Department of
Sustainability and
Environment

LAND STEWARDSHIP

Environmental Management Systems – the role of EMS in the emerging Land Stewardship concept

action Salinity & Water AUSTRALIA

Victorian
Catchment
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Land Stewardship
A Victorian Catchment Management Council Project in collaboration with Catchment and Water Services Division (Department of Sustainability and Environment).

This paper was prepared by Thea Mech (Policy and Economic Research Unit, CSIRO Land and Water), Kim Lowe (Department of Sustainability and Environment) and Anne Cole (Department of Primary Industries Victoria) for Victorian Catchment Management Council and Department of Sustainability and Environment.

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about this paper

This Information Paper has been commissioned by the Victorian Catchment Management Council (VCMC) and the Department of Sustainability and Environment (DSE) as part of a Land Stewardship project funded by the National Action Plan for Salinity and Water Quality (NAP). It has been developed to contribute to the Land Stewardship project by challenging current thinking and presenting new ideas. The need for an information paper to address the role of environmental management systems was highlighted in a paper entitled: 'Ecosystem Services through Land Stewardship Practices: Issues and Options'. That paper was developed in consultation with a range of stakeholders.

As part of the Land Stewardship project, this document forms part of a set of papers that contribute to discussion and debate underpinning the preparation of Land Stewardship policy and program proposals.

The other papers focus on issues associated with:

- Ecosystem Services through Land Stewardship Practices (an Issues and Options Paper);
- Opportunities to define environmental duty of care and use of this instrument to increase the effectiveness of catchment management.
- Innovative investment vehicles for the delivery of grants and payments for ecosystem and other non-market services
- Opportunities to more effectively engage the private sector in the delivery of public goods;
- Social relationships to propositions for sustainable futures for the rural landscape.

EMS and the potential of its application as a property-level environmental management tool by agricultural businesses is discussed. Central themes to this information paper are explorations of the nature of the relationship between EMS and land stewardship, and of the proposition that EMS implementation and payments for ecosystem services provision by farmers be linked.

It is advocated that catchment authorities wishing to incentivise land stewardship activities via payments to farmers, ensure that payments be contingent on environmental performance outcomes, or on engagement in land stewardship activities that may lead to such outcomes over the longer term. However, EMS implementation by farm businesses does not necessarily guarantee improved on-farm environmental performance, nor delivery of catchment-level outcomes and therefore should not constitute the basis for receipt of payments.

The paper also highlights potential areas for government roles to encourage positive landscape-scale change. In this regard, the potential of outcome-focused environmental performance standards is discussed. To encourage positive landscape-scale change, clarity and stakeholder agreement are required regarding both:

- landscape-scale targets on specific NRM matters relating, for example, to catchment, water quality and salinity management, biodiversity conservation, as well as in other areas of public good provision of interest to the community; and importantly,
- how these 'big-picture' targets may be translated practically into operational standards and guidelines for environmental activities at the property-level.

At present, a critical information and knowledge gap exists between the 'macro' landscape-scale changes that the community seeks, and the practical 'micro' property-level activities that are to contribute to delivering desired landscape outcomes. There is a need to 'translate' landscape targets on specific NRM matters into practical environmental information for effecting landscape change that is relevant to decision-making at the farm-level. Currently, such information does not, by and large, exist and remains to be developed in the form of practically useful environmental standards and guidelines. Environmental standards and guidelines that relate to agriculture's environmental performance, as well as to environmental aspects of agricultural production processes represent key missing ingredients in the quest for positive landscape change.

abreviations

BMP	best management practice
CAC	command and control
CAP	Common Agricultural Policy (of the European Union)
CoP's	Codes of Practice
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DPI	Department of Primary Industries
DSE	Department of Sustainability and the Environment
EC	European Community
EMS	Environmental Management System
EMSWG	Environmental Management Systems Working Group *a national group reporting to the Natural Resource Management Standing Committee*
EUREP-GAP	Good Agricultural Practice
FFCS	Finnish Forestry Certification Scheme
FSC	Forest Stewardship Council
ICM	integrated catchment management or integrated crop management
IEEP	Institute for European Environmental Policy
IFP	Integrated Fruit Production
ISO	International Organization for Standardization
IWRC	Iowa Waste Reduction Center, University of Northern Iowa
MSC	Marine Stewardship Council
NAP	National Action Plan for Salinity and Water Quality
NEMA	Network for Environmental Management and Auditing
NFU	National Farmers' Union *the UK farmers' union*
NRM	natural resource management
OECD	Organisation for Economic Cooperation and Development
QA	Quality Assurance
RIRDC	Rural Industries Research and Development Corporation
VCMC	Victorian Catchment Management Council
VEMA	voluntary environmental management arrangement

1: introduction

1.1 ENVIRONMENTAL POLICY FOR AGRICULTURE

Environmental management approaches to address the impacts of agriculture may be classified into three broad categories according to the type of instruments used to achieve environmental outcomes (OECD, 1999; Environment Australia, 1997).

First, regulatory instruments are tools designed and administered in the context of formal government legislation and regulation, and include mandatory rules such as emission standards, as well as bans relating to certain products or production methods.

Second, market-based instruments are designed to provide economic or financial incentives to improve environmental management practice and outcomes. Market-based instruments include environmental levies and charges, tradeable licences and permits, as well as refund systems and regulatory relief initiatives. Recent approaches include increased use of auctions to allocate property rights. Market-based instruments may be designed and administered either in the contexts of formal public regulation or voluntary initiatives.

Third, voluntary instruments are tools for enhancing environmental management that firms and other organisations may voluntarily choose to use. Such voluntary environmental management arrangements, or VEMAs, may be standards-based and are usually designed and administered in the context of partnerships among stakeholder groups, though may also take place as a unilateral commitment by industry.

While different categories of environmental management approaches and instruments exist, each with something valuable to offer, the use of single types of approaches and instruments "has substantial limitations as a 'stand alone' strategy", with no single approach or instrument working "across the board" (Sinclair et al., 1998). In other words, an optimum mix of approaches and instruments is likely to deliver the best environmental, marketplace and community outcomes (Sinclair et al., 1998; OECD, 1999).

1.2 NATIONAL AUSTRALIAN POLICY ON EMS IN AGRICULTURE

Owing to some limitations of orthodox regulation in achieving environmental outcomes in agriculture (See box: Limitations of orthodox government regulation in achieving environmental outcomes), a shift in policy thinking has been taking place across the world to consider and explore the potential of voluntary, as well as market-based, approaches to environmental management in agriculture. Of the voluntary approaches to natural resource management (NRM) in agriculture, EMS has recently been attracting considerable policy attention in Australia. The National Framework for Environmental Management Systems in Agriculture represents a recent federal government response to addressing agri-environmental problems via promoting the development of voluntary property-level EMSs (EMSWG, 2002). By definition, and as expanded further throughout this information paper, EMS has the potential to improve the way a business manages the environmental risks and impacts over which it has control (EMSWG, 2002 and 2001; Mech and Young, 2001; and Mech, 2002).

In the discourse of emerging Australian agri-environmental policy, EMS for agriculture is being discussed in terms of delivering the following benefits that are often cited in the context of EMS's application within non-agricultural sectors and industries. These benefits include the potential of EMS in agriculture to:

- combine BMPs and CoPs for environmental management, and integrate other environmental standards to achieve efficiencies and cost savings;
- integrate QA, food safety & animal welfare;
- help achieve compliance, and even go 'beyond compliance';
- provide surrogate regulation, where none exists;
- be widely applicable to different types of farms (corporate farms, family farms) in different agricultural subsectors, and along supply chains; and
- be recognised in international markets.

LIMITATIONS OF ORTHODOX GOVERNMENT REGULATION IN ACHIEVING ENVIRONMENTAL OUTCOMES

Public regulatory and related incentive approaches to environmental protection have resulted in improvements to aspects of environmental quality in a wide range of industry sectors. However, there are limits to what these orthodox approaches can achieve on their own. A key limitation of orthodox regulation lies in the rigid, inflexible and prescriptive nature of its command and control (CAC) approach which tends to stifle an organisation's attempts to develop innovative approaches to environmental management (Coglianese and Nash, 2001).

Many significant improvements resulting from public environmental regulation have taken place in non-agricultural sectors characterised by point-source pollution problems that respond to end-of-pipe regulatory solutions. By contrast, non-point source pollution and natural resource consumption continue to present environmental management challenges as they tend to fall outside the purview of orthodox regulation and, owing to their often complex nature, do not easily lend themselves to traditional regulatory control (Elliot and Charnley, 1998, in Coglianese and Nash, 2001). Some traditional regulatory approaches are expensive to administer, especially when the goals pursued are complex. Similarly, high transaction costs tend to be characteristic of government environmental programmes that offer incentives, such as payments or regulatory relief, to encourage programme uptake. Moreover, governments may often be faced with political difficulties when it comes to checking compliance and enforcing the penalties necessary to internalise environmental costs incurred.

Recognising the limitations of orthodox approaches to environmental management has been accompanied by calls from industry and the community for new approaches to environmental protection and natural resource management (Ayres and Braithwaite, 1992; Chertow and Esty, 1997; Coglianese and Nash, 2001; Gunningham et al., 1999; and OECD, 1999). This call to explore new approaches to environmental management is especially pertinent to the case of agriculture and its landscape-scale environmental impacts.

Source: Mech and Young (2001).

1.3 ENVIRONMENTAL MANAGEMENT SYSTEMS

An environmental management system (EMS) is a management tool that an organisation uses to manage environmental risk and reach environmental goals. All EMSs are cyclical and iterative management processes designed to achieve continual environmental improvement. An EMS may only be implemented by an organisation to improve the management of environmental impacts over which it has control. Prior to implementing an EMS, an organisation identifies its legal and regulatory obligations, which may include compliance against minimum standards, and also identifies environmental aspects, impacts and risks of its operations. Having done this, the EMS may be implemented.

EMS: A DEFINITION

An EMS consists, quite simply, of a cyclical management process where an organisation: first, defines its environmental policy and makes a commitment to work towards specified environmental goals; second, establishes a plan to work towards its environmental goals; third, implements the plan by, where necessary, assigning responsibilities, allocating resources and acquiring new skills; fourth, checks progress through systematic measurement and evaluation; and fifth, reviews its progress and acts to correct problems. The organisation then returns to the first step and revisits its environmental policy with a view to improving it, and to committing itself to working towards improved environmental goals, and so on. Thus, the EMS is designed to achieve continual environmental improvement. This cyclical management process is summarised in Figure 1. Importantly, an EMS requires an internal audit to be made with external auditing being optional.

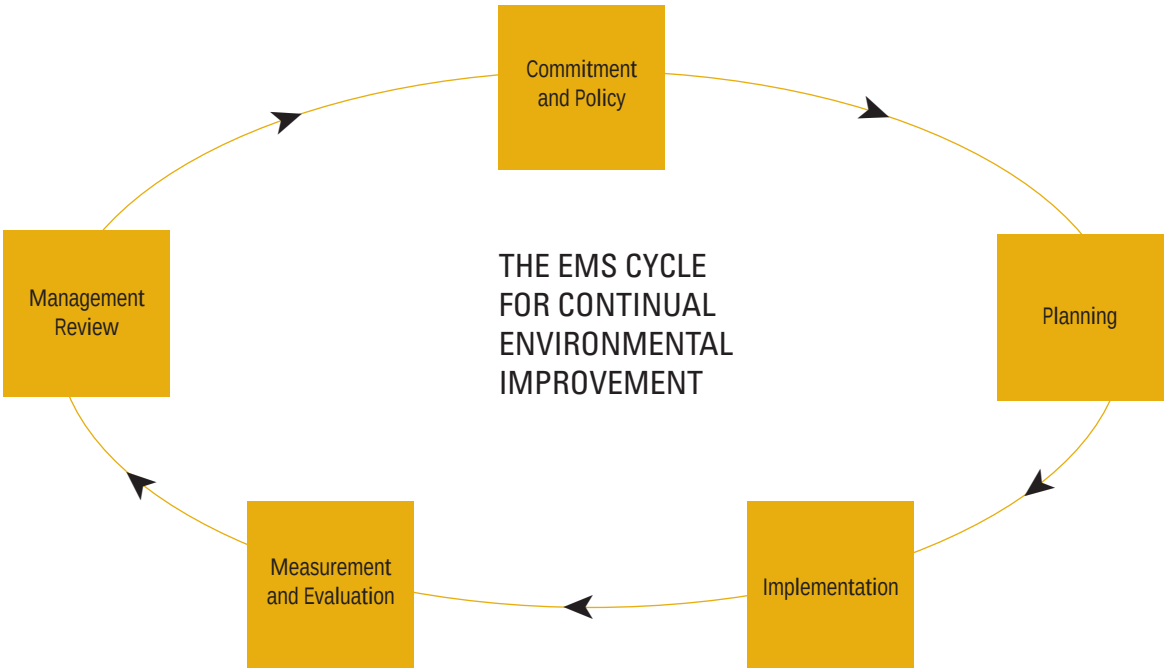

Figure 1
The EMS cycle for continual environmental improvement

Source: Baker and Boland (2000).
Adapted from AS/NZS ISO 14004

The EMS tool works by creating internal rules and organisational structures and, importantly, by fostering new behavioural norms within an organisation. Thus, EMSs are defined as "formal structures of rules and resources that managers adopt to establish organisational routines that help achieve corporate environmental goals." (Nash and Ehrenfeld, 2001). While public regulation imposes on organisations from the outside, an EMS constitutes "regulation from the inside". In other words, it is "a regulatory structure that arises from within an organisation" and it is comprised of "a collection of internal efforts at policymaking, planning, and implementation that yields benefits for the organisation as well as potential benefits for society at large" (Coglianese and Nash, 2001). An example of an EMS is the internationally recognised ISO14001 standard, (see box: ISO 14001 and ISO 14004).

ISO 14001 AND ISO 14004

The ISO 14001 standard provides the EMS specification of the International Organization for Standardization (ISO), and the ISO 14004[1] provides guidelines on the EMS's component parts, how it is implemented, and discusses principal issues involved. Essentially, these standards detail the processes that a firm, or other organisation, may choose to follow for the purposes of managing its environmental impacts. This is an internationally recognised standard for EMS, and is illustrated by the EMS cycle for continual improvement, illustrated in the above figure.

ISO 14001 is a standard for a management process and, as such, does not specify performance criteria or standards. While it is a process standard, it is important to understand that this standard's accompanying guidelines, namely 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 organization subscribes, that are applicable to the environmental aspects of its activities, products or services" (Standards Australia, 1996). Also, with respect to the setting of objectives and targets, the ISO 14004 guidelines state that "when establishing and reviewing its objectives, an organization shall consider the legal and other requirements, its significant environmental aspects, its technological options and its financial, operational and business requirements, and the views of interested parties" (Standards Australia, 1996). The ISO 14004 guidelines elaborate that these 'other requirements' may include industry codes of practice, agreements with public authorities and non-regulatory guidelines, as well as international environmental guiding principles[2] (Standards Australia 1996).

As a process-based management tool, ISO 14001 works best in delivering environmental outcomes when combined with relevant code of practice information, Best Management Practice (BMP) guidelines or with specific performance guidelines, standards and benchmarks tailored to the industry and enterprise in question. It is acknowledged that such codes of practice, BMPs and performance criteria for environmental management are currently being developed in diverse agricultural and rural industry sectors in Australia and overseas.

1 The ISO 14004 EMS guidelines are general guidelines on principles, system and supporting techniques (Standards Australia, 1996).

2 The ISO 14004 EMS guidelines clearly recognise the relevance of applying international environmental guiding principles including, first, the Rio Declaration on Environment and Development and, second, the International Chamber of Commerce (ICC) Business Charter for Sustainable Development to EMS. These principles are included in an Annex to the ISO 14004 guidelines.

2: ems in agriculture and landscape change

2.1 COULD BROAD-SCALE ADOPTION OF EMS LEAD TO POSITIVE LANDSCAPE-SCALE CHANGE?

Environmental management systems (EMS) hold promise as a business tool to help farmers, land and rural industry managers to address complex environmental and NRM issues. However, it is unrealistic to view EMS as an environmental management panacea capable of positive *landscape-scale* change. Such a view of EMS is cautioned for several reasons.

First, EMS is a voluntary standard and the very fact of its voluntariness means that broad-scale EMS adoption, i.e.: high participation rates, cannot be guaranteed. Several barriers to EMS implementation in agriculture pose hurdles to the likelihood of broad-scale EMS adoption across the Australian farm sector (Mech, 2002). Furthermore, research evidence suggests that schemes with low requirements for environmental performance and outcomes tend to have relatively high adoption rates, and that low participation is associated with programmes demanding high environmental performance and outcomes (Nash and Ehrenfeld, 2001). Therefore, gauging EMS's impact on enhanced environmental quality on the basis of participation rates is problematic as high rates of EMS implementation may not necessarily be synonymous with good environmental performance or outcomes.

Second, as a *process standard,* EMS is only prescriptive with regard to the 'plan-do-check-review' *management process* that the EMS-implementing organisation (or individual follows). Even in the same region or industry, different farmers, land and rural industry managers may face different environmental risks. They may each choose to use EMS to address quite different environmental risks and problems and, consequently, are likely to set quite different environmental goals to achieve via their individual EMSs. Thus, even in a hypothetical situation of high EMS implementation rates within a given geographical region or landscape, it cannot be assumed that the same environmental issues are being addressed in all EMSs. In other words, even though different adopters of EMS may all adhere to the same management process standard, they are likely to be using it in a range of productive contexts to manage diverse environmental risks in a variety of ways.

Third, the causal attribution of landscape-scale change arising from a hypothetical broad-scale adoption of individual property-level EMSs would be undermined by our fragmented scientific understanding of the cause-and-effect relationships linking property-level activities (causes) to landscape-scale outcomes (effects), and would be fraught with methodological measurement difficulties.

Fourth, many landscapes are subject to environmental impacts from a great many activities, not solely from agricultural and rural industry activities. To be meaningful, the notion of landscape-scale environmental change must necessarily factor in impacting activities from all possible sources, including industry, non-industry, urban and rural sources alike.

These four areas of concern are raised in direct response to the question of whether property-level EMSs are capable of delivering *landscape-scale* environmental change. It is emphasised that although it is considered unrealistic and unlikely that the application of EMS itself to agriculture will deliver landscape-scale effects, this is not to imply that EMS is a poor tool of little use to be disregarded and discarded. On the contrary, globally, EMS has had a significant impact largely in non-agriculture sectors (see box: EMS around the world), and anecdotal evidence is emerging that EMS's application to agriculture may deliver diverse environmental, operational efficiency and stakeholder management benefits (Hugo, pers. comm., 2003; www.aemsaustralia.com.au). The potential for EMS to deliver such benefits to primary industries exists, provided critical barriers are overcome (section 3.2; Mech, 2002).

It is emphasised that EMS is a business management tool developed principally for use by private sector operators to improve the management of environmental impacts and risks. Despite the fact that EMS was not designed, nor intended for use, as a public policy instrument, in much current agri-environmental policy discourse, EMS is afforded the status of such. It is advocated that the potential of EMS to achieve environmental management improvement should be viewed in the context, and at the scale, for which it was designed and intended: in the case of agriculture, that means the farm business context and the property-scale.

EMS AROUND THE WORLD

Since the origin of the ISO14000 series of environmental management standards in September 1996, the number of certificates awarded to firms in diverse industry sectors has grown to 22,897 worldwide. While examples of ISO 14001 certified farms exist, to date their numbers have been very limited, with only about one per cent of all ISO 14001 certifications being issued to agriculture and fishing enterprises at the end of 2000. The industrial sectors attracting the highest number of certificates included, in descending order of importance, sectors producing: electrical and optical equipment; chemicals, chemical products and fibres; basic metal and fabricated metal products; machinery and equipment; and, construction (ISO, 2000).

With reference to EMS (ISO 14001) implementation across the world, Dr Ruth Hillary of the Network for Environmental Management and Auditing (NEMA) in the UK writes: "ISO 14001 is the star standard among the International Organization for Standardization's ISO 14000 series of environmental management standards. It has seen spectacular growth since its launch in September 1996. Worldwide registrations are set to pass the 20,000 mark in 2000 with 20 times that number reportedly waiting in the wings. It's the gold medal winner among environmental management systems (EMSs): liked by the market, internationally available and recognised, not too difficult to achieve (especially if you're a big company) and it satisfies the users. Other arguably better approaches - because they are more transparent and more accountable to stakeholders - are falling, not at the first hurdle but at the last, outstripped by the sheer weight of numbers and popularity of ISO14001. Its de facto status as *the* EMS to have is silencing some critics. Claims that it is élitist, that it is an Anglo-Saxon approach, that it is designed to exclude trade from developing countries, that it is not relevant to smaller firms, that it is a club for the 'good' boys, that it is a whitewash for stakeholders have all been subdued as its success across the globe has grown."

Source: ISO (2000) and Hillary (2000).

2.2 WHAT'S NEEDED AS WELL AS OR INSTEAD OF EMS?

To achieve positive landscape-scale change, clarity and stakeholder agreement are required regarding both:

- landscape-scale targets on specific NRM matters relating, for example, to catchment, water quality and salinity management, biodiversity conservation, as well as in other areas of public good provision of interest to the community; and importantly,
- how these 'big-picture' targets may be translated practically into operational standards[3] and guidelines for environmental activities at the property-level[4].

At present, a critical information and knowledge gap exists between the 'macro' landscape-scale changes desired (some of which have already been articulated in the form of various catchment management targets and biodiversity conservation goals), and the practical 'micro' property-level activities that are to contribute to delivering those sought after landscape outcomes.

Essentially, *practical environmental information* for effecting landscape change that is *relevant to decision-making at the farm-level* does not, by and large, exist and remains to be developed in the form of practically useful environmental standards and guidelines[5]. Environmental standards and guidelines that relate to agriculture's environmental performance, as well as to environmental aspects of agricultural production processes (see box: Environmental Standards - a definition), represent key missing ingredients in the quest for positive landscape change.

3 The question whether such environmental guidelines and standards should be voluntary or regulated, is a secondary issue. The primary questions relate to what issues should such standards and guidelines specifically address, and how such standards should be designed.

4 The environmental duty of care paper, prepared as part of this Land Stewardship project, discusses how the effectiveness of catchment management may be enhanced via the translation of 'big-picture' targets into practical operational standards and guidelines to achieve environmental management outcomes.

5 Such practical environmental information encapsulated in environmental standards and guidelines could be implemented both in the presence and absence of EMS.

ENVIRONMENTAL STANDARDS - A DEFINITION

Standards are "accepted specifications or codes of practice which 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, 2001). Different types of environmental standards exist, and according to Ure's (1999) categorisation, there are two groups of environmental standards:

- organisation-oriented standards, also called process standards; and
- production-oriented standards, which may be product standards or performance standards.

Process standards specify management processes and procedures to be followed by an organisation for the purposes of environmental management. *Product standards* may define specific features of a final product and may also define how that product must have been produced. *Performance standards* specify acceptable or required levels of performance to be met. Environmental performance standards may relate to the production process, as well as to environmental externalities stemming from the production process.

Source: Mech and Young (2001), Standards Australia (2001) and Ure (1999).

The EMS process standard *itself* is not designed to deliver landscape change. For that purpose, environmental performance standards that may relate to the production process, as well as to environmental externalities stemming from the production process are required. However, as an information management tool, a farmer's EMS could incorporate relevant practical environmental information, guidelines and standards - where these exist - on new practices designed with the intention of achieving landscape-scale outcomes if adopted in sufficient numbers across that landscape.

EMS's potential to achieve environmental management improvement should be viewed in the context, and at the scale, for which it was designed and intended. In the case of agriculture, that means the farm business context and the property-scale. As farming and rural businesses face increasing scrutiny on environmental matters from diverse stakeholders, there is likely to be increasing recognition for the practical utility of EMS for its intended purpose as an information management tool for:

- demonstrating responsible environmental risk management;
- demanding *verifiable rigour* in the way a firm manages its information, and uses that information in its management decisions; and
- managing the environmental demands of diverse stakeholders (local, state and federal government agencies, neighbours and local communities), as well as shareholders, markets and consumers.

3: problems and opportunities relating to landscape change and ems

A key problem in using, or attempting to use, EMS to guide landscape change is the fact that EMS has not been designed for this explicit purpose. Indeed, there is much confusion and misunderstanding about what EMS is and what it does. In reality, EMS is a simple tool used principally by private businesses to help them manage, and demonstrate that they are managing, environmental risk responsibly. Therefore, it is considered unrealistic and unlikely that EMS itself will deliver *landscape-scale* environmental outcomes for agriculture, as the EMS process standard is not designed for such a purpose. However, this is not to imply that EMS is a poor tool of little use to be dismissed. Even though EMS was not designed, nor intended for use as a public policy instrument, in much current agri-environmental policy discourse, EMS is afforded the status of such. It is advocated that the potential of EMS to achieve environmental management improvement should be viewed in the context, and at the scale, for which it was designed and intended: in the case of agriculture, that means the farm business context and the property-scale.

3.1 LANDSCAPE CHANGE: PROBLEMS AND OPPORTUNITIES

To achieve positive landscape-scale change, clarity and stakeholder agreement are required regarding both:

- landscape-scale targets on specific NRM matters relating, for example, to catchment, water quality and salinity management, biodiversity conservation, as well as in other areas of public good provision of interest to the community; and importantly,
- how these 'big-picture' targets may be translated practically into operational standards and guidelines for environmental activities at the property-level.

There is a need to 'translate' landscape targets on specific NRM matters into practical environmental information for effecting landscape change that is relevant to decision-making at the farm-level. Currently, such information does not, by and large, exist and remains to be developed in the form of practically useful environmental standards and guidelines. Perspectives on the need to develop environmental standards for agriculture are given by Anderson et al (2001). A clear role for government is identified to assist agriculture on environmental management matters, notably the development of standards to help industry substantiate green claims. While Anderson et al (2001) focus on biodiversity management issues specifically, and the relationship to property-level EMS, other environmental issues like catchment, water quality and salinity management, amongst others, merit similar treatment and consideration. Anderson et al (2001) observe that "[g]overnment involvement would be required, because market forces have not yet created the need for these standards, and the agricultural industry does not have the expertise to develop them." Similar perspectives on agri-environmental standards are emerging in other countries (see box: International perspectives on environment standards development).

Practical environmental information encapsulated in environmental standards and guidelines could be implemented both in the presence and absence of EMS. The benefit to a business of having an EMS in place lies in the fact that EMS provides a systematic and streamlined way of managing environmental information in business decision-making relating to environmental risk management. Where such information may originate from diverse sources and stakeholders, and where it may be fairly safely postulated that the environmental demands of diverse stakeholders are likely to rise over time, EMS may prove to be a useful management device.

Governments could undertake a range of actions to encourage and support landholders to undertake activities geared towards land stewardship and environmental management. Such support could cover the setting of targets for environmental performance and outcomes, and the design of practical guidelines on the best ways to undertake farming practices to meet those targets and to minimise the environmental impacts of agriculture at property-level. While governments could raise awareness of EMS as a tool to enhance environmental management by farm businesses, the critical points of emphasis for governments should be on the landscape-scale land stewardship and strategic environmental targets, and on working with industry and community stakeholders to translate these landscape-scale targets into practical standards and guidelines for application at property-scale. These would have relevance to farmers regardless of whether EMSs were in widespread use by farm businesses. Indeed, given growing market and community expectations that farmers demonstrate environmental credentials via voluntary environmental performance standards and agri-environmental regulation, EMS may become increasingly recognised by farmers as a useful tool for managing environmental information from diverse sources in their business.

3.2 EMS IN AGRICULTURE: PROBLEMS AND OPPORTUNITIES

Barriers to EMS implementation in agriculture

Several barriers exist with respect to EMS implementation in agriculture. These are posed by presently elusive marketplace benefits from EMS implementation in agriculture, the paucity of environmental information for use in farm EMSs, the costs of EMS implementation and certification, including the transaction costs of acquiring or generating new environmental information, as well as the costs of being audited. Another barrier is posed by the fact that most farms are micro, and in some cases small, business enterprises and, as such, at a disadvantage if compared to medium and larger businesses that may enjoy economies of scale, access to greater financial resources and scope for skills specialisation regarding environmental management matters. Finally, a barrier to the uptake of voluntary environmental initiatives arises because farms are embedded in rural economies undergoing structural change that imposes a variety of pressures on farmers and the decisions they make, and that decreases the likelihood of EMS implementation being seen as a priority, when elusive market benefits, unclear information and the costs of compliance already present hurdles.

INTERNATIONAL PERSPECTIVES ON ENVIRONMENT STANDARDS DEVELOPMENT

There is a clear case of market failure...

Anderson et al's (2001) observation that there is an absence of market forces driving environmental standards development (a clear case of market failure) is echoed by the Canadian Commission for Environmental Cooperation (1999): "In the past decade, the goal of harnessing the power of markets in support of environmental objectives has passed through a number of stages, from strong enthusiasm, to cautious optimism, to disappointment, and finally to a refocusing of efforts towards achievable goals and defined market segments. During this time, one fact remains at the centre of efforts to expand green markets: opinion polls in both developing and developed countries consistently show robust and unwavering public support for environmental protection. However, public concern and consumer behaviour are not identical.

Often the public expect strong regulatory intervention by governments to protect the environment, and do not draw strong links between their individual purchasing decisions and the overall state of the environment. Hence, despite strong public concern for the environment, green markets have not grown."

... and EU farmers are to be paid to comply with environmental standards

Under proposals to reform the European Union's (EU) Common Agricultural Policy (CAP), environmental reasons are to constitute part of the raison d' être for EU farmer support. Commenting on the European Commission proposals to reform the CAP, EU Farm Commissioner Franz Fischler stated that "[s]ociety is ready to support farming provided farmers give people what they want: safe food, animal welfare and a healthy environment. Farmers can count on new EU support to help them to adapt to demanding EU environment, food safety and animal welfare standards and to promote quality food and traditional products[6]."

6 Further information on the European Commission's reform proposals is available at www.europa.eu.int/comm/agriculture/mtr/index_en.htm

Sources: Canadian Commission for Environmental Cooperation (1999; in Isaac and Woolcock 1999) and media release of the Delegation of the European Commission to Australia and New Zealand, 23 January, 2003.

3.3 OPPORTUNITIES FOR GOVERNMENTAL ROLES

Overcoming the environmental information barrier and designing environmental standards and guidelines

Environmental information, including its availability to farmers and often its practical usefulness to farm management decision-making when available, presents a barrier to EMS implementation in agriculture. The strength of the 'E' in EMS depends on the strength of the supportive information in the management system. Without it, EMS is poorly positioned to deliver what it potentially promises. More importantly, the paucity of environmental information that is relevant to practical on-farm decision-making poses a barrier to landscape change. Quite simply, much supportive information required for a farm EMS may be lacking, or it may exist in formats such that its relevance to farm management decisions may not be readily apparent. There are a great many primary industry sectors where such codes, guidelines, standards and risk assessment tools remain to be developed, and where their development should be encouraged. This is especially germane to the Australian agricultural context, given the profile of EMS in the discourse of presently emerging agri-environmental policy.

There are opportunities for governments to commit resources to the development of environmental guidelines, targets and standards for different agricultural and rural industries. An important role of government could be to foster the formation of partnerships between stakeholder groups, including industry and peak industry bodies, research organisations, public agencies and community and environmental groups to provide an interface for translating technical knowledge and community concerns relating to environmental management into environmental guidelines, targets and standards applicable at the farm-level.

There are also opportunities for governments to commit resources to State and Territory government agencies responsible for natural resource management and environmental protection in the primary industries to encourage implementation of voluntary standards, guidelines and other arrangements for environmental management. An important opportunity for the role for government is to build information networks and ensure low-cost access to environmental information relevant to business decision-making on farms and in rural businesses.

A specific way in which governments could support environmental improvement in agriculture and the rural industries would be to make information on legal and regulatory obligations relating to environmental management and protection readily available. For example, information relating to existing NRM and environmental regulations and legislation relevant to Australian agriculture and rural industries could be compiled, periodically updated and made available free-of-charge. The explicit purpose of such a user-friendly 'Guide to Environmental Regulation for Agriculture and the Rural Industries in Australia' would be to provide information needed by operators in agricultural and allied rural industries to comply with state and federal regulations relating to NRM and environmental protection.

Such a guide could be structured along the lines of the 'Handbook of Environmental Regulations for Agribusiness' produced by the Iowa Waste Reduction Center of the University of Northern Iowa (IWRC, 2000). This handbook contains regulatory information on waste management and pollution prevention that is specific to different agribusiness sectors. The handbook presents information on regulations that apply to different operations, how operators can comply and how they can get more help and information. Alternatively, an Australian guide to environmental regulation for the primary industries could draw on the 'Manual of Environmental Policy' produced by the Institute for European Environmental Policy (IEEP).

3.4 INDUSTRY, REGIONAL AND CATCHMENT APPROACHES TO EMS

Since EMS may only be implemented by an organisation to manage the resources over which that organisation has specific control, concepts such as 'industry EMS', 'regional EMS', or 'catchment EMS' are meaningless. However, industry, regional or catchment *approaches* to EMS can mean that businesses implementing EMS address industry, regional or catchment policies and targets, or that industry, regional and catchment scale targets and goals have been translated into standards and guidelines for application by the entity implementing EMS.

4: ems and payments for ecosystem services

4.1 PAYMENTS FOR ECOSYSTEM SERVICES VERSUS PAYMENTS FOR EMS

The making of government payments for land stewardship requires clarity of thought as regards what exactly is being paid for, as well as justification why. Strictly speaking, practical on-farm land stewardship activities associated with providing ecosystem services differ from the specific activities that relate to implementing an EMS. Land stewardship activities relate to production-oriented activities, whereas EMS implementation activities relate to organisation-oriented activities (see box: Environmental Standards - a definition). For example, on-farm land stewardship activities geared towards delivering ecosystem services may address production-oriented issues relating to the management of water, vegetation, other biodiversity, soils, chemicals, and so on, whereas EMS involves better management of environmental information by the business to improve management of environmental risks to which the business is exposed.

Owing to the different specific actions involved in, and outcomes arising from, engaging in land stewardship activities versus EMS implementation, the critical importance of distinguishing between payments for the provision of ecosystem services and payments for implementing EMSs is emphasised.

Furthermore, Cole and Harris (2001) note that potential roles for government are best guided by answers to several questions. These include, first, the question of whether market failure exists; second, whether the existing market failure warrants government involvement; and third, if so, which policy instrument(s) would achieve the desired outcomes at least cost to society.

If government payments are to be made for the provision of ecosystem services, then it should be ensured that payments be environmental performance based, and/or relate specifically to land stewardship practices undertaken. For example, payments could be contingent upon either verifiable (measurable) environmental improvement, or demonstrable implementation of practical activities that may deliver improved environmental performance over the longer term. For this purpose, the development and use of environmental performance standards or guidelines is advocated. Such environmental performance standards or guidelines should relate explicitly to the environmental issues in question.

There is a connection between payments for ecosystem services, and the use of EMS to document environmental improvements. For example, EMS could provide a systematic way to record or log information on business decision-making regarding environmental issues. However, this is not the same as saying that EMS itself guarantees improved environmental performance, or participation in environmental activities that may deliver improved performance at a future point. Indeed, compliance against a process standard like EMS does not guarantee that ecosystem services will be provided to the community. For that purpose a different type of standard or guideline, one that relates explicitly to the desired environmental performance is required. In other words, payments would be better made on the proviso that an environmental performance standard is complied against, rather than a process standard.

Since EMS implementation is currently problematic owing to the environmental information barrier, (pages 19 and 21) having a farm EMS at present cannot guarantee that an environmental duty of care is being met. This begs the question why EMS implementation itself should be supported by government payments. Similarly, if an EMS were to guarantee that all legal obligations were being met, the question remains why payments should be made for meeting legal obligations that should be being met regardless. Therefore, it is advocated that government payments for land stewardship be environmental performance based, and/or relate specifically to land stewardship practices that may deliver improved environmental performance over the longer term. However, there is no obvious justification why government payments should be made for EMS implementation, which itself does not guarantee a surpassing of existing legal or environmental duty of care obligations.

5:implications

This paper has focused on the role of EMS in the emerging land stewardship concept, exploring the nature of the relationship between EMS and land stewardship, and of the proposition that EMS implementation and payments for ecosystem services provision by farmers be linked. EMS implementation by farm businesses does not necessarily guarantee improved on-farm environmental performance, nor that catchment-level outcomes will be delivered. Therefore, catchment authorities wishing to incentivise land stewardship activities via payments to farmers should ensure that payments be contingent on environmental performance outcomes, or on engagement in land stewardship activities that may lead to such outcomes over the longer term.

Potential areas for government roles to encourage positive landscape-scale change have also been highlighted. In this regard, clarity and stakeholder agreement are required regarding both:

- landscape-scale targets on specific NRM matters relating, for example, to catchment, water quality and salinity management, biodiversity conservation, as well as in other areas of public good provision of interest to the community; and importantly,
- how these 'big-picture' targets may be translated practically into operational standards and guidelines for environmental activities at the property-level.

A critical information and knowledge gap exists between the 'macro' landscape-scale changes that the community seeks, and the practical 'micro' property-level activities that are to contribute to delivering desired landscape outcomes. There is a need to 'translate' landscape targets on specific NRM matters into practical environmental information for effecting landscape change that is relevant to decision-making at the farm-level. Currently, such information does not, by and large, exist and remains to be developed in the form of practically useful environmental standards and guidelines. Environmental standards and guidelines that relate to agriculture's environmental performance, as well as to environmental aspects of agricultural production processes represent key missing ingredients in the quest for positive landscape change.

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PERSONAL COMMUNICATIONS

Dr Lyndal Hugo, Director,
Agricultural and Environmental Management Systems (AEMS) Pty Ltd
http://www.aemsaustralia.com.au

your comments

The VCMC and the DSE want to hear your responses to some of the options explored and the questions raised in this document. Your ideas will become an important contribution to this project. Although a range of stakeholders have already been involved in the preparation of this paper, your support will assist in the move towards the deeper investigation of how these concepts could be applied in Victoria.

You may respond by email to the VCMC:

Please send emails to
Marian.pernat@nre.vic.gov.au

You may fax your response:

(03) 9412 4270

You may post a response to:

VCMC, level 3/250 Victoria Parade