MANAGEMENT FOR ECOLOGICAL SUSTAINABILITY

a conference to consider the maintenance of ecological processes, ecosystems and primary production consistent with the objectives of Ecologically Sustainable Development.

Hosted by:

The Centre for Conservation Biology
University of Queensland

Sponsored by:
Queensland Department of Environment
Queensland Department of Natural Resources

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Conference Outcomes

The conference calls on government and the community to recognise that Australia is not managing its natural resources generally for ecological sustainability and that the government urgently revitalises the ecological sustainable development process and reform and establish specific institutional arrangements to oversee implementation.

A. Where your topic considers economic aspects of ESD:

1. What economic opportunities does adoption of ecological sustainable development practices provide?

- ESD practices can enhance economic returns e.g. GCTB.
- Opportunities be investigated for ensuring a better premium for green products.
- Need to promote structural adjustment and value adding of products to provide additional economic returns to achieve ESD.

Note: Competition policy not necessarily related to economic opportunities.

2. Can opportunities for employment be identified?

- Value adding may contribute to employment opportunities; e.g. fisheries, industries serving the ESD process.

3. How might ecologically sustainable development influence industry competitiveness?

- Neutral for trade unless WTO - GATT criteria and proposed MAI are modified to provide advantage for "green" products and investment.
- Adoption of ESD practices can reduce farm inputs and enhance competitiveness e.g. GCTB.

4. How should the external environmental costs of natural resource utilisation be accounted?

- Benefit cost analysis must account for environmental externalities to be used for policy development, project evaluation and investment ranking.
- Recognising that inappropriate pricing is a major factor in environmental degradation, all external environmental costs should be a part of pricing reform; e.g. COAG.

B. Where your topic considers national or international policy instruments of relevance to ESD:

1. What opportunities do they provide for advancing the ESD?

- Certification of environmental management systems, for example ISO 14000 could provide additional marketing opportunities.

2. What changes to government policy would encourage uptake of ESD by the private sector?

- Need participative approach but also need to reform institutional mechanisms and provide incentives.
- State of the Environment reporting should be considered a form of monitoring and therefore provide baseline information to assist in determining targets and subsequent recommendations for change.
- Involve local government as an integral partner in developing sustainability requirements.
- Ensure environmental accounting is comprehensive for all products.
- Government should offer a level of incentives to achieve uptake relative to public good.
- Australia should:
  - advocate that ecolabelling is enshrined in international trade mechanisms.
  - advocate that international law should provide a mechanism by which to internalise environmental costs of unsustainable production.
  - advocate reform of existing trade regimes to promote ecologically sustainable production.
  - ensure that before becoming a signatory to any new agreements, e.g. the Agreement on Multilateral Investment, that they enshrine ecologically sustainable development.
  - encourage consumer recognition of ecoproducts (e.g. ISO accredited or other independently certified process).
  - promote Certified World Best Practice as a benchmark for ecologically sustainable development and for ecolabelling.

Note: Australia is one of the best ISO 14001 uptake countries in the world. What needs to happen is encouragement of consumer recognition of the latter (both international and national recognition).

- Advocate human consumption of kangaroo meat to diversify land use in rangelands and assist restructuring for ecological sustainability.
- Make ecologically sustainable development a matter of highest national priority (e.g. like National Comp. Policy process), with a commitment to long-term programs.
- Encourage a diversity of approaches with common long-term goals - as long as all heading in same direction.

Note: Cost sharing between the Commonwealth and the States is an issue that must be appropriately addressed.

- A fundamental requirement of any rural adjustment is that it be based on land capability and ecological sustainability targets.

Note: Community should encourage “capacity building”.

- Government should establish institutional framework whereby ecological sustainability is the test for decision making as a basic requirement to revitalise the ESD process.
- Bipartisan support should be sought for a Sustainable Nation to be an ethic embodied in any new Constitution.

- Government in determining the balance for achieving ESD should ensure that the process is transparent and involve all stakeholders.

- Government should carefully consider the balance and ramifications of the objectives of special interest groups that may impede the uptake of ecologically sustainable development across industry sectors, e.g. community calls for rejection of ESFM as a legitimate goal.

- Community participation in consultation should be improved e.g. public should be given open standing in the new Commonwealth Environment Protection Bill.

C. Where your topic considers the results of research into the environmental impacts of production and other natural resource uses, then:

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1. Are there recommendations for management that will maximise positive outcomes for the environment?

- Encourage the uptake of existing EMS frameworks.

- Prevention of degradation is easier and more cost effective than rehabilitation e.g. protection of remnant vegetation.

- In rangelands:
  - increase livestock mobility to include specific management guidelines on stocking immediately after drought to achieve seasonally appropriate stocking regimes.
  - maintain/expand dry areas to reduce grazing pressure so as to provide habitat diversity.
  - need for re-establishment of programs to achieve extensive industry restructure.

- Impacts of resource use must be judged in context of external factors or competing interests; activities that cause species to decline (or come close to declining) so as to meet agreed threatened species criteria should not proceed.

- Decision framework for impact assessment, sustainable resource use and protection of habitat differ according to conservation status of species - as conservation status is less favourable, level of protection and caution in decisions should be higher.

- There should be agreed scientific criteria for threat assessment and ongoing assessment of conservation status. Rare and threatened species conservation should be explicitly addressed in resource use programs as a prerequisite for accreditation and compliance regulation and be balanced with incentives. Activities that cause species to decline should not proceed.

- Use indicators appropriate to the management framework and sustainability targets that you wish to achieve.

2. Can indicators for monitoring ecosystem health be identified in industry sectors? If so, how could they be incorporated into regulatory and other instruments, such as ISO standards and Codes of Practice?

- Rare and threatened species monitoring can provide a focus for specific conservation outcomes.

- Biodiversity is an appropriate common indicator across species.

- Indicators to include:
  - landscape function (e.g. micro patchiness) and should be monitored - but need baseline (assessments) data first.
  - spatial and temporal heterogeneity.
  - biodiversity (e.g. perennial grasses, fragmentation).
  - land use
  - landscape functioning and processes

Note: Indicators should also include things like uptake of ESD, education etc.
Also investigate nesting indicators (i.e. scale dependence)

- Regional milestones should include resource condition as well as extent.

- The Montreal Process provides a useful mechanism for the extension to other industries and their adoption of appropriate indicators and verifiers for sustainability.

- Resources need to be identified to achieve long term monitoring of ecosystem condition and trend.

- Indicators should be developed in a dynamic and participatory context.

Note: An ethic perspective should be integrated into the policy making process.

3. What is the geographic scale at which production ecosystems should be managed for ecological sustainability?

- Mix of scales essential for planning ESD and for maximising biodiversity outcomes at the bioregional scale.

4. What are appropriate milestones towards ecological sustainability?

- Examples and thresholds for biodiversity, soil and other natural resources at property level should be clearly defined e.g. in sub-tropical woodland; bare ground (<40%), exotic pastures (<30%), tree cover (>30% and >10ha clumps), wildlife areas (>10%).

- Species extinction = failure to achieve ESD, but persistence of rare and threatened species does not necessarily indicate ESD is being achieved.

Note: Surrogates for biodiversity such as endangered regional ecosystems are also appropriate.
Socio-economic milestones are also an essential part of ESD.

- Need robust grazing system for ESD:
  - indicators
  - adaptive management experiments
  - milestones/targets

- That the Natural Heritage Trust support partnership projects between community groups, agencies and scientific institutions so as to provide sound technical and bioregional planning framework to meet ESD goals and for on ground works.

- Biodiversity or acceptable surrogates is a common indicator for all sectors for ESD and should be part of all research into sustainability.

5. What are the research needs for determining milestones for ESD and implementing sustainable management?

- A process be put in place to finalise agreement with industry sectors on key indicators for sustainable management, in conjunction with finalisation of indicators for State of Environment reporting.

- Increase research into impact of changed fire regimes, land capabilities, soils, integrated resource assessment programs, SAFE, etc..

- Ecological milestones should have a clear linkage to social and economic milestones for ESD.

D. Where your topic considers the uptake and implementation of ecologically sustainable practices by producers and other natural resource managers, can you make recommendations as to:

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1. The means by which stakeholders can best be encouraged to adopt ESD practices? For example:

a. The role of regulatory and other instruments, such as ISO standards, Codes of Practice and property management planning;

- Stakeholders engaged at all levels of ESD planning and implementation to encourage uptake, recognition and support.
- Industry self regulation is part of achieving ESD targets set by consultation between stakeholders.
- Incentives and recognition need for uptake of ISO 14001 standards.
- Disincentives should apply for non-sustainable practices.
- Alternative dispute resolution is recognised as playing an important role in environmental conflict resolution. Exhaust all conflict resolution options before legal action.
- Scientists need to take a bigger role in environmental planning, decision making and legal definition of environmental terms.
- Consideration be given to the accreditation of scientists in Alternative Dispute Resolution in conjunction with legal representatives.
- An ethics perspective should be integrated into decision making and planning processes.

b. Incentives that could be offered to encourage adoption of ESD practices?

- Decentralise decision making to allow stewardship/sovereignty within an agreed ESD framework.
- Information should be freely available to landholders to meet ESD objectives with commercial charges for commercial users.
- Regular public reporting on how we are moving to ESD.
- Voluntary initiatives most effective when backed up by a legally enforceable regime that insists on environmental benchmarks.
- Producer initiated and/or managed projects and recognising costs to producers for the contributions.
- Rate rebates from local government.

2. How do we measure success in the adoption of ESD practices on an industry basis?

- Indicators for successful regional planning.
- Adaptive management strategies should be adopted to assist in providing feedback to achieve sustainable management practices.
- Needs to be auditing for ESD and continual review (independent industry auditing).

3. Research and development needs for auditing and community uptake?

- Research into effectiveness into extension programs.

- Research into community education.
- Ongoing need for research into uptake of ESD practices.
- Translate where possible Indigenous methods of assessment.

GENERAL COMMENTS

- ESD should operate at all levels.
- There should be system based approaches to ESD.
- Risk management should be part of ESD.
- Government should be in partnership with the community.
- ESD should be on par with all the other major government policies/issues.

INFORMATION FLOW

Everything documented above should go through ANZECC, SCARM, local government authorities, research and development bodies such as LWRDCC and ARC, peak industrial bodies such as NFF, UGA etc., conservation bodies such as ACF, CRC's and eco-tourism bodies.

This document could be incorporated into magazines such as "SEARCH".

MANAGEMENT FOR ECOLOGICAL SUSTAINABILITY

INTRODUCTORY ADDRESS

- Paul Sattler -

How do we turn the 'Rhetoric into Reality'?
The purpose of this conference is to consider how we move from the rhetoric on ecological sustainability to achieving sustainable resource management as part of a sustainable society. Specifically, how do we revitalise the process of Ecologically Sustainable Development.

To chart a course towards achieving ecological sustainability requires us to reflect on the current condition and trend of Australia's natural resources and some of the initiatives taken to date.

Many policy initiatives have been undertaken to advance ecologically sustainable management such as the National Strategy for Ecologically Sustainable Development 1992, ratification of the Convention on Biological Diversity (1993), a large number of specific national strategies including the National Strategy for the Conservation of Australia's Biological Diversity (1996), the National Forest Policy Statement (NFPS) (1992), the State of the Environment (1996) report, the Montreal process (United Nations 1995), Landcare and more recently the National Heritage Trust (NHT). Enhanced public awareness of the need for sustainability; the considerable research effort directed towards understanding ecological processes and in monitoring natural resources; enlightened management initiatives by landowners at the property level and by industry bodies; and direct regulation of certain activities have contributed to ecological sustainability.

However, have we achieved a paradigm shift in the way we care for our landscapes and seascapes to achieve sustainability?

Clearly the answer is no! The results of the State of the Environment report show that Australia is living beyond its ecological means. The State of the Environment report concludes that we do not yet have an integrated, system-based approach to the management of natural resources. Despite the adoption of national strategies there is little evidence that this broader approach and commitment to sustainability has been fully integrated into decision-making.

In Queensland, one landscape scale indicator of this failure is the conservation status of bioregional ecosystems. Of the 1082 regional ecosystems spread across 13 bioregions, 32% or 340 are now threatened including 10% or 108 that are endangered. In this case the principle causes being tree clearing, overgrazing and invasive species in that order (Sattler and Williams, in press).

Progress is being made but is the rate of change towards sustainability commensurate with the level and rate of environmental degradation? Unfortunately, the inherent low resilience of many ecosystems does not provide the luxury to manage our natural resources by trial and error, for our management responses to be solely at the whim of short term market forces, or for us to ignore the external environmental costs of production.

Policy initiatives can be taken to hasten progress towards ecological sustainability. The primary requirement is that ecological sustainability should be the test for decision making, be it a policy, management or research decision.

There are recent examples of rapid implementation of wide ranging policy reform that have lead to sea state changes. For example, the national competition policy reforms have within a relatively short timeframe touched most industries and indeed, institutional frameworks. In this case all practices are obliged to be competitive unless overriding public benefit can be demonstrated.

Equally, a framework which requires management practices to be sustainable unless overriding public benefit can be demonstrated, or at least, an acceptable planned pathway towards sustainability can be demonstrated, could achieve fundamental change.

As Australia approaches the new millennium we have a unique opportunity. Australia will become a republic and The Constitution will be revisited.
When national constitutions were drafted last century or the century before, the contemporary desire was to embrace and codify human rights or in Australia, to set out a form of government. Today, the unique opportunity for Australia would be to codify ecological imperatives and incorporate a sustainability ethic in the management of our resources. Any new constitution should embrace a **Sustainable Nation** and oblige our institutions to consider the sustainability of their decisions.

Other more direct opportunities do exist. The Council of Australian Governments (COAG) Water Reform Framework (1994) provides that in relation to water resource policy that action be taken in all jurisdiction to arrest widespread natural resource degradation and that future investment in water schemes be undertaken only after economical viability and ecological sustainability is demonstrated.

This has been recently interpreted that failure to complete independent, robust ecological studies to demonstrate ecological sustainability with appropriate public input prior to development would constitute a breach of this agreement and that jurisdictions will need to justify the basis used in setting environmental water allocations (National Competition Council 1998).

Inappropriate pricing is recognised as a major factor in environmental degradation. A requirement for the inclusion of external environmental costs is part of the pricing reforms of the COAG Water Agreement and guidelines for full cost recovery specify inclusion of environmental externalities. An Australian and New Zealand Environment and Conservation Council (ANZECC) project is currently in hand to identify how environmental costs might be included in pricing notwithstanding the challenges in quantifying such costs.

This is a significant step towards sustainability and conceivably it should be possible with a similar commitment to that demonstrated for water reform to extend this test for decision making to the management of other natural resources. Whatever institutional framework is established, many issues need to be addressed before ecologically sustainable management can be operationalised across industry sectors and not least, to effectively monitor performance.
Adoption of environmental management systems towards achieving the goal of ecological sustainability requires the identification of pragmatic targets or milestones. In this context ecological sustainability should not be considered as an end point but rather a journey recognising that our understanding of natural systems, our ability to quantify ecological response and society expectations will change. These targets may vary for different industry sectors and for different landscapes or seascapes.

To guide management for ecological sustainability, considerable effort is now being put into the development of environmental indicators. Good indicators are those that encaptulate knowledge for understanding, for action and for measuring management success from local to

global scales. They are an essential tool for decision making and should be designed with clear objectives: they are not an end in themselves (CSIRO 1998).

The recent Discussion Paper on Core Environmental Indicators for Reporting on the State of the Environment (Environment Australia, 1998) has proposed a draft set of 72 core indicators covering six broad environmental themes. This will inform the next round of State of the Environment reporting. Nationally agreed indicators are also being developed for monitoring and evaluation of the NHT program.

Work on indicators is operating at 2 levels - indicators for State of Environment type reporting and indicators for guiding management. Ideally indicators for reporting should relate to practical management indicators and it is important that there is not a divergence in the development of indicators for both purposes. Though indicators for management have been discussed for many years these have not been comprehensively adopted across industry sectors.

It is imperative that we now finalise agreement on indicators for sustainable management with each industry sector as part of achieving the adoption of best practice and to meet duty of care obligations for example, those that exist under land management legislation such as the *Queensland Land Act 1994*.

Considerable progress has been made in Australia in one sector in the development of indicators for both reporting and management, the forestry industry. In response to international undertakings including the Montreal Process (United Nations 1995), to national debate over forest use and conservation, to potential trade barriers (though recently overturned), and to increasing ecoproduct marketing opportunities, this industry has invested considerable effort over the past 6 years since the NFPS (1992) and Agenda 21 (1992) in defining and operationalising ecologically sustainable forest management (ESFM). This has lead to the development of Regional Level Criteria and Indicators for Sustainable Forest Management released in August, 1998, review of management guidelines including Codes of Practice and other specific management prescriptions, and redirection of research and development. The structure adopted is agreement on criteria i.e. values that society wishes to maintain, and on indicators, i.e. the measures of change in these criteria over time.
It is proposed at this conference that we facilitate the sharing of this experience with other industry sectors and their research and development bodies to assist them on their journey towards ecological sustainability.

However, the way forward for forestry sector is still not clear in terms of achieving ecological sustainability to meet society expectations. There are increasing calls by some sections of the community to reject the notion ESFM of our native forests particularly on public lands. The potential ramification of such action on encouraging other industry sectors to adopt ecological sustainability is of concern as well as the ability to implement ecological sustainable logging on private lands. Perhaps the lesson is the urgent need for industries to embrace structural reform for long term sustainability, and to achieve value adding of products so that ecological and socio economic objectives can be met, before community attitudes are polarised.

Other industries are also vulnerable to criticism and potential economic impact if ecological sustainable management is not adopted. The beef industry's promotion of a 'Clean & Green' image could quickly tarnish against statistics that show 41% of the rangelands or 66.7M ha of northern Australia are deteriorating and 17% or 26.5M ha are seriously degraded (Tothill & Gilles 1992). Many attempts at rural adjustment in the past have concentrated on fiscal objectives rather than defining adjustment responses in relation to land capability and specific sustainability targets. Structural reform to achieve ecologically sustainable management of our rangelands is called for in the draft National Principles and Guidelines for Rangeland Management, previously the draft National Rangeland Management Strategy. However, the

cessation of the rural adjustment programs beyond the recent Desert Uplands build up scheme, creates a vacuum for addressing structural reform across Australia's rangelands.

Without a proper conceptual framework or vision for ecological sustainable management of our rangelands, it will be difficult to define duty of care provisions for pastoral management.

Scale is an important consideration. It is not possible for example, to fully conserve biodiversity in every wheat paddock, but with proper planning, biodiversity can be conserved at property and regional scales. Unfortunately, environmental impact assessment of major projects often concentrates on mitigating impacts within the immediate sphere of influence of the project. This may not offer the best scale for planning the conservation of biodiversity, particularly where more ecologically viable or cost-effective strategies might be put in place at a different scale such as the catchment or bioregional scale.

A case in point is the proposed development of new water infrastructure in Queensland. Concentrating management responses to environmental impact at the pondage area or proposed irrigation area may be a grossly inefficient way of offsetting the loss of biodiversity when more effective measures could be taken at the bioregional scale. Such developments should include the development of proactive conservation strategies at a range of scales in conjunction with contemporary approaches to impact assessment to achieve ecological sustainability. One example is the urgent need to develop and implement a Brigalow Belt Conservation Strategy to accompany any decision to build the Dawson River Dam and other water infrastructure in the Brigalow Belt of Queensland.

Research and development for resource management must fully encompass ecological sustainability. The State of the Environment report (1996) suggests that the loss of biodiversity is perhaps our most serious environmental problem. Certainly it is when the status of biodiversity is an indication of how we manage other natural resources. It is of concern then, that a number of our industry research and development bodies or Co-operative Research Centres that are addressing sustainability do not include the protection of biodiversity in their research focus.

I have briefly mentioned some sustainability issues associated with the forestry and pastoral industries, but also represented at this conference are the cotton, sugar and fishing industries. What are the targets on milestones for ecological sustainability for these industries, and what is best practice that may inform the development of appropriate management indicators?

This conference aims to explore these issues and it is for this reason that a very diverse group has been invited to contribute. To assist in maintaining this focus the following questions have been circulated and contributors asked to address one or more of these questions in their presentations.

QUESTIONS

A. Where your topic considers economic aspects of ESD:

1. What economic opportunities does adoption of ecological sustainable development practices provide?
2. Can opportunities for employment be identified?
3. How might ecologically sustainable development influence industry competitiveness?
4. How should the external environmental costs of natural resource utilisation be accounted?

B. Where your topic considers national or international policy instruments of relevance to ESD:

1. What opportunities do they provide for advancing the ecological sustainable development? additional marketing opportunities.
2. What changes to government policy would encourage uptake of ecological sustainable development by the private sector?

C. Where your topic considers the results of research into the environmental impacts of production and other natural resource uses, then:

1. Are there recommendations for management that will maximise positive outcomes for the environment?
2. Can indicators for monitoring ecosystem health be identified in industry sectors? If so, how could they be incorporated into regulatory and other instruments, such as ISO standards and Codes of Practice?
3. What is the geographic scale at which production ecosystems should be managed for ecological sustainability?
4. What are appropriate milestones towards ecological sustainability?
5. What are the research needs for determining milestones for ecological sustainable development and implementing sustainable management?

D. Where your topic considers the uptake and implementation of ecologically sustainable practices by producers and other natural resource managers, can you make recommendations as to:

1. The means by which stakeholders can best be encouraged to adopt ecological sustainable development practices? For example:
    a. *The role of regulatory and other instruments, such as ISO standards, Codes of Practice and property management planning;*
    b. *Incentives that could be offered to encourage adoption of ecological sustainable development practices?*
2. How do we measure success in the adoption of ecological sustainable development practices on an industry basis?
3. Research and development needs for auditing and community uptake?

REFERENCES