



Facts about stewardship, ecosystem services and market-based instruments

What do they mean for regional NRM practitioners?

The sustainable management of Australia's natural resources (our land, water, marine and biological systems) is vital to ensure ongoing social, economic and environmental wellbeing.

A fundamental problem with many natural resources is that they are often used at levels that are unsustainable and to the detriment of society as a whole because of information, market and government failures. To manage these issues, incentive measures are often used alongside other regulatory, information and support measures to help foster more sustainable use of natural resources.

Over the past 20 years governments, industries and communities have grappled with these issues using a broad range of innovations and policy reforms. As part of this, the terms and concepts of stewardship, duty-of-care, ecosystem services and market-based instruments (MBIs) are increasingly used by the natural resource management community.

The terms are often used interchangeably leading to a degree of confusion about what they really mean. Of course how people use them to deliver better NRM outcomes is important.

This fact sheet aims to provide NRM practitioners with an overview of the concepts of ecosystem services, stewardship payments and market-based instruments in order to help them organise these ideas, respond to frequently asked questions and provide links to further resources.

Different people have different views on the ways of achieving stewardship and the approaches being

used. It is important to be aware of these views when considering the management of regional natural resources.

There are two things on which all researchers in this area agree.

One is that managing natural resources requires caution, expertise and a mix of approaches. The second is making sure the proposed solutions are right for the local circumstances. Knowing the regional context - what is currently going on and what has happened in the past - is absolutely critical for future success.

Useful definitions

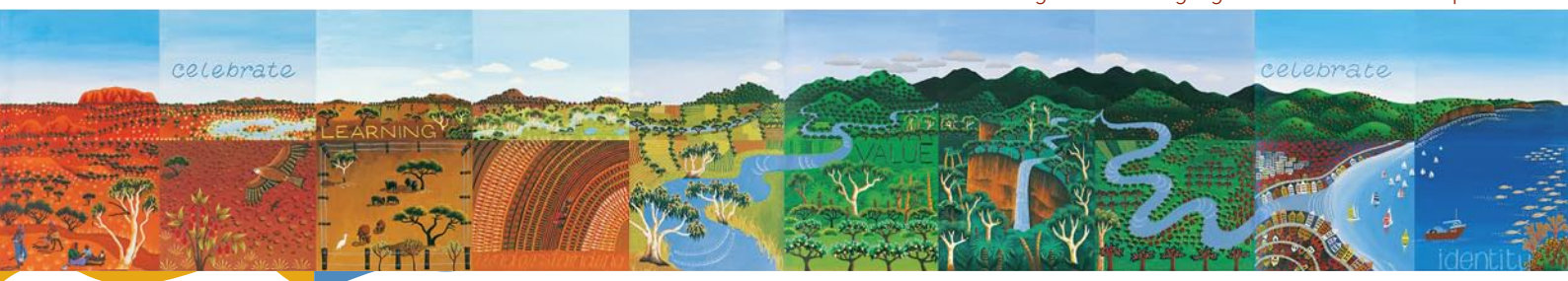
The terms ecosystem services, stewardship payments and market-based instruments (MBI) are sometimes used interchangeably, however for regional NRM bodies they are quite specific concepts.

Ecosystem services: These are the benefits people gain from natural ecosystems. Examples include provision of clean water and fertile soils, maintenance of liveable climates (through carbon sequestration, for example) and pollination of crops and self sustaining native vegetation.

Stewardship: This is the concept of responsible caretaking or a duty of care. It is based on the premise that land managers have responsibilities to manage land and natural resources for future generations.

Stewardship payments are a means of paying land managers for the things they do above those expected through a normal duty-of-care. For example, being paid to manage stream bank erosion more actively to reduce the sediment to downstream users.

knowledge for managing Australian landscapes



Market-based instruments: In this situation these are government activities that create markets so that land managers provide things they normally would not. For example, a land manager paid to manage an area of native vegetation for its regional native flora and fauna values after bidding for that in a market-like auction and making a service contract.

Ecosystem services

Although ecosystem services are essential for human survival, their importance is often overlooked in decision-making. This is because people have different understandings of their values and the ways they could be valued.

Consequently, the full costs or benefits of particular actions may not be considered in decision-making. For example, the benefits of wetlands in filtering nutrients and flood mitigation may be overlooked in adoption of a new agricultural approach.

Questions for NRM practitioners to consider:

- What are the range and value of ecosystem services provided in the region?
- How can the resilience of ecosystems, and their underlying ecological processes, be improved so that ecosystem service benefits can be provided in perpetuity and the ability of the landscape to increase the provision of key ecosystem services is enhanced?
- How can the values be communicated to land managers and other stakeholders to ensure they are considered in decision making?

Stewardship and stewardship payments

The increased understanding of ecosystem services has resulted in a growing recognition that the actions of landholders can either contribute to broader environmental and social benefits or degrade them.

Individual landholders may be managing their land in ways that not only provides them with benefits, but may also contribute to the broader public good through the provision of ecosystem services. For example, some farmers who fence off remnant vegetation in a water catchment area may be contributing to improved water filtration (public good) while improving stock control (private good).

Defining stewardship responsibilities is a useful way to clarify the roles and responsibilities of landholders. Clearly, land managers should all meet some basic level of environmental responsibility and be compliant with laws and regulations (i.e. they should adhere to a basic duty-of-care).

DUTY-OF-CARE

In many cases the law defines a duty-of-care for natural resources. There are strong differences of opinion about how duty-of-care should be defined and managed. Where duty-of-care is not defined sufficiently by legislation or legal precedent it might be guided by common principles such as, undertaking not to do, or to continue, actions that:

- harm the interests of other people living in the catchment (a duty to the catchment community) nor;
- diminish the productive potential of other land or water, including likely future productivity (a duty to future generations and the economy) nor;
- diminish the contribution that remnants of native vegetation make to agreed regional, national and international biodiversity objectives (a duty to help maintain biodiversity) nor;
- diminish the quality of the water supply, recreation, ecological and other services associated with rivers, streams, wetlands, waterways and groundwater bodies (a duty not to pollute water).

Establishing a duty-of-care with land managers is valuable because then responsibilities for ecosystem services are clearer and it indicates where transitional payments may be needed (temporarily to get a new standard) and provides a useful threshold above which stewardship payments can be paid, although care needs to be taken to ensure that land managers' rights are also respected.

Equally, where society obtains environmental benefits from the actions of individual land managers some form of reward could be provided to those land managers (such as a rate rebate or tax incentive).

Stewardship payments provide a targeted way of rewarding land managers when they undertake agreed actions (in excess of their basic responsibilities) that provide longer-term environmental benefits to society. Put simply, stewardship payments are a voluntary mechanism for securing public benefits from private land managers, whereby a land manager receives payments in response to agreeing to manage land in a particular way.

There are, however, risks associated with stewardship payments.

RISKS ASSOCIATED WITH STEWARDSHIP PAYMENTS

Without careful design, there is a risk that stewardship payments could result in significant misallocation of resources. In particular, it is possible for payment mechanisms:

- to pay people to undertake things that they were already intending to do;
- to erode common notions of environmental responsibility and create situations where landholders have an implicit right to hold the environment and other land managers to ransom;
- to build bureaucracies and administrative processes that have very high transaction costs, especially if the payment schemes have to be run in perpetuity;
- to discourage private investment in the environment;
- to discourage innovation, change and structural adjustment.

Questions for regional NRM practitioners to consider:

- What are the basic responsibilities of land managers in terms of sustainable natural resource management and how are they determined, promoted and enforced (these responsibilities may be outlined in NRM legislation)?
- How would a robust and fair duty-of-care be defined (how specific should it be, who would be bound by it?)
- How would changing community expectations and improved levels of knowledge be considered within a duty-of-care?
- How could land managers be encouraged to go beyond their duty-of-care? (Would stewardship payments only be available to those land managers who agree to manage land beyond their duty-of-care?)
- Should levels of payment vary based on the extent of the benefits produced from the land management?
- Should stewardship payments be targeted to particular strategic locations (e.g. priority areas, at-risk areas, corridors)?

- How should stewardship payments be allocated (targeted search, expression of interest, auction-based approach, traditional grants program)?
- How can success be measured or monitored?
- How should available (and nearly always insufficient) resources be allocated across landholders and regions?
- How do we reward land managers already going beyond duty-of-care?
- How are land managers trained in new conservation and stewardship activities?

What are market based instruments and why are they useful?

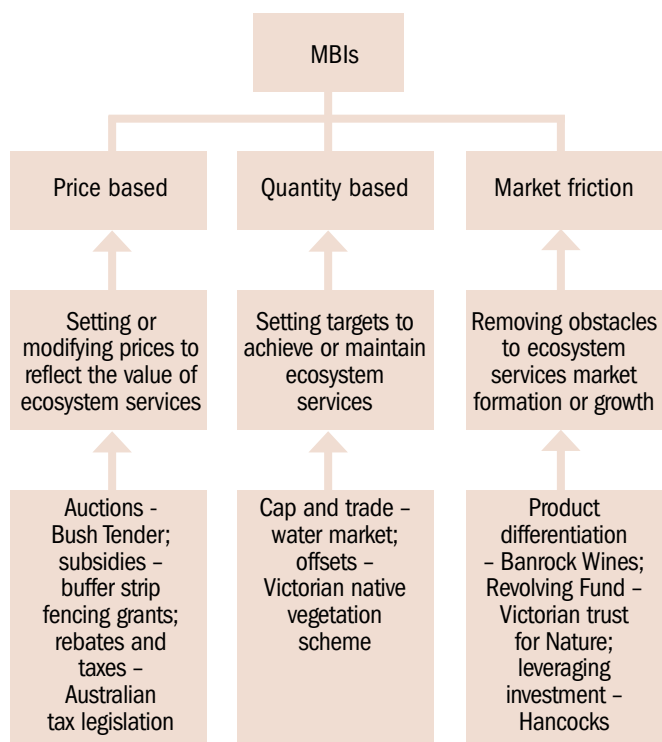
Market-based instruments (MBIs) set-up markets to encourage landholders to provide ecosystem services or public good activities. The markets work by trading information, giving subsidies, relaxing taxes or putting caps on resource use. The MBI field is new so there will be many rapid improvements; getting up-to-date advice is important.

MBIs work by:

- altering market prices;
- setting a cap on resource use;
- improving the way a market works;
- creating a market where no market currently exists.

Examples currently being applied to Australian NRM include grants or incentives for tree planting to reduce salt damage to roads, local government incentives for vegetation retention with peri-urban subdivision, saline land management in the Wimmera, buy back of water in Victoria and vegetation corridors in central Queensland. In each case the local biogeographic and socioeconomic factors have been vital in designing the MBI, thus reinforcing the message that MBI design should be strongly influenced by its regional and local contexts.

MBIs are divided into three broad categories as illustrated below with recent examples of each at the base of the diagram.



Whitten SM, Coggan A, Reeson A, Shelton D (accepted). Market Based Instruments: Applying MBI's in a regional context. Joint Venture Agroforestry Program, Rural Industries Research and Development Corporation, Canberra.

Regional NRM practitioners are most likely to be involved in implementing price-based and market friction approaches. The quantity-based approaches are more likely to be implemented at the statewide or national level where the legislation exists to support their operation. Carbon trading and biobanking are examples.

Auction-based mechanisms are one way in which stewardship payments can be allocated.

Questions for regional NRM practitioners to consider:

- Are MBIs a suitable approach for this region?
- Which MBI approach might offer the most potential?
- How would an MBI program fit with other policy instruments and programs?
- What resources and capacity would we require in order to design and implement an MBI?

- What are the potential costs or risks of a poorly implemented MBI?

Bringing ecosystem services, stewardship payments and MBIs together

There is an ongoing challenge to identify the best mix of approaches to achieve sustainable natural resource management. There will be ongoing (and creative) tension between people about the balance of approaches and some work is in progress to help when making these difficult decisions.

The mix will inevitably be influenced by regional and local context. However, applying a mix of approaches is widely seen as the way to produce the best results for a region.

This mixed approach might include some of the instruments listed in the table below.

TYPE OF INSTRUMENT	EXAMPLE	PRIME PURPOSE
Motivational instruments	Prize for best land manager	Encourage innovation and demonstration of opportunity to others
Information instruments	Extension program involving field days and dissemination of brochures	To speed adoption of new practices and prevent adoption of counter-productive practices
Duty-based instruments	Legislative requirement not to harm biodiversity values associated with remnant vegetation	Attain environmental outcomes most efficiently achieved, at least in part, by stating a high level goal rather than stating what must be done
Financial instruments	Market-based instruments used to select people offering to deliver services over and above those required of all land managers	To speed change and support work over and above that required
Property Right instruments	Tradeable salinity offset	Ensure that regional environmental outcomes are maintained
Regulatory instruments	Requirements to obtain permission to clear native vegetation	Stop actions known in most circumstances to not be in the public interest

Young M, Shi T, Crosthwaite J. (2003) Duty of Care: An instrument for Increasing the Effectiveness of Catchment Management. Department of Sustainability and Environment, Melbourne.



Questions to ask before using these approaches in your region are:

What are the characteristics of our region and what are we trying to achieve in terms of natural resource management?

Before developing a new suite of programs or projects it is useful to think about the desired outcome and particularly the highest priorities.

This includes considering the characteristics of the region and the challenges being faced, including questions about the assets of the region and their associated threats, the social characteristics (age, ethnicity etc) and demographic changes that are taking place (including whether the region is rural, regional, peri-urban or urban), and some of the specific characteristics of the community (is it a vibrant regional community or does it have patchy or limited social and economic capacity).

Such an approach helps develop a shared understanding of the circumstances facing the region now and into the future.

For example, if an area is experiencing rapid social and demographic change then regional NRM practitioners may need to rethink their assumptions about what approaches might be suitable (i.e. a region experiencing a shift to rural residential in a peri-urban environment will face different challenges to an area with a declining population and an increasing average age).

How are current policies and programs going and where can we make more of a difference?

Regional NRM organisations are currently undertaking a wide range of worthwhile programs, where the level of success may be restricted as much by resourcing and capacity levels as it is by the type of effort being adopted. Conversely, there may be situations where existing programs are no longer effective, but are continued because of familiarity.

Regional NRM practitioners should review existing programs to identify areas where effort could be reprioritised or renewed.

What are the advantages and disadvantages of the different approaches, and their capacity to make a real difference?

The potential of different approaches to NRM should be considered with the clear understanding that, as all approaches have strengths and weaknesses, some will be more suited to particular circumstances than others.

For example, just as it might be difficult to establish and maintain Landcare networks in areas with declining populations, the provision of stewardship payments to landholders may not be very effective in peri-urban areas where the growth in property values may exceed the level of payments.

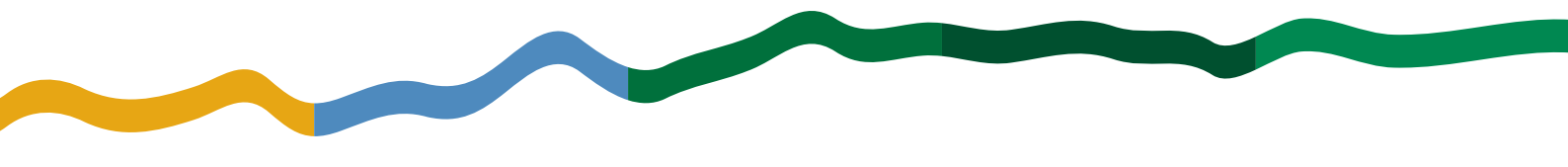
Discussions about the advantages or disadvantages of different approaches should also consider the likely views of the expected target audience on the benefits or otherwise of different approaches.

How will these new approaches build on, enhance, or replace our current efforts?

NRM regions already have a range of programs in place and careful consideration should be given to how a new program may impact on existing programs.

Programs that complement each other are clearly preferable to ones that are in conflict. There is some concern that volunteerism may be “crowded out” by promotion of financial incentives and some evidence that a mix may “crowd-in” additional people doing more.

Further research is underway; so expect those results soon.



Further information

In recognition that such a lot of work is being done in regions with ecosystem services, stewardship payments and market-based instruments, it is our intention to gather useful resources and examples and keep this sheet as useful as possible.

If you'd like to provide an example or improve this sheet please contact Stuart Pearson at stuart.pearson@lwa.gov.au or phone 02 6263 6008.

Australian Government websites explaining the range of incentives

<http://www.environment.gov.au/biodiversity/incentives/index.html>

including a useful landholders' guide to conservation schemes

<http://www.environment.gov.au/biodiversity/publications/gifts-keep-giving/pubs/gifts-keep-giving.pdf> and

factsheets on MBIs <http://www.daff.gov.au/natural-resources/vegetation/market-based>

CSIRO Factsheet and research publications on ecosystem services

www.ecosystemsproject.org and a detailed publication from CSIRO linking revegetation design and incentives for regional NRM

www.csiro.au/resources/MotivatingChange.html

The state governments have many MBI projects underway and informative websites exist, for example:

Biodiversity Certification and Biobanking

<http://www.environment.nsw.gov.au/threatspec/infosheet06135.htm>; and

BushTender™ www.dse.vic.gov.au

A detailed series of documents from the Victorian Government that relate to the range of measures and issues is available at www.dse.vic.gov.au and includes Young, M., Shi, T. and Crosthwaite, J. (2003). *'Duty of Care: An Instrument for Increasing the Effectiveness of Catchment Management'*.

Department of Sustainability and Environment, Melbourne.

A detailed document on applying MBIs in regions will soon be available from [rirdc.gov.au](http://www.rirdc.gov.au)

The Joint Venture for Agroforestry has many seminal papers on market-based approaches

<http://www.rirdc.gov.au/programs/aft.html>

DISCLAIMER:

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