Delivering Environmental Management System (EMS) implementation training for profitable and sustainable land use in Central Queensland

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Abstract

Government, community and corporations have recognised the importance of responsible management of Australia's natural resources and environmental issues by developing polices that promote sustainability. Businesses are now obliged to comply with regulations that require them to manage environmental risk. In the agricultural sector, some land managers are developing a proactive response to the twin demands from government and community for sustainable, responsible natural resource management by developing Environmental Management Systems (EMS). Considerable benefits have emerged from landholders pursuing the Australian Land Management (ALMS) supported EMS implementation process. As a result, participants have developed knowledge and skills in relation to environmental issues and have increased their capacity to deal with changing community expectations. They have also altered their focus from being simply production orientated to linking both production and environmental issues. With a view to increasing efficiencies and decreasing the costs of training, the authors realised that an alternative to face-to-face training could provide advantages for many remotely located land managers.

This paper reports on the adoption of EMSs in agriculture and introduces an innovative problem-based e-learning approach to EMS implementation training currently being developed in partnership with Central Queensland University's Institute for Sustainable Regional Development (ISRD).

Introduction

An Environmental Management System (EMS) is an integrated approach to managing the impacts of an enterprise on the environment (AFFA 2001). The criteria for developing the EMS documentation and for judging compliance are maintained by Standards Australia and conform to the ISO 14001 international standard (Standards Australia 1996). The Australian Landcare Management System (ALMS) (Douglas *et al.* 2002) approach is based on an ISO 14001 EMS, and also links to community based catchments and biodiversity priorities.

The benefits of developing an EMS are two fold:

1. For the land manager, an ALMS-EMS has the potential to deliver benefits through recognition and reward for sound, environmentally responsible property management. The benefits will be derived from membership of the national organisation ALMS Ltd; demonstrating management effectiveness and knowledge about environmental issues, developing an audited environmental assurance for the enterprise that assists in countering adverse community criticism, gaining preferential market access, accessing project funds and protecting property resources/asset values.

2. For profitable and sustainable land use outcomes, EMS provides a framework for the voluntary engagement of land managers in improving management practices and sustainable land use. The e-learning environment provides a 'problem based' learning approach for land managers to review and continuously improve their land use practices.

The Plan, Do, Check, Review process builds on adult learning principles and inherently promotes continual improvement . Some of the principles/characteristics of adult education that apply in this case are:

- involves adults in planning their own educational experience
- serves the specific needs of the clientele and provide reasons for continued participation

- stimulates learning by participation and action, builds on local experiences and leads participants from what is known to new material
- builds participants' confidence by acknowledging their learning achievement.

(Rogers 1968)

Adoption of EMS in agriculture

Currently, EMS is gaining popularity within agricultural industries in Australia and New Zealand and recently some 40 case studies have been reviewed. (Carruthers 2003). These case studies include examples from a range of rural businesses including: mixed grain/grazing; sheep and cattle grazing; dairying; piggery; poultry; cotton; rice; tea tree oil; nurseries; horticulture (vegetables, citrus, bananas); viticulture; cattle feedlots and prawn farms. The Australian Federal Government's $31 million program supports the development of EMS in many agricultural industries through its National Framework project (AFFA 2001) and is also funding a further fifteen EMS pilot trials over the next three years (DAFF 2003).

An evaluation of EMS implementation conducted in Central Queensland (Graham *et al.* 2003) indicated that land managers attributed high value to group training and support activities that help them through some of the difficulties in starting to develop an EMS. However, the DPI's successful ALMS-EMS seminar at *Beef 2003* attracted potential EMS clients from a geographically diverse region spread from Northern Queensland down into New South Wales. It was clear from this level of interest and a limited budget that an alternative to face-to-face training was needed for many remotely located land managers.

E-Learning Approach to EMS Implementation Training

Definition

E-learning for the purposes of this paper will be defined as training undertaken via the Internet, computer network or a standalone computer application. The learning approach taken by the authors was based on a number of key factors: audience/learners' characteristics; flexibility required; intrinsic and extrinsic motivators, level of learning engagement required and the lowest common denominator in terms of accessible technology and IT infrastructure. The "learning design" that resulted from the above needs analysis resulted in a blended learning

approach that made the most effective and appropriate use of the available media and technology. The learning design acknowledges the participants' variety of learning styles and sought, wherever possible, to overlap the design of the media and learning elements.

Drivers of e-learning include current developments in organisations, business and technology as well as the expressed needs of the individual learners (AUST Flex Learning Framework). In some tertiary educational institutions, the proportion of external and online learners is growing as a result of the combined drivers of technology, cost and student demand (Peters and Lloyd 2003).

These drivers have also contributed to the development of this project and, with a view to optimising the learning experience, this project learning design includes:

- a VHS videotape
- Website
- teleconferences
- residential induction

Video (VHS)

Video media makes it ideal for explaining the concept of the program, establishing the initial conceptual framework, explaining the technological requirements to participate, explaining the level of computer literacy required by the participants, demonstrating how to use the Website. Video is also a simple and ubiquitous technology likely to be easily accessible to all participants. For this reason watching the 10 minute video would constitute the participants' first activity.

Website

The Website's function is multi-faceted and will include

- environmental management news front page updated regularly,

- communication tools such as discussion boards and chat rooms teamwork areas,

- case study repositories,

- problem identification areas—including key criteria laid down project facilitators,

- instructions to participants with guidelines for timeframes,

- AudioGraph presentations to scaffold tasks,

- links to high quality resources and links to industry and certifying bodies.

Essentially, the Website will serve as a portal for the participants—a one-stop place to undertake support activities in their development of their EMS.

Tele Conferences

Teleconferences provide the participants with rapid feedback to questions and help to overcome issues related to unfamiliar technology. The timing of the conferences is crucial and should be negotiated with the participants. Generally, these conferences work best in the early stages to attend to basic housekeeping and at the end to share debriefs.

Residential Induction

Residential activities could be used for a number of purposes and could include opportunities for successful case study presentations and field days and shows. The residential aspects of this learning design lend themselves to sharing successes and failures and networking across the State for property managers and DPI and other staff. The residential induction for the pilot of this learning design will be conducted at Emerald Agricultural College in July 2004.

Advantages

The advantages of e-learning for rural and remote land managers (and indeed anyone who can't get to a certain place at a certain time for a face to face eg managers in cities) are similar to those described by university external students. These include providing flexible work and study times for those with family, business and work commitments (Peters and Lloyd 2003). For land managers and facilitators, e-learning

could significantly reduce the cost in terms of travel and time away from the management of the business.

Other advantages for rural and remote managers include the opportunity to interact with other managers with similar interests which could then lead to other learning benefits for the participant. This project aims to develop a "community of practice" (Wenger 1998) which will provide the participants with a learning group of peers and researchers who can provide them with support.

Disadvantages

The disadvantages of e-learning for trainers include the cost of development and the increasing demands of learners. Peters & Lloyd (2003) note that the learners are now tending to behave like consumers and are choosing only those elements of the training that they want. This supports the observation by Peters and Lloyd that online learners in the Vocational, Education and Training (VET) sector tend to be career changers, skill improvers and the self-employed.

While some anecdotal evidence points towards learners believing that e-learning lacks the social interaction often provided in face to face learning environments, Richardson (2003) asserts that social presence in online learning environments can be stronger than that experienced by some in a face-to-face classroom. The evaluation of this project will assist in establishing whether land managers value the e-learning experience and find it one that has sufficient social interaction.

EMS projects in Central Queensland

Two land manager groups in Central Queensland are currently developing an ALMS-EMS and are progressing through face-to-face workshop/consultation sessions. A neighbourhood group of fourteen landholders from nine properties in the lower Fitzroy River region of Central Queensland, formed a study group to learn how to implement an EMS for their beef enterprises. Likewise, ten landholders from six grain and grazing enterprises in the Central Highlands followed suit. They workshopped and discussed the role of EMS and volunteered to participate in development training to implement the ALMS-EMS approach.

After the workshops, participants offered the following comments about the influence of the ALMS-EMS approach on their enterprise management:

> It is a way to cope with current changes – denial won't get you any where,
>
> Group discussion raised my awareness of environmental issues,
>
> I can document and measure my own environmental achievements,
>
> I am more aware of the environmental impacts of management,
>
> It strengthened and changed some practices and helped me reconcile expenditure on environmental maintenance,
>
> It is a management process for the future that is more focused than FutureProfit (PMP),
>
> I have developed ideas for pro-active management to minimise environmental impacts.

(Graham *et al.* 2003)

During the workshops participants used the ALMS manual and workbook (Crawford 2002), an EMS framework based on ISO 14001 guidelines designed by P. Crawford and others. This workbook has since received support from other catchment management groups in southern Australia, GRDC and Government and has been redrafted and republished as the *Australian EMS Manual/Workbook* (Anon 2003). An ALMS facilitator/trainer conducted three workshops to assist in the completion of the *Australian EMS Manual/Workbook*. Participants were assisted with collation of ideas and information at follow-up sessions on-property.

Conclusions

The authors' assumption that the ALMS-EMS implementation could increase landholders' capacity to pursue profitable and sustainable land use practices can be substantiated by the opinions and success stories provided by the participants as well as the documentation of the on-property changes implemented (Graham *et al.* 2003).

Considerable benefits have emerged from landholders pursuing ALMS-EMS implementation. Results from semi-structured interviews indicated that participants

have experienced substantial changes in knowledge and skills in relation to environmental issues and hence their capacity to deal with change. Landholders' ability to change their focus from being simply production orientated to linking both production and environmental issues was also enhanced.

Face-to-face operations are demanding on time and staff resources, and this project will establish whether e-learning will improve access and efficiencies. While the actual time expended by facilitators in an e-learning environment can be as much or more than in face-to-face preparation and delivery, the efficiencies of reduced travel and lost productivity during an absence are likely to more than compensate. The participants are likely to expend substantially more time than in face to face as they are likely to more engaged in tasks that relate directly to their properties, but there are substantial advantages in terms of travel and time flexibility. It is also possible that there will be additional benefits from the social interaction online.

One current challenge is to provide links between the regional catchment management plans and the environmental practices that occur on farm and to provide objective measurements for targets in those plans.

Acknowledgements

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