit, which lists the competencies demonstrated in successfully completing the learning activities in this course. This is based on an assessment, by the course facilitator, of activities you have completed throughout the course and additional activities completed after the course, as necessary, to demonstrate particular competencies.

You will need to decide, at the outset, what sort of 'piece of paper' you will be seeking at the end of the course. Both provide recognition of your skills, but the Statement of Attainment could lead to a qualification. You will learn more about the requirements of this at the course.

COURSE STRUCTURE

Course modules will cover:

- Why monitor?
- Why don't people monitor?
- Internal and external drivers
- Planning for monitoring
- Designing for monitoring
- Monitoring techniques
- Recording and storing data
- Cost-benefit of monitoring
- Completing your Monitoring Action Plan
- Where to from here?

FACILITATOR

Dr Manda Page has been undertaking research in the Mulga Lands of South West Queensland for the past 14 years. This has involved monitoring vegetation change on production and conservation land, and investigating ways to assist in the restoration of degraded rangeland landscapes. She is currently involved with the reintroduction of the Bilby on Currawinya National Park and teaches conservation and environmental courses at the University of Queensland Gatton.

TIME

7 hours (i.e. 1 day), scheduled to suit the group.

SUGGESTED PARTICIPANTS

Pastoralists/graziers; Landcare, catchment management or regional groups.

DELIVERY

This course will involve indoor and outdoor activities, including a practical field session in monitoring skills. The course can be delivered at various locations in a face-to-face workshop. Minimum numbers for this course are 8-10 people.

COST

\$450 plus GST, less any State/Territory applicable FarmBis or other subsidies available to eligible persons.

BACKGROUND TO THIS COURSE

The need for this course was identified by a national survey of education and skills needs for success in the rangelands. Training in this area was seen to be important to address: i) the reluctance of many to undertake monitoring, and/or ii) evidence of few people persisting with monitoring. The structure, content and key resources were influenced by a panel of experienced producers, agency staff and scientists from New South Wales, Northern Territory, Queensland and Western Australia. This course was successfully piloted in Miles, Queensland.

This short course was developed with funding from the Australian Government's Department of Agriculture, Fisheries and Forestry through the national FarmBis program, and Meat and Livestock Australia.

The practical component of this short course is based on the "Monitoring made Easy" monitoring system developed by South West NRM. Delivery of this course in the South West region is in collaboration with South West NRM.

PARTICIPANT'S FEEDBACK

- *"Very relevant, very practical. Should be a good help to many"*
- *"Informative. Made me more focused on what monitoring I need to do, and what monitoring to do"*

FURTHER INFORMATION

Contact Rangelands Australia by telephone on (07) 5460 1660 or by email at rangelands@uqg.uq.edu.au.



Getting into Further Study: Insights, practices and tips for success in distance education

Short Course

INTRODUCTION

More and more people are becoming interested in further education. However, for people with little or no recent experience of tertiary education the idea of further study, and formal university-level study in particular, can be quite daunting. To assist people working and living in rural and remote Australia, Rangelands Australia has designed this short course to develop the necessary skills for successful completion of postgraduate-level coursework programs offered part-time and by distance mode.

While the course is geared to formal (ie. university level) study, many of the skills will also be of direct, practical value in a managerial workplace, making the course an important professional development exercise for you. Importantly, the course workbook will also be a valuable reference when you are undertaking any postgraduate assignments.

The course consists of a 3-day, face-to-face workshop program and an optional research-based assignment to be completed in the 4 weeks following the workshop. The workshop introduces participants to university expectations, requirements and culture; develops the learning, thinking and technology skills used in formal study and gives participants the opportunity to develop, enhance and practice these skills. Participants are guided through the steps, strategies and skills involved in completing a small postgraduate, research-based assignment.

The optional assignment provides an excellent opportunity for people to practice and reinforce the skills developed in the workshop. Participants will have full access to the University of Queensland Cybrary remote student services for 3 weeks following the workshop. This allows access to databases, Library support services, Technology Support services and training to complete the optional 'practice' assignment. The Course Facilitator will provide detailed feedback on any 'practice' assignment submitted.

By the end of this course, participants should feel much more confident, skilled and ready to undertake postgraduate study by "distance".

LEARNING OUTCOMES

On completion of this course, participants will be able to:

- Understand how they learn in a formal context and use this knowledge to develop effective learning processes for a distance learning environment such as a postgraduate coursework program
- Identify and retrieve relevant information for assignments from online and print resources
- Understand and critically evaluate information, and develop informed views on the value of the information, especially for the rangelands context
- Clearly communicate their ideas in a clear, coherent and concise manner, as appropriate to the task and audience
- Understand the requirements of a range of assessments at the postgraduate level and the general expectations of people who may be marking your assessment items.

COURSE STRUCTURE

The workshop program consists of 6 half-day workshops made up of teaching, application and practice, reflection and discussion of new skills. Modules include:

1. Effective Learning Practices and Management of Study
2. Planning and Research for Assignments
3. Evaluating and using Information in Assignments
4. Structuring your Understanding and Thinking
5. Writing for Easy Reading (and Marking!)
6. Effective Oral Presentations

There is no formal assessment, and participants will receive a Certificate of Achievement at the conclusion of the course.

FACILITATOR

Mrs Elizabeth Wallis has more than 25 years experience in teaching and learning within the University sector, working with both students and teaching staff. She has provided student learning assistance at both the undergraduate and postgraduate levels, developed and taught learning preparation courses in various fields, and provided learning support and educational counselling for students.

TIME

Three full days, with some follow-up work at home if you choose to do the 'practice' assignment.

SUGGESTED PARTICIPANTS

This course is strongly recommended for participants who have no recent tertiary study experience and/or who wish to enter a coursework postgraduate program using recognition of prior learning (RPL) and post-secondary qualifications together with managerial experience.

The course is specifically designed for people who are thinking of further study on a part-time basis and through distance education, such as the new University of Queensland coursework programs in Rangeland Management. The short course covers the sort of assessments used in this program. However, it would also be relevant for anyone thinking of doing a postgraduate degree in environmental studies or agriculture, whatever the institution.

DELIVERY

The course will be delivered at convenient locations and times in a face-to-face workshop. Minimum numbers for this course are 8-10 people at a particular location and time. Register now and list your preferences.

Each workshop involves teaching of skills, application and practice, feedback and discussion. Workshops are interactive and responsive to the needs of the participants. If required, feedback would be provided on an optional assignment, designed to help consolidate the learning from this course.

COST

\$1,000 plus GST (less any State/Territory applicable FarmBis subsidy for eligible producers)

SOME COMMENTS FROM PREVIOUS PARTICIPANTS

- *"This course is essential to anyone unfamiliar with postgraduate requirements"*
- *"I found this course very helpful and it will help me immensely in my work and community groups"*
- *"I feel more at ease about how to approach (tertiary) courses"*
- *"Excellent value"*
- *"Things don't seem so daunting now"*
- *"Definitely increased my awareness and confidence"*

FOR FURTHER INFORMATION

Contact Rangelands Australia by telephone on 07 5460 1660 or by email at: rangelands@uqg.uq.edu.au .

9.3 Appendix 3: Core and elective courses for the PG programs

Core and elective courses for the postgraduate program — brief descriptions

More complete course descriptions, including reviewers' comments (for new courses) and student evaluations (for delivered courses) are available in Appendix 4 or on our website: www.rangelands-australia.com.au.

Part A courses

Course Code and Name	Semester offered	Brief description	Assessment requirements
AGRC7001* Sustainable Rangeland Production Systems and Regions	Semester 1, 2	This course examines the drivers of sustainability, and industry and government commitment to the concept. It covers principles of sustainable development, requirements for sustainable regions, landscapes and enterprises, efforts to achieve sustainable regions and enterprises, and economic, social and institutional impediments to achieving sustainability. Key biophysical and socio-economic characteristics of rangeland systems are explored with respect to the use and management of these systems. This course provides the foundation for further study of the use and management of rangelands and introduces sustainable grazing practices.	Three assignments.

<p>MGTS7976* Building Effective Stakeholder Engagements</p>	<p>Semester 2</p>	<p>Resolution of management and planning issues in the rangelands increasingly involves a diversity of stakeholders. The outcomes of these devolved processes have significant and far-reaching economic, environmental and social implications for rangeland enterprises and regions. This course develops the skills to be an effective participant in such processes, and to design and manage effective stakeholder engagement based on knowledge of culture, values and aspirations of various stakeholders. This knowledge is applied in a stakeholder engagement process.</p> <p>NOTE: Students undertaking this course need to be actively involved in a participative process, involving several stakeholder groups, to complete the learning activities and assessments. For example, active in the development of a regional plan, active in local Government, or involved in community engagement with respect to an NRM issue, development, etc.</p>	<p>Three assignments</p>
<p>LPWM7611/ 7612/7613</p> <p>#4 Graduate Research Project I</p> <p>or</p> <p>LPWM7617/ 7618/7619</p> <p>#8 Graduate Research Project III</p>	<p>Semester 1, 2</p>	<p>This course involves the design, implementation and presentation of a research project approved by the Director of Rangelands Australia. The project will examine an integrated rangeland management issue which focuses on at least two (preferably three) dimensions of the triple bottom line. Emphasis is placed on defining the research issue, establishing an appropriate methodology, undertaking appropriate collection and analysis of data & drawing defensible conclusions and recommendations. Students are advised to negotiate the project to be investigated with the Program Coordinator or Director, Rangeland Australia prior to the commencement of the project. Students completing the course in one semester must enrol in LPWM7617. Students completing the course in two semesters must enrol in LPWM7618 for both semesters if commencing in semester 1 or LPWM7619 if commencing in semester 2.</p>	<p>Presentation of report in a format appropriate to the project.</p>

Building Capacity in the Rangelands

MGTS6960 Research Methodologies in Management and Extension	Semester 2	<p>The key feature of management research is that it creates meaning by connecting research findings with the world as experienced by people. In doing so, it typically involves taking a systems approach to research – an approach that frequently demands the integration of social, economic and biological dimensions of problems. Thus the two distinguishing features of management research are that it involves human decision-making and it is integrative.</p> <p>This course aims to introduce the philosophies, paradigms and methodologies of management research, and for an understanding of these to be reflected in a real research problem undertaken by each student.</p>	Negotiated, typically oral presentation, written proposal
STAT7501 Advanced Biometrics 1	Semester 2	This course is designed to meet the individual student needs.	
MKTG7965* Global and National Trends Influencing Rangelands	Semester 1	<p>There are many forces driving economic, environmental and social change in the world, and these can impact, directly or indirectly, on practices, livelihoods, lifestyle and communities in the rangelands. This course explores the economic, environmental and social trends that may influence planning and management in the rangelands. It will develop skills in scenario analysis, tracking trends and emerging issues, in identifying opportunities and decision-making, as well as build capacity for strategic management in the face of continuing change.</p>	Three assignments

Part B courses

AGRC6630 Postgraduate Advanced Topic	Semester 1,2	This course involves supervised work, as assignment or project, in a specialised area relevant to the course, approved by the Director. Students are advised to negotiate the project to be investigated with the Director, Rangelands Australia/ Program Coordinator prior to the commencement of the project.	Congruent with the learning objectives in each case
AGRC7023* Grazing Land Management	Semester 1, 2 and Summer Semester	This course explores issues in the sustainable use and management of the rangelands, with particular emphasis on meat and wool production. The course covers grazing as an ecological process, the theory and practices of grazing management, grazing strategies in a variable climate, grazing systems, managing pastures in complex landscapes, management constraints, issues (e.g. pests and weeds) and options (e.g. fire) in major rangeland types, and tools such as decision support.	Three assignments
AGRC7027* Rangeland Pests and Weeds	Semester 2 (from 2007)	The course develops an understanding of the biology, ecology and costs of key weed, insect & vertebrate pests together with landowner obligations and legislative requirements. The course also examines strategies for early detection and methods by which pests can be managed including physical, cultural, chemical and ecological methods, and their integration into IPM and landscape management strategies.	
AGRC7028* Rangeland Monitoring and Adaptive Management	Semester 2 (from 2007)	This course examines the role, tools and use of monitoring for regional, enterprise and paddock monitoring to enable the most appropriate information for decision making. It also covers collection, analysis and interpretation of data and integration of the information into decision making that affects production systems and risk management.	
AGRC7029* Diversification and New Industries in the Rangelands	Semester 2 (from 2007)	This course examines the financial and environmental aspects of diversification options for the rangelands. This course looks at how to research options and conduct market research; investigate supply chains and markets; find start up funds; investigate legal restrictions; project cash flows; use qualitative forecasting techniques and deal with risk.	

Building Capacity in the Rangelands

AGRC7030* Understanding Rangeland Country and Natural Resources	Semester 1 (from 2007)	This course develops understanding of natural resources including cycles and patterns of key resources such as nutrients, water, plants, etc. It will develop the critical observational and interpretive skills necessary to assess and evaluate landscapes in order to 'read country' and improve everyday decision making and management practices.	
AGRC7031* Property, Catchment and Regional Planning	Semester 1	This course examines the processes involved in property planning; setting business goals, evaluating the effects of change within a property and at a catchment and regional level, in order to implement changes that are ecologically sustainable.	Four assignments
AGRC7100 Introduction to Rural Industries	Semester 1	An overview of Australian agriculture covering industries, economic performance, resources, land use, production systems including equipment, improvements and their valuation and major industry issues. NOTE: AGRC7100 is only available to students undertaking the Graduate Certificate who do not have a background in agriculture, economics or a related field.	Assignments are field exercises
ANIM7017* Animal Nutrition and Behaviour	Semester 2	Starting from a market perspective, this course will explore issues of animal digestion and nutrient requirements; pasture growth and nutritive value; the theory and practice of pasture and grazing management to optimise yield & quality of animal products; tools for monitoring nutritional status and strategies for managing nutritional deficiencies. NOTE: Students undertaking this course will need to have access to a grazing property to complete the assessments for this course.	Three assignments
ANIM7018* Livestock Welfare and Health	Semester 1	The course will investigate current issues in livestock welfare and health, and how they can impact and constrain animal productivity. It will examine and interpret animal behaviour to increase safety and efficiency and minimise stress in working stock and develop an understanding of the principles of epidemiology, including the importance of the identification, control and prevention of common diseases in livestock herds and feral animals.	

Building Capacity in the Rangelands

ECOL7001 Advanced Rangeland Ecology	Semester 1	The course examines the characteristics and classification of rangelands; ecological concepts and principles applicable to rangelands; models used in understanding ecological processes in rangelands; ecological function and dysfunction in rangelands; ecological assessment of rangelands.	Assignments/Case Study
ENVM7101 Regulatory and Legal Aspects of Sustainable Development	Semester 2	The course examines the international conventions and laws relating to environment, sustainable development & interaction with trade (WTO) & Australian legal system. It provides an introduction to law, history of law and various legal systems and notion of legal law and major international conventions, compliance & outcomes, both nationally and internationally. It explores the trends in environmental law, both overseas and in Australia.	Examination and assignments
ENVM7512 Environmental Problem Solving	Semester 2	The course develops a problem solving framework for environmental management. It provides an appreciation of disciplines which define dimensions of environment problem decision space and its relevance to other studies.	Assignments
FINM7960 Agribusiness Project Proposal	Semester 2	This course is an examination of the financial appraisal of capital investments in the agribusiness sector; project appraisal concepts, the time value of money and essential financial formulae, project cash flows, qualitative forecasting techniques and how to deal with risk when undertaking project appraisals.	Progressive test, assignment and final examination
LAND7000 Land and Water management	Semester 2	This course involves the study of land degradation processes and the use of this knowledge to define the principle of sustainable land soil and water resource use, and the development of practical land management packages for conservation of land resources.	Progressive and final examination
LPWM6640 Postgraduate Advanced Topic	Semester 1, 2	This course is a piece of directed work under supervision of academic staff & approved the Director. Students are advised to negotiate the project to be investigated with the Director, Rangelands Australia/ Program Coordinator prior to the commencement of the project.	Determined by case basis.

Building Capacity in the Rangelands

LAWS7960* Legal, Policy and Political Frameworks in the Rangelands	Semester 2 (from 2007)	This course develops understanding of the processes of policy formation and policy analysis, including the roles of government agencies in policy generation and compliance, and how to influence policy making and makers. The course also examines the law and legislation as it relates to property owners and managers with respect to property rights and responsibilities, land tenure, the environment, animal welfare, equal opportunity and health and safety issues.	
MGTS7960 Agribusiness Supply Chain Management	Semester 1	The purpose of this subject is to provide students with an opportunity to critically examine firstly, the theory behind the formation and management of the supply chains for agricultural food and fibre products and secondly the performance of selected chains in delivering value to consumers while remaining globally competitive. This subject introduces students to a topic that is attracting international attention in the agribusiness sector as the global integration of markets forces firms to be more consumer orientated, more flexible in their response to market shifts and more efficient in their operations.	Project and case studies
MGTS7962 E-Agribusiness	Semester 2	This course is an in-depth study of the major issues facing agribusinesses moving into the electronic business environment. This includes agricultural and agribusiness cultures and rural technology distribution as potential barriers to uptake. Current Agri-Industry and Enviro-Business examples are used throughout. Web based online delivery and 12 hours (two x Saturday) face-to-face contact periods.	Report, project, bulletin board, video analysis and skills portfolio
MGTS7968 Rural Community Development	Semester 1,2	The course explores the processes and current issues in rural community development, leading and facilitating community groups and the social and cultural processes relevant to rural community development and social sustainability.	Progressive and report
MGTS7978* Managing Self and Developing Others	Semester 1 (from 2007)	This course provides an introduction to the personal and interpersonal aspects of people management. It develops key people management processes and skills including: leadership; motivating others; valuing others; developing other's skills and abilities; building positive attitudes; managing conflict and change; building effective teams and developing self-awareness.	

Building Capacity in the Rangelands


<p>MKTG7960 Commodities, Futures and Options</p>	<p>Semester 1</p>	<p>Risk management is a vital part of any business but becomes more important for agribusiness firms involved in the international trade of agricultural commodities. Although there are many sources of risk, price risk management is of particular relevance to agribusiness managers be they managers of production units, trading companies or downstream processors.</p> <p>In this course students will investigate the various tools available to agribusiness managers to manage price risk and develop a framework for these managers to develop a price risk management strategy. In addition you will be given an opportunity to utilise these tools by participating in a simulated price risk management project.</p>	<p>Project and case studies</p>
<p>MKTG7961 Agribusiness Marketing</p>	<p>Semester 1</p>	<p>The course examines the forces of change that impinge on agribusiness firms and develops a marketing framework that individual managers can utilise to cope with these changes</p>	<p>Progressive tests, project and final examination</p>
<p>Meat Technology</p>	<p>Semester 1, 2</p>	<p>This unit provides an advanced understanding of industry activities in meat processing. It covers all aspects of the operations of meat works; meat safety, meat preservation, storage, packaging and transport; secondary processing and smallgoods production; industry by-products; pet foods; hides and skins and the chemistry of meats. All domestic species are covered. Compulsory residential school at Armidale, NSW.</p> <p>NOTE: Students interested in doing this course will have to undertake it by cross-institutional enrolment. Contact the University of New England, School of Rural Science and Agriculture for further details.</p>	

Sheep Production	Semester 1	<p>This unit introduces the major themes associated with sheep production in Australia including: wool production, sheep meat production, sheep management, sheep breeding, grazing and nutritional management. The unit represents a specialisation for students planning to enter the sheep and wool industry. Students enrolled in this course will have to complete additional guided reading/practical work appropriate to the needs of individual students.</p> <p>NOTE: Students interested in doing this course will have to undertake it by cross-institutional enrolment. Contact the University of New England, School of Rural Science and Agriculture for further details.</p>	
Managing Northern Rangelands	Semester 2	<p>This unit asks students to apply the results of research into savanna management to a hypothetical management problem. We have designed the unit around a real-life situation, similar to those you may experience in a future or present workplace – in this case natural resource management for multiple use of a pastoral lease. You will be required to engage with your class mates and the unit coordinator, and to draw upon the expertise of researchers and advisors during the semester, and using resources on the unit website and elsewhere. The unit includes a 5-day field trip to the Victoria River district of the NT in Semester 2.</p> <p>NOTE: Students interested in doing this course will have to undertake it by cross-institutional enrolment. Contact Charles Darwin University, School of Science and Primary Industries for further details.</p>	

**Rangelands Australia-developed course*

9.4 Appendix 4: Course outlines - postgraduate courses



<p>A course developed by ...</p>  <p>RANGELANDS AUSTRALIA</p>	<p>SUSTAINABLE RANGELAND PRODUCTION SYSTEMS AND REGIONS</p> <p>Postgraduate Course – AGRC7001</p>
--	---

Available in Semester-long mode in Semester 1 and 2, 2006.
(Subject to minimum numbers)

OVERVIEW

This course provides an overview of one of the major forces of change in Australia's rangelands today - the quest for sustainable production systems and sustainable regions. Sustainability affects government, business, organisations and individuals, and their commitment to it is central to achieving economic, environmental and social sustainability.

In this over-arching course you will be given an introduction to global and national sustainability issues, and learn more about the elements of sustainable regions, sustainable landscapes, sustainable enterprises and production systems with respect to the rangelands.

This course provides insight into the evolving concept of sustainability, efforts to achieve sustainability, and ways of tracking progress towards economic, environmental and social sustainability. The course also identifies sources of information to keep up to date with developments in science, community views and policy on sustainable production systems and sustainable regions.

LEARNING OBJECTIVES

On completion of this course you will be able to:

- Explain the evolving concept of sustainable development/ecologically sustainable development (ESD), its underlying principles and values, and the commitment of government, business, community and industry to it
- Identify different perceptions of sustainability within your region, develop your own viewpoint and appreciate where your view(s) sit(s) in the spectrum of views
- Analyse global and national issues and problems driving sustainability initiatives and wider change in rangeland practice(s)
- Analyse case studies of regional and enterprise-scale sustainability initiatives and the implications for policy
- Analyse the economic, social and institutional impediments to achieving sustainable production systems/regions and proposed industry and institutional solutions to these impediments
- Identify and evaluate assessment frameworks, targets and widely accepted indicators of rangeland sustainability
- Identify the characteristics that contribute to the perceived complexity of rangeland systems, and their resilience
- Analyse 'best practice' guidelines for enterprise and regional sustainability and appreciate the knowledge deficiencies and R&D in progress to address the knowledge gaps
- Analyse progress towards sustainability in the forestry, tourism and mining industries, and the lessons to be learnt from these sectors
- Demonstrate skills in communication (i.e. verbal, report writing, etc), on-line learning, information acquisition and management, critical thinking, etc.

COURSE STRUCTURE

Course modules include:

- What is sustainability, sustainable development and ecologically sustainable development (ESD)?
- Drivers of sustainability and change
- Moving towards sustainability
- Impediments or constraints on ESD implementation
- Tracking aspects of sustainability
- Key characteristics of rangeland systems
- Sustainable grazing management
- Moving towards sustainability: Lessons from other industries/sectors.

LEARNING FACILITATOR

Dr John A Taylor (BAppSci Hons; PhD). John is a graduate of Queensland and New England Universities who has worked in the rangelands for over 30 years, and has wide experience of the rangelands of northern Australia and NSW. He has specialized in rangeland ecology and management, and his interests include grazing management, sustainable landscapes, building the capacity of our land managers for the future, and strengthening understanding between rural and urban Australia.

He has considerable 'external' experience as a Director of the Land & Water Resources R and D Corporation, and was Acting Chief of CSIRO Tropical Crops and Pastures and then Deputy Chief of CSIRO Tropical Agriculture before going to UQ Gatton as Professor of Rangeland Management. John has also been Deputy Chairman of the North Australia Beef Research Council (NABRC), Chairman and member of the Board of the Agricultural Production Systems Research Unit (APSRU), member of the Advisory Board of the Institute of Sustainable Regional Development (ISRDI), and member of the Expert Panel for the Land chapter of the 2001 and 2005 State of the Environment Reports.

John is on the Board of the Desert Knowledge CRC, and chairs its Desert Advisory Forum.

REQUIRED TEXT BOOKS

There are two books required for this course; one has been kindly supplied by CSIRO Sustainable Ecosystems and the other is available in CD or hard copy at a nominal cost (\$25).

ASSESSMENT

There are no 'examinations', just three assessment items for this course.

Assessment 1: Online discussion activities - 40%

Throughout the course you will be required to complete 7 online learning activities. These will involve responding to readings and other stimuli, and reading and responding to the postings of other students and the course coordinator.

Assessment 2: Motivational presentation – 25%

You will develop a 'call to action' presentation identifying local sustainability issues and their implications, and potential collaborations and strategies to address them.

Assessment 3: Implications report – 35%

You will provide a written report (maximum 2500 words) on the 'triple bottom line' implications of interventions to address a sustainability issue(s) at a scale of particular interest to you, i.e. either an enterprise, or regional or national - scale sustainability issue.

BACKGROUND TO THIS COURSE

The need for this course was identified by a national survey of education and skills needs for success in the rangelands. This course was developed by RA and provides the first rangeland-specific collation of information on sustainable production systems and regions. The structure, content and resources used in this course were influenced by experienced producers (private and corporate) from Queensland, NSW, NT and SA; and advisors and/or researchers from CSIRO Sustainable Ecosystems, NSW Agriculture, NT Department Business, Industry & Resource Development, Q Department Primary Industries & Fisheries, The University of Queensland, and WA Department of Agriculture.

A draft of the course was reviewed by rangeland managers, advisors and researchers from CSIRO, NSW Agriculture, Qld Department of Primary Industries and Fisheries, WA Department of Agriculture, and the University of Queensland.

This course was first delivered in late 2004.


COURSE EVALUATIONS

Students completing this course in 2004 and 2005 were asked to evaluate the perceived relevance, practicality and quality of the course and its delivery (on 1-5 scale, with 1=strongly disagree and 5=strongly agree). The following average ratings were received:

- Clear and relevant learning objectives 4.6/5.0
- Satisfied with the course content 4.3/5.0
- Satisfied with the amount of contact with the Learning facilitator 4.3/5.0
- I gained new skills and knowledge 4.3/5.0
- Learning and assessment activities challenged me to think 4.7/5.0
- Course is well structured and components well integrated 4.3/5.0
- Course is relevant to my workplace/business 5.0/5.0
- Course is relevant to my future in the rangelands 5.0/5.0
- Overall, I'm satisfied with this course 4.8/5.0

Students have also provided the following general comments on this course:

- *"Most valuable ... was seeing the picture of sustainability from all the differing viewpoints of other students."* (Rangeland manager, Yuleba Q)
- *"Great – I enjoyed doing this course"* (Pastoral Manager, Leonora WA)
- *"Loved the big picture thinking and the 'lights on' feeling"* (Consultant, Hughendon Q)
- *"The course opens your mind so much and the reference material is excellent"* (Landcare member, NW Vic)

<p>A course developed by ...</p>  <p>RANGELANDS AUSTRALIA</p>	<h2>ANIMAL NUTRITION AND BEHAVIOUR</h2> <h3>Postgraduate Course – AGRC7017</h3>
--	---

Available in Semester-long mode in Semester 2, 2006
(Subject to minimum numbers)

OVERVIEW

The approach taken in this course enables students to blend good theoretical knowledge with practical application to better manage animals, improve production and ensure sustainable use of the rangelands.

This course provides an overview of the critical aspects of livestock management in Australia's rangelands. It deals primarily with aspects of extensive production of beef cattle, wool and meat sheep and goats, with some coverage of the behaviour and management of animals harvested from the rangelands (eg. feral and native animals). The course also explores nutritional factors relating to market demand and welfare issues with respect to feeding, care, handling and transport of animals. Global trends in livestock production are also considered. The course will provide a framework on which to build an understanding of animal behaviour, nutrition and husbandry that will lead to an increase in productivity and profitability of animal-based enterprises in the rangelands, but not at the expense of the resource base.

The course covers aspects of animal production from extensive grazing to back-grounding, in both good times and in drought, and provides students with the opportunity to focus on the day-to-day issues associated with animal nutrition and behaviour, and to identify and apply management strategies to achieve a sustainable production system.

Note: *Students undertaking this course will need to have access to a grazing property where they can:*

- i) develop a nutrition management strategy for an enterprise, and*
- ii) observe the behaviour of domestic and native or feral animals, deduce the implications for sustainability, and develop strategies to optimise economic benefits and minimise the negative impacts of the animals.*

LEARNING OBJECTIVES

On completion of this course you will be able to:

- Understand the role and importance of animal nutrition especially as it relates to all aspects of animal production in the rangelands
- Be aware of current trends, theories and advances in the fields of: a) animal nutrition in extensive areas and in back-grounding, and b) in the foraging behaviour of livestock and feral animals that provide animal-based products from the rangelands.
- Be able to monitor grazing animal nutrition and read animal condition to 'balance nutrition planes for production' and support decision making for supplementary feeding and drought animal management
- Be able to critically evaluate current practices, and through reflection, generate ideas, make decisions and adapt to our changing environment in order to optimise livestock productivity and profit
- Be able to source, use and evaluate relevant information including 'best practice' and advances in knowledge in addressing nutritional limitations to production and in meeting market specifications

- Identify and define the needs of different markets and the impact this has on management decisions relating to nutrition and production
- Use an understanding of the foraging behaviour of animals to assess: i) the complementary or competitive effects of grazers and browsers, and ii) total grazing pressure and to manipulate grazing distribution
- Use an understanding of animal behaviour to predict seasonal patterns of use of the landscape and animal impact, herd/flock movement, and/or assessment of risks in emerging drought situations
- Understand and interpret animal behaviour in order to increase safety and efficiency and to minimise stress when handling and moving stock in different grazing systems (ie. continuous vs cell grazing)
- Be aware of the importance of animal welfare issues as they relate to nutrition and production and the need to address these as part of decision making processes
- Develop an understanding of the global trends and issues impacting on livestock production and the implications these have for management in the short, medium and long term
- Demonstrate skills in communication (ie. verbal, report writing, etc), on-line learning, data gathering, information acquisition and management, critical thinking, etc

COURSE STRUCTURE

Course modules include:

- Rumen function and manipulation
- Nutritional requirements of grazing animals
- Nutritional requirements of browsing and grazing animals
- Nutrition management for grazing animals
- Minerals and Vitamins – deficiencies and toxicities in animal production
- Market demand and nutritional requirements
- Behavioural characteristics of domestic animals that are important for production and management
- Behaviour of feral and native animals and their impact on production
- Welfare – implications for feeding, care, handling and transport of animals
- Global concerns associated with animal production

LEARNING FACILITATOR

Dr Brenda McLachlan (BAGSc, MAgSc, PhD). Brenda has a long interest in cattle nutrition, and has worked in both research and extension with QDPI, USDA and commercial companies in the USA. Her research has involved work on the interactions among pasture growth, diet selection and milk production, and on animal nutrition and health. She is a member of the School of Animal Studies, and teaches nutrition, animal behaviour, wildlife care, and natural and agri-food systems at UQ's Gatton Campus.

REQUIRED TEXT BOOKS

There are no textbooks required for this course. However students will be required to buy a copy of the QDPI&F Prime Notes CD which is available at a specially discounted price of \$9.95 for students participating in this course. Students are supplied with a book of readings that includes essential materials required for the completion of learning activities and assessment items.

ASSESSMENT

There are no 'examinations', just three assessment items for this course.

Assessment 1: Online discussion and problem solving activities – 30%

Throughout the course you will be required to complete a number of learning activities online. This will involve participating in discussion topics and completing problem solving activities.

Assessment 2: Case study of a nutritional management strategy for a chosen enterprise – 35%

Students will develop a nutrition management strategy for a described extensive livestock enterprise and provide scientific and economic justification for the recommended strategy (maximum 3,000 words)

Assessment 3: Case Study observation on behaviour and management strategies – 35%

This case study requires you to complete a series of observations, read the study materials and the required reading, and complete the learning activities to develop an understanding of the feeding behaviour of both livestock and native species on a commercial enterprise of your choice. This will include strategies for better managing the animals and improving production. The case study will include writing a comprehensive report (maximum 2,500 words plus supplementary materials).

BACKGROUND TO THIS COURSE

The need for this course was identified by a national survey of education and skills needs for success in the rangelands. The course was developed by Rangelands Australia, and provides the first rangeland-specific collation of information on animal nutrition and behaviour. The structure, content and resources used in this course were influenced by experienced pastoralists, private consultants, and advisors &/or researchers from the West Australian Department of Agriculture, Queensland Department of Primary Industries & Fisheries, CSIRO Sustainable Ecosystems, University of New England and the University of Queensland.

A draft of the course was reviewed by livestock producers from the rangelands, as well as QDPI&F and WA Agriculture advisors and CSIRO and University of Queensland researchers.

This course was delivered for the first time in Semester 2, 2005.

REVIEWERS' COMMENTS

External reviewers have provided the following general comments on a draft of this course:

- *"As a cattle breeder in the Rangelands this course is very informative. The material presented will provide valuable learning"* Organic beef producer and consultant, near Miles Q
- *"Good focus on important production issues; very practical"* CSIRO scientist, Brisbane Q
- *"Very, very good course"* Beef producer, near Roma Q

COURSE EVALUATIONS

Students completing this course in 2005 were asked to evaluate the perceived relevance, practicality and quality of the course and its delivery (on 1-5 scale, with 1=strongly disagree and 5=strongly agree). The following average ratings were received:


- Clear and relevant learning objectives 4.7/5.0
- Satisfied with the course content 4.7/5.0
- Satisfied with the amount of contact with the Learning Facilitator 4.5/5.0
- The Learning Facilitator provided useful guidance and support 4.7/5.0

- I gained new skills and knowledge 5.0/5.0
- Learning and assessment activities challenged me to think 5.0/5.0
- Course is well structured and components well integrated 4.7/5.0
- Course is relevant to my workplace/business 5.0/5.0
- Course is relevant to my future in the rangelands 4.7/5.0
- This course has met my needs 4.7/5.0
- Overall, I'm satisfied with this course 4.5/5.0

Students have also provided the following comments on this course:

- "Good course"
- "Course is very practical. It is hands-on oriented and students address realistic issues".



<p>A course developed by ...</p>  <p>RANGELANDS AUSTRALIA</p>	<h2>GRAZING LAND MANAGEMENT</h2> <h3>Postgraduate Course – AGRC7023</h3>
--	--

**Available in Semester-long mode in Semester 1 and 2, 2006
And in the Summer Semester 2006-07
(Subject to minimum numbers)**

OVERVIEW

Around 60% of Australia's rangelands are grazed by domestic animals. The condition, productivity and sustainability of these grazing lands are strongly driven by climate and seasonal events, with management and its interaction with the environment often influencing the outcome(s). For this reason, adaptive management is addressed throughout the course.

This course covers the theoretical background, principles and concepts of the main management tools in grazed rangelands - grazing and fire, and other issues that may influence grazing management in your region, such as introduced pasture plants and weeds. The theoretical background serves as a framework on which knowledge and understanding can be built and on which proposed practices can be analysed. The practical application of the theory is a significant component of this course.

Market and consumer expectations are raising the standard and expectations of grazing management.

LEARNING OBJECTIVES

On completion of this course you will be able to:

- Identify the broad context of topics and issues relevant to grazing land management and will have developed a working knowledge of grazing management terminology
- Describe and apply the ecological components, concepts and models of grazing to the management of grazing animals and natural resource management
- Assess and evaluate the positive and negative interactions between environmental features and grazing animals
- Identify the most important principles in the process of grazing and apply these principles to grazing management to optimize productivity and minimize the negative effects of animal impact
- Describe the principles of grazing land management, evaluate grazing management systems and integrate grazing management principles into management decisions
- Implement a framework for integrating prescribed burning, fire management and wildfire control into grazing land management
- Describe all aspects of a weed problem and identify and evaluate management and control strategies for weeds in the context of grazing land management
- Explore the opportunities and threats of plant introduction in the rangelands – including how they can be integrated in relation to grazing management and animal production
- Outline the role of decision support tools and information management in grazing land management and evaluate the current tools available

- Identify the possible future influences such as global markets, conservation issues and climate change, and evaluate their possible/probable impact on grazing management practices.

COURSE STRUCTURE

Course modules include:

- Introduction to grazing land management
- The grazing environment and ecological processes
- The grazing process
- The impact of grazing
- Grazing management
- Fire and fire management
- Weed management
- Introduction of trees, shrubs and pastures
- Information support for decision making

LEARNING FACILITATOR

Bruce Alchin (BScAgr, MSc, GCEd). Bruce has had over 30 years experience in the rangelands of Australia. This includes 20 years with the NSW Soil Conservation Service and Western Lands Commission (WLC) in western NSW. He was involved in land resource mapping, property management planning, research and advisory work. Time with the WLC also provided experience with land administration and politics. Since 1988, he has been based in Qld, and involved in rangelands teaching, research (particularly on grazing management) and consultancies. Whilst having broad experience, much of Bruce's work has been 'hands-on' at the property and paddock level. Overseas work has been in the USA and Indonesia.

REQUIRED TEXT BOOKS

There are no textbooks required for this course. Students are supplied with a book of readings that includes essential materials required for completion of learning activities and assessment items.

ASSESSMENT

There are no 'examinations', just three assessment items for this course:

Assessment 1: Online discussion activities – 20%

You will need to engage in five online learning activities. This will involve posting your responses on the discussion forum and reading and responding to others in the light of your experience/knowledge and the literature.

Assessment 2: Review report – 40%

Focusing on a particular region or rangeland type, you will review and critically analyse the principles of grazing land management, and identify gaps in knowledge and opportunities for change in current practices (maximum 2,000 words).

Assessment 3: Case study of Grazing Management – 40%

Develop a grazing management plan for an enterprise (maximum 3,000 words).

BACKGROUND TO THIS COURSE

The need for this course was identified by a national survey of education and skills needs for success in the rangelands. The course was developed by Rangelands Australia. The structure, content and resources used in this course were influenced by experienced producers (private and corporate), advisors and researchers, and the EDGENetwork's Grazing Land Management course. The content includes some material adapted from the EDGENetwork Grazing Land Management Workshop Notes and Technical Manuals (MLA 2003 a,b,c).

A draft of the course was reviewed by experienced producers, and advisors and researchers from CSIRO Sustainable Ecosystems, NSW Agriculture, NT Department Business, Industry & Resource Development, Q Department Primary Industries & Fisheries, Q Department Natural Resources & Mines, Tropical Savannas CRC, The University of Queensland, and WA Department of Agriculture.

This course was delivered for the first time in 2005.

REVIEWERS' COMMENTS

External reviewers have provided the following general comments on a draft of this course:

- *"Good overview of grazing land management as it applies to much of the rangelands"* Beef Officer, Karratha WA
- *"Good course – I would have liked to have had this available to me while I was studying"* Rangeland Research Officer, Katherine NT
- *"Pretty impressed with the information in the course and am confident that participants will have a good grounding in rangeland management after they have completed it"* Beef producer, Roma Q
- *"A valuable and worthwhile course"* Grazing Systems Research Officer, Brisbane Q

COURSE EVALUATIONS


Students completing this course in 2005 were asked to evaluate the perceived relevance, practicality and quality of the course and its delivery (on 1-5 scale, with 1=strongly disagree and 5=strongly agree). The following average ratings were received:

- Clear and relevant learning objectives 4.9/5.0
- Satisfied with the course content 4.8/5.0
- Satisfied with the amount of contact with the Learning facilitator 4.5/5.0
- The Learning Facilitator provided useful guidance and support 4.5/5.0
- I gained new skills and knowledge 5.0/5.0
- Learning and assessment activities challenged me to think 4.3/5.0
- Course is well structured and components well integrated 4.5/5.0
- Course is relevant to my workplace/business 5.0/5.0
- Course is relevant to my future in the rangelands 4.8/5.0
- Overall, I'm satisfied with this course 4.8/5.0

Students have also provided the following general comments on this course:

- *"The course answered all the questions I had especially on native grazing lands management"*
- *"Exciting and very practical course"*
- *"Very good. Relevant to land users and managers and aspiring land managers"*



<p>A course developed by ...</p>  <p>RANGELANDS AUSTRALIA</p>	<h2>PROPERTY, CATCHMENT AND REGIONAL PLANNING</h2> <p>Postgraduate Course – AGRC7031</p>
--	--

Available in Semester-long mode in Semester 1, 2006
(Subject to minimum numbers)

OVERVIEW

Through a range of planning processes set down in various State/Territory legislation and associated regulation or policy, governments seek to influence the management of natural resource and economic development processes. Effective planning at property, catchment and regional levels are fundamental to ensure better use and sustainable management of resources as well as achieving economic and social outcomes.

Plans of one form or another are also increasingly required for investment purposes, by financial institutions and governments, in rangeland properties and regions respectively. They may be required for accessing assistance under government programs (local, Territory, State and Commonwealth). Increasingly, planning schemes and policy influence or even restrict what landholders can do in the rangelands and how it can be done.

Regional planning (especially for natural resource management (NRM)) has become a requirement for government investment under National Action Plan for Salinity and Water Quality (NAP) and Natural Heritage Trust (NHT). This provides important context which will flow down to catchment, sub-catchment and property planning.

Furthermore, natural resource management plans, vegetation management plans, water/river management plans, coastal/reef plans, biodiversity management plans, pest management plans, property resource management plans, etc., are now part of the scene.

This course aims to develop capacity of rangelands landholders, regional managers, financiers and others responsible for aspects of management of the rangelands through building knowledge, skills and capacity for stakeholders to:

- Achieve more integrated and efficient planning across all levels in the rangeland;
- Recognise the existence of a need for detailed planning process as a result of new government requirements.

LEARNING OBJECTIVES

On completion of this course you will be able to:

- Advocate integrated planning as a mechanism leading to better management in the rangelands
- Analyse the key drivers and impacts on planning
- Access and utilise physical information, systems, resources and tools relevant to property, catchment and regional planning and management
- Assess land capability and health and anticipate the positive and negative consequences of management options
- Demonstrate awareness and knowledge of where to find and access socio-economic information relevant to planning for the health and sustainability of the rangelands

- Examine and interpret the rights and responsibilities of landholders and catchment/regional bodies with respect to legislation and government policy
- Apply planning principles, practices and processes in developing plans, goals, targets and outcomes for property, catchment and regional planning and management
- Understand the value and the importance of seeking better integration of planning systems across scales in the rangelands
- Identify and evaluate options, strategies and tools to achieve economic, environmental and social goals in relation to property, catchment and regional planning and management
- Integrate conservation principles and production goals into management practices in the rangelands
- Demonstrate skills in communication (i.e. verbal, report writing, community consultation), online learning, information acquisition and management, critical thinking, community involvement and networking that assists in solving issues at property, catchment and regional level through planning.

COURSE STRUCTURE

This course is divided into five modules:

- Planning as a mechanism for better management in the rangelands
- Physical Information and Systems
- Socio-economic Information Systems
- Social Capacity and the Operating Environment
- Bringing it all together - Planning Principles and Practice

LEARNING FACILITATOR

Dr Tony Pressland (CPAg, B.Agric Sc., M.Sc, PhD). Tony has a professional interest in the rangelands and in catchment management and planning from the dual viewpoints of sustainable natural resource management and involvement of local people. He has lead research into the impacts of changes in land use on catchment hydrology and productivity; studied rainfall-runoff-pasture-erosion relationships under livestock production; has been involved in woody - weed management research; and has also researched the use of fire in management of rangelands.

Tony has until recently had responsibility for Queensland government programs in weed and animal pest management, vegetation management for sustainable production and maintenance of biodiversity and landscape health, and for sustainable land and regional planning.

Tony is a past Co-Chair of the Australian and Queensland Government Joint Steering Committee for Natural Resource Management which administered the National Action Plan for Salinity and Water Quality, and the Natural Heritage Trust in Queensland.

REQUIRED TEXT BOOKS

There is one book required for this course.

Productivity Commission (2004). Impacts of native vegetation and biodiversity regulations. Report No. 29, Melbourne. ISBN 1-74037-145-3 (Cost \$20)

Students are also supplied with a book of readings that includes articles and other materials required for completion of learning activities and assessment items.

ASSESSMENT

There are no 'examinations', just four (4) assessment items for this course.

Assessment 1: Participation in online activities - 25%

Throughout the course you will be expected to complete a number of learning activities online. These will involve responding to readings and other stimuli, reading and responding to the postings of other students, and reflecting on your experiences in planning processes.

Assessment 2: Resources assets audit and targets analysis – 30%

Consider a rangeland property or region with which you are familiar. Conduct a resource asset audit and identify targets for critical analysis.

Assessment 3: Approaches to integrated catchment management - 5%

Analyse the differences between Landcare, ICM and regional catchment approaches in addressing the inter-dependency of issues important in planning.

Assessment 4: Integrated planning in the rangelands - 40%

Outline the institutional framework that applies to your area for natural resource and related planning, undertake a SWOT analysis of the current institutional arrangements, identify key NRM targets and develop a monitoring program that will allow recording of progress towards defined targets at various planning levels.

BACKGROUND TO THIS COURSE

The need for this course was identified by a national survey of education and skills needs for success in the rangelands. The course was developed by Rangelands Australia to provide a unique, rangeland-specific view of the need for integrated planning, from the regional to property levels. The structure, content and resources used in this course were influenced by producers from Queensland; consultants; policy makers at Local and State government levels; regional managers from Q Department of Natural Resources & Mines; and researchers from CSIRO Sustainable Ecosystems and The University of Queensland's School of Agronomy and Horticulture.

A draft of the course was reviewed by Officers of Greening Australia, Western Catchment management Authority, Q Dept Natural Resources & Mines, Qld Murray-Darling Committee, SA Dept Water, Land & Biodiversity Conservation, the Local Government Association (Q), and CSIRO and University researchers working on improved planning processes.

This course will be delivered for the first time in 2006.

REVIEWERS' COMMENTS

External reviewers have provided the following general comments on a draft of this course:

- *"It is very encouraging to peruse a course where a great deal of thought has gone into the 'big picture'. Finally a course that answers our needs for a balanced perspective of rangeland management"* (Regional manager, Greening Australia, Dalby Q)
- *"The material is very comprehensive – it is the first time I have seen such a good synthesis of the many levels and directions of planning"* (NRM Officer, Longreach Q)
- *"The learning tasks are set in real, not simplified, management settings giving a very real feel for the planning problems currently faced by policy makers and managers in the rangelands – they would certainly challenge many people working in the field"* (CSIRO Scientist, Brisbane Q)

p.4

- *"The subject of this course is a complex one and is an area that is continually changing in the 'real world'. The authors have done extremely well to develop a content which is comprehensive and which provides students with a sound basis and framework for their understanding and future involvement in planning and management from property to regional level"* (Lecturer, University of Queensland, Gatton Q)
- *"This course provides a comprehensive view of the key issues and clearly links planning from the property level through to the regional level. This course will greatly benefit anyone who is interested in the long term sustainable management of Australia's rangelands"* (DNR&M Officer, Brisbane Q)

<p>A course developed by ...</p>  <p>RANGELANDS AUSTRALIA</p>	<h2>BUILDING EFFECTIVE STAKEHOLDER ENGAGEMENTS</h2> <p>Postgraduate Course – MGTS7976</p>
--	---

Available in Semester-long mode in Semester 2, 2006
(Subject to minimum numbers)

OVERVIEW

Members of rangeland communities are increasingly engaged in meetings to discuss and resolve natural resource use and management issues and/or participate in planning at a local or regional level. The outcomes of these processes, which can have important and far-reaching economic and environmental implications for rangeland enterprises depends on the resilience and quality of the relationships of those involved.

Participatory processes have been undertaken in rural Australia over several years with varying degrees of success in the outcomes. Many people have tried to implement these processes and found their multi-dimensional nature difficult to manage while participants often feel their point of view has not been taken into account. Yet they still remain an effective democratic process for achieving change and allowing communities to participate in areas that impact on them.

Rangelands Australia believes there have been many recent advances in approaches to stakeholder engagement processes. We have set out to design a post-graduate course in building effective stakeholder engagements that incorporates the outcomes of current research in devolved processes for rangelands communities, based on a set of fundamental principles.

The course aims to develop participant knowledge and skills pertaining to the design and management of a stakeholder engagement process at whatever geographic or community of practice scale is required. It will provide practical experience in managing the inter-related aspects of the processes. It does not set out to address each of the aspects of management in detail but rather focus on the areas that research has indicated are problematic and impact on achieving successful outcomes.

Participants will use their own involvement in a stakeholder process to investigate aspects of the key stages of inception, planning, running, implementation and evaluation. Each stage requires a set of actions by the process manager to ensure quality outcomes.

With the development of regional natural resource management committees, skilled stakeholder participation will be vital for achieving successful outcomes to the benefit of the rangelands and its people.

NOTE: Students undertaking this course need to be actively involved in a participative process, involving several stakeholder groups, to complete the learning activities and assessments. For example, active in the development of Water or Regional Plans; active in Local Government planning; or involved in community engagement with respect to a National Park, a development initiative, etc.

LEARNING OBJECTIVES

On completion of this course you will be able to:

- Develop and manage a multi-stakeholder process
- Derive an understanding of the diverse culture, values and needs of individual stakeholders based on credible information

- Examine own style in working with diversity within a group
- Evaluate the appropriateness of participatory processes in relation to issues and ethical implications
- Develop a process that respects the values and cultures of all participants
- Examine and resolve power, values and trust issues throughout the process
- Examine the key communication issues impacting on the process and develop appropriate strategies
- Create a climate that encourages an openness to change
- Engage ethically with others
- Analyse complexity and integrate multiple viewpoints into the process.

COURSE STRUCTURE

Course modules include:

- Inception of stakeholder engagements
- Planning
- Running the process
- Implementing the outcomes of the process
- Monitoring/review of the process

LEARNING FACILITATORS

Dana Kelly (Coordinator) (BSc Env; MAgSt Ext). Dana has lived or worked in the rangelands for over 20 years. She recently completed her PhD on 'Power relationships in community participation', the case study region being south-west Queensland. Dana has completed a major report on how government and other agencies could improve community participation in the rangelands. This theoretical understanding of participatory processes is complemented by 15 years working in government, firstly in environmental education for the National Parks and Wildlife Service; and then as state-wide Extension Coordinator for weeds and feral animals in the Department of Natural Resources and Mines. Dana has managerial experience at a tourist resort in the rangelands, and on her own small cattle enterprise in south-eastern Queensland.

Dr Fiona Leverington (BSc, PhD). Fiona has worked in the field of community engagement since the late 1970's, mostly for Queensland parks & Wildlife Service. Her work has ranged from talking to park visitors and local communities to planning state-wide public contact initiatives. Her PhD work in Indonesia focussed on how cooperation could be fostered between government, NGOs and local communities to improve conservation and social outcomes.

REQUIRED TEXT BOOKS

There are two textbooks required for this course.

- i) Keen, M, VA Brown & R Dyball (Eds) (2005). *Social Learning in Environmental Management*. Earthscan, London.
- ii) Alsin, HJ and VA Brown (2004). *Towards Whole of Community Engagement: A practical toolkit*. MDBC, Canberra. (Free copies of this have been kindly supplied by the Murray-Darling Basin Commission.)

Students are also supplied with a book of readings that includes essential materials required for completion of learning activities and assessment items.

ASSESSMENT

There are no 'examinations', just three (3) assessment items for this course.

Assessment 1: Participation in online activities - 35%

Throughout the course you will be expected to complete a number of learning activities online. These will involve responding to readings and other stimuli, reading and responding to the postings of other students, and reflecting on your experience in stakeholder processes.

Assessment 2: Reflection on Process – 25%

You will analyse interactions in a participative process in which you are engaged, and develop alternative strategies to improve the process outcomes.

Assessment 3: Case study - 40%

You will evaluate a participatory activity or project in which you have been involved, using an existing framework. Develop this into a case study (2500-3000 words), supporting your evaluation with theory and examples. Drawing on current literature and experience, demonstrate ways in which this particular process has achieved its aims, where it has fallen short, and what could be done to make the process more effective in the future.

BACKGROUND TO THIS COURSE

The need for this course was identified by a national survey of education and skills needs for success in the rangelands. The course was developed by Rangelands Australia. It provides a unique, rangeland-specific view of stakeholder engagement, widely applicable across Australia. The structure, content and resources used in this course were influenced by producers from Queensland, NSW and SA involved in catchment and regional groups; catchment and NRM coordinators from Q, NSW & SA; community development consultants; policy makers at State and Australian government levels, community liaison officers with mining companies; regional managers from Q Department Primary Industries & Fisheries, Q Department of Natural Resources & Mines, Greening Australia, NSW National Parks and Wildlife Service and the National Native Tribunal; and researchers from CSIRO Sustainable Ecosystems, The University of Queensland's School of Natural and Rural Systems Management, and University of New England's Environmental Dispute Resolution Centre.

A draft of the course was reviewed by an equally diverse group of rangeland stakeholders.

This course was first delivered in late 2004. Since then, the course has been revised and restructured in the light of recent research on more effective stakeholder processes.

COURSE EVALUATIONS

Students completing this course in 2004 and 2005 were asked to evaluate the perceived relevance, practicality and quality of the course and its delivery (on 1-5 scale, with 1=strongly disagree and 5=strongly agree). The following average ratings were received:

- Clear and relevant learning objectives 4.3/5.0
- Satisfied with the course content 4.3/5.0
- Satisfied with the amount of contact with the Learning Facilitators 4.7/5.0
- The Learning Facilitators provided useful guidance and support 4.7/5.0
- I gained new skills and knowledge 5.0/5.0
- Learning and assessment activities challenged me to think 4.7/5.0

- Course is well structured and components well integrated 4.4/5.0
- Course is relevant to my workplace/business 4.6/5.0
- Course is relevant to my future in the rangelands 4.6/5.0
- Overall, I'm satisfied with this course 4.7/5.0

Students have also provided the following general comments on this course:

- *"My methods of engaging pastoralists have expanded and I have become more aware of their needs during this process"*
- *"An important choice as a foundation course – highlights the importance of stakeholder interactions"*
- *"...challenging stuff that forced me to think at a different level and apply new theories to my work with community development. Very helpful and applicable."*
- *"The course has been of great value, particularly due to its relevance in regional NRM, in which I am employed. It has addressed relevant issues and has been well coordinated. Engaging regional stakeholders effectively is the basis for successful NRM."*



<p>A course developed by ...</p>  <p>RANGELANDS AUSTRALIA</p>	<h2>GLOBAL AND NATIONAL TRENDS INFLUENCING RANGELANDS</h2> <p>Postgraduate Course – MKTG7965</p>
--	--

Available in Semester-long mode in Semester 1, 2006.
(Subject to minimum numbers)

OVERVIEW

There are many forces driving economic, environmental, technological and social change in the world that impact directly and indirectly on enterprises and communities in the rangelands. The consequences can come as a complete surprise to many people, and can have far reaching effects on livelihood and lifestyle. This course provides tools and processes to assist in understanding and analysing the major forces of change in Australia's rangelands today, and assist in supporting people living in the rangelands in their quest for profitable businesses, sustainable production systems and sustainable regions.

Information and content in this area is changing rapidly – almost daily. For this reason, this course provides a depth of processes, tools and application that will enable students to walk through their own 'futures project', identifying, researching and applying issues that are relevant to them in their communities, industries and workplaces.

The skills nurtured in this course create the thinking processes and motivation required to respond to change in proactive and positive ways. Developing these skills draws on knowledge from three key areas – strategic planning, change management and foresight.

LEARNING OBJECTIVES

On completion of this course you will be able to:

- Analyse technological, social, environmental and scientific trends, policy, political, institutional and market trends influencing change in the rangelands
- Examine and apply tools and processes used in futures and foresight methodologies
- Build scenarios and explore futures for the rangelands
- Analyse and evaluate complex scenarios for the rangelands, their risks and probabilities and their likely impact
- Identify potential threats and opportunities that individuals, their regions and/or industry might need to address
- Identify, explore and develop action plans and strategies to minimize or counter threats and risk to business and sustainable futures in the rangelands.

COURSE STRUCTURE

Course modules include:

- Introduction to futures in the rangelands
- Thinking about the future
- Putting the task into context
- Starting to explore the rangelands of Australia
- Scanning the environment
- Analysing patterns and structures
- Developing scenarios
- Identifying options and responses
- Deciding a course of action

LEARNING FACILITATOR

Ms Emma Robinson (BAppSc, MSc, GradCert RurExt, GradCert TechMgmt). Emma and her husband run a beef property, in the rangelands south of Charters Towers, Qld. Emma also works as a freelance consultant specialising in the areas of environmental scanning, long-term thinking, facilitation and strategy. Previously Emma has undertaken futuring work for the Queensland Department of Primary Industries and Central Queensland University.

REQUIRED TEXT BOOKS

There are no textbooks required for this course. Students are supplied with a book of readings that includes essential materials required for completion of learning activities and assessment items. The Australian Rangeland Society has kindly supplied copies of a report on the future of the rangelands.

ASSESSMENT

There are no 'examinations', just three assessment items for this course.

Assessment 1: Online discussions and contribution – 35%

Throughout the course you will be required to complete a number of learning activities online. This will involve responding to readings and other stimuli, and reading and responding to the postings of other students and the course coordinator.

Assessment 2: Defining purpose and environmental scanning framework – 25%

You are to provide a rationale for exploring a particular rangeland issue, conduct an environmental scan of that issue, and provide a report (maximum 2,500 words) on an analysis of the scan.

Assessment 3: Scenario development and analysis – 40%

Using tools and methodologies learnt, you will develop a series of scenarios with respect to your chosen issue and provide analysis and a summary of intended actions in a 3000 word report.

BACKGROUND TO THIS COURSE

The need for this course was identified by a national survey of education and skills needs for success in the rangelands. The structure, content and resources used in this course were influenced by experienced agribusiness managers, advisors and/or researchers from CSIRO Sustainable Ecosystems, Q Department Primary Industries & Fisheries, Rabobank, SA Department of Land, Water and Biodiversity Conservation and The University of Queensland.

A draft of the course was reviewed by business and sustainable development consultants, agribusiness managers, Landcare facilitators; CSIRO, QDNR&M and QDPI&F futures researchers; and Land & Water Australia staff.

REVIEWERS' COMMENTS

External reviewers have provided the following general comments on a draft of this course:

- *"Very good, really interesting and stimulating"* (NRM consultant, Perth WA)
- *"Really impressed ... I think you have everything I can think of covered"* (Program manager, Land & Water Australia, Canberra ACT)
- *"The Global and National Trends course ... very relevant to the future of our family property. There are drivers and trends from within Australia and overseas that I had never thought about."* (Beef producer, Yuleba Q)
- *"A great thinking and exploring course that will have life-long relevance to students regardless of their future involvement in the rangelands"* (CSIRO Scientist, Canberra ACT)
- *"Overall this is a valuable contribution. You have pulled together a very nice mix of the theoretical and practical"*
- *"Learners will be encouraged to 'think outside the box' utilizing innovative and exciting thinking"* (Landcare facilitator, QMDC, Toowoomba Q)

COURSE EVALUATIONS

Students completing this course in 2006 were asked to evaluate the perceived relevance, practicality and quality of the course and its delivery (on a 1-5 scale, with 1=strongly disagree and 5=strongly agree). The following average ratings were received:

- Clear and relevant learning objectives 4.0/5.0
- Satisfied with the course content 4.3/5.0
- Satisfied with the amount of contact with the Learning facilitator 4.0/5.0
- The Learning Facilitator provided useful guidance and support 4.0/5.0
- I gained new skills and knowledge 4.3/5.0
- Learning and assessment activities challenged me to think 4.0/5.0
- Course is well structured and components well integrated 4.3/5.0
- Course is relevant to my workplace/business 4.3/5.0
- Course is relevant to my future in the rangelands 4.3/5.0
- Overall, I'm satisfied with this course 4.3/5.0

Students have also provided the following general comments on this course:

- *"Allowed examination of issues...at a depth not ordinarily possible and provided insights not readily obvious"* (Grazier, Trundle NSW)
- *"I really enjoyed the course – it has made me look at the rangelands in a different way and see all the different angles"* (Advisor, Carnarvon WA)
- *"This course was simply life changing...this course has given me the confidence and the tools to not only think broadly, but to enjoy doing it. I'm now using the thinking tools from this course in my every day work to contribute to management and planning decisions"* (Consultant, Hughendon Q).