What is happening after Landcare?
Future directions in natural resource management

Ian Thompson\textsuperscript{a} and Kelly Heffer

\textsuperscript{a}First Assistant Secretary
Natural Resource Management Policy Division
Agriculture Fisheries and Forestry — Australia
GPO Box 858, Canberra, ACT 2601
ian.thompson@affa.gov.au

Abstract

By June next year the Commonwealth Government will have invested $1.5 billion dollars over six years in protecting and restoring our natural resource base through the Natural Heritage Trust.

The Government is developing a new national policy framework for managing our natural resources over the next 10-15 years. The framework builds on the achievements of the Decade of Landcare and the Natural Heritage Trust.

Key elements of the new policy approach being considered include focussing on tackling natural resource management (NRM) issues at the regional level; encouraging partnerships and strategic investments with stakeholders; using a wider mix of policy instruments; building capacity and continued support for research and innovation. Continuation of the landcare ethic will be critical to the success of these new policy approaches.

Two future policy directions have been identified as critical to addressing natural resources management issues — adopting a regional approach and achieving fundamental change through a wider mix of policy instruments, including enhancing the role of economic and market-based instruments.

Introduction

Over much of Australia, the quality of the biophysical foundations upon which our rural industries depend continues to degrade. One estimate of our annual economic losses to problems such as salinity, soil erosion, acidity, waterlogging, loss of soil structure and water quality is around $1.5 billion annually — not to mention the losses to our environmental and cultural heritage. Urgent attention to address these pressing problems is needed.

Dr John Williams, Deputy Chief of CSIRO Land & Water Division, asserts that our land use systems are unsustainable in the long term. ‘We have to face the fact that our land-use practices were not designed for Australia’s unique natural ecosystems and are slowly but surely damaging and destroying them’ Dr Williams says.

We do not have to accept these predictions as inevitable. Action can be taken to change to practices that are better suited to the condition of the natural resource base. However, finding and implementing the solutions will involve some difficulties. Fundamental changes in land use will be required at the farm level and across regions in order to achieve sustainable production or to protect areas that are critical for other uses — such as water supply or biodiversity.
Sustainable natural resource management is about using resources for economic benefits while maintaining their quality for future uses. Agriculture and sustainable natural resource management are intimately linked — profitable farms and viable communities depend on the health of the resource base. It is becoming more widely accepted that natural resource management is a core part of profitable farming business, not an optional extra.

This paper seeks to outline:
- the challenges that lie ahead to achieve sustainable natural resource management; and
- potential policy responses being considered for future natural resource management.

**Future challenges in sustainable natural resource management**

Innovation and new technology must be aimed at a goal. In the past, much innovation was aimed at improving productivity and profitability. This of course will continue. But it is important to recognise that maintaining the resource base is a critical input to productive and profitable agricultural industries.

Successfully meeting the challenges of sustainable natural resource use and sustainable agriculture will require innovative technical and policy solutions able to be applied at the regional scale. The use of emerging technology will be critical for making the most effective policy decisions to, for example, target rehabilitation actions and develop more appropriate land use systems. Further research and development is required to develop the land use management practices that can cost effectively address some natural resource management problems.

Increasingly, all industries are being asked to deliver and report on a ‘triple bottom line’ for sustainability — financial, environmental and social. This requirement underlines the fact that sustainable natural resource management is an integral part of sustainable agriculture. If it isn’t already, it will in the future be a key goal for innovation in agricultural industries.

Sustainable natural resource management involves a complex range of issues affecting a wide range of stakeholders. Essential to creating the right mix of solutions is cooperation of governments, scientists, industry, landholders, rural community leaders and the wider community.

Over the last fifteen years community landcare has risen as an essential instrument for ensuring practical, relevant decision making for natural resource management and sustainable agriculture. The Commonwealth Natural Heritage Trust (NHT) has strengthened landcare by:
- supporting partnership projects, including on-ground works with other governments and community groups;
- raising awareness through public participation;
- supporting integrated catchment and regional planning;
- building capacity in communities to solve natural resource problems;
- supporting research and development to improve management practices; and
- supporting management systems to promote efficient resource use.
The landcare movement began in the 1980s, when a more interdisciplinary and holistic approach to managing land degradation was emerging. This led to the Commonwealth Government establishing the National Landcare Program (NLP) in the early 1990s to support the landcare movement. The program emphasised the importance of addressing causes of land degradation, rather than just symptoms and also recognised the interdependence of environmental and production systems.

It is the participatory nature of landcare that has proved its strength. There are now over 4,500 landcare groups across Australia. Latest figures show that 37 per cent of farms are involved and 81 per cent of Australians are now aware of landcare. The NLP has been instrumental in raising farmer awareness of degradation issues. The latest ABARE survey shows:

- 37 per cent of farms have someone who is a member of landcare — up from 27 per cent six years ago;
- 60 per cent of farmers report that they had learnt about the causes of degradation from their involvement in landcare;
- more importantly, 70 per cent reported learning how to treat or avoid degradation through landcare; and
- 64 percent reported that their involvement in the movement had taught them about the benefits of good natural resource management to agriculture.

Support for landcare groups is currently a fundamental element of the Commonwealth Government’s overall natural resource management policy package.

The Commonwealth Government continues to direct funding towards landcare through the NLP and other programs supported by the NHT. In this financial year, the NHT is providing nearly $361 million and has levered seven dollars for every one dollar invested by the Commonwealth Government.

The mid-term review of the Natural Heritage Trust, completed in November 1999, confirmed that the Trust has been successful in mobilising communities to produce on-ground results. But it is not an area where we can say we cannot do more. More effective and innovative ways of working with the community and helping the community to work at the larger scale necessary to address key natural resource management problems would help.

Despite significant efforts and the successes to date, degradation problems persist in large areas of rural and regional Australia. While an important element of tackling resource management issues has been volunteer efforts, this alone will not be sufficient to bring about the quantum leap needed to achieve sustainable resource management. Another clear message from the review was the need for a more strategic approach, focussing on larger scale projects and a mix of interventions specific to the needs and problems of different regions.

**The proposed national strategic framework for natural resource management**

Future policy on natural resource management is a high priority issue for Australia and the Commonwealth Government. It is worth noting that Mr Ted Evans, Secretary of the
Commonwealth Treasury, has been reported as saying that there will be significant costs in repairing and maintaining our natural resource base and they are not costs that can be eluded. The status of Australia’s natural resource base is a mainstream issue for agriculture.

In this context, governments will be focussing on ensuring that funding is targeted to areas where a real difference can be made, and determining the most appropriate way to share the costs and responsibilities between the public and private sectors.

A new national policy framework, currently under development, will be the main vehicle for advancing natural resource issues in the next 10 to 15 years. Gaining the views of the community and landholders was the first step in development of this new policy framework.

The Discussion Paper ‘Managing Natural Resources in Rural Australia for a Sustainable Future’ developed by Commonwealth, State and Territory governments outlines future policy directions and possible actions for natural resource management. The paper was released for public comment in December 1999. Over 500 submissions were received and most indicated strong community support for the proposed policy directions. The Steering Committee Report to governments on the public responses has been completed and copies are available upon request from Agriculture Fisheries and Forestry — Australia (AFFA) National Natural Resource Management Policy Task Force.

The vision, outcomes and directions of the proposed framework for natural resource management are summarised in Figure 1. below.

Figure 1. A Framework for Natural Resource Management
The overarching natural resource management goals are:

- to create more sustainable production systems to underpin the viability of rural and regional Australia; and
- to reverse the decline in health of ecosystems and catchments and conserve biodiversity.

To drive change, these overarching goals would be underpinned by specific biophysical, economic and social goals.

<table>
<thead>
<tr>
<th>Policy directions being considered as part of a national framework for natural resource management.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Working more effectively together involves strengthening cooperation between landholders, industry, rural communities and government. Proposed policies include partnership approaches, shared investments and clearly defining the roles and responsibilities of governments at all levels.</td>
</tr>
<tr>
<td>Adopting regional approaches to natural resource management and empowering regional communities involves devolving decision-making power to the regional level. Science is telling us that the regional level is a sensible scale for addressing the range of problems that we face and for taking into account the economic, social and environmental concerns. In the future, many of the land use changes required will be decided at the regional scale since the people best positioned to identify and tackle these issues are those in the regions concerned. Regional approaches will also promote shared investments that can better target problems across the landscape.</td>
</tr>
<tr>
<td>Facilitating fundamental changes in behaviour and resource use involves the use of a wider range of management options and incentives that are profitable, sustainable and provide an adequate income to rural landholders.</td>
</tr>
<tr>
<td>Incentives should be designed to encourage farmers to integrate natural resource management considerations into their business decisions. Market based instruments are an important element in the success of any strategy for improving natural resource management. Instead of reliance on government regulation, supervision and certification, the future may see a greater focus on industry and individual responsibility and self-regulation.</td>
</tr>
<tr>
<td>Building on the successes of landcare involves harnessing the strengths of the landcare movement in working towards the resolution of problems. As well as on-ground results, landcare has shown its effectiveness in broader awareness raising, expanding skills and knowledge and fostering an ethic of stewardship among the wider community. Landcare has demonstrated that voluntary and incentives-based approaches can lead to attitudinal change and adjustment to farm management practices that are more environmentally sustainable.</td>
</tr>
<tr>
<td>Enhancing the skills and abilities of individuals and regional communities. The complexities of issues faced by farmers means that they must continually upgrade their skills for natural resource management. Support can be given to landholders to improve skills and training and to recognise the leaders or ‘champions’ of natural resource management.</td>
</tr>
<tr>
<td>Expanding knowledge and improving access and use of information. A continued commitment to data collection, research and innovation is vital to improve the management of the resource base.</td>
</tr>
</tbody>
</table>
A Commonwealth natural resource management ministerial group is considering the Commonwealth’s future approach to natural resource management and funding beyond June 2002. The group is chaired by the Hon Warren Truss MP (Minister for Agriculture, Fisheries and Forestry) and comprises the Hon John Anderson MP (Deputy Prime Minister and Minister for Transport and Regional Services), the Hon Peter Costello MP (Treasurer) and Senator Robert Hill (Minister for the Environment and Heritage).

While the Commonwealth can assist in coordinating a national approach, specific responsibility for implementation, actions and legislation remain the responsibility of state and territory jurisdictions. The Prime Minister has nominated natural resource management to be top of the agenda at his next meeting with State Premiers - the Council of Australian Governments meeting scheduled for November this year.

Two key policy directions that governments are considering for improving natural resource management in Australia are outlined in this paper. The first direction relates to developing regional approaches to natural resource management. The second, relates to the likely need for a wider mix of policy instruments to bring about fundamental change to land use, including an increased consideration of economic and market based instruments.

**Adopting a regional approach to natural resource management**

The key policy direction in the NRM Discussion Paper of targeting investments and devolving decision-making powers to the regional level received strong public support. Regionally-based targeting of investments in strategically important areas should be more prominent than has been the case in the past.

The nature and extent of Australia's degradation problems require action and investment at the regional level. This is best done where the communities concerned generate the activities and provide some of the required resources themselves.

These are also the people who can see and make the most of emerging opportunities. At the regional level, communities are in a better position to identify trade-offs, determine priorities, develop regional strategies, negotiate shared investments and coordinate action. Once priorities are established, communities would tailor a mix of mechanisms to suit the region’s social and economic circumstances.

Regional strategies that include challenging yet achievable regional targets can stimulate changes in resource use. For example, regional communities could establish agreed targets for salinity management and present their strategies as prospectuses for future investment by governments, industry, landholders, the regional community and even the philanthropic sector.

Based on regional strategies, governments, regional communities and other investors could focus efforts on strategic areas where a difference can be made and there is real return for effort. Making a difference will require partnerships between investors and agreed principles for shared investment (Figure 2.). A new direction might also look to larger scale partnership projects rather than relying to the extent we have in the past on spreading funds over a large number of smaller projects.
In this environment, there are likely to be changes in stakeholder roles in tackling natural resource management problems. As governments would operate and meet their responsibilities in a more devolved way, communities and landholders would become more involved and accountable for natural resource management investments at a regional and local level. This could be assisted by regional institutional arrangements that give a greater level of authority to regional communities.

Whatever the mix of regional and local landcare effort, the landcare movement must continue and be intimately involved in the development and implementation of regional strategies. Private landholders own or manage 60 per cent of Australia's land area and 70 per cent of the surface water. Consequently, it is essential to secure their cooperation if efforts to combat natural resource degradation are to succeed.

It is widely accepted that landcare is a valuable approach to learning. The landcare network is a very effective mechanism for coordinating activities and for providing landholders with skills and information to improve management practices.
A key factor to ensure the success of any regional approach will be enhancing communities’ capacities to implement change. Without skilled, self-sustaining communities it will be impossible to achieve the level of changes needed. This is about equipping people with greater awareness and understanding of issues; providing them with opportunities to develop skills; and improving their access to information.

‘Best practice’ natural resource management continues to evolve as demonstrated in the change in approaches to river management in the past fifty years. It is important to regard natural resource management as an ongoing and adaptive process that requires continuous improvement and learning.

**Facilitating improved practices and land use change**

Long-term solutions to natural resource degradation will not come easily. In order to deliver against regional targets, a wider mix of policy tools is likely to be needed. While regulation is a necessary component of any successful policy mix, it’s clear that reliance on regulatory measures alone is inadequate to drive change. Another important measure is information, education and persuasion. This has been a key element of programs to date and is likely to continue.

One approach to improving future natural resource management with some potential is increased deployment of economic and market-based instruments.

*Economic and market-based instruments*

Appropriately designed grants, charges, trading regimes and taxes are all economic or market-based instruments that have been suggested for consideration of part of a new policy mix. These instruments provide an opportunity to redress market and institutional failures that are the prime causes of natural resource degradation.

In recent years the effectiveness of market-based measures has been well demonstrated by water reforms. The reforms established water entitlements and rules for water trading that have resulted in increased efficiency of water use, the transfer of water to higher value uses and increased water security for both irrigators and the environment.

Growth in many regional areas has largely been possible because of water reforms. Much of the expansion of high-value horticulture in north-western Victoria has been due to water being permanently traded from other areas. This has not only brought benefits to the expanding horticulturists, but has also provided valuable income to those selling water rights and has reduced the impacts of salinity up the catchment. The Riverland of South Australia and the Griffith region of NSW have also experienced solid growth in recent years as a result of more efficient water use and delivery.

Although positive results are evident in some regions, much of the trading has been temporary, within States and along individual river valleys. Greater efficiencies could potentially be achieved through expanding water trading and further developing markets. An example might be the development of groundwater and markets for investing in water-saving infrastructure.
The possibilities for establishing property rights and trading arrangements for carbon credits are being given close attention as a way of addressing greenhouse issues. The potential development of markets for other NRM outcomes is also receiving considerable attention.

In designing market-based instruments for diffuse sources of degradation, such as dryland salinity, we need to be innovative and explore options such as markets or payments for ecosystem services. Management agreements incorporating economic incentives could be negotiated with landholders in critical areas — such as in targeted recharge zones — for delivering ecosystem services, including reduced water tables. Stewardship payments could be provided to landholders for delivering this service. A competitive bidding or auctioning process could be employed to achieve outcomes at least cost.

In the Macquarie Valley NSW, Macquarie River Food and Fibre (MRFF), which represents more than 600 irrigation farmers, has entered an agreement with State Forests of NSW to effectively pay for tree planting in return for improved water quality. MRFF will purchase salinity control credits based on the quantity of water transpired and therefore reduced groundwater recharge from 100 hectares of forest planted in the upper catchment. The irrigators will secure water quality downstream for irrigation, with flow on benefits to the rest of the community.

Information needs have always been a barrier to developing market approaches to NRM. Scientific breakthroughs, such as the BRS/AGSO salinity mapping using airborne geophysics technology, show how the accuracy and precision of data can be significantly improved and made more affordable. It has the capability to map how much salt is there, where the salt is going and along which pathways and the rates of delivery of salt. This information will be vital in targeting management agreements and possibly developing a salt credit market.

A market incentive may be provided through production accreditation, rewarding producers and enabling Australia to take advantage of the growing world demand for sustainably produced products. Farmers could have an opportunity to receive higher market prices or better access to markets for accredited products.

There is an opportunity for industry organisations to support production accreditation schemes, for example, through developing codes of practice or Environmental Management Systems that would establish the ‘clean and green’ credentials of producers.

The recently announced Southcorp Limited / Australian Conservation Foundation alliance to fight salinity is evidence of the importance that business is placing on a healthy natural resource base. Southcorp has committed to implement an Environmental Management System to monitor the environmental impacts of its operations and continually adapt its practices to improve environmental performance. It will facilitate adoption of sustainable agriculture and water management practices, with a view to providing a best practice model across viticultural and other agricultural businesses.

Fundamental change to land use does not mean that governments will attempt to put a blanket one-third of the Murray Darling Basin under trees. In the future, farmers may be deciding on their farm layout and production mix taking into account a whole range of NRM market incentives. For example, commercial opportunities from farm forestry; the
value of carbon credits from planting trees and stewardship payments available for revegetating target areas. These incentives may increase productivity, provide additional sources of income and at the same time rehabilitate the land.

Over time it could be possible to develop an integrated market trading structure eg. NRM Credit Pools that bring point and non-point emitters, ecosystem buyers and investors into one ‘NRM economy’.

As Figure 3. illustrates, NRM Credit Pools are the intermediary or dealer for trades with (a) non-point source emitters; (b) point source emitters of carbon and salt and (c) groups / institutions that want to acquire an ecosystem service (such as improved water quality, lowered watertables that reduce salinity risks).

Figure 3. Possible NRM Trading Model (please download this figure from http://www.brs.gov.au/agrifood/confEtiA-7-00/papers/ThompsonFig3.pdf)

Conclusion

The future of natural resource management in Australia is likely to see a greater emphasis on addressing issues at the regional scale. Appropriate devolution of authority to regions and empowerment of communities is an integral part of such an approach.

The changes needed to achieve sustainable natural resource use mean that a wider mix of incentives is likely to be needed. Investigating the potential of economic and market-based instruments is a key area.

Making a real on-ground difference to natural resource management will require partnerships between governments, regional communities and other investors. In practical terms, this could see larger scale partnership projects being targeted to strategic areas where the greatest impact can be made.

The new national policy framework currently under development will set the direction for natural resource management for the next 10 to 15 years. Landcare will continue to strengthen and evolve and will be a central part of this future.

New policy instruments to encourage sustainable natural resource management, new sustainable farming systems, technology applied to monitoring the resource base and effective means of engaging with and communicating between all stakeholders in natural resource management are areas for future agricultural innovation.

Further reading

Department of Agriculture, Fisheries and Forestry (1999) Managing Natural Resources in Rural Australia for a Sustainable Future: A discussion paper for developing a national policy, Canberra.