

National Action Plan for Salinity and Water Quality

Social and Economic

State-level Investment Project SE05

Designing stewardship payments for ecosystem services

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What are stewardship payments?

Stewardship payments are payments made to a landholder for carrying out “stewardship services” on their land that maintain or improve current natural resource values, such as water quality and biodiversity, thereby providing a service to society. The type and extent of service provision and payments is governed by a voluntary management agreement, which is negotiated between the landholder and the contracting party – government or a non-government organisation. These services are known as environmental and ecological services interchangeably. Payments are generally ongoing (eg. on an annual basis) and are offered for services above the expected minimum acceptable standard. They are offered under the “beneficiary pays” principle, with the most common situation being that the government pays on behalf of society. Stewardship payments are also referred to as payments for ecosystem services (PES) or agri-environmental programs; the term stewardship payment is used in this paper so as to be consistent with previous Social and Economic SIP reports.

This paper starts with establishing the rationale for providing stewardship payments by looking at the concept of multifunctionality and ecosystem services. It then examines issues more specific to stewardship schemes, such as how long they should be run for and how much money should be paid to participating landholders. Examples from overseas and Australia are briefly discussed. This paper is based on the previous publication *Stewardship payments for natural resource management* (Comerford and Clouston 2005) and is intended for the use of regional NRM bodies.

Stewardship payments are flexible and can apply to a wide range of management activities, including:

- Passive management actions, such as retention of unprotected native vegetation
- Active management, such as improving habitat
- Combination of active and passive management.

The payment in turn can reflect both the cost of reduced production from the land under contract and the cost associated with specific management activities. For example, a stewardship payment could be given for a package of actions that include protecting and managing native vegetation and conducting pest animal control.

Stewardship payments create a market value for environmental services and provide income diversification for landholders. A stewardship payment can further encourage landholders that have practiced good natural resource management in the past as well as landholders with properties in poor land condition.

Stewardship payments are different to grant programs. The differences between the two incentive mechanisms are outlined in Table 1.

Table 1: Differences between stewardship payments and grants

Source: Based on Comerford (2004).

Criterion	Grants	Stewardship payments
Description	Payment for a one-off on-ground activity (eg. riparian fencing)	Ongoing payments for maintaining or improving nature resource values on a property
Benefits	<ul style="list-style-type: none"> - well understood and popular - can be used for a variety of actions and group sizes - suits community projects 	<ul style="list-style-type: none"> - can incorporate more than one activity and recurring activities into payment, including payment for “passive” actions such as maintaining vegetation. - can encourage good ongoing farm management - can be used for projects that need long term investment
Disadvantages	<ul style="list-style-type: none"> - typically a flat fee or a set proportion of costs provided, which may exclude some landholders and overpay others - does not allow for recompense of forgone income - does not allow for projects that need ongoing management over many years 	<ul style="list-style-type: none"> - requires secure funding source for the period of the payments - good contract management is required to ensure that the actions are carried out over the longer period of time - the longer periods of time may mean larger sums of money, which need to be dispersed in a cost-effective and transparent manner - may require greater design time if a variable fee option is chosen (see table three).
Best suited to:	<ul style="list-style-type: none"> - projects with a clear goal that can be achieved in the short term - when a one-off “trigger” is needed to implement a management improvement - group projects - the opportunity cost of participation is similar between landholders, so the payment based on average cost is not too high for some people and too low for other people 	<ul style="list-style-type: none"> - projects requiring ongoing management - projects that incur an opportunity cost (eg cost of giving up grazing in an area). - projects where the cost of carrying out a range of activities is difficult to estimate.
Where has it been used?	Probably the most widely employed incentive structure in Australia. Examples include the Australian Government’s Envirofund.	Widely used overseas, specifically Europe and the USA. Some examples in Australia, where it is employed in conjunction with a competitive tender mechanism.

The conceptual basis: Ecosystem services framework and multifunctionality

Ecosystem services are “*the benefits people obtain from ecosystems*” (Millennium Ecosystem Assessment, 2005). That is, humankind depends on the services of nature to provide the air we breathe, the food we eat and the water we drink. Thus, the management of natural resources in a way which enables them to provide these life support services is of paramount importance. Natural resources undergo transformations in order to provide ecosystem services (Cork and Sheldon, 2001). Examples of ecosystem services include: provision of clean water, maintenance of liveable climates and fertile soil, pollination and fulfilment of cultural and intellectual needs (Binning *et al.*, 2001). Ecosystem services are of particular importance for agricultural producers as they support the production of food and fibre. Thus, the maintenance or improvement of the natural resources base will provide benefits both for agricultural producers and for the general public.

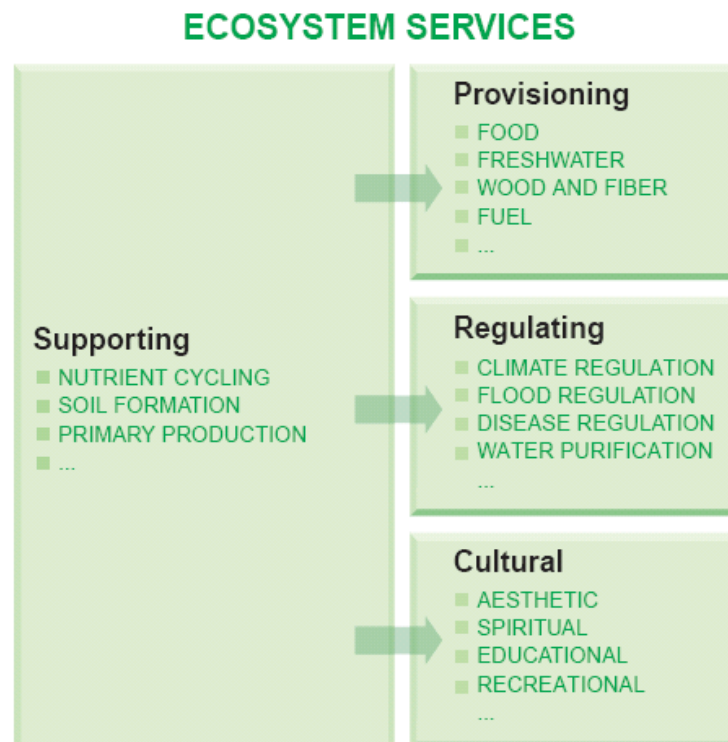


Figure 1: Ecosystem service provision (Millennium Ecosystem Assessment, 2005)

Agriculture provides commodity products (such as food), aesthetic values, cultural heritage, and environmental services such as wildlife habitat and flood control. Some of these services compete with each other to be produced, but others are complementary and can be produced together. This concept of multiple outputs from agriculture is termed multifunctionality. An OECD report stated that “Multifunctionality refers to the fact that an economic activity may have multiple outputs and, by virtue of this, may contribute to several societal objectives at once” (Maier and Shobayashi 2001:11). The framework of multifunctionality is often used to support the idea of providing stewardship services to private landholders to produce public benefits. Unfortunately, the term “multifunctionality of agriculture” is controversial because it has been employed as a protectionist means for agriculture.

However “the basic concept of multifunctionality per se is undeniable” – agriculture clearly produces more than just food and fibre (Wynen 2002:9).

The conflict is largely based on a difference in perspective and history. Much of the biodiversity in Europe has resulted from centuries of farming, and certain types of farming are seen as integral to the continued existence of this biodiversity (Dobbs and Pretty 2004:222 and Potter and Burney 2002:40). It is feared that the abandonment of land – as much as intensification of farming – will lead to a loss of this biodiversity and the scenic landscapes that support it (Potter and Burney 2002:40-41). As a result, farmers in some areas receive income support and are eligible to participate in agri-environmental schemes.

The circumstances in Australia are different. Here, ecosystems have not been shaped by agriculture because the production systems have not evolved here but been imported from Europe. This means that stewardship payments for continuing traditional European style farming may not lead to widespread biodiversity conservation. An example of this difference can be seen in the English Environmental Stewardship scheme, which will pay for the traditional tree management practices of coppicing and pollarding, which would not be practical or necessary in Australia. Stewardship payments in Australia will thus need to be focused on changes to property management or even cessation of production in some areas, rather than a payment linked to continued production. Irrespective of the circumstances, the principal case remains that direct payments to landholders are helpful when they are linked to the provision of environmental services.

Implementing stewardship payments

Stewardship payments have a common law foundation and require the execution of a voluntary management agreement. The agreement is negotiated between the landholder and the contracting party - a government or non-government organisation. The agreement, at its core, stipulates the kind and extent of service provision by the land holder and the magnitude and timing of payments.

It may be outside of regional NRM bodies' purview to deal with the non-environmental aspects of multifunctionality. The majority of their funding is earmarked for environmental purposes, and without clear guidance from the State and Australian governments most stewardship payment schemes will probably need to be focussed on environmental outcomes.

The applicability of using stewardship payments on leasehold land is still unclear. It is possible, although unlikely, that the activities in the stewardship agreement will contradict the conditions of agricultural and pastoral leases that specify that the main source of income must derive from these sources. Additionally, income from stewardship payments is taxable income unless off-set by expenses.

Importantly, stewardship payments are to be offered for services above the expected minimum acceptable standard. This might be outlined by legislation or consist of standards considered acceptable by the regional NRM body.

The level of the payment

The maximum level of a payment to a landholder should reflect the gap between social and private benefits to a landholder of carrying out an activity. The full amount of the social benefit does not need to be paid. The aim should be to give the amount needed for the landholder to change their behaviour (Aretino *et al.*, 2001). This is because limited public funding requires a commitment to maximise the environmental outcome for the dollars invested. Generally it is assumed that the benefits of actions will outweigh the costs even if they cannot be readily measured. For example, in many cases the decision has already been made to provide funding for certain activities through government programs such as the National Action Plan for Salinity and Water Quality. The cost sharing principles developed by the regional NRM body can be used to guide the payment level for differing activities (see Comerford, Binney and Clouston 2005).

If landholders in a region can be expected to have quite different costs of production and delivery of ecosystem services, then efficiency gains can be achieved when applying an auction-based mechanism for determining the level of payment – as opposed to applying a flat rate. The differences between these two approaches are explored in Table 2. For more information on the competitive tender mechanism, please see the guidance product *Competitive tenders for conservation contracts* (Windle and Rolfe 2005).

Table 2: Comparing mechanisms for setting payment levels

Key questions	Flat fee	Variable fee
What is it?	Each landholder is paid the same amount of money per action, or the same proportion of their costs is funded.	Each landholder is paid a different amount to each other.
How is the level of payment determined?	<ol style="list-style-type: none"> 1. Base a fee on the average cost of participation (eg: a flat rate offered per km of fencing). 2. Use a flat “in-kind” obligatory contribution (eg: 50% of costs must be contributed by the landholder). 	<ol style="list-style-type: none"> 1. Negotiate with each landholder separately. 2. <i>or</i> 3. Run a competitive tender where each landholder submits a bid that contains a management plan and a price for carrying out this plan.
Benefits	Administratively simple to administer. Rules easy for participants to understand and everyone treated the same.	Each landholder gets paid what they need to participate. Landholders without the means to contribute to the cost can be involved. A tender may be more cost-effective as funds are targeted to high benefit/low cost properties.
Disadvantages	Landholders who cannot contribute in-kind are excluded. Landholders with higher than average costs not attracted into the program, while landholders with lower than average costs are overpaid.	Visiting each landholder is costly in time. A negotiated payment is not very transparent and may be biased towards or against individual landholders. A competitive tender requires careful design including the construction of a selection method for bids.
Best suited to situations where:	<ol style="list-style-type: none"> 1. the opportunity cost of participation is similar between landholders, so the payment based on average cost is not too high for some people and too low for other people. This is most likely to occur where characteristics of landholders and properties are similar. It is also easier to estimate the average cost of an activity (such as fencing) rather than a whole management plan. 2. the stewardship payment program is being run over a large area where individual visits are not practical. 	<ol style="list-style-type: none"> 1. (for negotiation) there are not very many landholders so the cost of individual negotiation is low. Also when there is a small group where everyone needs to be involved for an effective outcome. 2. (for tenders) – there are very different costs of participation between landholders and the benefits from acting vary across the landscape. In this situation an environmental benefits index can be used to fund the high benefit/low cost properties. <ul style="list-style-type: none"> - there are enough landholders to generate competition but not too many to administratively manage - there are more potential participants than funds available as tenders help stretch out limited funds

How long should payments last for?

A funding body needs to consider how long stewardship payments should last for. Sometimes stewardship payments are only needed for a set period of time, such as assisting landholders with the costs of carrying out an action until the private benefits outweigh the costs. They may also be used to assist landholders in the short term as society gradually raises its expectations over what consists of minimum acceptable standards. This can be seen in Figure 2.

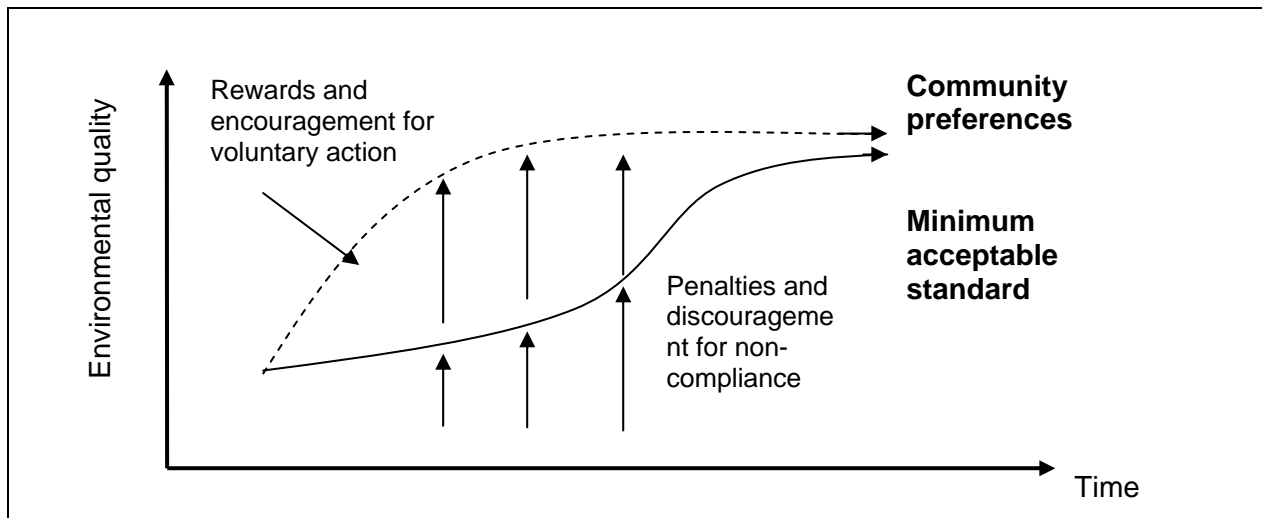


Figure 2: Payments and minimum acceptable standards

Source: Adapted from Hatfield Dodds (2004:4)

Alternatively, if landholders are producing a public benefit that is considered to be above their duty of care, payments may need to continue for the foreseeable future. This situation is depicted in Figure 3.

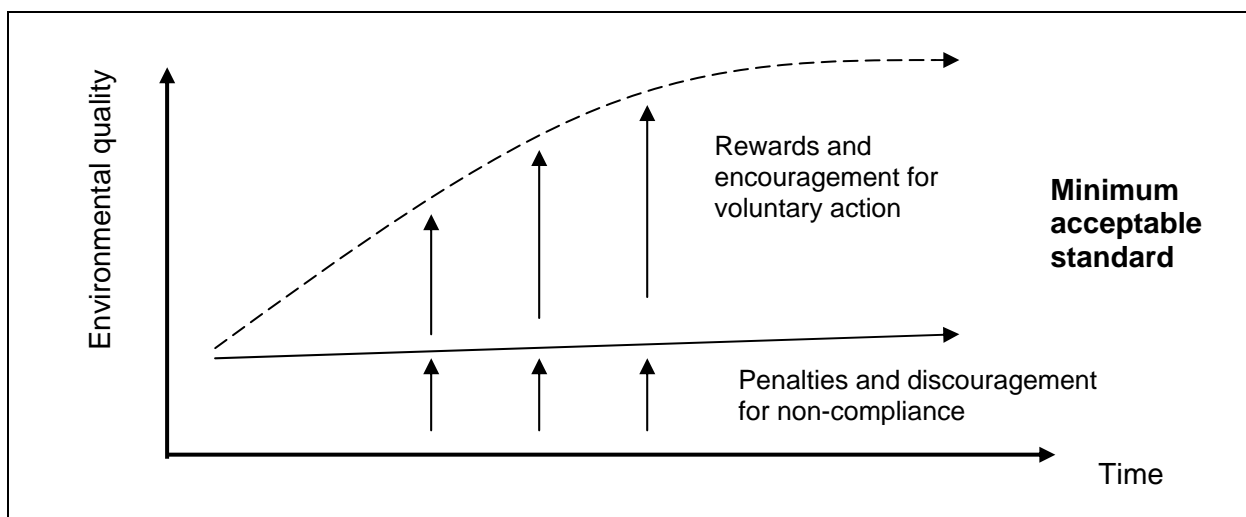


Figure 3: Continual provision of rewards

Source: Adapted from Hatfield Dodds (2004:5)

There are additional, more practical, factors to consider when choosing the length of a stewardship program. There may not be a need for a stewardship program to continue beyond a limited period of time. For example, if high quality regrowth native vegetation is managed for a set period of time it may become more robust and better able to survive without management, and not need additional funding. However, some environmental targets will need ongoing actions to be achieved, and a longer stewardship payments program may be required to fund this ongoing management. Another advantage to a long stewardship payment scheme is increased certainty of income for landholders, which may increase participation in the program.

If payments are only for a temporary period of time, there is a risk that the benefits gained will cease with the payments. One way of dealing with this problem would be to arrange to have other forms of protection, such as a covenant, placed on the property to ensure on-going protection and management of the land.³ For example, a covenant could prohibit any trees that have been established from being cleared. However, the number of landholders willing to have a conservation covenant placed upon their land title is probably limited, which might reduce participation in a program that makes a covenant compulsory. Costs for both the administration of the program and payments to landholders are also likely to be greater under a covenant scheme.

Most stewardship schemes overseas appear to use a minimum five year payment timeframe, with some having ten year agreements. This period probably fits within budgetary timeframes, yet provides some certainty to landholders and the funding body. Much longer time frames may be more difficult to manage given likely changes in government and budgets. Landholders may also be less willing to commit to a very long term program as the benefits and costs of participating would be more difficult to estimate. This is particularly the case in volatile industries and in areas where the likelihood of future demand for land development is strong.

³ In Queensland, local governments and state departments and agencies can run statutory covenant programs. Regional NRM bodies could help landholders access these programs. This would involve a formal agreement between the regional NRM body, the local government or state government, and the landholder.

Examples of stewardship payments

Overseas examples

Agri-environmental schemes have been used in Europe since the 1980s, and became part of the Common Agricultural Policy reform of the EU in 1992 (Hanrahan and Zinn 2005:12-13 and Dobbs and Pretty 2004:222). These schemes were intended to provide both income support for farmers as well as supporting environmentally sensitive farming. By 1998 approximately 19.5% of EU agricultural land was enrolled in agri-environmental schemes, with a large variation between countries (Salhofer and Glebe 2006:14). In 2000, agri-environmental measures became a compulsory part of rural development policy (Hanrahan and Zinn 2005:14). A review in 2003 led to further decoupling of production and farm payments, and the introduction of compulsory modulation, which meant that funds from commodity support were shifted to rural development (Hanrahan and Zinn 2005:14, 16). European nations are particularly supportive of the idea that agriculture produces many non-commodity goods and services such as environmental services and landscape amenity. As a result, stewardship payments are not given solely for environmental outcomes. For example, an eligible activity in the Irish Rural Environment Protection Scheme is to maintain and improve the visual appearance of the farm and farmyard.

The United States has supported payments for soil conservation since the 1930s, but these payments were conceived as a method of protecting production values rather than the environment (Ness 2006; Heimlich 2002). The Conservation Reserve Program (CRP), introduced in 1985, included environmental outcomes, such as increasing wildlife habitat, in its land retirement incentive program (Riechelderfer and Boggess 1988:1). There have been a multitude of programs developed since the CRP that provide farmers with payments in exchange for providing environmental services. However these programs are still a relatively small proportion of total farm payments (Cooper 2005). Unlike Europe, the United States has not yet chosen to shift funds from commodity payments to agri-environmental programs (Hanrahan and Zinn 2005:19).

The need to reduce farmer subsidies has been an important influence on the development of stewardship schemes overseas, and is likely to be of growing importance. Agri-environmental payments that are decoupled from production fit into the World Trade Organisation's (WTO) "Green Box", which are subsidies that only minimally affect trade and don't impact prices. If multilateral negotiations lead to less support for direct commodity support payments, then it is likely that there will be even greater interest in agri-environmental payments in Europe and the United States (Hanrahan and Zinn 2005:19). This is less likely to be a driving force in Australia given our lower level of farm subsidies.

Table 3 contains a summary of some of the stewardship payment schemes found overseas (there are links at the end of the reference list for more information on some of the schemes). It is easier to find information on large schemes, which are usually run by national governments. This does not mean that schemes run at an equivalent level to regional bodies do not exist.

Table 3: Examples of stewardship payment schemes overseas

Country	Name	Duration	Amount	Selection
Scotland	Rural Stewardship Scheme	5 yrs	Fixed per ha or activity (no total upper limit)	Scored, ranked and then high scorers funded (cut-off point based on budget)
England	Environment Stewardship	5/10 yrs (basic and advanced)	Set by area for basic, by activity for advanced	Basic: appears that all accepted within eligibility rules, Advanced: by priority area/activity
Wales	Tir Gofal	10 yrs	Fixed per ha	Scoring system and all in after certain amount of points
Ireland	Rural Environment Protection Scheme	5 yrs	Fixed per ha	All accepted within eligibility rules
France	CTEs and CADs	5 yrs	Set by income foregone per ha + capital works + incentive	Appears that all accepted within eligibility rules
Finland	General and Supplementary Protection scheme	5 yrs/ 5-10 yrs	Set by income foregone per ha + capital works + incentive	Appears that all accepted within eligibility rules
Austria	ÖPUL	Usually 5, sometimes 10 or 20	Fixed for each activity per ha	Appears that all accepted within eligibility rules
USA	Conservation Reserve Program	10 or 15 yrs	Fixed per ha/yr + cost sharing for capital works – can bid down payment	An environmental benefits index used to score and rank properties, then chosen according to budget
USA	Conservation Security Program	5-10 yrs	Fixed per ha/yr + cost sharing for capital works	Appears that all accepted within eligibility rules
USA	Environmental Quality Incentives Program	1-10 yrs	Fixed cost-share; (used to have bidding down of cost share)	Targeted for environmental benefits

The boxed examples below contain more detail on two of these stewardship schemes.

Examples of stewardship payment programs overseas

The Conservation Security Program (USA)

The Conservation Security Program (CSP) is a stewardship payment program that offers payments for maintaining and enhancing natural resources on private agricultural lands. This program is different from many other stewardship payment programs because of its focus on landholders who have already demonstrated environmental leadership. Landholders who meet minimum water and soil quality standards are eligible for an annual payment for a five to ten year period. There are three tiers in the program, with stricter minimum standards, additional activities and higher payments attached to the advanced tiers. The program allows for continued production rather than land retirement. Different watersheds are targeted at different times across the country in order to make administration simpler. Administrators consulted land values, rental rates and information from other incentive programs to set the payment rate per acre in each watershed. The motto of the CSP is “reward the best, motivate the rest”.

The Environmental Stewardship Program (England)

Environmental Stewardship is a recently launched stewardship payment scheme which provides funding to farmers and other land managers in England who deliver effective environmental management on their land. This program is an example of a broadly dispersed and ongoing payment system. Funds are given every six months to participating landholders. There are three levels in the program.

The entry level stewardship is open to all farmers and landowners, and provides a flat payment rate per hectare over a five year period. Landholders can choose between fifty different management options to make up the requisite “points” for involvement. The activities are designed to fit within the farm business as much as possible. There are monthly start dates, and the forms are designed to be filled out without guidance. It is intended to try to renew 90% of these agreements when they expire, which in effect means they are continual payments (Defra 2006:15).

The organic entry level stewardship is similar to the basic entry level scheme but is targeted at organic farms. Landholders must be a registered organic farm. There are more points required than the basic scheme, but half are automatically gained through being organic. A higher flat rate payment rate is provided for five years, with additional funding being made available to assist conventionally farmed land convert to organic farming.

The higher level stewardship payment is provided to participants in the first two levels that wish to carry out a range of more advanced activities according to a farm environmental plan. Payment levels depend on the activity chosen but are generally a lot higher than for the entry level activities. Agreements are developed with an advisor and last for ten years (with the option to withdraw at five years). Indicators of success (such as species of birds being present) are included in yearly reports.

Australian examples

There is little evidence of flat-fee stewardship payments being used in Australia to date. Although to our knowledge flat-fee stewardship payments have not been used in Australia, there have been a wide variety of stewardship payments given out through competitive tender mechanisms. For example, the Victorian BushTender scheme gave annual payments (for 3 and 6 year periods) to landholders to provide services that will increase biodiversity on their property. Other schemes around Australia are providing payments for actions that mitigate salinity and increase water quality. The National Market-based Instrument Pilots Program trialled several tender mechanisms, with the final reports available at <http://www.napswq.gov.au/mbi/round1/index.html>.

There are some examples of Australian stewardship payment schemes that have negotiated the payment level with each participant. One example was the Tasmanian Private Forest Reserve Program, which aimed to establish and manage forest reserves on private land. Participating landholders received an up-front payment to establish the reserve as well as ongoing management assistance. A negotiator met with eligible landholders to arrange an agreement that suits all parties. More information is available at this website <http://www.pfrp.tas.gov.au/index.html>. The Private Forest Reserve Program ceased on June 30 2006 and is being supplanted by the Forest Conservation Fund, which will distribute payments via a competitive tender mechanism. More information on the new program can be found here <http://www.deh.gov.au/land/forestpolicy/fcf/index.html>

Critique of stewardship payments

An evaluation of the concept of stewardship payments against a suite of evaluation criteria is helpful in determining firstly, whether the concept bears merit, and secondly, whether and how it could be best employed to complement the existing policy mix targeting biodiversity conservation. The following assessment of the instrument against a set of criteria is based on Young et al. (1996) and has been previously implemented by Greiner et al. (2000) and Greiner and Lankester (2006).

Table four: Critique of stewardship payments

Criteria	Evaluation
Effectiveness and dependability <i>Objectives are achieved even in the face of uncertainty</i>	Technically suited to achieving NRM outcomes and can easily be tailored to suit situation.
Precaution <i>Avoids the possibility of serious or irreversible consequences</i>	May lead to erosion of conservation ethic of landholder and reduce voluntary unpaid conservation efforts.
Efficiency <i>Trade-off between production and conservation is achieved at least cost and no change in property rights would improve outcome without making someone worse off</i>	Combining with a competitive tender mechanism will increase efficiency. Possible impacts on structural adjustment if otherwise unprofitable farmers stay in business with the incentive payments.
Dynamic and continuing incentive <i>Continued technical innovation is encouraged and NRM practice is improved beyond target</i>	Uncertainty over future funding may undermine long term use.
Equity <i>No group of people is unfairly disadvantaged or favoured</i>	Enables all landholders to participate.
Administrative feasibility and cost <i>Monitoring and evaluation is cost effective; requirements are simply explained; and the decision making process is transparent</i>	Transaction costs are dependent on the program's design. Not difficult to design to be transparent and simply communicated.
Community and political acceptability <i>Community motivated and incentive seen as legitimate; adds to social harmony; and is consistent with government commitments</i>	Uncertain – may be seen as farm support and thus be politically unpopular. Tender mechanisms generally popular with community and politicians.

Conclusion

Stewardship payments are a method of encouraging greater provision of ecosystem services from private landholders. Well designed stewardship payments have the potential to be effective and dependable, as the theory presented in this paper and experiences of stewardship payments demonstrate. They are extremely flexible and can be used to achieve long term environmental objectives. Stewardship payments are based on the idea that the beneficiaries of a service should pay for its provision. Payment levels should reflect the gap between private benefits and costs, and can be set through establishing a flat payment, negotiating with individual landholders or holding a competitive tender. Stewardship payment schemes have been used extensively overseas. There are lessons that Australia can learn from these programs. However, the different social and ecological state of Australia means that some aspects of multifunctionality may not be as applicable, and so our stewardship schemes are likely to be different. Regional NRM bodies are constrained in their fund raising activities, what activities they can support with stewardship payments and the duration of time of their programs. However, stewardship schemes are still an important incentive mechanism.

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For more information on country specific schemes, please visit the websites below.

England – Environmental Stewardship

<http://www.defra.gov.uk/erdp/schemes/es/default.htm>

Ireland - Rural Environment Protection Scheme

http://oasis.gov.ie/employment/income_support/rural_environmental_protection_scheme.html

Wales - Tir Gofal

<http://www.ccw.gov.uk/generalinfo/index.cfm?Action=ResourceMore&ResourceID=26&Subject=Agriculture&lang=en>

Austria OPUL

<http://land.lebensministerium.at/article/articleview/37214/1/5849/>

USA- Conservation Security Program

<http://www.nrcs.usda.gov/Programs/csp/>

Other US programs:

<http://www.nrcs.usda.gov/Programs/>