

GUIDE TO AUSTRALIAN LANDCARE MANAGEMENT SYSTEM



Tony Gleeson

MAY 2006

**Designed from the ground up by landholders
to improve natural resource management**



Natural Heritage Trust
Helping Communities Helping Australia
An Australian Government Initiative



Australian Landcare Management
System

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Front cover photo. ALMS members and supporters at the 2005 ALMS 'Muster', Mitchell, Queensland.

PREFACE

There is a growing community expectation, including from landholders themselves, to improve land management. Meeting this expectation requires innovation by landholders: innovation to improve environmental outcomes; to demonstrate those outcomes; and to derive benefit from the recognition of that improvement.

The future for Australian agriculture is to differentiate our products and aim at high value markets here and around the world. High quality, safety and environmental regard should be distinguishing features. These features need to be - and now can be - identifiable along the value chains.

Australia has well regarded systems in place to certify the quality and safety attributes of farm products but we do not have an equivalent system in place for environmental management. For this and other reasons, Australian Landcare Management System (ALMS) Ltd is leading the drive for an Australian land certification scheme based on the principles and design features described in this guide.

Benefits from recognisable improvements in land management take many forms, including the self satisfaction of doing the right thing, improving productivity and asset values, safeguarding access to resources, and for agricultural producers to be able to differentiate their food and fibre products in increasingly competitive domestic and international markets.

ALMS has been developed to help landholders meet these needs. This is an initiative of landholders supported through a not-for-profit company, ALMS Ltd. The issues have been deliberated and researched and the outcomes applied over the past six years of ALMS development. A land management system has been devised and trialled that allows ease of use by land managers and recognition of their management.

A massive amount of thought and effort has gone into the development of ALMS by a band of people who have understood its great potential. There are many who have contributed far beyond the call of contract or personal benefit. This dedication is greatly appreciated. The circle of involvement and support is widening but the need is great if this concept is to achieve its national potential to improve, recognise and reward sound land management.

Jock Douglas AO
Chairman,
ALMS Ltd
24 April 2006

I doubt that I would have continued with the EMS Pilot had it not been for the introduction of myEMS software. This was a real breakthrough, making the data handling so much quicker and easier. Now that I am through the first Eucalypt audit I believe that the real benefit to me has been the discipline that it imposes. For years I have been aware that I should 'do something about the chemicals shed', but it was only when I put the steps and timelines down in myEMS that I finally made it happen. The ALMS Eucalyptus standard is high enough to bring about significant environmental improvement, but not so finicky as to be unworkable.

**Darren Koopman,
Bottleford, Tungkillo, SA**

ALMS in brief

The Australian Landcare Management System (ALMS) enables landholders to improve environmental outcomes and to gain recognition for their achievements.

ALMS was developed by landholders with the assistance of a broad range of specialists in ecology, land use, human behaviour, systems operation and information management.

ALMS Ltd, a not-for-profit company, supports the implementation and evolution of ALMS. The board of ALMS Ltd is comprised of landholders and specialist advisers.

A key feature of ALMS is that it is designed to strengthen the motivation and capabilities of landholders to improve environmental outcomes. Each landholder develops and implements their ALMS management plan. ALMS management plans cover the environmental aspects of all property activities and account for broader landscape considerations.

ALMS adopts a continuous improvement approach to environmental management using an internationally recognised management system. ALMS-accredited auditors certify that each ALMS management system complies with the internationally recognised ISO 14001 environmental management standard. ALMS members are required also to account for catchment priorities and strategies, and to provide continuous support for biodiversity conservation.

ALMS history

In the three years to June 2003, several landcare groups in southern Queensland supported research to find practical ways to help landholders improve environmental management and to demonstrate their commitment to environmental improvement. The result of that research and related work was the creation of ALMS.

In January 2003 landholders across four states established the not-for-profit company, ALMS Ltd, to further develop and implement ALMS. ALMS Ltd continues to support these dual objectives with assistance from several collaborating and funding agencies.

Since its initial design phase ALMS has evolved through ongoing trial and error into a practical system that is now attracting widespread interest. Experienced facilitators have been trained to help landholders and state-of-the-art tools are now available to help landholders avoid time-consuming paper work. The capacity of ALMS to deliver low cost auditing has been dramatically improved.

ALMS tools

ALMS members develop their ALMS action plans using either the *Australian Environmental Management System Manual and Workbook* or the web-based software program, *myEMS*. Both tools have been designed to provide members with an ISO 14001 compliant environmental management system that can lead to formal ISO 14001 certification should they so wish. ALMS recognises, however, that currently few market drivers exist to justify the expense of attaining ISO 14001 certification.

With *myEMS*, ALMS members can cost effectively develop and maintain their environmental management system in a paperless form. *myEMS* also reduces the cost and complexity of auditing. At the same time, ALMS Ltd recognises that some landholders will feel more comfortable with the workbook.

ALMS-accredited trainers use a specially designed ALMS Clinic approach to help ALMS members develop their management plans, either working in groups or individually.

I was amazed how significant an EMS Program is to my Asian Goat buyers. Talk of ALMS or ISO 14001 and they love me even more.

Glenn Telford
Exporter of quality goats to SE Asian markets

Benefits of ALMS to landholders

There are many different reasons why landholders adopt ALMS.

Most participating landholders have a history of active involvement with the landcare movement. Many are now keen to move up to a system that embraces the powerful landcare ethic but then takes the next step. These landholders want to improve their environmental management practices in measurable and demonstrable ways. They also want evidence that their actions are delivering real results, they want others to witness this evidence, and they seek benefits from having adopted improved practices.

A compelling feature of ALMS is that it is an environmental management system that can be applied to any agricultural industry, or to multiple industries, or even to non-agricultural land use. Any landholder in any catchment across Australia can immediately implement ALMS.

In this context ALMS offers many potential benefits to participating landholders:

- personal satisfaction that comes from confidence that they are improving the environmental condition of their property
- community respect for their commitment to improving the environmental condition of their catchment
- improved on-farm productivity from better use of natural and other resources and farm inputs
- better access to natural resource management support funding
- support from other landholders who share similar values

Benefits of ALMS beyond the farm

- reduced potential legal risks from having an externally audited ALMS management plan
- improved access to natural resources, in particular to water and land
- improved farm asset valuation
- maintained or improved market access
- better positioned to meet the needs of ever more demanding markets and regulators.

Benefits of ALMS beyond the farm

Not only does ALMS offer great benefits to participating landholders, it also delivers benefits to the general public such as improved air and water quality, reduced energy consumption and greenhouse gases, enhanced biodiversity and improved landscape amenity. ALMS is a powerful framework within which private and public sector needs and capabilities can be aligned.

Environmental programs. The benefits of improved environmental management on farms, particularly when broader landscape features are taken into account, are not restricted to landholders. This is one reason why government agencies and catchment management authorities support an array of programs to improve land management. Almost without exception, these programs rely on participation by landholders.

ALMS can greatly increase the effectiveness of many of these programs by improving landholder motivation and through cost effectively auditing their environmental activities. As

well, but only with the approval of individual landholders, ALMS information can be provided to catchment management authorities and similar agencies. This information can help in the development and adoption of sub-catchment and catchment plans.

Environmental regulation. ALMS plays an important role in improving the compliance of landholders with environmental regulatory requirements. Many of these requirements are difficult to translate on a property-by-property basis unless they are incorporated in a broader environment management plan.

Industry wide benefits. Given that over 60 per cent of Australian farms producing over 70 per cent of farm outputs operate two or more industries, the industry-specific farm organisations, including research and development corporations, could improve the effectiveness of their environmentally related programs with the whole-of-farm approach advocated by ALMS.

Marketers of agricultural products and suppliers of farm inputs who wish to incorporate environmental attributes in their marketing strategies might also benefit from ALMS. Many of these marketers, particularly of food products and farm inputs, deal with a large number of products and cannot cost effectively manage a large number of certification systems based on single products.

The thinking behind ALMS

The principles underpinning ALMS are based on practicality and an informed assessment of all options.

In designing ALMS we had the benefit, and the frustration, of starting from scratch so it is instructive to recall why we did not adopt some alternative approaches.

Outcome standards. We began by looking at the desirability and feasibility of landcare standards based on the need to demonstrate specified environmental outcomes. This approach was rejected, mainly because of the difficulty in specifying those standards across farms and landscapes and because it would not necessarily lead to continuous improvement in environmental outcomes. Additionally, ALMS recognised that setting environmental goals, indicators and targets without taking account of individual property circumstances and requirements is unlikely to lead to sustained commitment from landholders.

Practice standards. We also looked at using best management practice (BMP) approaches but they were rejected because of the pressure to certify current practices rather than to adopt adaptive and innovative management approaches. Nevertheless, it was accepted that the knowledge embedded in BMP should play a very useful role in any chosen system.

Industry specific systems. We were encouraged by established agricultural organisations and funding arrangements to adopt an industry-by-industry approach. This was an attractive proposition given the capabilities of these organisations. However, ALMS did not adopt this proposition for six reasons.

First, the multiple industry nature of most farm businesses means that an industry-by-industry approach would be less likely to lead to effective environmental management, either on a whole-of-farm or whole of catchment basis than would an approach that applies across all forms of land use.

Second, the difficulties in supporting and auditing environmental management systems are inherently greater with an industry-by-industry approach.

Third, environmental management systems applied strictly on an agricultural industry basis would not deal with the environmental issues experienced in the 40 per cent of Australia not used for agricultural production.

Fourth, many of the marketers of farm products, particularly food products, and the providers of farm inputs deal with a number of input and/or output products. To have different land management certification systems based on individual output or input products seemed, at best, to be unwieldy.

Fifth, we also needed a system that would stand the test of time and not impede land use change. We judged that these criteria could not be met through an industry-by-industry approach.

Lastly, ALMS wished to harness as many as possible of the drivers of improved land management, not just those that apply on an agricultural industry basis. This is particularly important given the mix of private and public benefits that arise from most land management practices. Furthermore, the farm activities of many landholders are not driven solely by agricultural production considerations with the diversity of aspirations, capabilities and activities highlighted by the fact that at least 50 per cent of farm households rely on non-agricultural income for more than 60 per cent of net farm household income.

International recognition. Notwithstanding the need to move in our considerations beyond agriculture, we also knew we needed to give due regard to the export dependency of the agricultural sector, which exports up to 60 per cent of its production. For this and other reasons we needed to design a system that would lead to both domestic and international recognition.

Landscape considerations. We rejected approaches that do not take account of landscape impacts and requirements beyond the farm gate. To do otherwise would separate the efforts of landholders from the efforts of organisations concerned more broadly with landscape function and it would not result in an efficient use of management resources.

Motivation. Above all, our most acute need was to devise a system that would be attractive to landholders, that would take account of their capabilities and aspirations, that would enable creativity and sustained commitment and at the same time would meet the legitimate community requirement to have measurable improvement in environmental performance.

It was for these reasons that we chose a catchment-linked, whole-of-farm approach that combines requirements for prescribed environmental outcomes with management process standards and which is capable of delivering both national and international recognition.



Peter Kirk, "Glengyle", Tallangatta, NE Victoria, discusses an ALMS action plan during his ALMS Eucalyptus audit with, from left, Alistair Campbell (NE CMA), Jim Moran (ALMS auditor with Victorian DPI), and Chris Reid (NE CMA).

Peter Kirk has taken an innovative sustainable approach to farming for many years. He runs a beef operation with 350 breeders, which he is building up to 400 over the next five years on 1,200 acres at Tallangatta in North Eastern Victoria. Peter is particularly interested in soil health, facilitating microbial activity in a number of ways. Developing his EMS formalises many of the things that Peter has been doing for many years, although there have been a number of areas such as legislative requirements where he has developed a far deeper understanding of his obligations.

How ALMS works

ALMS is a whole-of-farm, catchment-linked environmental management system requiring landholders in all categories of membership to develop and maintain a management system that complies with the internationally accepted ISO 14001 standards. Actual certification to ISO 14001 standards is an option, but not a requirement.

Landholders are also required to continuously support biodiversity conservation and, in all but the first category of ALMS membership (Eucalyptus), to exchange information with the relevant catchment authority on conditions agreed by the landholder and the authority.

Accredited, external ALMS auditors audit the ALMS management plans.

ALMS recognises the need to not only plan for environmental improvement but to actually achieve it. Hence ALMS has responded to the threat of too much paperwork by providing an electronic data handling facility, the web-based software program, *myEMS*. This helps most landholders quickly and effectively develop their ALMS management plans and then move on to implementation.

ALMS is supported by ALMS Ltd, a not-for-profit company established by landholders for that purpose.

While many landholders are rapidly adapting to the opportunities provided by internet technology, we appreciate that some will prefer the alternative of a paper-based system.

ALMS membership categories

Subscriber

Interested in ALMS and registered as an ALMS Subscriber. Want to access information about ALMS and prepared to help ALMS Ltd in some way.

Associate

Want to implement ALMS and registered as an ALMS Associate. Using the *Australian EMS Manual and Workbook* or an equivalent such as the software, *myEMS*, and progressing to develop a continuous improvement system that meets ALMS requirements.

Eucalyptus

Participated in an ALMS workshop series, or similar EMS development process, and taken into account local or regional catchment priorities and/or strategies. Demonstrated a commitment to continuous improvement of support for biodiversity conservation; completed all sections of the *Australian EMS Workbook* or *myEMS* equivalent; passed an ALMS Eucalyptus audit; and paid the ALMS Eucalyptus membership fee.

Banksia

Met all the system requirements applying to ALMS Eucalyptus membership and is exchanging information with the catchment authority in the region. Passed an ALMS Banksia audit and paid the ALMS Banksia membership fee.

Grevillea

Met all the system requirements applying to ALMS Banksia membership and is ISO 14001 certified. Paid the ALMS Grevillea membership fee.



ALMS members

By the end of June 2006 ALMS will have about 65 certified members in six groups in Queensland, Victoria and South Australia.

Because nearly all ALMS members use the web based product, *myEMS*, ALMS is able to collate and monitor the environmental priorities and strategies of landholders so long as it does not infringe on the privacy rights of individual landholders.

The data from *myEMS* show that when landholders themselves identify the aspects of their activities having environmental impact, they do so in a holistic way that prioritises those aspects of activities that are likely to have major impacts, both on and off farm. This approach might be contrasted with the more common approach where landholders are encouraged to deal with single environmental symptoms using indicators and targets established external to the farm.

The *myEMS* data highlight the specificity and timelines of the management plans devised by landholders to deal with the environmental impacts of aspects of their activities. This documentation greatly encourages an ongoing commitment to improved environmental outcomes.

Having been through Cattlecare ALMS seemed to be a big step up in terms of issues that had to be considered and records that had to be kept. However, the one-on-one attention in the ALMS Clinics meant that I didn't get bogged down in detail and at the same time there was the opportunity to swap ideas with others in the clinic.

Having completed the Eucalyptus audit I can look back and see some real benefits from this exercise. I have always been sort of aware of the impact of my farming activities – I would never have joined ALMS otherwise. I have probably dealt with many of them but in an ad hoc and often temporary way. The EMS has forced me to prioritise the issues and think through exactly how I will handle them and with what probable outcome. This is the sort of discipline my life has lacked for too long!

Anyway, I now feel pretty smug about the fact that I have actually 'fixed up' five really significant soil erosion and weed issues on the farm – perhaps 'fixed up' is not quite right, because each of them will require ongoing attention, but the process is now established.

**Bruce Munday, Dairy Springs,
Mount Torrens, SA**



ALMS Ltd board members

The ALMS Ltd board has eight directors, six of whom are landholders.

Genevieve Carruthers. Genevieve has been employed by several organisations as an entomologist and ecologist. She is currently employed by the NSW Department of Primary Industries to provide environmental management system services to all agricultural industries. Genevieve is recognised domestically and internationally as a leader in the area of applying environment management systems in agriculture. She owns a small patch of koala habitat and remnant rainforest on the Far North Coast of NSW.

Jock Douglas AO, ALMS Ltd Chairman. Jock operates cattle, horticulture (desert limes) and grass seed production enterprises at "Wyoming" in the Mt Abundance district near Roma. Jock was involved in the genesis of landcare and was Chairman of the Queensland Landcare Council from 1992 to 1996. He has held key representative positions in the cattle industry. In 1996 Jock was awarded the McKell Medal for outstanding contribution to soil and land conservation in Australia and, in 1997, he was appointed an Officer of the Order of Australia for "service to primary industry and to conservation".

Drew English. Drew owned and operated a mixed dryland and irrigation farming business at Kerang in Northern Victoria for 27 years producing cereals, oilseeds, legumes, beef cattle, wool and lucerne hay. He chaired the Board of the North Central Catchment Management Authority for its first six years, was a councillor with the Shire of Kerang for three terms, Shire President and a Commissioner with the new Gannawarra Shire Council for two years. Drew was also a member of the Murray Darling Basin Ministerial Community Advisory Committee for 7 years and a member of the Australian Landcare Council for 4 years.

Tony Gleeson, ALMS Ltd Executive Director. Tony's career spans rural research, political analysis and policy development in the public and private sectors. For the past 30 years he and his family have owned and managed grazing properties in Queensland and northern NSW. Tony is director of Synapse Research & Consulting Pty Ltd, honorary Fellow of the Faculty of Agriculture and Law, University of New England and member of the Advisory Board to the Centre for Rural and Regional Innovation, University of Queensland. Tony's studies on motivation, creativity and innovation have influenced the design of ALMS.

Ian McClelland. Ian is the inaugural chairman of the Victorian Birchchip Cropping Group (BCG). Established in 1994 BCG is one of Australia's leading farmer-owned and controlled groups. Ian runs an 8,000 ha farm in partnership with his brother Warrick, growing wheat, barley, canola, lentils, sheep and cattle. His interests are in education, research and practical applications on the farm. He is an honorary Senior Fellow of the Institute of Land and Food Resources (Crop Production), Melbourne University.

Bruce Munday. Bruce and his partner have a cattle property in the Adelaide Hills from where he also works as a communications consultant in natural resource management. He has had 18 years experience with the landcare movement, much of it in leadership roles. He is currently chair of the Eastern Mt Lofty Ranges and Murray Plains NRM Group, and he also chairs a steering committee responsible for implementing an ALMS Pilot Program with a local catchment group.

Geoff Penton. Geoff is manager of planning and implementation for the Queensland Murray Darling Committee playing a key role in natural resource management. He has had a continuous involvement in landcare for over 15 years and was instrumental in the establishment of the Queensland Landcare Foundation, a non-profit fundraising company dedicated to supporting the landcare movement across Queensland.

ALMS in the future

Nelson Quinn. Nelson has extensive experience in developing and managing environmental policies and programs in Australia and overseas, with particular expertise in law, science-user interaction, and strategic planning. He is a smaller scale cattle, sheep and olive producer near Canberra, a director of Southern Tablelands Olives Pty Ltd and President of the New South Wales Olive Council. He is past chair of the Murrumbidgee Landcare Association. Nelson was awarded a Centenary Medal 'for service to the environment and conservation through landcare'.

In ALMS we certainly have a system but we still have not got the drivers for broad scale adoption

Joe Keynes, ALMS Eucalyptus Member, landcare farmer; 2002 National Individual Landcarer Award winner and member of the SA Murray Darling Basin Natural Resources Management Board.

The ALMS community, and in particular the early adopting landholders, have been down some fairly dry gullies, and we have learnt from these experiences. We remain committed to a robust model and we are now confident that, with support, we can deliver what we set out to do, i.e. deliver improved environmental outcomes and recognition for participating landholders.

We are continuing to improve our planning and auditing tools. We need to better use and develop mapping and environmental monitoring tools. But above all, we are trying to better service ALMS members and to help them to gain recognition for their achievements.

The recognition issue is vitally important for the drivers for improving environmental outcomes are, and are perceived to be, weak. Consequently we are developing partnerships to implement a national voluntary land certification scheme that will have many of the features of ALMS and lead to broader and stronger recognition.

Just as ALMS services are assets to its members, so its members are the greatest asset to ALMS. A lot now depends on getting the resources to develop a critical mass of participating landholders. The sources of funding should reflect the distribution of benefits and other public policy considerations. As the numbers of participating landholders increase so too will the recognition and hence the benefits. As well, the costs to landholders of recruiting and supporting ALMS members would be shared across more landholders.



The next generation of ALMS members - Graham and Kristy Heelan and Melinda Nicholas (in background) – at the ALMS clinic in Clermont using myEMS to document and plan their EMS.

ALMS Glossary

Accreditation

Accreditation is the formal recognition of competence that an authoritative body gives to another body or person to empower them to perform specified tasks such as third-party auditing against given standards for the purposes of certification. Accreditation assures the public that an auditing body is able to carry out its duties independently, competently and consistently. The purpose of accreditation is to provide confidence in certification.

Auditing

Auditing is the systematic examination of an entity, such as an organisation, system or site, to determine whether, and to what extent, it conforms to specified standards.

A **first party audit** is a self-audit or an internal audit. It is an audit carried out by staff within a firm, or other organisation. Periodic self-audit is a mandatory feature of ISO 14001, regardless of whether second party auditing or third party auditing and certification are sought. First party auditing is undertaken by all ALMS members but a first party audit is not a sufficient audit for any ALMS membership category.

A **second party audit** is an external audit of a firm, or other organisation, carried out by customers or buyers. For example, a second-party audit of an entity may be carried out either by that entity's clients, or buyers, or financiers. Clients may wish to second-party audit a firm to be assured that goods and services comply against specified standards. Where an EMS is implemented along supply chains, suppliers use second-

party audits as a means to provide assurance to their customers and to manage risk. The ALM Eucalyptus audit is an example of a second party audit.

A **third party audit** is an external audit carried out by an independent organisation (the third party) on another organisation. Third party audits may be carried out by regulators, financiers, or by accredited certification bodies. The ALM Banksia and Grevillea audits are examples of third party audits.

Best management practice

Best management practice (BMP) guidelines provide information to producers on 'production-oriented' issues such as the management of pesticides, water, soil, waste and energy. BMP guidelines are extremely useful inputs for use in the development of ALMS environmental management systems.

Biodiversity

Biodiversity is the variety of all forms of life, including the different plants, animals and micro-organisms, the genes they contain, and the ecosystems they form. It is usually considered at three levels: genetic diversity, species diversity, and ecosystem diversity.

Certification

Certification is the successful result of the procedure whereby an accredited third party gives written assurance that they have methodically assessed the extent of compliance with a clearly identified set of process standards, performance standards and/or product standards and have adequate confidence that the

processes and practices conform with the standard(s) in question. To provide third party certification of compliance against a standard, the certification body must be competent. In other words, it must possess relevant specialist competencies including:

- understanding the standards to which an organisation is being certified, and understanding pertinent NRM and environmental protection issues
- demonstrating technical knowledge of the activities undertaken by the organisation being certified
- demonstrating knowledge of NRM and environmental legislation with which the organisation being certified must comply
- management system assessment skills.

Ecosystem services

Ecosystem services are those services flowing to society from the environment including:

- material inputs such as fuels, minerals, soil nutrients and water, most commonly referred to as natural resources
- life support services in terms of air and water quality
- amenity services (both use and non-use) related to recreation and leisure activities
- waste disposal services for the by-products of economic activity.

Environmental labelling

Environmental labelling is making relevant environmental information available to the appropriate consumers.

There are three labelling possibilities in the ISO 14000 series of standards

known as Type I, II and III labelling:

- ISO 14024 or Type I labelling is based on established environmental criteria, available for public scrutiny, for different product categories. It is used to identify and promote products deemed to exhibit environmental leadership.
- ISO 14021 or Type II labelling is described in an interim standard. Its rationale is to improve the quality and validity of green claims like ozone friendly, GMO free, 60% phosphate free and dolphin friendly.
- ISO 14025 or Type III labelling indicates environmental performance against a range of environmental indicators.

Eco-labelling is labelling specifically denoting life-cycle assessment (LCA) information. There appears to be an emerging consensus among international bodies such as the OECD, the WTO and UNCTAD¹. that environmental labels provide any type of environmental information, whereas eco-labels are a specific type of environmental label awarded on the basis of LCA.

Environmental management

Environmental management (natural resource management) is the management of the potential and realised impacts of people on the environment with the purpose of attaining ecologically sustainable development; that is, using, conserving and enhancing the community's resources so that ecological processes, upon which life depends, are maintained and the total quality

of life now and in the future can be increased.

Environmental management system

An environmental management system (EMS) is a systematic process used by an organisation to improve its impact on the environment whereby an organisation: defines its environmental policy and makes a commitment to work towards specified environmental goals; establishes a plan to work towards its environmental goals; implements the plan by, where necessary, assigning responsibilities, allocating resources and acquiring new skills; checks progress through systematic measurement and evaluation; and reviews its progress and acts to correct problems.

EMSs have been developed over the last decade by individual firms, trade associations and standards organisations and irrespective of their origins all EMSs conform to the EMS definition given above. EMSs are designed to achieve continual environmental improvement.

EMSs are designed as process standards enabling the integration of relevant product and performance guidelines and standards, including those specified in best management practices and codes of practice, where they exist.

(The) International Organisation for Standardisation (ISO)

The International Organisation for Standardisation (ISO) is a non-gov-

ernmental organisation established in 1947. Its mission is to promote the development of standardisation and related activities across the world with a view to facilitating the international exchange of goods and services, and to developing cooperation in intellectual, scientific, technological and economic activities. ISO is a worldwide federation of national standards bodies and its work results in international agreements which are published as International Standards.

ISO 14000 series of standards for environmental management

The ISO 14000 series is a non-legislated set of standards and guideline reference documents. Specifically, the series includes:

- standards for environmental management systems (ISO 14001 and ISO 14004)
- environmental labelling (ISO 14020 series)
- environmental auditing (ISO 14010 series)
- life cycle assessment (ISO 14040)
- standards for environmental performance evaluation (ISO 14030 series)
- a draft standard under development (ISO 14060), which intends to provide guidelines for developing standards to reduce environmental effects and to achieve the intended performance of a product or service.

ISO 14001

The ISO 14001 standard provides the EMS specification of the International Organisation for Standardisation

¹ The OECD is the Organisation for Economic Cooperation and Development, the WTO is the World Trade Organisation, and UNCTAD is the United Nations Conference on Trade and Development.

tion (ISO), and ISO 14004 provides guidelines on the EMS component parts, how it is implemented, and discusses principal issues involved.

The key aspects of ISO14001 are that it:

- is voluntary
- is flexible and non prescriptive
- can use and integrate existing environmental programs and systems
- pushes continual improvement
- encourages cost saving by integrating environmental requirements into the overall company systems (design, manufacture etc.)
- can provide a substantial market advantage.

The ISO 14001 standard specifies requirements for establishing:

- an environmental policy
- determining environmental aspects and impacts of products/ activities/services
- planning environmental objectives and measurable targets
- implementation and operation of programs to meet objectives and targets
- checking and corrective action
- management review.

The ISO 14004 guidelines, clearly state that requirements of the ISO 14001 process standard include compliance with prevailing environmental legislation and regulations, as well as with "other requirements to which the organisation subscribes, that are applicable to the environmental aspects of its activities, products or services". The ISO 14004 guidelines elaborate that these 'other requirements' may

include industry codes of practice, agreements with public authorities and nonregulatory guidelines (for example, such as those contained in BMPs), as well as international environmental guiding principles.

A primary component of the ISO 14001 standard is the "Environmental Policy" which must be defined by an organisation's top management. This environmental policy must include a commitment to compliance with environmental laws and company policies, continual improvement and prevention of pollution. A system is then created (or if already existing, documented) that ensures that the environmental policy is carried out by the organisation. This involves planning, implementation and operations, checking and corrective action, and management review.

The environmental management system document is the central document that describes the interaction of the core elements of the system, and provides a third-party auditor with the key information necessary to understand the environmental management systems. Certain environmental program elements, including the policy, plans, objectives, etc., must be documented (written down).

As with ISO 9001, one of the keys to a successful (achieving environmental and financial goals) ISO 14001 EMS is having documented procedures that are implemented and maintained in such a way that achievement of environmental goals appropriate to the type and scale of our activities is promoted inherently,

and without a bureaucracy or additional expense. Consistent with the principles of ISO 14001, the Environmental Policy and Environmental Aspects/impacts analysis, including legal and other requirements, shape the program by influencing the selection of specific measurable environmental goals, objectives, and targets.

Specific programs and/or projects must then be developed to achieve these environmental goals, objectives, and targets (in ISO 14001 terms, this would be referred to as "Implementation and Operation"). The checking and corrective action elements of the system help ensure continuous improvement by addressing root causes on non-conformances. The ongoing management review of the EMS and its elements helps to ensure continuing suitability, adequacy, and effectiveness of the program.

Planning, or setting of environmental objectives and targets, is critical to success. The goals must be reasonable and achievable, and based on practical considerations, not arbitrarily chosen. Procedures must be established for ongoing review of the products, activities and services. Based on these environmental aspects and impacts, environmental goals and objectives must be established that are consistent with the Environmental Policy. Programs must then be set in place to implement these activities. The EMS must include appropriate monitoring and review to ensure effective functioning of the EMS and to identify and implement corrective measures in a timely manner. Internal audits of the

EMS must be conducted routinely to ensure that non-conformances to the system are identified and addressed. Designated management must conduct an ongoing review process that ensures top management involvement in the assessment of the EMS, and as necessary, addressing the need for changes.

Joint Accreditation System of Australia and New Zealand (JAS-ANZ)

JAS-ANZ accredits inspection bodies, bodies that certify management systems or auditor training courses or personnel and bodies that license products. JAS-ANZ also provides accreditation programmes for regulators and industry specific schemes using criteria modelled on international standards and guidelines.

JAS-ANZ accredits third party certification bodies as competent to carry out independent audits of management systems and to issue certificates of compliance. Accredited bodies may issue certificates for a quality management system (ISO 9001:2000), an environmental management system (ISO 14001) or other management systems with specified criteria.

Accreditation of the body issuing the certificate provides companies with assurance that their management systems have been audited in line with international practice and that their ISO 9001:2000 or ISO 14001 certificates will be recognised by their customers.

Life cycle assessment (LCA)

A systematic set of procedures for compiling and examining the inputs and outputs of materials and energy

and the associated environmental impacts directly attributable to the functioning of a product or service system throughout its life cycle, from the acquisition of raw materials through final disposal.

Life cycle assessment is a form of materials accounting, or 'cradle to grave' analysis. Materials accounting methodologies are relatively new tools for analysing how materials are used in production, either in the end product or during the production process. LCA is done so that a complete picture of the environmental impacts throughout the lifetime of products and services can be developed. This provides significantly more useful information than does evaluating the impact from the manufacturing process alone; it also provides a systematic way to evaluate the costs and benefits associated with product or service changes at various points in their life cycle.

Markets

Mass markets are either bulk commodity or processed products, or mainstream consumer products made from those commodities/products. Niche markets constitute a distinct and minor segment of the market with attributes which limit substitution between products in the niche and mass marketed products – generally equivalent to 5 to 10% of the mass market.

Products

Commodities are uniform products sold in large volumes that are purchased entirely or predominantly on the basis of price. It should be noted however that increasingly market analysts believe that a process of

'de-commoditisation' is taking place, with products hitherto considered as being commodities being purchased on the basis of non-price factors. Evidence for this includes the ever-increasing number of grades or specifications on which commodities are being purchased, and the ranking of suppliers based on their success in meeting such specifications.

Differentiated products are those which are purchased on the basis of factors other than price alone or not predominantly on price – that is, their purchase is based on factors such as the image they convey of the purchaser, the safety or quality of the product.

Quality assurance

Quality assurance (QA) programs ensure that products consistently meet customer requirements. They are systems designed to ensure the quality of the end product (as defined by the customers), and are usually developed and adopted by industries or individuals. They may be compatible with and/or certified to the ISO 9000 series.

Standards

Standards are accepted specifications or codes of practice that define materials, methods, processes and practices that, when effectively implemented, ensure that consistent and acceptable levels of quality, performance, safety and reliability are achieved.

Standards Australia notes that standards are "voluntary compliance documents that only become mandatory if called up through legisla-

tion or contractual obligation". There are different types of standards depending on the desired objectives and intended outcomes. The differences between the three types of standards – process, production and environmental performance standards – are described below.

Process standards are organisation-oriented standards and specify procedures to be followed for the purposes of environmental management. Examples of process standards are the ISO 14001 and ISO 14004 standards. These standards detail the processes that a firm, or other organisation, may choose to follow for the purposes of managing environmental impacts. The ISO 14001 standard provides the EMS specification, and the ISO 14004 standard provides guidelines on the EMS's component parts, how it is implemented, and discusses principal issues involved.

Product standards are production-oriented standards which define specific features associated with a marketed product. These features can be either identified in the final product or in the way it was produced. Product standards for agricultural and rural industry products, which include environmental management elements, may make specifications regarding pesticide use, the use of other agro chemicals, and various permitted animal and crop husbandry practices.

Environmental performance standards are standards which specify a level of environmental performance to be met. The standards may relate to both the environmental internali-

ties and the externalities that stem from the production process.

Environmental performance standards for application at an enterprise level may be designed with 'higher level', or 'bigger scale', performance targets in mind. Classical examples include issues associated with impacts of agricultural practices on surface and groundwater quality and on the air. For example, industry bodies may set industry level environmental performance targets that then need to be translated into enterprise-level performance standards. Or, a catchment management authority may set catchment scale environmental performance targets, which then need to be translated into enterprise-level performance standards.

With the exception of formal regulations under Acts such as state level Environment Protection Acts where intensive agricultural and rural industries such as pig, beef, poultry and aquaculture enterprises are subject to end-of-pipe type regulations with respect to their waste and water management practices, there is a paucity of environmental and NRM performance standards in most agricultural industries. However, in the case of the forestry and wood products industries two forestry certification schemes do specify performance standards viz. The Forest Stewardship Council (FSC) scheme and the Finnish Forest Certification Scheme (FFCS).

When I began the EMS it looked daunting. Even when we were introduced to myEMS it still looked pretty daunting, but the clinics were good because they helped us break the process down into modules and provided an opportunity to work at your own pace but still swap ideas with others. The good thing about the EMS process is that it makes you think about the inter-relationship between different 'aspects' and 'activities' so that you can develop strategies with multiple outcomes. For instance, reduced tillage means less erosion, better soil quality, reduced run-off, reduced CO₂ emissions and reduced noise pollution. In our case it has actually been a catalyst for industry change. As a result of thinking about just what are the real threats to our sustainability we are considering dropping lupins from our rotation (due to the erosion risk), and increasing our emphasis on alpacas rather than sheep to further reduce erosion, compaction and chemical use. With two properties we have always been concerned about weed transfer. Through the EMS we have formalised our machinery washdown procedure and can now remove weeds as seedlings because they are in a contained area.

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System

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Landcare members in the Queensland Mitchell region first heard about ALMS in late 2003. Shortly after, and with support from the Queensland Murray Darling Committee (QMDC), ten farmers from Bollon to Injune decided to take on an ALMS pilot project.

The Mitchell group began with ALMS workshops using the Australian EMS Manual and Workbook. However, when the myEMS program became available they re-visited their EMS and applied their data to this internet based program.

This EMS tool was really well received by landholders, partly because it allowed them to easily update their EMS and make it more relevant to their current activities.

Between workshops the landholders organised 'homework days' hosted by different members of the group. These were good for consolidating what had been covered in the workshops and there was always great interaction between group members and with the facilitators.

The real aim of the ALMS pilot project was, of course, to improve environmental outcomes. But the farmers also found that the EMS serves as a valuable farm diary, raises awareness of legal requirements, and gives all family members a clearer picture of the operational activities underpinning the farm business.

Julia Telford, Project Officer, Queensland Murray-Darling Committee

Jane Maudsley (l), Kay Crosby and Grant Maudsley, members of the Mitchell group.